Between dream and sleep

Towards evidence based nursing care for sleep problems

Gerrit de Niet

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Een wetenschappelijke proeve op het gebied van de
Sociale Wetenschappen

Proefschrift

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Ik zou me vredig moeten voelen
Ik heb het begrepen
Hadden sommigen niet gezegd dat de redding nabij is
als men volledig tot inzicht is gekomen?

Ik heb het begrepen
Ik zou me vredig moeten voelen
Wie zei er dat de vrede ontspringt aan het contempleren van de orde,
van de doorgronde, genoten, zonder vreugde, triomf en inspanning
ten volle verwezenlijkte orde?

Alles is duidelijk, helder,
en het oog rust op het geheel en op de delen,
en ziet hoe de delen bijdragen tot het geheel,
omvat het centrum waar de lymfe, de adem,
de wortel van de twijfels stroomt…

Umberto Eco. *De slinger van Foucault*

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Chapter 1

General introduction

Chapter 1

Proem

Many patients in mental healthcare suffer from sleep problems. These problems can have a considerable negative effect on treatment outcome, on the risk of the psychiatric disorder recurring and on general well-being. As a nurse in mental healthcare, I am often confronted with these problems and their consequences. However, I have the impression that mental healthcare nurses are equipped with too few tools to manage these problems. This observation fuelled my ambition to enlarge the nurses' 'toolbox' with effective interventions. This thesis is a reflection of this project and a report of the scientific research that I employed during its various stages.

In an initial exploration, I found two studies about the subject of nurses and sleep problems in Dutch general hospitals. I instantly recognised the practice described by Cox (1992) and Broos (1993). In my personal experience, all the interventions they described, such as providing hypnotics 'as needed', discussing worries and stress, reducing stimuli, and providing hot milk, are still applied today. This observation raised questions: Has there really been so little change in nursing care for sleep problems over the past 18 years? If so, then why? Is the care provided two decades ago still the most appropriate? That is something I doubted.

This introductory chapter describes the current situation and then explores the role of guidelines in the nursing care for sleep problems. This leads to a definition of the problem and provides a basis for the research questions that provide the framework for this thesis.

Background

Sleep problems and mental health

It is estimated that one-third of the Dutch population regularly suffers from sleep problems (Swinkels 1990). According to Ancoli-Israel (2006) about 10% to 15% of the US population experiences chronic sleep complaints. It is reasonable to assume that the prevalence among the Dutch population is about the same. In the specific population of psychiatric patients, the prevalence rates vary from 60% among new referrals (Okuji et al. 2002), to 91% of hospitalised psychiatric patients (Prieto-Rincon et al. 2006).

Sleep is a sensitive process that is easily disturbed by arousals caused by anxiety and worrying, for instance. Therefore sleep problems, and especially insomnia, commonly occur during the course of many psychiatric disorders. Suffering from transient or chronic problems with sleep-onset, sleep continuation, early awakenings and experiencing an unsatisfactory sleep, are associated with a decrease in health-related quality of life (Katz & McHorney 2002). Insomnia is not simply a typical symptom of a psychiatric disorder. It can also be a prodrome or a predictor for the development of such a condition (Riemann 2007) or a residual of such a condition (Carney et al. 2007). It can therefore be concluded that the relationship between sleep problems and psychiatric disorders is complex.

The role of pharmacotherapy in current care

In current inpatient mental healthcare, sleep problems are often treated by means of a multidisciplinary approach. However, in practice they are often immediately 'medicalised' (Moloney 2008). That is, they are predominantly treated with hypnotics. Benzodiazepines are mostly prescribed. This is a group of medicines with sedative, hypnotic, anxiolytic and muscle relaxant properties. Benzodiazepines therefore exert a positive influence on pre-sleep conditions, but they do not resolve the frequently perpetuating causes of sleep problems. Moreover, the chronic use of benzodiazepines has serious disadvantages like daytime residual sedation, tolerance, rebound insomnia and dependency (Glass et al. 2005). Rebound insomnia is the return of sleep complaints for which the patient was treated, but then worse than before. Dependency becomes apparent when benzodiazepines are stopped suddenly and withdrawal symptoms occur. Despite these disadvantages, until recently as many as 11.2 million prescriptions for benzodiazepines were issued annually in the Netherlands (SFK 2008).

- *Why should this practice change?*

Long-lasting sleep problems are often the result of perpetuating adverse behaviours (Means et al. 2008). These behaviours (e.g. detrain, naps during the day, worrying before bedtime) often develop as a consequence of the sleep problem and/or to compensate sleep loss. Hypnotics cannot resolve sleep problems that are the result of perpetuating factors and underlying causes like adverse behaviour and undermining thoughts. Moreover, hypnotics introduce an external attribute: The patient is depending on an external solution for his or her sleep problem. This can lead to the ignorance of possible perpetuating factors. Therefore prolonged treatment of sleep problems with hypnotics is not an adequate answer for patients with chronic sleep problems.

Can other, more adequate care be considered? In the closing decades of the twentieth century, many non-pharmacological interventions were developed. Unlike the treatment with hypnotics, these interventions are directed at the underlying factors that are leading to sleep problems. Moreover, these interventions appeal to the patients' own capacities to solve their problem. Thus, non-pharmacological interventions for sleep problems might offer a safe and effective alternative for pharmacological treatment, without undermining the patient's own control. Although this needs to be confirmed by research, my observations indicate that these interventions are not applied by nurses in practice. Mental healthcare nurses could contribute to the treatment of sleep problems by applying these non-pharmacological interventions. Many of these interventions are based on influencing unfavourable ideas, behaviours and habits and include education, advising and training. These are tasks that fall within the competences of mental healthcare nurses, as described by the Dutch mental health nurses association (STIP/NVPV 2002).

- *The current nursing care for sleep problems*

Very few studies provide insight into the nursing care for sleep problems. After searching relevant databases, I had to conclude that no research has been conducted regarding the tools or interventions that mental healthcare nurses actually use for sleep problems in practice, the effectiveness of these interventions, and the knowledge sources these interventions are based on. The knowledge about the current state of nursing care for sleep problems is based on research restricted to general hospitals, which sometimes includes their psychiatric wards. Back in 1995, Southwell and Wistow (1995, p. 570) stated:

'…even such a basic aspect of in-patient experience as their care at night has received relatively little study in its own right'. After a brief survey of literature on sleep in hospitals they concluded: *'…the importance of sleep appears to have been underestimated in nursing theory and practice'*.

As so little is known about the nursing care for sleep problems in mental healthcare then the knowledge sources used in clinical decision making can only be speculated about. Research among nurses (i.e. Estabrooks 2005, Pravikoff et al. 2005) showed that in general nursing practice, knowledge from the initial nursing training, personal experience and advice from colleagues are the most frequently used sources. However the use of these knowledge sources entails the risk of using outdated and unreliable knowledge in clinical decision making.

If nurses do indeed base their practice on these sources then the most adequate care is possibly not provided yet. In fact, using these sources could even perpetuate 'bad practice'. A better understanding of the care currently provided in mental health is needed to assess whether any developments are taking place and if not then the likely reasons for this.

The guidance of clinical guidelines

- *Multidisciplinary guidelines*

Since 2004, professionals in Dutch mental healthcare have had multidisciplinary guidelines at their disposal. Guidelines are 'systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific circumstances' (Field & Lohr 1990). They provide recommendations for the diagnosis and treatment of a population with a specific disorder.

Multidisciplinary guidelines use the (psychiatric) disorder as starting point and provide ready-to-use sequences of recommended diagnostic procedures and interventions. These recommendations and directions are readily available for all categories of clinicians (e.g. psychiatrists, psychologists, and nurses) and are based on the integrated knowledge of science, professional expertise and patients' opinions. However, the dominant criterion for the care recommended in guidelines, is empirical support for its' effectiveness. An intervention that has proven to be effective in clinical trials is termed an evidence-based treatment

(EBT) or empirically-supported treatment (Chambless et al. 2001). EBTs are the core of clinical guidelines.

Empirical support is considered to be a major advantage of modern clinical guidelines compared to traditional guidelines. The latter were often based on monodisciplinary expert consensus or preferences (Eddy 1990). Another advantage of this approach is its ability to standardise care: guidelines and protocols prevent large individual differences in treatment procedures between professionals. Multidisciplinary clinical guidelines are nowadays considered the primary source of information for the professional in clinical decision making. But are these guidelines able to guide mental healthcare nurses in their care for sleep problems?

- *What do the current guidelines offer?*

Studying the current Dutch multidisciplinary mental healthcare guidelines for schizophrenia (Trimbos 2005a), anxiety disorders (Trimbos 2005b) and depression (Trimbos 2009c) revealed that they do not provide specific recommendations for the nursing care for sleep problems. Actually, hardly any specific recommendation for nursing care can be found in these guidelines. Instead, nurses are encouraged to perform a careful nursing diagnosis and to base their interventions on the recommendations that can be found in the Nursing Intervention Classification (NIC: McCloskey & Bulechek 1997) or in standard care plans as described in 'Effectief verplegen' [Effective nursing] (van Achterberg et al. 2002). The first source, in particular, is scarcely based on high level scientific evidence.

The Dutch monodisciplinary guideline for nursing care for a disturbed sleep-wake rhythm (CBO 2004) does provide specific recommendations. However, this guideline has several limitations. First, it is directed at the care provided in nursing homes, rest homes and home care. Second, the large majority of recommendations are based on low level evidence (evidence from non-comparative research and professional opinions). Last, the guideline is rather conservative and cautious in its recommendations: Nurses are not encouraged to scout evidence-based treatments without the supervision of other disciplines like physicians or psychologists.

It can be concluded that the current Dutch guidelines do not provide practicable, readily applicable and/or evidence-based support for the nursing management of sleep problems by mental healthcare nurses. Is this the final

conclusion? Is there really no solid evidence available to enhance and improve the nursing care for sleep problems or did the guideline development groups fail to find the evidence? This clearly merits further exploration.

Evidence-based practice

- *Evidence-based practice*

Another approach in which the clinician uses valid knowledge (like the results of scientific research) in his clinical decision making is the method according to Sackett (Sackett et al. 1997). This method is known as evidence-based medicine (EBM) or evidence-based practice (EBP). An important difference between EBP and working with clinical guidelines is the difference in starting point. Guidelines use the disorder as starting point and recommend care that is directed to a population with a specific disorder. EBP is initiated by uncertainties and questions of (individual) professionals during care delivery. It is developed along a sequence of principles. Table 1.1 provides an overview of these. Unlike working with guidelines, the EBP approach implicitly appeals to the professionals' urge to explore and to improve.

According to the definition of EBP, the best available knowledge is drawn from three sources: '*Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values*' (Sackett et al. 2000). However, the role of science is rather dominant in EBP. The result is an approach in which considerable emphasis is put on the effectiveness of interventions. Randomised controlled trials (RCTs) and meta-analyses of RCTs are trusted to provide the best evidence for the effectiveness of interventions.

EBP counteracts traditional practice that is believed to be mostly grounded on non-explicit knowledge like personal experiences, beliefs and intuition. The incorporation of scientific results promises the improvement of care - by providing effective interventions - and the enlargement of treatment options. EBP is therefore an approach to care that is founded *'… on the belief in the capability of science, and the rational and systematic application of science, to bring about effective, efficient and accountable practice*' (Trinder in: Trinder & Reynolds 2000, p. 215). The proliferation of EBP since the early 1990s can be explained by the fact that patients and society are increasingly asking for professionals to provide powerful, safe and effective interventions.

Table 1.1 Essential elements or principles of EBP*

Principle	
1	Recognise uncertainties in clinical knowledge
2	Use research information to reduce uncertainties
3	Discriminate between strong and weak evidence
4	Quantify and communicate uncertainties with probabilities

* Glasziou et al. 2007, p. 3

Research questions and approach

The impression may now have been give n that nursing care for sleep problems has hardly changed in the last two decades. However, this is based on a personal observation. The initial explorations of relevant literature revealed that the nursing care for sleep problems in mental healthcare has not been investigated. Furthermore, it is not known whether there are effective alternative interventions that are not included in the current clinical guidelines and which mental healthcare nurses could use. Also, the translation of scientific findings to practice might be an issue. The current care provided, the latest scientific findings and the subsequent translation of these findings into clinical practice therefore merit investigation.

As the current clinical guidelines do not provide readily applicable and solid research-based support for the nursing management of sleep problems then following the principles of EBP might contribute to the development of nursing care for sleep problems. However, it is suspected that this development has become stagnated. If this suspicion is right then several reasons for this assumed stagnation might be considered. These can be found at several levels and bearing the principles of EBP in mind (Table 1.1), possible reasons for the assumed stagnation are:

- Nurses are not uncertain about the care currently provided.
- Nurses do not have adequate research information at their disposal or are not able to acquire research information.
- Nurses are not capable of assessing the quality of research information.
- The implementation or application of research findings is being impeded.

Adhering to the principles of EBP in practice, in order to develop alternative evidence-based nursing care, will clarify any possible issues and allow a presumed stagnation to be explored.

A three-phase project will therefore be performed. The principles presented in Table 1.1 will guide this process: in each phase one or two principles will be deployed and investigated. The following questions provide the framework for this thesis:

- *Does applying the principles of EBP lead to improved nursing care for sleep problems?*
- *If this development is being impeded, then what are these barriers and how can these be overcome?*

› *Phase 1*

In the first phase, we aimed to explore the current nursing care for sleep problems in mental healthcare and the nurses' views on this care. However, first of all the context was investigated. We surveyed patients to investigate the magnitude of sleep problems in mental healthcare. They were asked to assess their sleep quality and the present nursing care for their sleep problem. Next, the content and knowledge base of the nursing care for sleep problems was studied. Mental healthcare nurses were asked to describe elements of their care and to identify foreseen barriers for implementing alternative care. Moreover, it was investigated to what extent nurses are satisfied about their care and thus whether they experience an urge to change (improve) this (Principle 1, Table 1.1).
In the first phase, the following questions were leading:

- *What is the magnitude of sleep problems in psychiatric care?*
- *What aspects of sleep can be identified as predictors of perceiving a sleep problem?*
- *What does the current nursing care for sleep problems consist of?*
- *Do nurses perceive a problem with the current care?*

Chapters 2 and 3 of this thesis present the studies that were performed to answer these questions. Chapter 2 is a study on the quality of sleep of adult and elderly psychiatric patients who receive clinical or outpatient nursing care. Chapter 3 is a study that provides insight into the current state of nursing care for sleep problems.

- *Phase 2*

The aims of the second phase were to itemise and investigate the available evidence about non-pharmacological interventions for sleep problems. A literature review was undertaken, assessing the availability (Principle 2, Table 1.1) and quality of scientific evidence (Principle 3, Table 1.1). In this phase, these questions were answered:

- *Is there evidence for the effectiveness of non-pharmacological interventions for sleep problems?*
- *What is the quality of this evidence?*

Chapters 4 and 5 present the results of this phase. Chapter 4 is a meta-analysis about music-assisted relaxation and Chapter 5 is a review of systematic reviews about non-pharmacological interventions.

- *Phase 3*

The planning of phase 3 assumes that evidence for effective non-pharmacological interventions for sleep problems was indeed found. It also assumes that this care is not applied in practice. Ascertaining the reason for this was the key factor in this phase. Therefore two interventions were implemented in practice.

The feasibility of these interventions (this is in fact the result of principle 4, Table 1.1) was the main subject in the studies presented in Chapter 6 (the effect of the implemented interventions) and Chapter 7 (the applicability of the implemented interventions). In phase 3, the following questions were leading:

- *Can the two interventions introduced be applied effectively by mental healthcare nurses? Is there a difference between the two interventions?*
- *Are these interventions applicable in an inpatient setting for psychiatric patients? Is there a difference between both interventions?*

- *Concluding this thesis*

Finally, all the findings of this project are summarised and discussed in Chapter 8. Conclusions are drawn and implications are discussed. Although the primary focus of this thesis is the development of evidence-based nursing care for sleep

problems, I shall argue that issues related to this development are examples of a broader problem concerning valid knowledge not being used into practice. Investigating the development of nursing care for sleep problems is used as a 'case' to illustrate this problem. Broad recommendations for improving the use of valid knowledge are presented.

Chapter **2**

Perceived sleep quality of psychiatric patients

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ABSTRACT

This study aims at acquiring knowledge about the quality of sleep of adult and elderly psychiatric patients who receive clinical or outpatient nursing care, and identifying key factors in perceiving a sleep problem. To do so, a sample of 1699 psychiatric patients was asked whether they perceived a sleep problem and were invited to fill in the Pittsburgh Sleep Quality Index (PSQI) and additional questions.

Five hundred and sixty (33%) questionnaires were returned. As a result, we found that 36% of the patients perceived a sleep problem, while the PSQI assessed 66% of the sample as being 'bad sleepers'. Forty-nine per cent of the respondents used sleep medication one or more times a week. Five items of the PSQI were shown to be predictors of a perceived sleep problem. Four of these are insomnia symptoms, while the fifth is the use of sleep medication. Moreover, the patients who used sleep medication most scored significantly worse on all PSQI components than patients who used sleep medication less than once a week.

In conclusion, many psychiatric patients perceive a sleep problem and all nurses could be confronted not only with the night-time consequences of this, but also with daytime consequences. Therefore, sleep problems must not be viewed as an isolated problem but must be seen in relation with social functioning.

INTRODUCTION

Sleep problems, especially insomnia, are common complaints among psychiatric patients. Benca et al. (1992) described a reduction of sleep efficiency and total sleep time in most psychiatric study groups. The prevalence rates vary from 60% among new referrals to a psychiatric general hospital (Okuji et al. 2002), to 91% of hospitalized psychiatric patients (Prieto-Rincon et al. 2006). But hard figures are scarce.

Although nurses working in psychiatric care are frequently confronted with these problems, the current guidelines for mental health care do not provide sufficient guidance for nurses to manage these sleep problems. These guidelines are mostly directed toward DSM-defined disorders and aimed at reducing symptoms of the primary disorder. However, such a classification is not appropriate for a patient-centred orientation since psychiatric nursing from this perspective is focused on the patient's experience of illness (Crowe 2006). Additionally, the patients' wishes and perspective are often missing in these guidelines. Furthermore, these guidelines do not offer insight into the interdisciplinary tuning of discipline-specific interventions, despite the fact that clinical nurses especially have to collaborate with clinicians from various disciplines. Finally, sleep problems are not always symptoms of a primary psychiatric disorder. They may appear as co-morbid conditions, or as a residue of a previous disorder.

As a first step towards developing a best practice guideline for sleep problems, we need to gain insight into the nature and magnitude of the problem. The focal point of this development has to be the patients' needs. We therefore chose to ask the patient about his/her problem. But what is the best way to gain this insight? The problem with measuring sleep problems is embedded in the definition: who assesses that there is a sleep problem? Reid (2001) concluded that sleep is a subjective experience. Hardly any study has addressed subjective views of psychiatric patients. Collier et al. (2003) suggested a more structured approach after their qualitative study among seven psychiatric in-patients, including the use of questionnaires. In practice, nurses are confronted with the patients' subjective complaints of insufficient or non-restorative sleep. Is it sufficient to conceptualize sleep problems just as a subjective complaint, i.e. being dissatisfied about the sleep quantity or quality? Is simply asking about sleep problems enough, therefore, or do we need a more structured approach using a validated self-rating

questionnaire? Moreover, what is the relation between sleep problems assessed by 'simply asking' and through the use of a scientifically developed instrument?

Sleep quality is a complex, multidimensional phenomenon (Buysse et al. 1989). Sleep duration, for instance, is not the only decisive measure. Determining the key factors that cause psychiatric patients to make a negative judgment about their sleep quality may provide essential information to enable a practical assessment of sleep problems by nurses.

This study has two aims: first, to assess the subjective experience of the quality of sleep of adult and elderly psychiatric patients who are receiving clinical or outpatient nursing care. And second, to determine which aspects of sleep can be identified as predictors of perceiving a sleep problem.

METHODS

Study design

In a cross-sectional design, a sample of psychiatric patients from six different psychiatric institutions in the Netherlands was approached to fill in two questionnaires. The inclusion criteria were: 18 years or older and receiving clinical or outpatient nursing care.

Data collection

Between October 2005 and June 2006, 1699 psychiatric patients received the two questionnaires. We offered clinical patients assistance in filling these in by making available a research assistant. Of these 1699 forms, 560 were returned (33%).

To determine if the group of non-responders was different from the responding group, a short survey was performed among 63 (29 male, 34 female) of the non-responders (mean age 54 years). They were asked to answer three questions. Their answers to the questions '*Do you think you have a sleep problem?*' and '*Do you think, in general, you are receiving help for your sleep problem?*' did not differ from the responding group. To the last question, '*What is the reason for not filling in a questionnaire?*', a wide array of reasons was given. 'I don't feel like it', 'I have already filled in questionnaires' and 'Too difficult' were the most frequently cited answers.

- *Ethical considerations*

The research proposal was submitted to the local research ethics committee. This committee concluded that this study did not fall within the scope of the Dutch law for medical scientific research and therefore did not need further ethical assessment.

The questionnaires were accompanied by a letter, and a brochure containing information about the study. Patients could contact the researcher with any questions they had and to request additional information. Confidentiality and anonymity were maintained throughout the study. The right to refuse participation without affecting future treatment was made clear.

- *The instruments*

To assess the relation between 'simply asking' and data gained through using a scientifically developed instrument, we asked patients whether they perceived a sleep problem by means of a single question: '*Do you think you have a sleep problem, or have you had a sleep problem in the past six months?*'. Patients could choose an answer from three categories: 'Yes', 'I'm not sure' and 'No'. At the same time we asked patients for their age and sex.

We used the Pittsburgh Sleep Quality Index (PSQI) to assess the self-rated sleep quality. This 19-item questionnaire was developed by Buysse et al. (1989) and is specially designed to assess sleep quality and disturbances in a clinical psychiatric population over a one-month period. The instrument is commonly used in international research. It distinguishes seven components of sleep quality: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime functioning. Each component can attain a score between 0 and 3. A global score can be calculated by summing the scores of 10 items. The higher the score, the lower the sleep quality. The cut-off value of five divides the respondents into 'good' and 'bad' sleepers.

The instrument shows a good test-retest reliability (Buysse et al. 1989; Gentili et al. 1995; Backhaus et al. 2002) and internal consistency (Doi et al. 2000). Several studies (Doi et al. 2000; Wittchen et al. 2001; Fictenberg et al. 2001) showed a good diagnostic validity. The sensitivity of the instrument was always above 80%

in several categories of patients, and specificity always above 84% (Doi et al. 2000; Fictenberg et al. 2001; Beckhaus et al. 2002).

The PSQI was translated from English into Dutch by two researchers of the research group. A native-speaking professional translator performed a back translation. We compared this translation with the original English version. Discrepancies were identified and discussed with the translator, bearing in mind differences due to culture. The Dutch version was adapted where needed. The questionnaire was pre-tested on 10 patients and/or ex-patients.

- *Analyses*

Data were analyzed using SPSS 14.0. We computed the total PSQI score and the subscores in accordance with the algorithms of the authors. Pearson's or Spearman's correlation coefficients were calculated. Depending on the nature of the data and the number of groups, we used *t*-tests, chi-square tests, Mann-Whitney tests, Kruskall-Wallis tests or analysis of variances to compare groups. When relevant, we explored differences between subgroups, like between sexes; clinical patients and outpatients; adults and elderly; patients using sleep medication and patients not.

To determine which aspects of sleep are most decisive in patients' judgment about perceiving a sleep problem, a logistic regression was performed. We used the 'stepwise forward' method based on likelihood ratios with a p value of 0.01 for entry, and 0.05 for removal.

RESULTS

- *Sample properties*

The mean age of the patients in the sample was 56.1 years (sd = 17.9). 53.5% of the patients were female. The sample included the following categories of patients: adult inpatients (37.7%), elderly inpatients (21.3%), adult outpatients (19.7%) and elderly outpatients (21.3%).

- *Main findings*

Table 2.1 shows the main findings of the PSQI assessment, and the answers to the question '*Do you think you have a sleep problem or have had a sleep problem in the past six months?*'.

The mean PSQI score was 8.0 (sd = 4.5). A cut-off value of 5 divides the patients into 'good sleepers' and 'bad sleepers'. According to Buysse et al. (1989), being a 'bad sleeper' means that '*a subject is having severe difficulties in at least two areas, or moderate difficulties in more than three areas*'.

The presented percentage 'time spent in bed sleeping' is called the sleep efficiency and is calculated by dividing the amount of time sleeping by the total amount of time in bed. The finding shows that these patients spend almost a fifth of their time in bed not sleeping. The reported sleep latency is the time between going to bed and falling asleep. Fifteen minutes is generally considered as normal and 30 min or more as problematic.

- *Relation between perceiving having a sleep problem and the PSQI scores*

Table 2.2 shows the relation between the outcome of the question about perceiving having a sleep problem and the PSQI assessment. There is a significant relation between the PSQI assessment and the respondents' perception (χ^2 = 115.6, *df* = 2, $p < 0.001$). Nevertheless, 40.1% of the patients who perceived no sleep problem were 'bad sleepers' according to the PSQI.

Table 2.1 Main findings of the sleep assessment

Sleep problem	
'Bad sleeper' according to the PSQI	65.6%
I perceive having a sleep problem	36.3%
I'm not sure	13.0%
I do not perceive having a sleep problem	50.7%
Amount of sleep	
Total sleep duration	7.65 hours (sd = 2.15)
Sleep latency	43.2 minutes (sd = 46.2)
Percentage time asleep in bed	80.6%
Most frequent sleep disturbances[1]	
Have to get up to use the bathroom	58.1%
Wake up in the middle of the night or early in the morning	57.2%
Cannot get to sleep within 30 minutes	51.2%
Have bad dreams	39.8%
Daytime problems	
Trouble staying awake during social activities	21.9%[1]
Keep up enthusiasm to get things done	38.3%[2]

1: Sum scores of the categories 'once or twice a week' and 'three or more times a week'
2: Sum scores of the categories 'somewhat of a problem' to 'a big problem'

Table 2.2 Relation between perceiving having a sleep problem and the PSQI assessment

		Do you think you have a sleep problem or have had a sleep problem in the past six months?			
		No	I'm not sure	Yes	Total
PSQI	Good sleeper	129	9	14	152
	Bad sleeper	89	49	148	286
Total		218	58	162	438

To determine which aspects of sleep are most decisive in patients' judgment about perceiving a sleep problem, PSQI items were included in a logistic regression model as independent variables. The subjective rating of the sleep quality was excluded because this concept is almost equal to the dependent variable. Also 'minutes awake before sleep' was excluded because this question is almost similar to the item 'cannot get to sleep within 30 minutes'. Table 2.3 presents the outcome. Five items turned out to be predictors of a perceived sleep problem. Since sleep medication use is a rather deviant aspect among these symptoms of insomnia, we explored this aspect more intensively.

Table 2.3 Predictors of a perceived sleep problem

		Odds ratio	CI (95%)
Q9	Keep up enthusiasm to get things done	1.71	1.32 – 2.20
Q5h	Have bad dreams	1.69	1.39 – 2.07
Q5b	Wake up in the middle of the night or early in the morning	1.57	1.24 – 1.99
Q8	Trouble staying awake during social activities	1.44	1.12 – 1.85
Q7	Sleep medication use	1.42	1.20 – 1.69

Model* χ^2: 188.72, *df* = 5

* p value for entry = 0.01, p value for removal = 0.05

- *Sleep medication use*

A total of 48.8% of the respondents used sleep medication one or more times a week. Table2. 4 shows that almost three-quarters of the patients who perceived having a sleep problem, assessed by 'simply asking', used sleep medication often. We explored whether significant differences exist between the group that uses sleep medicine three or more times a week (n = 195), and the group that uses sleep medicine less than once a week (n = 211). The group that used sleep medication most scored significantly worse on all PSQI components: 'daytime functioning' (Z = -6.135, p < 0.001), 'subjective sleep quality' (Z = -7.897, p < 0.001), 'sleep latency' (Z = -4.018, p < 0.001), 'sleep duration' (Z = -5.194, p < 0.001), 'habitual sleep efficiency' (Z = -5.474, p < 0.001) and 'sleep disturbances' (Z = -5.356, p < 0.001).

Table 2.4 Sleep medication use in relation to a perceived sleep problem

	Sleep medication use		
	Less than once a week	Three or more times a week	Total
No sleep problem	164 (70.4%)	69 (29.6%)	233
Sleep problem	47 (27.2%)	126 (72.8%)	173
Total	211	195	

- *Differences between groups*

We explored whether differences exist between outpatients and clinical patients, and between adult patients and elderly patients. No significant differences were found in PSQI items, PSQI total score, or any PSQI component score. However, when we tested differences between men and women, many scores showed significant differences. First of all, women perceived having a sleep problem significantly more often than men (t = 2.04, df = 549, p = 0.021). Additionally, the PSQI total score showed a significant difference (t = 5.07, df = 439, p < 0.001). They reported significant less time sleeping than men (t = -3.32, df = 535, p = 0.001) and they spent significant less time sleeping in bed than men (t = -2.69, df = 532, p = 0.007). To conclude, women also scored worse on all PSQI components: 'daytime functioning' (Z = -2.128, p = 0.033), 'subjective sleep quality' (Z = -4.670, p = 0.000), 'sleep latency' (Z = -2.548, p = 0.011), 'sleep duration' (Z = -3.126, p = 0.002), 'habitual sleep efficiency' (Z = -2.575, p = 0.010), 'sleep disturbances' (Z = -5.301, p = 0.000) and 'sleep medication use' (Z = -2.920, p = 0.003).

DISCUSSION AND CONCLUSIONS

In this study we found that more than a third of the patients perceived having a sleep problem. The PSQI qualified almost two-thirds of the population as 'bad sleepers'. Although PSQI assessment and the question about having a sleep problem relate significantly, 40.8% of the PSQI 'bad sleepers' did not perceive having a sleep problem. This can probably be explained by the fact that the most reported sleep disturbances do not always seem to be the most relevant. Patients do not always experience certain disturbances as having a negative influence on their sleep quality, while the PSQI does not distinguish in this way. 'Bathroom use' for instance, is of little influence on the perceived sleep quality. This finding illustrates the discrepancy that can occur between the 'scientifically-based' assessment and the subjective complaints of the patient. This implies that nurses should highly value the patients' own assessment when decisions about the care strategy for sleep problems are being made.

We identified five aspects as predictors for perceiving a sleep problem: 'keep up enthusiasm to get things done', 'waking up in the middle of the night or early morning', 'having bad dreams', 'trouble staying awake during activities' and 'sleep medication use'. Two of these aspects are daytime consequences. Obviously, sleep problems are capable of impairing occupational functioning and their

impact is experienced in social functioning. Therefore, sleep problems must not be viewed as 'night-time problems' or 'night nurse problems' alone. This implicates that also the daytime consequences of sleep problems need to be taken into account in care plans and must be seen in relation with social functioning.

Almost three-quarters of the patients who perceive having a sleep problem used sleep medication three or more times a week. These 'intensive users' scored significantly worse on all PSQI components, compared to the patients who used sleep medication less than once a week. The question arises as to whether the intensive use of sleep medication has a bad influence on the quality of sleep. Could there be a causal relation between intensive, chronic hypnotics use and perceiving a sleep problem? From previous research (Poyares et al. 2004) it is known that chronic intake of benzodiazepines for insomnia may be associated with poorer sleep and that the user's wish to improve daytime functioning is usually unfulfilled (Kripke 2000). This implies that in the development of a best practice program, non-pharmacological interventions should be assigned a prominent role as an alternative for (long-term) use of hypnotics. These interventions, especially those with a cognitive behavioural approach, have shown to be an effective alternative (Morin et al. 2004; Morgan 2004). However, we must be aware of the interaction between cognitive behavioural interventions and hypnotics (Vallieres et al. 2005). For this reason, starting new interventions also requires intensive collaboration and communication with physicians.

The main limitation of this study is in the area of data collection. Collier et al. (2003) recommended a more structured approach in data collection with structured instruments. Still, many patients found it hard to fill in a list about the quality of their sleep in the previous month. Although supported by an assistant, some had trouble with this task, as it demanded a good memory concerning the sleeping behaviour of the previous four weeks. Despite this limitation, the properties of our responding group seemed similar to the non-responding group for at least two central questions. This leads us to cautiously state that the findings of this survey can be considered as representative.

This study provided insight into the subjective experience of sleep among psychiatric patients. It also identified predictors of perceiving a sleep problem. For the next step in the development of a research-based guideline, more insight into the present nursing practice for these problems is needed. Future research should focus on the current treatment for sleep problems in psychiatric care.

Approaching this matter from the perspective of both the patient and the nurse could identify important differences, challenges and obstacles. This could provide important issues to be taken into account when the implementation of alternative care is being considered.

Chapter 3

Nursing care for sleep problems: Is there a problem?

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ABSTRACT

The aim of this article is to provide insight into the current state of nursing care for sleep problems in inpatient and outpatient mental health care for adults and the elderly, and to determine if there is any benefit to the implementation of alternative, evidence-based interventions.

To research this, the authors carried out a cross-sectional survey by means of a specially developed questionnaire. Between October 2005 and June 2006, 1,181 questionnaires were sent to a sample of nurses working in inpatient and outpatient care for psychiatric patients in five different mental health institutions in the Netherlands.

Descriptive statistics were used to describe the properties of the sample and its strata. The authors explored differences between subgroups by chi-square, Mann-Whitney or Student's *t*-tests.

The authors found that daytime interventions to prevent sleep problems are mostly structural, introducing a structured environment with, for example, set going to bed and getting up times, and stress management activities. Sleep problems during the night are typically approached by observation, environment control and stress management. Experience, knowledge gained by initial training and eminence advice (advice from peers, physicians or experts) are the most frequently used knowledge sources in the care of sleep problems. Nurses were seen to be are aware of the importance of sleep and the importance of a good nursing management for sleep problems. However, interventions are rarely evidence-based.

Although nurses are satisfied about the present care for sleep problems, they are willing to apply alternative evidence-based care. They identify the lack of knowledge, skills and time as obstacles for implementation.

INTRODUCTION

Given the nature of their discipline, nurses are in a position to observe the daily routine of a patient and to determine factors which are favourable or disadvantageous for a good night's rest, especially in clinical settings. In spite of this fact, few studies have been conducted concerning nursing care for sleep problems, especially in mental health care. Standard nursing care plans and study books present a wide variety of descriptions and recommendations for interventions. But no research has been conducted focussing on the tools or interventions nurses actually use for sleep problems in practice, the effectiveness of these interventions, and the knowledge sources these interventions are based on. Neither do health-care professionals have any insight into the general knowledge of nurses about sleep problems in mental health care. Most of what we know about the current state of nursing care for sleep problems is circumstantial, and the result of research in general hospitals, sometimes including on-site psychiatric wards. As early as in 1995, Southwell and Wistedt stated that *'even such a basic aspects of in-patient experience as their care at night has received relatively little study in its own right'*. And, after a brief survey of literature on sleep in hospitals they concluded, *'the importance of sleep appears to have been underestimated in nursing theory and practice'*. Ho et al. (2002) stated that it is essential for nurses to make more effort to equip themselves with knowledge about sleep and to develop an efficient way to manage sleep disturbances.

It is appropriate for nurses to discuss, implement or apply non-pharmacological alternatives for treatment of sleep problems (Voyer & Martin 2003). The question is whether they in fact do so, and on what level of evidence their practice is based, and in the case that they do not, whether there is willingness to employ or consider alternative and evidence-based care.

This article aims to explore current nursing practice for sleep problems in mental health care. Developing or even considering evidence-based nursing care might be pointless if nurses do not perceive the current care for sleep problems as being an issue, or alternative care as a necessity. The authors therefore explore the nurses' opinion about this care.

We formulated the following questions for the purpose of this research: *What interventions do nurses provide for sleep problems among a population of adult and elderly patients in inpatient and outpatient care for severe mental health*

problems? What knowledge sources do nurses in mental health care use for their care for sleep problems? To explore the nurses' opinion about current care, we asked nurses if they were satisfied about the care they provide for sleep problems and if they are willing to consider the application of alternative, evidence-based care for sleep problems. To conclude the authors asked what nurses consider to be obstacles to putting alternative methods in practice.

- *Background*

Nurses in both outpatient and inpatient mental health care are confronted in a direct or indirect way with the consequences of sleep problems. These problems are highly prevalent among psychiatric patients. McCall et al. (2000) found that 93% of inpatients with a depression have sleep complaints. According to Okuji et al. (2002), the prevalence of these problems among new referrals to a psychiatric general hospital is 60%, and high in all psychiatric categories. The authors' own research (de Niet et al. 2008) among 560 psychiatric patients in inpatient and outpatient care revealed that 36% of these patients perceived having a sleep problem.

Sleep problems can have a negative impact on the quality of life (Hofstetter et al. 2005, Krystal 2007). Moreover, exacerbation of these problems is likely to exacerbate to negatively affect a person's mania, depression or anxiety disorder. Sleep problems can have a detrimental influence on the outcome of treatment and are often seen as a chronic persistent residue of the illness. Despite the impact of sleep problems in mental health care, current multidisciplinary guidelines for psychiatric disorders do not provide practicable and research-based support for nursing management for sleep problems.

The most commonly used treatment for insomnia are hypnotics (Verbeek 2004). However, hypnotics are known to cause adverse effects like daytime residual sedation, dependency, tolerance and rebound insomnia. Moreover, patients who use sleep medication intensively, i.e. three or more times a week, perceive a significantly worse sleep quality than those who use little or no sleep medication (de Niet et al. 2008). Given the impact of sleep problems in mental health care, the importance of a good sleep quality and the disadvantages of hypnotics, it is imperative to consider a more prominent role of non-pharmacological interventions.

METHODS

- *Design*

The authors used a cross-sectional design with questionnaires. After receiving permission from the management boards, nurses of five different mental health care institutions in the Netherlands were approached. These institutions were roughly evenly distributed across the country. The sample comprised nurses in inpatient and outpatient care for both adults and the elderly (60+).

- *Data collection*

Between October 2005 and June 2006, 1,181 nurses received a questionnaire. Of these questionnaires, 524 were returned (44%). In the Netherlands, care for mental health patients is provided by a range of professionals for example registered nurses with various levels of training (medium vocational, high vocational, apprenticeship), social pedagogical carers with various levels of training, nurse assistants, nurse specialists and specially trained community dwelling nurses. All these professions were included in this study.

- *Questionnaire: Nursing Interventions for Sleep problems*

The authors developed an instrument based on a questionnaire that Broos (1994) used in her study on nursing interventions for sleep problems in general hospitals. To adapt this instrument to our purpose, the authors interviewed 10 nurses working in inpatient or outpatient care about the current care. This data was processed using techniques from the grounded theory. After intensive reading, and open and selective coding, themes were identified and described. Subsequently, questions were adapted or re-formulated. This resulted in a 42-item questionnaire that the authors named 'Questionnaire Nursing Interventions for Sleep problems' (QNIS). It includes a list with 16 nursing interventions which can be used during the day to prevent sleep problems, and a list with 17 interventions (tables 3.1 and 3.2) which can be applied during the night. These lists were derived from current nursing literature and educational books. Nurses were asked whether they use these interventions and to what extent. They could choose between the options 'never', 'sometimes' and 'always'. In addition, they could add other interventions they use. Other sections include items to identify knowledge sources and items about potential obstacles to implement alternative interventions for sleep problems.

The remaining items of the QNIS are about the nurses' opinions and beliefs about sleep and nursing care for sleep problems, demographic data, cooperation issues, attitude, systematic attention for sleep problems, and perceived effectiveness of the interventions.

Analysis

Data were processed using the statistic package SPSS 14.0. Descriptive statistics were used to describe the properties of the sample and its strata. To explore differences, we made a distinction between the following subgroups:

- Nurses working in inpatient care and those in outpatient care
- Nurses working in care for adults and those in care for the elderly (60+)
- Nurses with 10 or less years experience and those with more than 10 years
- Nurses with medium or lower educational level and nurses with a high educational level

Depending on the level of data, we used chi-square, Mann-Whitney or Student's *t*-tests when two groups were compared. Outcomes of these comparisons are only provided if a significant difference was found and when this information contributed to answering the authors' questions.

RESULTS

Sample properties

Participating nurses had on average 13.7 years of experience in mental health care. A little more than 72% (n = 393) of the respondents were registered nurses. Only 10 (1.8%) had ever attended a special course about sleep and sleep problems. Almost half the nurses (47.4%) never worked in night shifts. Four hundred ninety five (91%) of the responding nurses worked in inpatient care, 49 (9%) in outpatient care.

- *Inventory of interventions*

Table 3.1 presents interventions that can be applied during the day to prevent sleep problems, and how often they are used. Nurses could give an indication about how often they use these interventions (never, sometimes, and often).

Similar to the daytime interventions, table 3.2 presents 17 night-time interventions. Only nurses who work in night shifts were asked about these interventions (n = 290).

Table 3.1 Provided daytime nursing interventions to prevent sleep problems

Intervention	Never %	Sometimes %	Often %
Provide possibilities to discuss worries and stress	0.4	26.5	73.1
Prevent daytime napping or laying on bed	0.6	45.0	54.4
Provide structured support for going to bed and rising	9.6	39.4	51.0
Provide a stimulating and activating environment	5.0	52.6	42.3
Offer daytime structure	7.8	51.7	40.5
Reduce the intake of stimulants like caffeine	7.2	56.9	35.9
Offer help with solving stress before bedtime	3.6	61.1	35.3
Provide education about sleep and sleep problems	14.8	63.1	22.2
Provide sleep hygiene education	38.1	52.6	9.3
Advise a daytime nap to compensate sleep loss	11.9	80.8	7.3
Formulate a realistic goal together with the patient	38.6	55.6	5.8
Support of CBT[1] for sleep problems	67.9	30.9	1.2
Provide a specialised brochure	90.1	8.9	1.0
Assessment of the sleep quality by a questionnaire	87.0	12.6	0.4
Support the use of a sleep log	85.5	14.5	0.0
Provide a 'sleep course'	96.0	4.0	0.0

1 = Cognitive behavioural therapy

Table 3.2 Provided nighttime nursing interventions to cope with sleep problems

Intervention	Never %	Sometimes %	Often %
Observe and report sleep pattern	7.4	22.4	70.2
Observe and report the effect of sleep medication	8.2	25.1	66.7
Reduce stimuli, like light, noise and temperature	9.6	31.7	58.7
Promote feeling of safety	5.3	43.0	51.8
Provide hot milk	11.3	49.4	39.4
Provide (as needed) sleep medication	6.1	60.7	33.2
Calm patient through conversation	12.1	66.8	21.2
Provide night lights	39.0	43.6	17.4
Send patient consistently back to bed	25.3	61.0	13.7
Re-make the bed and shake the cushion	40.5	46.6	12.9
Provide relaxing music	44.0	50.4	5.6
Support relaxation exercises	49.7	44.9	5.3
Let patient leave bed and search look for distraction	45.9	49.2	4.8
Advise taking a bath or shower	54.4	39.4	4.8
Provide a small snack	48.5	47.2	4.4
Support ‘thought stop’ method	65.2	30.4	4.4
Provide herbal tea	79.8	18.4	2.1

- *Knowledge sources*

We asked which knowledge sources nurses use in their care for sleep problems and how often these knowledge bases are used. Nurses could choose between four categories: never, sometimes, often, and always. Table3.3 presents the results. None of the comparisons between groups showed significant differences.

Table 3.3 Knowledge sources that nurses use in their care for sleep problems

Knowledge sources	Never %	Sometimes %	Often %	Always %
Education-based sources:				
What I have learned in my nursing training	5.5	32.3	46.2	16.0
What I learned in a special course	75.3	14.8	7.8	2.1
Eminence consultation:				
The advice of a colleague	1.3	52.0	42.9	3.8
The advice of a doctor	2.8	35.4	50.6	11.2
The advice of a psychologist	13.1	37.1	40.0	9.8
Science-based sources:				
What is recommended in multi-disciplinary guidelines	17.0	39.7	36.8	6.5
What is required in protocols	33.1	34.1	25.2	7.5
Scientific literature like journal articles	30.1	54.5	14.1	1.4
Miscellaneous sources:				
What is recommended in NIC/NANDA[1]	71.7	18.0	9.9	0.4
What is recommended in standard nursing care plans	20.2	37.5	35.4	6.9
My experience and practice knowledge	0.6	6.3	58.1	35.1

1 = McCloskey & Bulechek (2000)

- *Satisfaction about present care*

The authors asked nurses '*Are you satisfied about the care you can offer for sleep problems?*' A majority (61.4%) replied 'yes, satisfied' or 'yes, very satisfied'. The remaining 38.6% replied 'no, not satisfied' or 'no, certainly not'. To the question '*do you think that patients are satisfied about the care you offer for sleep problems?*' 62% answered 'yes, satisfied' or 'yes, very satisfied'.

A minority of the nurses (48.8%) answered positive to the question '*do you have enough knowledge of sleep and sleep problems to provide sufficient care?*' 51.2% stated that they have 'not enough' or 'way too less' knowledge about this topic.

The question '*Do you have enough knowledge about the working and side effects of sleep medication?*' produced 67.3% positive answers ('yes, more than enough' or 'yes, enough').

A comparison between nurses working in inpatient care and those working in outpatient care showed that the first group is more satisfied than the second (χ^2 = 4.46, *df* = 1, p = 0.045). Nurses with a high educational level were significantly less satisfied about the present care than nurses with a medium or less educational level (χ^2 = 6.80, *df* = 1, p = 0.011).

- *Will to apply alternative, evidence-based care*

First, the authors asked nurses '*Do you think it is a nursing task to manage the sleep problems of a patient?*' Of the respondents 98.7% answered 'yes, most certainly' or 'yes, it is'. There is also little doubt about the question: '*Suppose there are effective non-pharmacological interventions available which can be applied by nurses. Are you willing to apply these?* ' 91.6 % replied 'yes, most certainly' or 'yes, probably'.

More doubt was expressed in answer to the question '*do you think that patients are willing to try interventions other than sleep medication?*' A minority, 40.9% of the nurses answered 'yes, they all will' or 'yes, most of them will'. But the majority (57.4%) answered 'some of them will' or 'nobody will'.

Nurses working in outpatient care show more willingness to apply alternative care (Mann-Whitney: Z = -2.494, p = 0.013) and they have more confidence in the patient's willingness to try interventions other than sleep medication (Mann-Whitney: Z = -2.597, p = 0.009) than those working in inpatient care. Nurses with a medium or less educational level are less enthusiastic than nurses with a high educational level (Z = -3.13, p = 0.002).

A small but significant correlation is found between the level of satisfaction with the present care and the willingness to try alternative care (Spearman's rho: -0.163, p < 0.001), meaning that more satisfaction leads to less willingness.

- *Possible obstacles for implementation*

To take stock of possible obstacles for the implementation of alternative care for sleep problems the authors presented nurses a list. The authors asked them to indicate to which extent these possible obstacles might frustrate implementation. Table 3.4 presents the results.

Nurses working in inpatient care rated more possible obstacles than those working in outpatient care (t = -2.718, df = 478, p = 0.007). Nurses with 10 or less years experience foresee more obstacles than those with less than 10 years experience (t = -2.581, df = 477, p = 0.01).

Table 3.4 Possible obstacles for the implementation of alternative interventions for sleep problems

	A large obstacle %	An obstacle %	A small obstacle %	No obstacle %
Present knowledge	8.8	43.9	29.2	18.1
Available time	14.9	35.8	32.4	17.0
Support of colleagues	1.9	11.9	37.2	48.9
Support of other disciplines	6.0	21.7	37.3	35.0
Cooperation of patients	10.0	38.8	40.7	10.4
Trust of patients	5.9	36.2	44.4	13.5
Necessary techniques, experience and skills	17.7	47.9	27.9	6.5
Busyness on the ward/within team	12.4	41.5	31.9	14.1
Own motivation	1.0	6.1	30.7	62.2
Motivation of colleagues	1.5	11.3	48.7	38.5

DISCUSSION

The majority of daytime interventions provided to prevent sleep problems in current mental health nursing care are structural, involving a structures environment with set times for going to bed and rising, and stress management activities. Little use is made of psycho-educational, assessment, or informing activities. Sleep problems during the night are mostly dealt with through observation, environment control, and stress management.

Practice experience and knowledge gained during nursing training are the most frequently used knowledge sources in the care for sleep problems. Also, ‘the

advice of a doctor' is frequently used. Scientific sources or science-based sources like articles from a scientific journal or guidelines are scarcely used by the responding nurses. This is in accordance with the results from a study of acute care nurses in the USA (Thiel & Ghosh 2008). This study revealed that 72.5% of the nurses consult colleagues and peers when they need information rather than using journals and books.

A majority of the nurses are satisfied about the care they provide and think patients are satisfied about this care as well. Although nurses are generally satisfied about their care, a large majority of the nurses are willing to apply alternative, evidence-based care for sleep problems.

Thompson et al. (2005) concluded that the use of research evidence in practice in inhabited by skills and knowledge gaps, unhelpful information formats, and limited time for decision making. Also in the presents study the lack of available knowledge and necessary skill and 'busyness on the ward or within the team' are seen as rather large obstacles for implementation. The similarity with the results of a study that was performed 15 years earlier among nurses in a general hospital (Broos 1994) is remarkable; this study revealed the same obstacles for the implementation of sleep-promoting interventions. This similarity indicates that during the past 16 years, little has changed in the perception of the nurses regarding barriers to research-based interventions.

The present nursing care for sleep problems appear to be mainly based on experience, eminence advice (advice from peers, physicians or experts) and initial training and far less on scientific sources. Other studies demonstrated a similar picture (Estabrooks et al. 2005, Ozsoy & Ardahan 2008) although these studies were focussed on the use of knowledge sources in general and were performed among nurses working in somatic care and in other countries (Canada and Turkey). This could indicate that the inhibition of the use of research findings is an almost universal nursing issue independent of cultural of contextual differences.

Although scientific sources for their care are rarely used, a closer look reveals that nursing interventions contain elements from evidence-based interventions like relaxation techniques and stimulus control. Therefore it must be concluded that although nursing interventions for sleep problems in the current practice are not founded on scientific evidence in terms of their efficacy, this does not mean that these interventions are not effective. The most valid conclusion the authors

can draw is that the current practice has not been the subject of scientific research.

- *Is there a problem?*

A majority of the nurses is not only satisfied about the care they deliver for sleep problems, but also share the opinion that their patients are satisfied as well. So is there a problem? Is there a need for nurses to deal with sleep problems in a more intensive way? Why should nurses change their practice and embrace new knowledge and techniques?

The answer is obvious - since the most commonly used strategy for sleep problems, hypnotics, does not provide a satisfactory answer and even comprises serious disadvantages, the patient would be served by non-pharmacological evidence-based alternatives. But in the present situation sleep problems are not the exclusive domain of nurses. Professionals from all disciplines are concerned with sleep problems. No discipline is exclusive responsible. It could be said that each discipline is responsible and thus no discipline feels (really) responsible for solving the problem. No particular discipline is urged to question the care being given at present. Hunt (1996) stated that '*if recognition does not take place within each and every individual who has to put the changed practice into practice, then it is unlikely to happen. Just presenting the evidence is unlikely to achieve the desired result*'.

'Problem ownership' (Hutschemaekers et al. 2006) and critical reflection might be important promoters to move current nursing practice towards care that is increasingly based on scientific evidence. Gaps in current knowledge must be recognized as opportunities to pose answerable questions (Brady & Lewin 2007). Such a climate needs a culture that values reflective practice and inquiry.

To answer the question stated above: yes, there is a problem. The present mostly pharmacological-orientated care does not provide an adequate answer to sleep problems. But can and will nurses provide a suitable answer? Must they be the 'problem owner' of sleep problems and, following on from this, do they need extended diagnostic and therapeutic competences? The present multi-disciplinary approach might provide a sufficient condition to achieve nursing care with advanced treatment options. These questions must be addressed in further studies.

- *Limitations*

A limitation of this study can be found in the response-rate. As less than half (44%) of the send questionnaires were returned. This is often a problematic feature of mailed questionnaires. Since the responders could return their questionnaire anonymously, it was not possible to make use of personalised follow-up reminders. It is generally presumed that higher response rates assure more accurate survey results. A low response rate can create sampling bias because people that do not respond may be different from the people who do.

However, the number of respondents is rather large. Since opinions and believes of nurses from five different institutions were included, they reflect a broad representation. Therefore, we cautiously state that the findings of this survey can be considered as representative.

- *Conclusion*

In the authors' opinion, this study presents an image of a discipline that is conscious about the importance of sleep and the importance of good nursing management for sleep problems. However, it also illustrates a discipline that is rather conservative in its assessment and approach, mostly relying on experience and less on evidence. Although nurses are largely willing to apply alternative, evidence-based interventions, they identify the lack of available knowledge, skills and time to be the largest obstacles for their implementation. The authors suggest that future research should address the conditions necessary for implementation of evidence-based non-pharmacological nursing interventions.

Chapter **4**

Music-assisted relaxation to improve sleep quality: meta-analysis

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ABSTRACT

Title Music-assisted relaxation to improve sleep quality: meta-analysis

Aim This paper is a report of a meta-analysis conducted to evaluate the efficacy of music-assisted relaxation for sleep quality in adults and elders with primary sleep complaints with or without a co-morbid medical condition.

Background Clinical studies have shown that music can influence treatment outcome in a positive and beneficial way. Music holds the promise counteracting psychological pre-sleep arousal and thus improving the preconditions for sleep.

Data sources We conducted a search in the Embase (1997 – July 2008), Medline (1950 – July 2008), Cochrane (2000 – July 2008), Psychinfo (1987 – July 2008) and Cinahl (1982 – July 2008) databases for randomised controlled trials reported in English, German, French and Dutch. The outcome measure of interest was sleep quality.

Methods Data were extracted from the included studies using predefined data fields. The researchers independently assessed the quality of the trials using the Delphi list. Only studies with a score of 5 points or higher were included. A pooled analysis was performed based on a fixed effect model.

Results Five randomised controlled trials with six treatment conditions and a total of 170 participants in intervention groups and 138 controls met our inclusion criteria. Music-assisted relaxation had a moderate effect on the sleep quality of patients with sleep complaints (standardized mean difference, -0.74; 95% CI: -0.96, -0.46). Subgroup analysis revealed no statistically significant contribution of accompanying measures.

Conclusion Music-assisted relaxation can be used without intensive investment in training and materials and is therefore cheap, easily available and can be used by nurses to promote music-assisted relaxation to improve sleep quality.

INTRODUCTION

Music is one of the most-used self-help strategies to promote sleep. Morin et al. (2006a) found that more than a quarter of a randomly-selected sample of community-dwelling participants used music to promote their sleep. A survey among urban people in Finland (Urponen et al. 1988) also showed that music was the second most important factor in promoting sleep. The clinical and systematic use of music as a (complementary) treatment in various medical conditions has been a subject of study in recent decades.

Clinical studies show that music can influence human emotions and treatment outcome in a positive way. A review by Evans (2001) showed that music decreases the level of anxiety during normal care delivery. Studies by Chan et al. (2006) in patients undergoing a C-clamp procedure after percutaneous coronary interventions and Almerud and Petersson (2003) in mechanically-ventilated intensive care patients showed positive and statistically significant changes in physiological variables. Although some researchers report statistically significant influences of sedative music on hormonal levels and the immune system, the precise mechanism by which music may improve human well-being is still unclear.

Because there is evidence that music has the potential to reduce anxiety, it holds the promise for counteracting psychological pre-sleep arousal and thus improving the preconditions for sleep. Moreover, Johnson (2003) has suggested that music can decrease the frustration and dread associated with sleep complaints. Therefore, the use of music could be beneficial for people with sleep (onset) problems. Even in patients with chronic sleep problems, whose frustration about not being able to fall asleep might be a perpetuating factor, music could potentially be beneficial.

Music might be a valuable contribution to the range of non-pharmacological nursing interventions to promote sleep. However, only one report about the actual use of music as a sleep-promoting nursing intervention was found: Gagner-Tjellesen et al. (2001) found that nurses working in acute inpatient settings reported music as the most often-used independent therapeutic nursing intervention to enhance sleep.

Non-pharmacological interventions, in particular cognitive behavioural treatment, have been proven to be effective and to have resulted in stable therapeutic changes over time (Morin et al. 2006b). However, most non-

pharmacological interventions require a relatively large investment in training. The systematic application of music interventions does not involve large investments in training or tools. These interventions are 'relatively inexpensive, readily available, portable, and completely subject controlled' (Mornhinweg & Voigner 1995, p. 252).

The growing interest for non-pharmacological interventions has led to reviews evaluating the efficacy of such strategies. Examples include reviews of psychological and behavioural treatment (Morin et al. 2006b), bright light therapy (Montgomery & Dennis 2002a) and physical exercise (Montgomery & Dennis, 2002b). However, we could not find a review about the efficacy of music as a sleep-promoting intervention. A meta-analysis of data from previous research findings might provide or enhance the evidence-base of such an intervention.

THE REVIEW

- *Aim*

The aim of this meta-analysis was to evaluate the efficacy of music-assisted relaxation (MAR) for sleep quality in adults and elders with primary sleep complaints with or without a co-morbid medical condition.

- *Design*

A meta-analysis was conducted using data from five randomised controlled trials. We chose sleep quality as the primary outcome measure for the intervention. The reason for this choice was primarily practical: sleep quality can be assessed without medical competences. This means that professionals without medical training, such as nurses, are able to assess it. Sleep quality refers to the multi-dimensionally assessed, subjective experience of sleep. It comprises quantitative aspects of sleep, such as sleep duration, sleep latency, and number of arousals, as well as more purely subjective aspects, such as depth or restfulness of sleep (Buijsse et al. 1989).

Subjective measures (assessed by standardized questionnaires) and objective measures (accessed via polysomnografic recording or wrist actigraphy) are not necessarily concordant. Lazic and Ogilvie (2006) argued that subjective self-report

measures could be subject to bias. However, self-reports reflect the problem from a patient perspective and are therefore highly valued.

- *Search methods*

We conducted searches in Embase (1997 – July 2008), Medline (1950 – July 2008), Cochrane (2000 – July 2008), Psychinfo (1987 – July 2008) and Cinahl (1982 – July 2008) for studies published in English, German, French or Dutch. Keywords, titles and abstracts were searched. The search terms 'sleep' or 'insomnia' in combination with 'music' or 'music therapy' were used. After the searches were completed, reference lists from identified studies were examined to find additional studies.

Selection criteria were prespecified. We included published randomised controlled trials performed in an adult (18 to 60 years) or elderly (60 years or older) population with primary sleep complaints or sleep complaints co-morbid with a medical condition. Studies involving active use of music, such as playing instruments, were excluded. Finally, studies of people suffering neurological or severe cognitive disorders (such as Parkinson or Alzheimer disease) were excluded.

Music-assisted relaxation comprises therapeutic relaxation improving interventions in which music is the key ingredient. We divided these interventions into two groups: (1) those offered without additional measures and (2) those offered with additional measures. Added measures are, for instance, oral or written relaxation instructions. Use of this distinction makes it possible to determine the contribution of these additional relaxation-improving measures.

Music in the context of this meta-analysis was considered to be recorded music, played by CD/DVD player, mp3 player, tape-recorder or video recorder. The music must have been intentionally applied for the promotion of sleep quality in a passive way, that is, listening to music while resting or relaxing.

Music-assisted relaxation in the selected studies was offered with patient preferred or selected music, or with standardized music that had been intentionally composed to relax or promote sleep. Many people experience slow rhythm music, without a heavy beat, as relaxing. However, the effect is strongly dependent on personal preferences.

- *Search outcome*

After removing duplicates, our initial broad search produced a list of 236 references (see figure 4.1). After carefully reviewing the titles for relevance, this list was reduced to 27 potentially-relevant papers. Abstracts from all of these were reviewed for usefulness. Seventeen were rejected as obviously unsuitable (e.g. no trial). Ten remaining studies were read in full. Of these ten, five did not meet the inclusion criteria. The main reasons for rejection were non-comparability of data and low methodological quality (lack of control).

- *Quality appraisal*

The methodological quality of each selected study was assessed using the Delphi list for quality assessment of RCTs (Verhagen et al. 1998). This is a 9-item list, assessing randomization of allocation, blinding of allocation, group comparison, inclusion criteria, blinding (assessor, therapist, patient), presentation of estimates and intention-to-treat analysis . Two reviewers (GN and BT) assessed the studies independently. Only studies with a positive score on 5 or more Delphi items (≥55% of the maximum attainable score) were included. Consensus was achieved for all data.

- *Data abstraction*

Pre- and post-test means and standard deviations, demographic data and condition properties were extracted from each included study. To evaluate two studies (Kullich et al. 2003, Harmat et al. 2008), the authors were contacted for additional information.

- *Synthesis*

Review Manager 5.0.12 (2008) was used to calculate the effect sizes of the individual studies and for calculation of the pooled mean difference. Since continuous data from different scales were extracted, the standardized mean difference (SMD) was calculated for effect size based on sample size (Cohen's d with Hedges adjustment) and 95% confidence intervals for each study, and for the pooled studies using variance analysis. Effect sizes of 0.2 are usually interpreted as small, those of 0.5 as moderate and from 0.8 as large (Cohen 1988).

Potential statistical heterogeneity between the studies was evaluated with a chi-square test. Statistically significant heterogeneity was considered present when the p-value was less than 5%. Publication bias was addressed by inspection of the funnel plot (Begg 1994). A funnel plot is a scatter plot of effect sizes against a measure of study size.

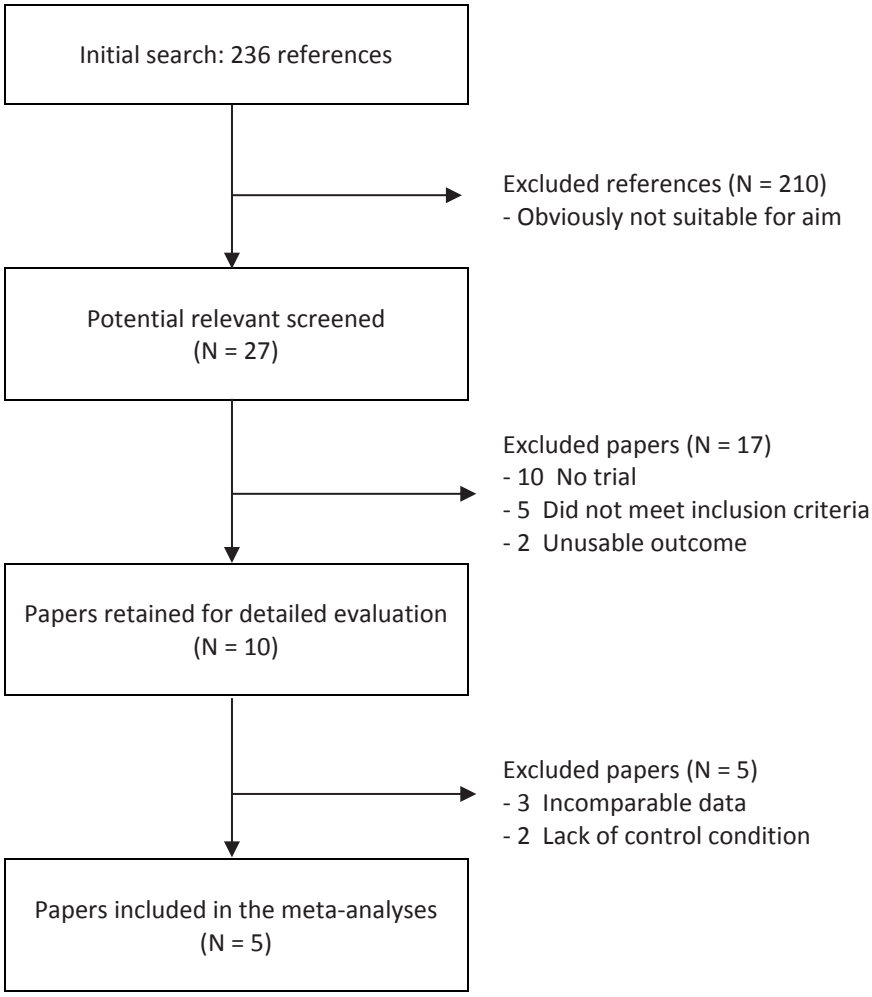

Figure 4.1 Flow diagram of the study selection process

RESULTS

- *Characteristics of included studies*

The characteristics of the five studies that met the inclusion criteria are presented in table 4.1. The studies included a total of 170 participants in intervention groups and 138 controls. Mean participant age was 51 years and mean sample size was 69. Three studies involved patients in a hospital setting, one was performed with community-dwelling elders and one was performed with students. With exception of one study (Hernandez-Ruiz 2005), all included studies had explicit inclusion criteria and/or exclusion criteria (i.e. use of hypnotics, psychiatric condition, sleep apnoea).

The duration of the intervention varied between 20 and 45 minutes per session and the follow-up period varied between two days to three weeks. With the exception of the study by Harmat et al. (2008) and one condition in the study by Zimmerman et al. (1996), the music in all included studies was offered with an accompanying relaxation technique or instruction. Kullich et al. (2003) used standardized music that was intentionally composed for sleep promotion for every participant. The other researchers used patient-preferred music that could be selected from a list. Types of music used in the four included studies were traditional folk-music (Chinese orchestra), instrumental new age (synthesizer), classical and modern instrumental soothing music (harp, piano, and orchestra) and vocal soothing music.

The study by Harmat et al. (2008) comprised two treatment conditions, music and an audio book, both compared to the same control condition. The audio book intervention comprised use of a CD containing 11 hours of short stories. Since this condition did not involve music, it was not included in the pooled analysis. The study by Zimmerman et al. (1996) also had two treatment conditions, music and music video, also both compared to the same control condition. These two treatment conditions are presented separately in table 4.2.

In all included studies the efficacy of the intervention was measured with a subjective, self-rating scale. Four studies used the Pittsburgh Sleep Quality Index (PSQI) (Buijsse et al. 1989); the fifth study used the Richards-Campbell Sleep Questionnaire (RCSQ) (Richards 1987). Five of the six included conditions led to statistically significant improvement of the ‘total score’ for sleep quality. The

music condition in the study by Zimmerman et al. (1996) approached statistical significance (p = 0.06). None of the researchers reported adverse effects.

- *Quality of included studies*

All included studies suffered from some methodological flaws. The Delphi list score was mainly compromised by the requirement for blinding. In high quality RCTs, a double-blind process is used: neither participant nor administer should be aware of whether the participant is in the intervention or control group. However, the nature of the intervention makes blinding of participants virtually impossible; when patients are informed about the goal and procedure of the trial, as good ethical practice demands, it is impossible to hide the condition to which they are allocated. Randomisation was blinded in all included studies.

- *Pooled analysis*

The clinical diversity of the four studies seems rather large (mixed age groups, various medical conditions). However, there is no evidence or theory making a prominent difference in treatment effect between the various populations plausible.

The outcomes of the two different used instruments, the PSQI and the RCSQ, are not directly comparable; a high PSQI value means a lower sleep quality, while a high RCSQ value indicates the opposite. To allow calculation of the effect size and standardized mean difference, RCSQ scores were converted by subtracting the real score from the maximum score.

Table 4.2 shows the means and calculated effect sizes of the included studies. Since the studies did not show considerable methodological diversity, a pooled analysis was conducted. Because we assumed that the included studies evaluated a common treatment effect, we chose the fixed effect model (figure 4.2).

An overall SMD of –0.74 (95% CI: -0.96 to -0.52) was found. The Z test for overall effect was statistically significant (Z = 6.59, p < 0.0001). The chi-square for statistical heterogeneity was not statistically significant (chi-squared = 7.84, *df* = 5, p = 0.17). The I-square test represents the between-trial difference that cannot be attributed to chance. A value greater than 50% may be considered substantial heterogeneity. In our case, the I-square was 36%. To detect publication bias, the funnel plot was inspected and found to be roughly symmetrical.

To determine the possible contribution of the accompanying relaxation measures, a subgroup analysis was performed. The first group - MAR without added relaxation measures - included two conditions in which music was the sole component. The second group comprised four conditions in which music was accompanied by an additional relaxation measure. For the first group we found a SMD of -0.85 (95% CI: -1.22 to -0.49), and for the second group a SMD of -0.68 (95% CI: -0.95 to -0.40) was found. The test for subgroup differences was not statistically significant (chi-squared = 0.56, *df* = 1, p = 0.45). However, this outcome must be interpreted with some caution because the statistical heterogeneity for the first group was statistically significant (chi-squared = 4.91, *df* = 1, p = 0.03).

We explored the influence of follow-up length on the effect size by performing a regression analysis with effect size as the dependent variable and follow-up length as the independent variable. The result was not statistically significant (F = 3.13, *df* = 1, p = 0.15).

DISCUSSION

- *Weaknesses and strengths*

The included studies all suffered from some methodological weaknesses. The most important was the lack of double-blinding. However, as stated previously, the nature of this intervention makes blinding virtually impossible. Another limitation of the included studies was the lack of a good definition of the sleep problem. As poor perceived sleep quality can have different causes (for instance physical, neurological, psychological or hormonal) and some sleep problems are unlikely to be influenced by music-assisted relaxation (i.e. restless legs of sleep apnoea).

The main limitation of this review was a general limitation of all reviews: it is liable to publication bias. The number of included studies and the sample sizes in these studies were small. Inspection of the funnel plot showed rough symmetry. However, this is only a rough indication of the absence of publication bias, and as only six conditions were included, this is not a very reliable test.

The clinical diversity of the included studies was large. The question might arise whether pooling the data was appropriate. However, the findings are very consistent. This could mean that the effect of the intervention is independent of the patient's condition and thus that the generalisability of the findings is potentially large.

Regrettably, none of the studies we included gave follow-up data to evaluate long-term effectiveness. However, follow-up length might be an important factor. At first glance our data suggest that studies with a short implementation resulted in lower effect sizes than those with longer implementation periods. The studies by Kullich et al. (2003), Lai and Good (2003) and Harmat et al. (2008) showed a cumulative dose effect and reached no 'plateau' after three weeks. However, a regression analysis revealed that follow-up length was not a statistically significant predictor of effect size.

To evaluate the clinical relevance, we compared this result with the results of two other meta-analyses. Like our meta-analysis, they both used randomized controlled trials and sleep quality as outcome measures. However, both included studies that enrolled participants with a diagnosis of primary insomnia. The first, by Nowell et al. (1997), evaluated the efficacy of benzodiazepines and zolpidem in adult patients (18 to 65 years). Based on five studies, they found a standardized mean difference of 0.62 (95% CI: 0.45 to 0.79) for sleep quality. The second, by Irwin et al. (2006), included a meta-analysis to evaluate the efficacy of behavioural interventions for insomnia among middle aged and older adults. For the outcome sleep quality, seven studies were included. A standardized mean difference of 0.79 (95% CI: 0.46 to 1.1) was found.

CONCLUSION

The results of this review, based on five relatively small studies, show that music-assisted relaxation is an effective aid for improving sleep quality in patients with various conditions. It also gave an indication that the contribution of added relaxation-improving measures such as oral or written instructions to the improvement of sleep quality is limited. Since the amount of included studies was small, this is not a conclusive statement.

Music is already one of the most commonly-used self-help strategies to promote sleep. We found scientific support for the effectiveness of the systematic

use of music-assisted relaxation to promote sleep quality. Since no adverse effects are reported, nurses can use these findings in their practice to promote music-assisted relaxation. It is a safe and cheap intervention which may be used to treat sleep problems in various populations. The use of MAR is quick and easy to learn, and it might also be an effective element in a multi-faceted intervention combining cognitive-behavioural and/or educational elements. However, this requires further exploration.

Determining the most effective form (duration of exposure, timing of exposure) of music intervention and type for different populations (e.g. adolescents, elders) are interesting topics for future study. Since objective and subjective outcome measures reflect different dimensions of sleep, researchers should preferably assess both. Strict inclusion criteria based on a good definition of the sleep problem is highly recommended for future research.

Table 4.1 Characteristics of included studies (1/2)

Study	Total *n*	Country	Treatment	Additional relaxation measure	Control condition
Harmat et al. 2008	94	Hungary	Standardized classical music, daily 45 minutes at bedtime	None	No intervention
Hernandez-Ruiz 2005	28	USA	Participant selected music, daily 20 minute sessions at bedtime	Progressive muscle relaxation	Silence
Kullich et al. 2003	65	Austria	Standardized music, at least once a day, no specified time.	Booklet with relaxation text	Care as usual
Lai & Good 2005	60	Taiwan	Patient selected sedative music, daily 45 minute sessions at bedtime	Relaxation instructions	Care as usual/ no intervention
Zimmerman et al. 1996*	96	USA	Patient selected soothing music, daily 30 minute sessions in the afternoon or early evening.	None	Scheduled rest
Zimmerman et al. 1996*	96	USA	Sedative music video, daily 30 minute sessions in the afternoon or early evening.	Video with relaxing scenes	Scheduled rest

Table 4.1 Characteristics of included studies (2/2)

Study	Intervention duration	Dwelling and population	Measure	Result	Delphi score
Harmat et al. 2008	3 weeks	University (Students with sleep complaints)	PSQI‡	Statistically significant improvement of total sleep quality score and six of seven PSQI components	5
Hernandez-Ruiz 2005	5 days	Shelter (Abused women)	PSQI‡	Statistically significant effect on sleep quality	5
Kullich et al. 2003	3 weeks	Stationary rehabilitation (low back pain patients)	PSQI‡	Statistically significant improvement of total sleep quality score and four of seven PSQI components	5
Lai & Good 2005	3 weeks	Comminity (Elderly)	PSQI ‡	Statistically significant improvement of total sleep quality score and five of seven PSQI components	6
Zimmerman et al. 1996*	2 days	Hospital (Postoperartive coronary artery bypass graft patients)	RCSQ †	Almost statistically significant improvement of sleep quality	5
Zimmerman et al. 1996*	2 days	Hospital (Postoperartive coronary artery bypass graft patients)	RCSQ†	Statistically significant better sleep quality ratings	5

*This study comprised two treatment conditions: music and music video. The two treatment conditions are presented separately.

†Richards-Campbell Sleep Questionnaire (Richards 1987)

‡Pittsburgh Sleep Quality Index (Buijsse et al. 1989)

Table 4.2 Effect of music interventions on sleep quality

Study	Post-test measure, control group	n control	Post-test measure, treatment group	n treatment	Standardized Mean Difference (95% CI)
Music-assisted relaxation without added relaxation measure					
Harmat et al. 2008	5.90 (+/- 2.19)	29	3.27 (+/- 1.80)	30	- 1.31 (-1.85, -0.76)
Zimmerman et al. 1996*	4.37 (+/- 2.43)	32‡	3.20 (+/- 2.45)	32	- 0.47 (-0.97, 0.02)
Subtotal		61		62	
Music-assisted relaxation with added relaxation measure					
Hernandez-Ruiz 2005	8.29 (+/- 4.10)	14	7.00 (+/- 4.56)	14	- 0.29 (-1.03, 0.46)
Kullich et al. 2003	8.13 (+/- 4.02)	33	5.81 (+/- 3.90)	32	- 0.58 (-1.08, -0.08)
Lai and Good 2003	10.07 (+/- 2.75)	30	7.13 (+/- 3.19)	30	- 0.97 (-1.51, -0.44)
Zimmerman et al. 1996†	4.37 (+/- 2.43)	32‡	2.80 (+/- 2.02)	32	- 0.69 (-1.20, -0.19)
Subtotal		109		108	
Total		138‡		170	

*Music condition. The data was converted (see statistical analysis).

†Music video condition. The data was converted (see statistical analysis).

‡The two treatment conditions of the study Zimmerman et al. (1996) used the same control group

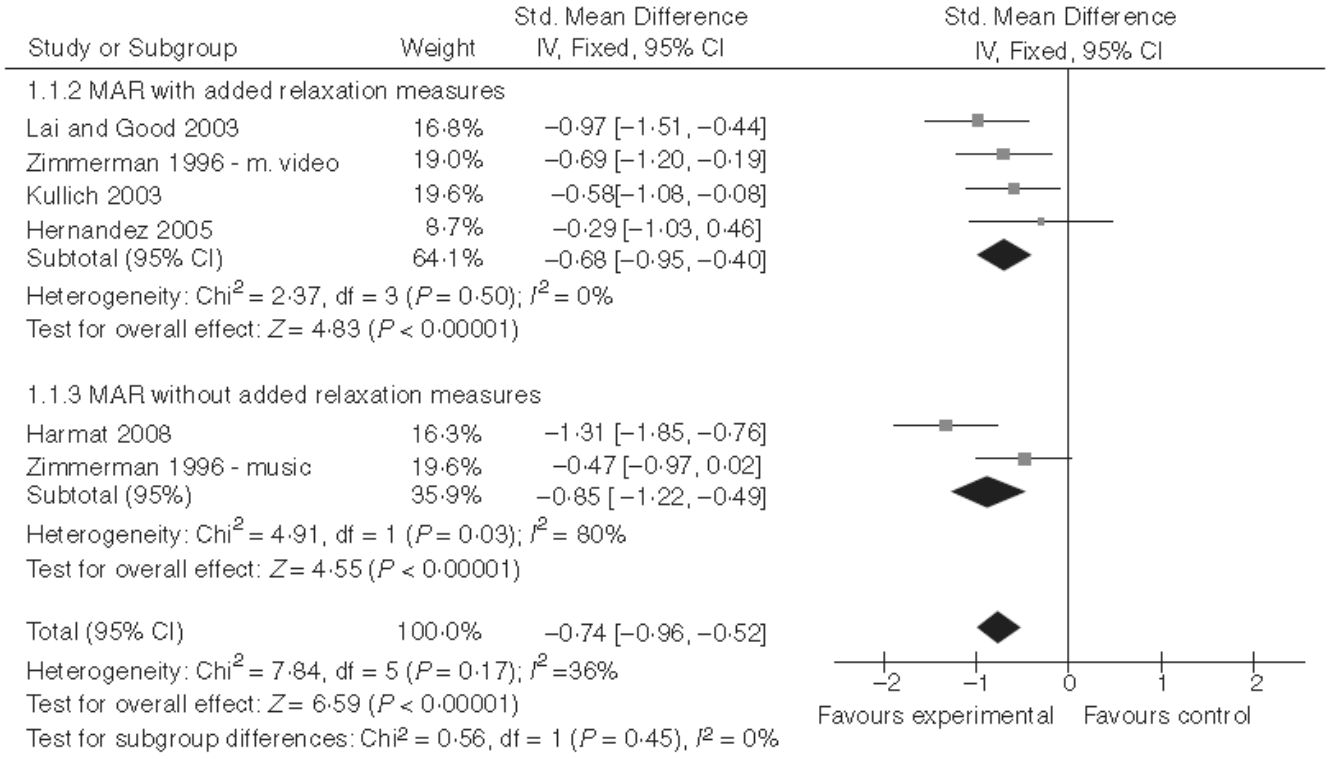

Figure 4.2 Forest plot
MAR = Music-assisted relaxation

Chapter 5

A review of systematic reviews about the efficacy of non-pharmacological interventions to improve sleep quality

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ABSTRACT

Background Insomnia is a very common condition in various populations. Non-pharmacologic interventions might offer (safe) alternatives for hypnotics.

Aim To evaluate the evidence for efficacy from systematic reviews about non-pharmacological interventions to improve sleep quality in insomnia by a systematic review of systematic reviews and meta-analyses.

Search strategy Search strategies were conducted in the Database of Abstracts of Reviews of Effects (2002 – July 2008), The Cochrane Database of Systematic Reviews (2000 – July 2008) and PubMed (1950 – July 2008). Sleep quality was the outcome measure of interest.

Selection criteria Systematic reviews about the efficacy of one or more non-pharmacological interventions for insomnia, concerning both adult and elderly populations, were included. Reviews that included studies performed among populations suffering from severe neurological or cognitive impairments or with addictive disorders were excluded.

Data analysis Relevant data were extracted. The quality of the reviews found was appraised by using the Overview Quality Assessment Questionnaire. The evidence was appraised and divided into six classes.

Results and conclusions Sixteen reviews about 17 interventions were included. Six reviews were of adequate methodological quality. Of these, only one provided an effect size: a moderate effect was found for music-assisted relaxation. Weak evidence indicating a large effect was found for multicomponent cognitive behavioural therapy, progressive muscle relaxation, stimulus control and 'behavioural only'. Weak evidence indicating a moderate effect was found for paradoxical intention. Finally, weak evidence indicating a moderate to large effect was found for relaxation training. Because of to the lack of sufficient methodological quality and the lack of calculated effect sizes, most of the included reviews were not suitable for drawing rigorous conclusions about the effect of non-pharmacological interventions on sleep quality in insomniacs. The non-pharmacological treatment of insomnia would benefit from renewed reviews based on a rigorous methodological approach.

INTRODUCTION

Insomnia is a very common condition in various populations. It can occur as a primary disorder, as a symptom of a disease, comorbid to a disease or as a transient reaction in an aroused period. The term insomnia refers to subjective complaints of difficulty falling asleep or staying asleep, or non-restorative sleep associated with marked distress or significant daytime impairment (ICSD 2005). Although several epidemiological studies about the prevalence of insomnia have been performed, it is not easy to produce hard figures. The rate depends on the definition of insomnia that the researcher used in their studies. A World Health Organisation collaborative study in 14 countries showed that 26.8% of general health care attendees are experiencing some form of sleep problem and 15% of the patients examined had trouble falling or staying asleep (Üstün et al. 1996).

Treating insomnia with hypnotics like benzodiazepines is still common practice (Verbeek 2004). However, because efficacy research often lacks prolonged follow-up data, the long-term efficacy is not certain. Moreover, hypnotics such as benzodiazepines are known to show adverse effects such as residual daytime effect, tolerance development, and withdrawal difficulties. A meta-analysis by Glass et al. (2003), which studied the risks and benefits of sedative hypnotics in older people, showed that an adverse event due to sedative hypnotics is more than twice as likely as enhanced quality of sleep.

The new-generation non-benzodiazepine hypnotics like zolpidem, zopiclone and zaleplon demonstrate fewer disadvantages (Terzano et al. 2003). As with other hypnotics, these medicines introduce an external attribution. The patient is depending on an external solution for his or her sleep problems. This can lead to ignorance of possible perpetual factors, which are due to the maintenance of sleep problems. To conclude, the newest hypnotics containing prolonged-release melatonin do not show an impressive improvement of sleep quality (Lemoine et al. 2007).

Non-pharmacological interventions (NPIs) might offer (safe) alternatives for hypnotics. However, their diversity is large. Some of them are especially developed to treat (chronic) insomnia. Many of these interventions are rooted in modern psychology, others are based on ancient philosophies. Based on the sphere of activity, four groups can be distinguished: behavioural and cognitive interventions, relaxation-improving interventions, sleep/wake rhythm control, and a group with miscellaneous interventions. Medicines that must be taken

orally are outside the scope of this review. Those include preparations that are available over-the-counter based on herbal extracts like valerian, kawa-kawa and St John's wort, traditional Chinese medicines, and homeopathic or Bach flower therapy preparations.

The efficacy of many NPIs is evaluated by research performed in the last five decades. Much of the evidence for efficacy is synthesized in systematic reviews and meta-analyses. Both aggregations may provide professionals in healthcare a relatively time-saving way to answer questions about therapies that they are considering using. From their perspective, two aspects are essential: information about the efficacy and reliable (good-quality) evidence.

The aim of this meta-review is to identify and systematically evaluate the evidence for efficacy from systematic reviews and meta-analyses about NPIs to improve sleep quality in insomnia.

METHOD

Design and search strategy

We performed a systematic review of systematic reviews about NPIs for insomnia. After an overall view of the literature about sleep interventions, a list of 25 different NPIs was compiled (see Table 5.1). This list is by no means comprehensive and could be extended by many more but we decided to limit the list to the most plausible and most commonly applied NPIs. For all the identified NPIs, we searched for reviews that evaluate the efficacy of these interventions. To this end we conducted search strategies in the following databases: Database of Abstracts of Reviews of Effects (2002 – July 2008), The Cochrane Database of Systematic Reviews (2000 – July 2008) and PubMed (1955 – July 2008) for reviews reported in English, German, French and Dutch. Search terms were allowed to be present in the keywords, title and abstract. We used the following search strategy: <intervention> AND (sleep OR insomnia OR “sleep problem”). This search was conducted between March 2006 and July 2008.

The analysis process comprised three stages: the selection and inclusion process, followed by the collecting of data and the appraising of the methodological quality, and finally, the classification of the findings.

- *Study selection and inclusion process*

Our first goal was to find systematic reviews of randomised controlled trials (RCTs) with pooled results. If no such papers were available, systematic reviews of RCTs without pooling, reviews that included non-controlled trials or case-series were sought. If no review about efficacy was found, the intervention was excluded from further exploration.

The inclusion criteria for reviews were: the review exclusively reports the efficacy of NPI(s) for (chronic) insomnia in populations with primary, secondary or comorbid insomnia, and the outcome measure was sleep quality. Studies conducted in adult populations (from 18 to 60 years old) as well as studies in elderly populations (60 years and up) were included. We excluded reviews that included studies (exclusively) performed among populations suffering from severe neurological or cognitive impairments (like dementia or Parkinson's disease) or with addictive disorders.

The inclusion took place in three steps. First the references were screened in order to determine their relevance to 'face value' and to filter out doubles. Next, the abstracts of the remaining references were screened to roughly determine if inclusion criteria were being met. Finally, full-text papers were read to determine if all the inclusion criteria were met. When papers met the inclusion criteria, characteristics and outcomes were collected.

Table 5.1 Non-comprehensive overview of non-pharmacological interventions for insomnia (1/2)

Cognitive and behavioural interventions	
Cognitive therapy (single)	This form of therapy seeks to change misconceptions about sleep and faulty beliefs and attitudes about insomnia and its perceived daytime consequences.
Multicomponent cognitive behavioural therapy	Cognitive behavioural therapy for insomnia aims to improve sleep by changing disadvantageous beliefs, attitudes and behaviours. It is described in various compositions, often including cognitive therapy, one or more behavioural techniques, relaxation techniques and sleep hygiene education.
Paradoxical intention	This is a method that consists of persuading a patient to engage in his or her most feared behaviour – staying awake. The method is based on the assumption that performance anxiety prevents proper sleep.
Sleep hygiene education	Sleep hygiene is a list of recommended behaviours and sleep-related factors that are assumed to be beneficial for a good night's rest.
Sleep restriction	This form of therapy involves curtailing the amount of time in bed to the actual amount of time spent asleep and then lengthening sleep time after sleep efficiency improves.
Stimulus control	This is a set of instructions designed to re-associate bed and bedroom temporal stimuli with rapid sleep onset.
Relaxation improving interventions	
Autogenic training	This is a technique that involves daily practice of sessions in which the practitioner repeats a set of visualisations.
Back massage	Back massage involves different techniques of massage of the back with a flat hand before bedtime.
Biofeedback	This is a relaxation improving technique that uses electronic sensors and systems that make the state of relaxation visible or audible.
Guided imagery	This treatment involves a visualisation technique to focus on some pleasant or neutral images.
Hypnotherapy	Hypnotherapy is treatment that involves achieving a psychological state of awareness that is different from the ordinary state of consciousness.
Music-assisted relaxation	A form of relaxation in which music is the single or key ingredient.
Progressive muscle relaxation	This therapy uses techniques involving a method of tensing and relaxing different muscle groups throughout the body.
Sleep-wake rhythm control	
Bright Light Exposure	Bright light treatment involves exposure to high-level fluorescent light (typically 10 000 lux) for periods of around 2 h daily.
Chrono therapy	Treatment for delayed sleep phase syndrome that aims to synchronize the sleep pattern to the demands of lifestyle by moving the bedtime and rising time forward each day.

Table 5.1 Non-comprehensive overview of non-pharmacological interventions for insomnia (2/2)

Miscellaneous interventions	
Acupuncture	A form of treatment used in traditional and classical Chinese medicine whereby fine needles are inserted in selected points in the skin or in the auricle.
Acupressure	A form of treatment used in traditional and classical Chinese medicine whereby pressure is applied to selected points on the skin by hand or by devices.
Aromatherapy	Aromatherapy is the external use of essential oil provided by distillation of plant parts.
Ayurveda	Ayurveda is a form of yoga; a mixture of physical activities, breathing exercises and a specific philosophic attitude towards life.
Brain music therapy	Brain music therapy comprises the recording and 'translation' of brain waves of patients with insomnia into music by means of an electroencephalogram.
Magnetic therapy	Magnetic field therapy involves the use of magnets to treat a variety of physical and emotional conditions.
Mindfulness meditation	A form of meditation that involves awareness of the entire field of attention (thoughts, feelings or perceptions) at each moment.
Physical exercise	Theoretically, exercise might improve sleep quality by thermoregulation, body restoration, and energy conservation.
Transcendental meditation	This as a technique that involves sessions of 15-20 min each day in which the practitioner sits in a comfortable way and repeats selected sound patterns or words, called mantras.
White noise	White noise is sound that contains all audible frequencies in equal amounts. It is comparable with monotone natural sound like rain and wind and is experienced as soothing and calming by listeners.

- *Sleep quality*

Although sleep quality is a ubiquitously used construct, a clear definition cannot be found in scientific literature. Buysse et al. (1989) stated that sleep quality is a complex phenomenon that includes quantitative aspects of sleep, such as sleep duration and sleep latency, as well as pure subjective aspects, such as 'depth' or 'restfulness', and that it is hard to define or measure objectively. Krystal and Edinger (2008) suggested that sleep quality may reflect different aspects of sleep among people. A minority of studies use objective outcome measures like polysomnography or actigraphy data, or a combination of both subjective and objective measures. The heterogeneity of assessment methods and outcome measures is therefore large while the correlation between subjective and

objective measurements has been found to be poor (Matousek et al. 2004). This makes comparison of outcomes difficult or impossible.

Most studies concerning the evaluation of sleep-improvement interventions use subjective measures derived from sleep logs or self-rating questionnaires. Sleep logs often comprises a Likert-style rating of sleep quality of the previous night. Other subjective evaluations are based on self report questionnaires which assesses the multiple components of sleep quality (i.e. duration, latency, daytime functioning, disturbances). Such questionnaires are for example the Pittsburgh Sleep Quality Index (Buysse et al. 1989) and the Richards-Campbell Sleep Questionnaire (Richards et al. 2000).

Subjective reports do not always reflect actual changes in sleep parameters. However, because insomnia is a subjective complaint, the perception of change might be an important factor in treatment success. Moreover, subjective reports are easy and cheaply obtainable measures and are therefore commonly used.

Because the vast majority of studies use subjective outcome measures and to avoid inappropriate comparison of objective and subjective outcome measures, we choose subjectively assessed sleep quality as the primary outcome measure of interest for this meta-review.

- *Appraisal of the methodological quality*

To appraise the methodological quality of the included reviews we used the Overview Quality Assessment Questionnaire (OQAQ; Oxman & Guyatt 1991). This is a validated nine-item tool (see Table 5.2) that is widely used and recognised as useful in the appraisal of the methodological quality of systematic reviews and meta-analyses. Based on the rating of the first eight questions, at item 9 a score is assigned. The maximum score is 7. Scores of 5 and upward reflect minor or no methodological flaws, while scores from 0 up to 5 reflect major methodological flaws. To minimise the risk of bias, two researchers assigned the score independently. Discrepancies between the scores were discussed until consensus was reached. An exception was made for one review (de Niet et al. 2009a) because three of the authors of this review are also authors of this article. To prevent bias in judgment, two independent scientists appraised the quality of this review.

Table 5.2 Overview Quality Assessment Questionnaire†

1	Were the search methods used to find evidence on the primary question(s) stated?
2	Was the search for evidence reasonably comprehensive?
3	Were the search criteria used for deciding which studies to include in the review reported?
4	Was bias in the selection of studies avoided?
5	Were the criteria for assessing the validity of the included studies reported?
6	Was the validity of all studies referred to in the text assessed using appropriate criteria?
7	Were the methods used to combine the findings of the relevant studies (to reach a conclusion) reported?
8	Were the findings of the relevant studies combined appropriately relative to the primary question of the overview?
9	Were the conclusions made by the author(s) supported by the data and/or analysis reported in the overview?

† (Oxman & Guyatt 1991)

Classification of the findings

To provide an easy overview of our findings, we used a system to divide the findings into six classes. In this system two aspects for the reviews are leading: the effect size of the evaluated intervention and the methodological quality. The basic assumption for this classification system is that a review with major methodological flaws is likely to be biased and thus cannot provide reliable findings and conclusions. As a consequence, we first separate evidence from reviews into two groups, based on their methodological quality. The first group, called 'adequate evidence', comprises reviews with minor or no methodological flaws (OQAO score 5 and higher). The second group, called 'weak evidence', comprises reviews with major methodological flaws (OQAQ score < 5). Subsequently, we made a division per group, based on the effect size of the intervention on sleep quality, indicated by the standardized mean difference (Cohen's d). Effect sizes of 0.2 are usually interpreted as small, those of 0.5 as moderate, and from 0.8 as large (Cohen 1988). As a consequence, we distinguish six different outcomes (Table 5.3). If a review did not provide pooled data about sleep quality measures, the interventions reviewed were not classified.

Table 5.3 Classification of the findings

Methodological quality (OQAQ† score)	**Effect size** (SMD‡)	**Classification**
≥ 5 No/minor flaws	≥ 0.8 Large effect	Adequate evidence for large effect
≥ 5 No/minor flaws	≥ 0.5 and < 0.8 Moderate effect	Adequate evidence for moderate effect
≥ 5 No/minor flaws	≥ 0.2 and < 0.5 Small effect	Adequate evidence for small effect
< 5 Major flaws	≥ 0.8 Large effect	Weak evidence for large effect
< 5 Major flaws	0.5 and < 0.8 Moderate effect	Weak evidence for moderate effect
< 5 Major flaws	≥ 0.2 and < 0.5 Small effect	Weak evidence for small effect

† : Overview Quality Assessment Questionnaire (Oxman & Guyatt 1991)
‡ : Standardized Mean Difference

RESULTS

Search results

Figure 5.1 shows detailed information of our selection process. From the initial 820 found references, 16 reviews were selected for inclusion. One of the included reviews (Morin et al. 2006) was an update of an earlier review (Morin et al. 1999). The most recent version of the review is included.

Properties of the included reviews

Seven of the included papers are systematic reviews, and nine papers are reviews combined with a meta-analysis. However, three of these meta-analyses provided no pooled data due to insufficient inclusion material. Only three meta-analyses provided pooled data on the outcome measure ‘sleep quality’.

Six reviews exclusively included RCTs. In the remaining 10 reviews, controlled and uncontrolled studies were mixed or the included study designs were not clear. The number of included studies ranged from 0 to 85 (mean = 23), the number of included patients ranged from 0 to 2246 (mean = 865). Two reviews were not explicit about the number of included patients.

Six of the included reviews are concerned with the evaluation of several NPIs, the remaining 10 evaluated a single intervention. Most reviewed interventions are multi-faceted cognitive behavioural therapy and acupuncture or varieties thereof.

- *Conceptual clarity*

Many of the reviews lack conceptual clarity about the disorder under study. Six of the included reviews do not provide a definition of insomnia. Some reviews used other (undefined) terms and/or used the terms inconsequently. The three Cochrane reviews by Montgomery and Dennis for instance did not define 'sleep problems' and interchange the concepts 'sleep problems', insomnia, 'sleep disturbances' and 'sleep disorders' in their background section (Montgomery & Dennis 2002a; Montgomery & Dennis 2002b; Montgomery & Dennis 2003).

Two of the included reviews did not provide a clear description of the intervention under study. Some interventions are described with various names and it is not always clear whether there are differences in content and what these differences are. Examples are: cognitive behavioural therapy (CBT), multicomponent CBT, omnibus CBT or relaxation, somatic relaxation, cognitive relaxation and other relaxation.

- *Heterogeneity*

All included reviews attempted do deal with a large heterogeneity in outcome measures, making pooling or comparison very challenging. Another issue in the included reviews is the heterogeneity in intervention duration, follow-up and characteristics of the study population.

- *Methodological quality*

The initial measure of agreement between the two raters was 0.86 (interclass correlation coefficient). Total agreement was achieved after discussing the differences.

The median OQAQ score of the 16 included studies was 3.7. Only one of the included studies achieved the maximum score for methodological quality. Ten reviews had a score lower than 5, indicating major methodological flaws. The remaining five had an OQAQ score of 5 or higher, indicating only minor or no methodological flaws. The most frequent found flaws were: no or unclear validity

assessment of included studies (Morin et al. 2006, Irwin et al. 2006, McCurry et al. 2007, Morin et al. 1994, Pallesen et al. 1998, Sok et al. 2003, Kalavapalli & Singareddy 2007, Winbush et al. 2007), only papers in English languages being included or not being explicit about the included languages (Morin et al. 2006, Montgomery & Dennis 2002a, Montgomery & Dennis 2002b, Montgomery & Dennis 2003, Irwin et al. 2006, McCurry et al. 2007, Morin et al. 1994, Pallesen et al. 1998, Sok et al. 2003, Winbush et al. 2007, Murtagh & Greenwood 1995, Wang et al. 2005), and the included studies are a mix of controlled and uncontrolled studies (Morin et al. 2006, Pallesen et al. 1998, Sok et al. 2003, Kalavapalli & Singareddy 2007, Winbush et al. 2007, Murtagh & Greenwood 1995).

- *Overview of the findings*

Most of the reviews reached no firm conclusions about the efficacy of the non-pharmacological intervention and suggest further research. This is due to the reported methodological flaws of the included studies. Reviews that reported firm conclusions about the efficacy (Morin et al. 2006, Irwin et al. 2006, McCurry et al. 2007, Morin et al. 1994, Pallesen et al. 1998, Sok et al. 2003, Kalavapalli & Singareddy 2007, Murtagh & Greenwood 1995, Wang et al. 2005) all suffer with severe methodological flaws.

Only three of the sixteen included reviews (de Niet et al. 2009a, Irwin et al. 2006, Murtagh & Greenwood 1995) provided pooled statistics of the measure 'sleep quality'. These three reviews discussed seven different non-pharmacological interventions or category of interventions for insomnia. Table 5.4 provides an overview of the evaluated interventions and a conclusion about the evidence that is provided by the systematic reviews.

The classification we made indicated only adequate evidence for music-assisted relaxation. A moderate effect for this intervention was found. Weak evidence for a large effect was found for multi-component cognitive behavioural therapy, progressive muscle relaxation, stimulus control and the category 'behavioural only'. Weak evidence for a moderate effect was found for paradoxical intention. Finally, weak evidence for a moderate to large effect was found for relaxation training.

The large diversity of methodology and outcome measures of the included reviews made further pooling of data impossible.

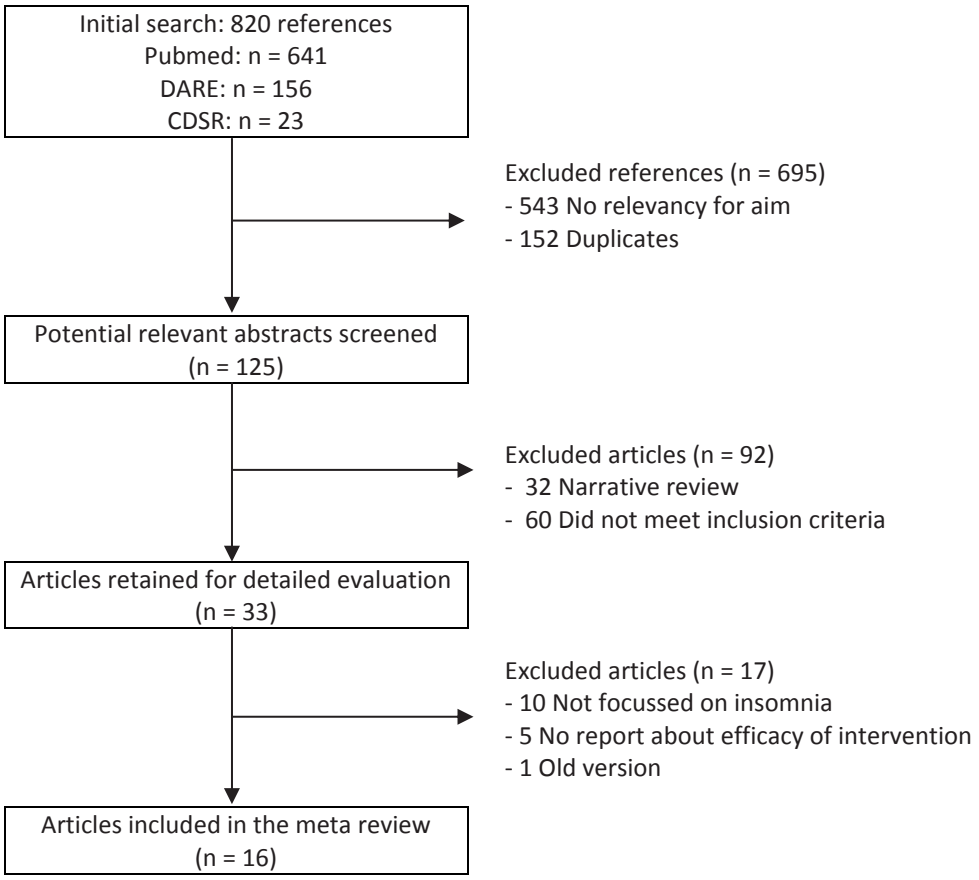

Figure 5.1 Flow diagram of the review selection process.
CDSR: The Cochrane Database of Systematic Reviews
DARE: Database of Abstracts of Reviews of Effects

DISCUSSION

The aim of this meta-review was to identify and evaluate the evidence for efficacy from systematic reviews and meta-analyses about non-pharmacological interventions to improve sleep quality in insomnia. It therefore focussed solely on the evidence that is presented in systematic reviews. The results of this review show that there are a substantial number of non-pharmacological interventions to consider in the treatment of insomnia. The efficacy of these interventions has been subject to scientific research and aggregated evidence in the form of systematic reviews can be found for many of them. Systematic reviews are considered to be high-level evidence and so it might be attractive or obvious to make firm conclusions about the efficacy of NPIs. However, this review of systematic reviews also showed that most of the included reviews suffer from major methodological flaws. We think it is remarkable that so much of the evidence in the form of systematic reviews, about such an important subject, did not meet current criteria for quality.

The present analysis has several limitations that should be kept in mind when interpreting its conclusions. First, even though we performed a thorough search strategy, there is no guarantee that we included all relevant reviews. Fortunately, research in this area is an ongoing process and, as a consequence, this review will become out of date as soon as new reviews on this topic are published. Second, our only outcome measure of interest was sleep quality. Although many of the included meta-analyses evaluated the efficacy of the treatment with sleep quality as outcome measure (or one of the outcome measures), some used different parameters of sleep.

An issue that arose from this review is the large heterogeneity in intervention duration, follow up and characteristics of the study population. Although power is enhanced by combining studies, also the risk of bias is introduced when for instance dissimilar groups are combined. For many of the included studies, the question of appropriateness of combining is justified. Due to these reasons, the reliability of the conclusions of some of the individual reviews – especially those with a low OQAQ score - may be undermined and thus must be viewed with some caution.

- *Conclusion*

When rigorous criteria for the appraisal of the methodological quality of the reviews are used, most included reviews are methodologically not rigorous enough to enable solid conclusions to be drawn. Does this mean that our findings demonstrate that most non-pharmacological interventions for insomnia are not effective? In our opinion this is not the right conclusion. We have the impression that for many of these interventions there are one or more high quality RCTs available that provided reliable evidence about their efficacy. What can be concluded is that the evidence provided in most of the included reviews is – owing to the lack of sufficient methodological quality and the lack of calculated effect sizes – not suitable to enable rigorous conclusions to be drawn about the effect of non-pharmacological interventions on sleep quality in insomniacs.

- *Recommendations*

As stated earlier, systematic reviews can be important tools in the clinical decision-making of professionals. Moreover, the outcomes of systematic reviews are used as tools for political decision-making. To fulfil this role, verifiable information about the efficacy of the intervention and a high quality and reliability might be expected. This review showed that many of the included reviews did not meet these expectations. As a consequence, it must not be automatically assumed that systematic reviews provide high-quality evidence. Also, because systematic reviews need critical appraisal, a quality assessment to determine the 'value' of the provided evidence is essential. As McQuoy et al. (1998) stated, reviews of inadequate quality may be worse than no reviews because faulty decisions may be made with unjustified confidence.

A gold standard for assessing the quality of reviews is still lacking. Current instruments for the appraisal of methodological quality of reviews are putting much emphasis on the way these reviews have been synthesised. We do agree on that point. Accountability and transparency about the research method are key features of scientific research. Ideally, a scientific report provides sufficient and precise information about the methodology used in such a way that the test – or in the case of reviews, the synthesis – can be repeated, providing the same results. Many of the included reviews do not meet this requirement, resulting in conclusions that must be taken with at least some caution.

The non-pharmacological treatment of insomnia would benefit from renewed systematic reviews. These reviews should be based on a rigorous methodological approach. Such approaches are for example the QUOROM statement (Moher et al. 1999) or the approaches described in the Cochrane handbook (Higgins & Green 2008) or the handbook of the Centre for Reviews and Dissemination (CRD 2001). Until such time, clinicians must be aware that systematic reviews about the efficacy of NPIs for insomnia are not always 'high-level evidence' per se.

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (1/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Acupuncture	1	Insomnia	2b	7	-	*''The current evidence is not sufficiently extensive or rigorous to support the use of any form of acupuncture for the treatment of insomnia"*	Insufficient data for conclusion
	2	Insomnia	unclear	2	-	*"This review suggests that acupuncture may be an effective intervention for the relief of insomnia"*	Insufficient data for conclusion
	3	Primary and secondary insomnia	2b, 3b, 4	2	-	*"Despite the limitations of the reviewed studies, all of them consistently indicate significant improvement in insomnia with acupuncture"*	Insufficient data for conclusion
Auricular acupuncture	4	Insomnia	2b	6	-	*"Auricular acupuncture appears to be effective for treating insomnia"*	Insufficient data for conclusion
Behavioural-only interventions	5	Insomnia in middle-aged and older adults	2b	3	0.91 [0.56, 1.27]	*"…robust improvements in sleep quality"*	Weak evidence for large effect

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (2/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Biofeedback	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
	7	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Biofeedback is effective and recommended therapy in the treatment of chronic insomnia"*	Insufficient data for conclusion
Bright light therapy	8	Sleep problems in adults 60+	-	6	-	*"No trials were found on which to base conclusions for the effectiveness of this treatment"*	Insufficient data for conclusion
Cognitive and behavioural overall	9	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
	10	Insomnia in older adults	unclear	2	-	*"Behavioral treatments produce significant and long-lasting improvements in the sleep pattern of older insomniacs"*	Insufficient data for conclusion
Cognitive therapy (single)	5	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Insufficient evidence was available for cognitive therapy to be recommended as a single therapy"*	Insufficient data for conclusion
Mindfulness	11	unclear	unclear	3	-	*"Controlled studies have not clearly demonstrated the positive effects of MBSR on sleep quality"*	Insufficient data for conclusion

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (3/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Multi-component CBT	12	Insomnia	unclear	3	1.12 [?]	*"…psychological interventions produce reliable and durable benefits in the treatment of insomnia"*	Weak evidence for large effect
	13	Sleep problems in adults 60+	1b, 2b	6	-	*"The data suggest a mild effect of CBT, best demonstrated for sleep maintenance insomnia"*	Insufficient data for conclusion
	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
	14	Persistent primary insomnia in adults	1b, 2b	3	-	*"CBT was superior to any single-component treatment. However, the standard components need to be clearly defined"*	Insufficient data for conclusion
	9	Insomnia among older adults 60+	1b, 2b	2	-	*"Multi-component CBT was found to meet evidence-based treatment criteria"*	Insufficient data for conclusion

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (4/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Multi-component CBT	7	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Cognitive behavior therapy, with or without relaxation therapy, is effective and recommended therapy in the treatment of chronic insomnia"*	Insufficient data for conclusion
Music-assisted relaxation	15	Sleep problems in adults and elderly	2b	5	-0.74 [-0.96, -0.52]	*"MAR is an effective aid for improving sleep quality in patients with various conditions"*	Adequate evidence for moderate effect
Paradoxical intention	12	Insomnia	unclear	3	0.77 [-0.79, -2.33]	*"…psychological interventions produce reliable and durable benefits in the treatment of insomnia."*	Weak evidence for moderate effect
Physical exercise	16	Sleep problems in adults 60+	1b	6	-	*"One trial showed that exercise may enhance sleep"*	Insufficient data for conclusion
Progressive muscle relaxation	12	Insomnia	unclear	3	0.97 [?]	*"…psychological interventions produce reliable and durable benefits in the treatment of insomnia."*	Weak evidence for large effect
	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (5/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Progressive muscle relaxation	7	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Relaxation training is effective and recommended therapy in the treatment of chronic insomnia"*	Insufficient data for conclusion
Relaxation training	5	Insomnia in middle-aged and older adults	2b	3	0.53 [0.09 – 0.96]	*"…robust improvements in sleep quality"*	Weak evidence for moderate effect
	12	Insomnia	unclear	3	0.98 [?]	*"…psychological interventions produce reliable and durable benefits in the treatment of insomnia."*	Weak evidence for large effect
Sleep hygiene education	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
Sleep restriction	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
	9	Insomnia among older adults 60+	1b, 2b	2	-	*"Sleep restriction was found to meet evidence-based treatment criteria"*	Insufficient data for conclusion

Table 5.4 Overview of evaluated NPIs and the conclusion about the strength of evidence and effect (6/6)

Intervention	SR	Condition	Level(s) of evidence of included studies†	OQAQ‡	SMD§ (95% CI)	Conclusion of the individual reviews	Evidence/effect conclusion
Sleep restriction	7	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Sleep restriction is effective and recommended therapy in the treatment of chronic insomnia"*	Insufficient data for conclusion
Stimulus control	12	Insomnia	unclear	3	1.30 [?]	*"…psychological interventions produce reliable and durable benefits in the treatment of insomnia."*	Weak evidence for large effect
	6	Insomnia	unclear	3	-	*"…non-pharmacological interventions produce reliable and durable changes…"*	Insufficient data for conclusion
	7	Chronic insomnia	1b, 2b, 3b, 4	2	-	*"Stimulus control therapy is effective and recommended therapy in the treatment of chronic insomnia"*	Insufficient data for conclusion
	9	Insomnia among older adults 60+	1b, 2b	2	-	*"Stimulus control therapy partially met criteria"*	Insufficient data for conclusion

Legend for table 5.4:

1: Cheuk et al. 2007
2: Sok et al. 2003
3: Kalavapalli & Singareddy 2007
4: Chen et al. 2007
5: Irwin et al. 2006
6: Morin et al. 1994
7: Morin et al. 2006
8: Montgomery & Dennis 2002a
9: McCurry et al. 2007
10: Pallesen et al. 1998
11: Winbush et al. 2007
12: Murtagh & Greenwood 1995
13: Montgomery & Dennis 2003
14: Wang et al. 2005
15: de Niet et al. 2009a
16: Montgomery & Dennis 2002b

†: Based on the evidence hierarchy by Sackett et al. (2000)
- 1a: Systematic reviews of high-quality RCTs
- 1b: Individual high quality RCT (low alpha and beta errors)
- 2a: Systematic review (with homogeneity) of cohort studies
- 2b: Individual cohort study (including low-quality RCT)
- 3a: Systematic review (with homogeneity) of case-control studies
- 3b: Individual case-control study
- 4: Case series (and poor-quality cohort and case-control studies)
- 5: Expert opinion without explicit critical appraisal

‡: Overview Quality Assessment Questionnaire (Oxman & Guyatt 1991).

§ : Standardized Mean Difference.

Chapter 6

Can mental healthcare nurses improve sleep quality for inpatients?
A pilot study

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ABSTRACT

The article describes a pilot study that was carried out to gain an indication as to whether mental health care nurses can apply evidence-based interventions for sleep problems effectively in inpatient mental health care. The study had a pre-test/post-test design and a comparison group was employed.

The study was performed on three psychiatric admission wards, located in three different towns in one province of the Netherlands. The participants were inpatients (18 – 60 years old) admitted owing to severe mental health problems like psychotic-, mood- or anxiety disorders. Of the newly admitted patients, 62.8% perceived having a sleep problem.

Two brief, evidence-based interventions were introduced on two wards: the first with stimulus control (SC) as active component; the second with music-assisted relaxation (MAR). A third ward served, with no interventions other than care as usual, as point of comparison. Sleep quality was monitored using the Richards Campbell Sleep Questionnaire (RCSQ). The change score means of the treatment groups were compared with the mean score of the comparison group by means of a *t*-test. Estimates of effect were calculated.

The results of this study showed that MAR produced a statistically significant improvement of sleep quality and showed a large effect size. The total RCSQ score did not improve significantly. SC failed to produce statistically significant improvement of sleep quality, nor of the RCSQ total score.

This pilot study provided a strong indication that mental health nurses can apply MAR effectively. No such indication was found for SC.

INTRODUCTION

Experiencing poor sleep quality is a chief complaint of many patients suffering from a psychiatric disorder. Many patients who are admitted to inpatient care have been suffering from sleep problems for some time. The prevalence of these problems among new referrals to a psychiatric general hospital is 60% and high in all psychiatric categories (Okuji et al. 2002). Assessment of sleep quality in a sample of patients using the Pittsburgh Sleep Quality Index (Buysse et al. 1989) showed that 66 percent of these patients are 'bad sleepers' (de Niet et al. 2008). There is a complex but clear interaction between sleep problems and psychiatric disorders. Insomnia is likely to exacerbate one's mania, depression, or anxiety. Equally, depression or anxiety is likely to affect one's ability to initiate or maintain efficient sleep (Kloss & Szuba 2003, p. 43).

Although benzodiazepines are no longer covered by the Dutch health insurers, sleep problems of many patients are still treated with these medicines. However, this treatment is under serious debate among GP's (Siriwardina et al. 2010) because benzodiazepines are known for serious disadvantages like dependency, decreasing efficiency, and safety-threatening daytime sedation (Kripke 2000).

In the last decades of the former century, many non-pharmacological interventions (NPIs) had been developed that are directed toward treating the underlying causes of sleep problems. Effective NPIs might offer (safe) alternatives for benzodiazepines. These NPIs include various methods such as behavioural and cognitive interventions, relaxation-improving interventions and sleep-wake rhythm control.

The non-pharmacological treatment of sleep problems differs significantly from the pharmacological treatment. The latter improves (pre-)sleep conditions via an external agent (medication). It is therefore unlikely that the patient is stimulated to actively contribute to his own recovery. Non-pharmacological treatment, on the other hand, appeals to the patients' own ability and responsibility to identify and change factors that are disadvantageous for a healthy sleep (i.e. disrupting feelings and thoughts, tensions, unfavourable behaviours and false expectations). Therefore, the treatment of sleep problems by non pharmacological interventions closely fits to the recovery model – an approach to mental health disorder or substance dependence that emphasizes and supports each individual's potential for recovery (Caldwell et al. 2010).

The literature on non-pharmacological interventions for sleep problems (Morin et al. 1994, de Niet et al. 2009c) shows that some of these interventions are effective. However, the vast majority of these studies took place in populations without a psychiatric condition. Furthermore, the interventions were all preceded by extensive training and/or performed by experienced therapists.

According to Voyer and Martin (2003), nurses are in a very favourable position to discuss, implement or apply non-pharmacological alternatives for the treatment of sleep problems. A study (de Niet et al. 2009b) showed that nurses in mental health care are aware of the importance of sleep and good nursing management for sleep problems. The same study also showed that current nursing care for sleep problems is seldom evidence-based and that nurses are largely satisfied about the care they provide. Despite this satisfaction, they are willing to apply alternative evidence-based care but identify the lack of knowledge, skills and time as obstacles for implementation.

This article describes a pilot study in which evidence-based NPIs were introduced for inpatient mental health care in order to reinforce standards of nursing care for sleep problems. Based on the findings of previous studies (de Niet et al. 2009a, de Niet et al. 2009c), two interventions were carefully selected two of these interventions and introduced them in practice; one based on music-assisted relaxation and one based on stimulus control. The first intervention demands little team cooperation, while the second involves considerable team cooperation.

Background

Although sleep problems are highly prevalent in mental health care (Okuji et al. 2002) and nurses generally recognise the importance of a good night's sleep (de Niet et al. 2009b), these problems receive little systematic attention in nursing care (Southwell & Wistedt 1995). A qualitative study (Collier et al. 2003) suggested that patients' difficulties with sleeping are not discussed with inpatient staff but suffered in silence. Research in a somatic care setting (Florin et al, 2005) showed that patients identify sleep problems as one of several severe problems that are not recognized by nurses. There is no reason to assume that this situation is more favourable in mental health care. A reason for this lack of attention might be found in the way sleep problems are perceived by mental health care professionals: they are predominantly conceived and approached as symptoms of the (primary) psychiatric disorder (Harvey 2001). As a consequence, it is assumed

that sleep problems will dissolve when the primary disorder is in remission. However, this assumption is questionable to say the least. Insomnia complaints are often seen as a persistent residual that is associated with increased risk of recurrence of major depression (Dombrovski et al. 2008), bipolar disorders (Plante & Winkelman 2008) and post-traumatic stress disorder (Spoormaker & Montgomery 2008).

- *Aim and questions*

The aim of this pilot study is to obtain an indication as to whether mental healthcare nurses can apply evidence-based interventions for sleep problems. Our first question was: Can mental health care nurses apply two brief nursing interventions effectively – one based on stimulus control and one based on relaxation by music – in inpatient mental health care? Our second question was: Is there a difference in effect between an intervention that demands little team effort and one that requires considerable team effort?

METHODS

- *Study design*

We performed a pilot study. A quasi-experimental pre-test/post-test design with a comparison group was employed. Data collection took place in three comparable admission wards of a psychiatric hospital. One of these wards served as the comparison condition.

Data were collected between October 2008 and June 2009. A total of 171 patients were assessed for sleep problems at admission.

- *Settings and participants*

This study was performed among the patients of three admission wards of a psychiatric hospital, located in three different towns within the same province (Gelderland) of the Netherlands. These wards are comparable in nature, scope and size. The authors collected data among patients with sleep problems who were admitted to these wards.

Patients on these wards were admitted owing to their severe mental health problems and most of them were diagnosed with psychotic-, mood- or anxiety disorders. The age range was between 18 and 60 years. The mean admission time was approximately three weeks, ranging from some several days to several months. Sixty-six percent of these patients were female, 34 percent male. Of the newly admitted patients, 62.8% perceived themselves to have a sleep problem (one or more symptoms of insomnia). Just under a quarter (23.5%) of the assessed patients indicated that they suffered severe snoring or breathing pauses during sleep, while 11.7% experienced symptoms that possibly indicated restless legs.

Care for these patients is provided by various professionals like psychiatrists, psychologists and nurses. Nurses are the largest group, the majority consisting of registered mental health care nurses with various levels of training (medium vocational, high vocational, apprenticeship). A small minority are trainee nurses or social pedagogical carers.

In order to gain insight into the effect of the interventions over time, it was the authors' goal to collect data of individual patients as long as possible during the admission period. However, owing to the nature of the participating wards, only a few patients with sleep problems stayed for more than three weeks. As a consequence, little data about the effect after two weeks were collected. A total of 198 RCSQ forms of 72 individual patients were gathered. Of 54 of the patients, data for two or more measures could be gathered. For 18 patients, only one form was received. These patients were excluded from further analyses.

- *Inclusion and exclusion*

During the observation period, each new admitted patient was assessed. Patients on the two wards where an intervention had been introduced, and who demonstrated the presence of insomnia symptoms, were offered extended non-pharmacological care. If the assessment revealed symptoms that might indicate the presence of sleep apnoea or restless legs, the patient was excluded from participation since both disorders are unlikely to be influenced by the introduced interventions. In these cases, the integrated decision-tree invited nurses to discuss these symptoms with a physician.

- *Independent variables*

Based on a systematic review (de Niet et al. 2009c), the authors used three criteria for selection: the intervention had to be directed to the treatment of insomnia complaints; its efficacy had to have been demonstrated by scientific research; and implementation of the intervention was time-limited. Next, the authors opted for two interventions: the first in which stimulus control (SC) was the key component and a second using music-assisted relaxation (MAR).

The SC intervention was introduced on one ward, and the MAR intervention on a separate ward. Both interventions were accompanied by sleep hygiene education. On the third ward, whose patients served as a comparison group, only brief assessment and monitoring were introduced.

- *Stimulus control*

Many patients have been suffering from sleep problems for some time before admission. Especially in the case of mood disorders, they often precede the onset of the psychiatric disorder (Riemann 2007). It is therefore plausible to assume that these complaints are (wholly or partly) the result of a conditioned response to temporal (bedtime) and environmental (bed/bedroom) cues; a negative association between going to bed and not sleeping has been formed.

Stimulus control (Bootzin 1972) is a form of cognitive behavioural therapy that aims to restore the association between bed and sleep environment. The second objective of SC is to establish a consistent circadian rhythm. It consists of a set of instructions (Table 6.1) designed to re-associate temporal (bedtime) and environmental (bed and bedroom) stimuli with rapid sleep onset (Morin et al. 1994). Systematic reviews (Morin et al. 1999, Morin et al. 2006) showed that SC is an effective treatment for chronic insomnia.

SC demands both daytime and night-time action from nurses and thus coordination and team cooperation are required for this intervention.

Table 6.1 Stimulus control instructions

1.	Go to bed only if you feel sleepy
2.	Avoid activities in the bedroom that keep you awake, other than sex
3.	Sleep only in your bedroom
4.	Leave the bedroom when awake for more than 15 minutes
5.	Return to the bedroom only when sleepy
6.	Arise at the same time each morning regardless of the amount of sleep obtained that night
7.	Avoid daytime napping

- *Music-assisted relaxation*

Music has the potential to reduce anxiety in care delivery (Evans, 2002). According to Johnson (2003) music is also able to decrease frustration and dreads that are associated with sleep complaints. Music thus might be able to counteract psychological pre-sleep arousal.

Music-assisted relaxation is a relaxation-improving intervention in which music is the key ingredient. A meta-analysis (de Niet et al. 2009a), showed a moderate effect size (standardized mean difference, -0.74; 95% CI: -0.96, -0.52) of MAR on the experienced sleep quality. MAR might be beneficial for the improvement of sleep quality in hospitalized patients as well.

In the current study, music was offered in the form of pre-recorded music on ten small MP3 players. These players were offered in a soft case with built-in loudspeaker and with ear-phones. A wide variety of soothing music was provided, and patients could choose what to listen to from this selection. Patients with sleep problems were instructed to use the music daily at bedtime.

- *Sleep hygiene-education*

There is no evidence showing that sleep hygiene education alone is an efficacious intervention to improve sleep quality. Nevertheless, sleep experts assume that education about behaviour and environmental aspects that may interfere with sleep quality is a meaningful attribution in the treatment of insomnia (Morin et al. 1999). To establish a common knowledge base for education, we provided nurses a set of sleep hygiene instructions and a set of ‘sleep facts’. This knowledge was presented in a practical booklet and explained in several meetings. To support the educational use of sleep hygiene, nurses were given the option of providing their

patient with a small pamphlet entitled 'Things you can do yourself if you can't sleep' and discussing this.

Instruments

- *Brief assessment of insomnia*

To determine whether patients were eligible for the non-pharmacological nursing intervention, a standardized brief assessment tool was implemented. This tool was based on an instrument introduced by Verbeek (2005) and consists of three questions and an integrated decision-tree (Table 6.2). The first question aims to identify insomnia complaints, while the second and third questions are aimed at getting an indication about the presence of sleep apnoea or restless legs. This small-scale instrument is not capable of diagnosing a sleep apnoea syndrome or a restless legs syndrome. Both these sleep disorders should be treated medically and are unlikely to be influenced by the presented interventions. When the presence of sleep apnoea or restless legs is suspected, the nurses are invited to discuss this with a physician.

- *Monitoring the sleep quality*

The importance of sleep assessment in inpatient care is emphasized in many studies (Lee & Ward 2005, Holcomb 2006), and a diversity of instruments for the assessment of sleep quality can be considered. Previous research (de Niet et al. 2008) showed that many patients found it hard to fill in the commonly used Pittsburgh Sleep Quality Index (Buysse et al. 1989), even when supported by a research assistant. This nineteen-item questionnaire demands a good memory concerning the sleeping behaviour of the previous four weeks. Instead, we chose for this study the validated and easily applicable Richards-Campbell Sleep Questionnaire (RCSQ: Richards-Campbell et al. 2000). This is a five-item visual analogue scale to subjectively measure the perceived quality of sleep, often used in clinical research. Five aspects of sleep are assessed: sleep depth, sleep (onset) latency, awakenings after sleep onset, sleep continuation (returning to sleep after awakening during the night) and perceived sleep quality. The RCSQ showed good internal consistency reliability (0.90) and a correlation of 0.58 with the polysomnography sleep efficiency index in critical care patients (Richards-Campbell et al. 2000). The range of the item scores is 0 (poor) to 100 (optimum). A

total score is obtained by summing the scores of the five items, and dividing this sum by five.

In this study, the sleep of every included patient was monitored weekly at the same fixed point in time. The data was gathered anonymously. Table 6.3 summarizes how interventions and instruments are used in the three conditions.

Table 6.2 Brief assessment of insomnia

	Question for patient	Decision
1	Do you recognize one of these complaints? - problems with sleep onset? - problems with sleep continuation? - waking up too early? - a non-refreshing sleep?	No > There is no sleep problem. The patient is non-eligible for the non-pharmacological intervention.
		Yes > Continue with question 2
2	Did other people ever tell you that you snore loudly or that you have breathing pauses during sleep? Moreover, do you feel sleepy during the day?	No > Continue with question 3
		Yes > Discuss with physician. The patient is non-eligible for the non-pharmacological intervention.
3	Is your sleep or sleep onset disrupted by restless feelings (burning, itching, tugging) in your legs?	No > The patient is eligible for the non-pharmacological intervention.
		Yes > Discuss with physician. The patient is non-eligible for the non-pharmacological intervention.

Table 6.3 Overview of interventions and data collection

	Ward 1: Intervention with Stimulus Control	**Ward 2:** Intervention with Music-Assisted Relaxation	**Ward 3:** Care as usual
Brief assessment of insomnia	x	x	x
Monitoring the sleep quality	x	x	x
Sleep hygiene education	x	x	-
Stimulus control	x	-	-
Music-assisted relaxation	-	x	-

- *Analysis*

The primary variables of interest were the item 'sleep quality', and the RCSQ total score. The latter represents a global perception of sleep in all its aspects. The other items of the RCSQ were also explored.

Data were processed using the statistical package SPSS 15.0. Descriptive statistics were used to describe the properties of the samples. A total of 13% of the data was imputed by estimated mean values, based on the present data. The estimated mean value is calculated for each item in each separated condition.

The change scores were calculated for each group. Differences between the means of the groups were explored by independent *t*-tests. In order to get an indication of the magnitude of the effects of the interventions, we calculated effect sizes (Cohen's d) with Hedges adjustment for sample size.

RESULTS

- *Comparison of the mean change scores*

Table 6.4 presents the mean values at T0 (baseline) and T2 (after two weeks treatment) and their change score (T2 - T0) in the three conditions.

When the mean change score for sleep quality of the comparison group was compared with the means of SC and MAR together by an independent *t*-test, no statistically significant difference was found (t = - 1.78, df = 52, p = 0.08). Also the comparison of the mean change score of the comparison group with those of SC showed no statistically significant improvement (t = -1.25, df = 41, p = 0.22). However, the same comparison, now with the mean change score of the comparison group and that of MAR, showed a statistically significant improvement (t = -2.13, df = 23, p = 0.04).

For the RSCQ-total score, none of the comparisons showed statically significance: SC and MAR together (t = -0.27, df = 52, p = 0.79), SC (t = 0.06, df = 41, p = 0.95), and MAR (t = -0.94, df = 23, p = 0.36).

Table 6.4 Mean values (sd) and change scores

	N	T_0 mean (sd)	T_2 mean (sd)	Change score (sd)
Sleep quality:				
Comparison	14	58.29 (27.86)	51.71 (25.93)	6.57 (26.73)
SC	29	60.97 (31.79)	45.34 (28.00)	15.62 (19.81)
MAR	11	66.27 (27.93)	38.73 (24.01)	27.64 (21.31)
SC & MAR together	40	62.45 (30.54)	43.52 (26.82)	18.93 (20.68)
Total score:				
Comparison	14	51.57 (23.45)	43.74 (15.63)	7.83 (17.25)
SC	29	54.39 (27.46)	46.90 (25.45)	7.50 (16.61)
MAR	11	53.16 (20.93)	39.51 (17.80)	13.71 (13.10)
SC & MAR together	40	54.07 (25.59)	44.86 (23.61)	9.21 (15.81)

Estimates of effect

To calculate the standardized mean difference, the authors subtracted the mean change score of T2 (after 2 weeks treatment) of the comparison groups from that of the treatment group and divided the outcome by the pooled standard deviation ($d = M_{tr} – M_{com} / sd_{pooled}$). Table 6.5 presents the results. Effect sizes from 0.2 to 0.5 are usually interpreted as small, from 0.5 to 0.8 as moderate and those of 0.8 and up as large (Cohen 1988).

The results show mostly small effects. MAR was able to produce a large and statistically significant effect on sleep quality. None of the other conditions were able to produce statistically significant effect sizes on the total score.

Table 6.5 Estimated effect sizes after two weeks treatment

	SC *d* [95% CI] (p value)	MAR *d* [95% CI] (p value)	SC & MAR *d* [95% CI] (p value)
Sleep quality	0.39 [-0.26, 1.03] (p = 0.22)	0.83 [0.05, 1.70] (p = 0.04)	0.55 [-0.07 – 1.16] (p = 0.08)
RCSQ total score	-0.02 [-0.66, 0.62] (p = 0.95)	0.38 [-0.42, 1.18] (p = 0.36)	0.08 [-0.52 – 0.69] (p = 0.78)

DISCUSSION AND CONCLUSION

This study set out to discover whether mental health care nurses can improve sleep quality by making two brief evidence-based interventions in inpatient mental health care. We introduced one brief intervention with stimulus control as active component, one intervention using music, on two admission wards of a psychiatric hospital. Both interventions were solely performed by nurses, who were provided with brief training in the intervention methods. The outcome of this pilot study is two-fold: it provided a strong indication that mental health care nurses can apply music-assisted relaxation effectively; however, for stimulus control, no such indication was found. Does this mean that mental health care nurses can not apply stimulus control effectively in inpatient care? Previous studies (Childs-Clarke 1990, Espie et al. 2007, Epstein & Dirksen 2007) have shown that cognitive behavioural interventions like stimulus control can be applied successfully by nurses. Since the current study dealt with many variables, different from previous effect studies (i.e. inpatients, mental health care nurses, brief instruction) that were different from previous studies, this deviant result may be attributed to various causes. An important aspect could be the difference of required team cooperation required to each intervention. As stated earlier, MAR can be applied by individual nurses while SC demands coordinated actions during the day and night. This issue will be explored in our next study.

The results show that when MAR was applied, sleep quality was the most improved parameter of sleep that was measured by the RCSQ. This is in accordance with the study by Lai and Good (2003), which also showed the largest improvement for this parameter. Sleep quality was the most improved aspect when SC was applied, although the effect was not statistically significant. It can be speculated that the increased attention for the sleep problem through the interventions – in contrast to the usual care – had a positive influence on patients' perception of sleep quality, even while the other parameters of sleep, like sleep latency, did not really improve.

Both interventions are directed at enforcing the patients' own role in the treatment of his sleep problem, this might have restored control and hope to the participants.

- *Limitations*

There are some limitations to this study. Firstly, the authors measured the attribution of the two brief nursing interventions as part of a wider programme of care for sleep problems. Since this is an uncontrolled study, all outcomes represent the result of the usual care programme – including pharmacotherapy – and the effect of the two introduced interventions. The usual care comprises a number of sleep-promoting interventions like sleep medication and sleep-wake rhythm control.

Secondly, introducing new care in this way allows the possibility that nurses can easily 'fall-back' on the usual care. Furthermore, since the care was carried out in a multi-disciplinary context, nurses were still only partially responsible for the care of sleep problems. It was therefore relatively easy to call in the competencies of other disciplines.

The third important issue in this study was the decreasing number of patients that could be followed. This attrition is owing to the nature of an admission ward where most patients leave within a couple of weeks. There might be an important distinction between short-stay and longer-staying patients. Patients with a longer stay duration might suffer more serious and treatment-resistant complaints.

And last, but certainly not least, the authors suspect feasibility issues like operational problems and lack of commitment. One of the 'symptoms' of these operational issues was the laborious monitoring: Although much energy was invested in outcome monitoring, the amount of completed monitor forms returned by patients did not meet expectations. It can be assumed that these issues seriously compromised the effects of the interventions. During the project, qualitative data was gathered for the identification of these issues. The results of the analyses of these data will be presented in the authors' next study.

- *Conclusion*

Despite the limitations of this study, we found an indication that mental health care nurses can improve the perceived sleep quality of inpatients with psychiatric problems by applying music-assisted relaxation. No such indication was found for stimulus control.

Chapter 7

The applicability of two evidence-based interventions to improve sleep quality in inpatient psychiatry

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ABSTRACT

The present study explored the applicability of two brief evidence-based interventions to improve sleep quality in inpatient psychiatry. The study involved three comparable admission wards of a psychiatric hospital. Stimulus control was introduced on the first ward and music-assisted relaxation on the second. On the third ward, no intervention was introduced.

A mixed method study was employed. We found that nurses share the opinion that both interventions can be applied but they indicate that patients are hard to motivate. They perceived the lack of available time, busyness on the ward and the lack of cooperation of patients as the main obstacles.

The perception of a successful implementation is correlated with the perception of gained attention for sleep problems, the perception of increased care options and the impression of effectiveness.

Qualitative data showed that the effectiveness of the interventions was compromised by operational issues, commitment issues, adaptation to contextual limitations and conflicting individual beliefs.

We concluded that music-assisted relaxation is applicable in inpatient psychiatry. The application of stimulus control met with insurmountable operational issues. The nursing team is a very important factor for implementation of evidence-based interventions on ward level. The lack of a shared urge for change and responsibility for continuity are important factors contributing to failure.

INTRODUCTION

The common treatment of insomnia complaints, i.e. treating insomnia with hypnotics like benzodiazepines, is under serious discussion among GPs (Siriwardena et al. 2010). Benzodiazepines are known for major disadvantages like dependency, decreasing efficiency, and safety-threatening daytime sedation (Kripke 2000). For these reasons, and to cut back costs, benzodiazepines are no longer covered by Dutch health insurers.

In the last decades of the previous century, many non-pharmacological interventions had been developed. These interventions are focussed on underlying causes and include various methods such as behavioural and cognitive interventions, relaxation-improving interventions and sleep-wake rhythm control. Reviews on this subject (Morin et al. 1994; de Niet et al. 2009c) show that some of these interventions are effective. According to Voyer & Martin (2003), nurses are in a very favourable position to discuss, implement or apply non-pharmacological alternatives to treat sleep problems.

In a previous study (de Niet et al. 2009a) we showed that nurses in mental health care are aware of the importance of sleep and good nursing management for sleep problems. However, the same study showed that the current care is mainly based on experience and expert opinions, and is hardly based on scientific findings. It also revealed that the majority of nurses are satisfied about the care they provide and feel little urge for change.

When we consider the application of evidence-based, non-pharmacological interventions for sleep problems by nurses, the question arises how these interventions can become a part of the daily care. Our previous research showed that nurses identified a lack of knowledge and a lack of time as the most important obstacles to the implementation of alternative care for sleep problems (de Niet et al. 2009a). In their view there is little time for training and instruction. Moreover, why should nurses change their practice? As mentioned earlier, nurses are in majority satisfied about the care they provide, so there is little urge to question the current practice. This means that the introduction of alternative nursing interventions comprises some challenges: Striving for motivation and adherence, and the acquisition of required knowledge about a new intervention in a minimum of time.

The current study is part of a project that aims to develop evidence-based nursing care for sleep problems in mental health care. After investigating the current care and the scientific evidence for the efficacy of non-pharmacological interventions for sleep problems, we carefully selected two of these interventions and introduced them in practice. We used three criteria for selection: the interventions had to be directed toward the treatment of insomnia complaints; their efficacy had to have been demonstrated by scientific research, and their implementation was time limited. Next we opted for two interventions: the first had stimulus control (SC) as its key component, the second music-assisted relaxation (MAR).

SC is a form of cognitive behavioural treatment that aims to restore the association between bed and sleep environment. It consists of a set of instructions (Table 7.1) designed to re-associate temporal (bedtime) and environmental (bed and bedroom) stimuli with rapid sleep onset' (Morin et al. 1994). A meta-analysis (Murtagh et al. 1995) showed a large effect size of SC on the experienced sleep quality.

MAR comprises relaxation improving interventions in which music is the key ingredient. According to Johnson (2003) music is also able to decrease frustration and dread that are associated with sleep complaints. Music might therefore be able to counteract psychological pre-sleep arousal. A meta-analysis (de Niet et al. 2009b), showed a moderate effect size of MAR on the experienced sleep quality.

An investigation to whether mental health nurses can apply these interventions in inpatients care effectively (de Niet et al. 2010), showed a strong indication that music-assisted relaxation can improve sleep quality in inpatient care. For stimulus control no such indication was found. But we also suggested that the effect of the interventions were compromised by presumed operational issues. This needs further investigation. Therefore, the question we wish to answer in the current study is: Can these interventions be applied by nurses in inpatient mental health care?

Background

Many mental health patients suffer from sleep problems for some time before admission. Okuji et al. (2002) found that the prevalence of these problems among new referrals to a psychiatric general hospital is 60% and high in all psychiatric categories. Although sleep problems are highly prevalent in mental health care

and nurses generally recognise the importance of a good night's sleep, these problems receive little systematic attention in nursing care. Findings of a qualitative study (Collier et al. 2003) suggested that difficulties with sleeping are not discussed with inpatient staff but suffered in silence. A study in a somatic care setting (Florin et al. 2005) showed that patients identify sleep problems as one of several severe problems that are not recognised by nurses. There is no reason to assume that this situation is more favourable in mental health care. Especially insomnia complaints are often seen as a persistent residual problem that is associated with increased risk of recurrence of the psychiatric disorder.

- *Research questions*

In the present study, we sought to answer the following questions: What do nurses perceive as obstacles to the implementation and applicability of two brief evidence-based interventions? What factors are of influence in their perception of success (or lack of it)? What conditions are needed to introduce and apply an evidence-based intervention for sleep problems in practice?

MATERIALS AND METHODS

- *Study design*

We employed a qualitative study, based on phenomenological design, and a quantitative study using questionnaires. Data were collected between October 2008 and June 2009 on three comparable admission wards of a psychiatric hospital. One of these wards served as a control condition. Qualitative data comprised interviews, observation notes, and transcriptions of communication. Both methods aim to obtain in-depth information about the nurses' perception concerning the implementation and utilisation of evidence-based interventions.

- *Settings and sample*

The three admission wards are located in three different towns within the same province of the Netherlands. The wards are comparable in nature, scope and dimension. Patients on these wards are admitted owing to their severe mental health problems and most of them are diagnosed with either psychotic-, mood- or anxiety disorders. The mean length of stay is three weeks.

Care for these patients is provided by various professionals like psychiatrists, psychologists and nurses. Nurses are the largest group, the majority consisting of registered mental health nurses with various levels of training (medium vocational, high vocational, apprenticeship). A small minority are trainee nurses or social pedagogical carers. Data were collected among all the nurses who administer the care on these wards. Participating nurses had an average of 13.7 years of experience in mental health care.

Data collection and analysis

- *Questionnaires*

A written survey with five open questions focusing on the participating nurses' expectations about the feasibility of the intervention was presented to the nurses preceding the introduction of the intervention.

To gain knowledge about the utilisation of the interventions, we used a 16-item rating questionnaire (Table 7.3). This questionnaire was based on the preliminary results of the qualitative data collection (see next paragraph). Issues and important topics identified informed the items. Five questions were about the effectiveness of the intervention or parts thereof, and four about the gain of knowledge and attention. The remaining questions concerned applicability and conditions for applicability and implementation. The respondents were asked to rate the answers to the questions (0 to 10) between two opposite extremes of a continuum.

Item 9, concerning perceived barriers, was part of a questionnaire we used in a previous study (de Niet et al. 2009a). Because the nature of this item was very different from that of the other items, it is not included in the calculation of the internal consistency. The Cronbach's alpha of the remaining list (n = 15) was 0.92, indicating a high reliability.

The questionnaire was sent to all nurses of the participating wards, approximately halfway through the project.

- *Analysis of the data*

All quantitative data were analysed by means of SPSS 15.0 (SPSS, Chicago, IL, USA) for descriptive statistics. Non-parametric correlations (Spearman's rho) between the items were calculated. Change scores on item 9 of the questionnaire were calculated by subtracting the scores of the previous study from those of a current study (de Niet et al. 2009 a). These change scores are presented in a separate column (Table 7.4).

Qualitative data consisted of multiple planned interviews, the researchers' observation notes, and the answers to the open questions of the written survey. The software package WinMAX pro 96 (Kuckartz 1996) was used to structure the data.

We analysed the data by means of an inductive qualitative content analysis in five steps. In the first step we, transcribed the data; in the second step, the data were organized by reading, rereading, and first-level codes assignment; in the third step, a category scheme was developed; in the fourth step, all the text was recorded using these categories; and in the last phase, themes were identified, and a narrative description per theme was written.

- *Ethical considerations*

The institutional review board approved the study. Patients of the wards concerned were informed about the goal of the interventions and instruments introduced. They were aware that their anonymous data would be used for scientific research. Patients had the right to refuse providing data without suffering any consequences.

The interventions

The intervention based on SC was introduced on one ward, and the intervention based on music-assisted relaxation on a separate ward. A third ward served as control condition. On this ward, only assessment was introduced: brief assessment and monitoring of the sleep quality (Table 7.2). The interventions were not introduced as a replacement of the existing care, but as supplemental care.

There is an important difference in applying these interventions. MAR can be applied by individual nurses, while SC requires actions both during the day and at night and coordination and team cooperation are vital.

- *Stimulus control*

As stated earlier, many mental health patients suffer from sleep problems some time before admission. It is therefore plausible to assume that these complaints are (wholly or partly) the result of a conditioned response to temporal (bedtime) and environmental (bed/bedroom) cues: a negative association between going to bed and not sleeping has been formed (Bootzin et al. 1991). SC aims to restore the lost association and a rapid sleep onset. The second objective of SC is to establish a consistent circadian rhythm.

Table 7.1 Stimulus control instructions

1.	Go to bed only if you feel sleepy
2.	Avoid activities in the bedroom that keep you awake, other than sex
3.	Sleep only in your bedroom
4.	Leave the bedroom when awake for more than 15 minutes
5.	Return to the bedroom only when sleepy
6.	Arise at the same time each morning regardless of the amount of sleep obtained that night
7.	Avoid daytime napping

- *Music-assisted relaxation*

MAR aims to reduce pre-sleep arousal, like anxiety or worries. A review by Evans (2002) showed that music has the potential to reduce anxiety in care delivery. In our study we offered MAR in the form of pre-recorded music on ten small MP3 players. These players were offered in a soft case with built-in loudspeaker and with ear-phones. The music provided was a wide variety of soothing music and patients could choose from a list. Patients with sleep problems were instructed to use the music daily at bedtime.

There is an important difference in applying these interventions: MAR can be applied by individual nurses, while SC requires actions both during the day and at night and thus coordination and team cooperation.

- *Sleep hygiene education*

Both interventions were accompanied by sleep hygiene education. There is no evidence to show that sleep hygiene education alone is an efficacious intervention to improve sleep quality. Nevertheless, sleep experts assume that education about behaviour and environmental aspects that may interfere with sleep quality is a meaningful attribution in the treatment of insomnia (Morin et al. 1999). To establish a common knowledge base for education, we provided nurses with a set of sleep hygiene instructions and a set of 'sleep facts'. This was presented in a practical booklet and explained in several sessions. To support the educational use of sleep hygiene, nurses had the option of providing their patient a pamphlet entitled 'Things you can do yourself if you can't sleep'.

Table 7.2 Overview of interventions and data collection

	Ward 1: Intervention with Stimulus Control	**Ward 2:** Intervention with Music-Assisted Relaxation	**Ward 3:** Care as usual
Data collection among nurses:			
Survey with open questions	x	x	x
Questionnaire	x	x	x
Interviews	x	x	x
Intervention for patients:			
Sleep hygiene education	x	x	-
Stimulus control	x	-	-
Music-assisted relaxation	-	x	-

- *Implementation strategy*

We used an implementation strategy that focused on intrinsic motivation (Holleman et al. 2006). Such a strategy is aimed at developing motives that originate from within a person, that result in a person acting or learning. In the first group sessions we discussed the problem, the necessity for change, and the proposed alternative–evidence based care. In the subsequent group sessions, the nurses were instructed. Booklets containing background information, instructions, examples, and facts about sleep and sleep disturbances were offered. Foreseen issues were discussed and anticipated. On every participating ward, two nurses

were willing to fulfil the role of intermediary between the participants and the researcher (contact nurses). They were well instructed and were able to identify and solve small operational problems.

For each location, measures were discussed that were aimed at promoting continuity and chosen in accordance with local needs and experiences. Every participating ward chose for reminders by email. Preceding the intervention and during it, participating nurses could contact the researcher at any time with questions or remarks.

RESULTS

- *Results of the quantitative study*

Twenty-eight (62%) of the questionnaires were returned. The items of the questionnaire and their outcome are presented in table 7.3. Item 9 is presented separately in table 7.4. A comparison of the means of the rated items revealed no statistically significant differences between the three wards.

- *Perception of obstacles for implementation and application*

Table 7.4 presents an overview of the perceived 'seriousness' of obstacles. When the percentages of 'a large obstacle' and 'an obstacle' were added (item 9, Table 7.4), 'available time', 'busyness on the ward' and 'cooperation of patients' were the highest.

Change scores indicate that particularly 'necessary techniques', 'trust of patients' and 'present knowledge' were perceived less as an obstacle during the course of the project.

- *Perception of success*

To gain an indication which factors contribute to the perception of success, correlations were investigated. The answer to 'I Think the project is so far ...' (Table 7.3, item 16) correlated most with 'impression about the effectiveness of the intervention' (Table 7.3, item 3) (rho = 0.72, p = < 0.001), 'attracted attention for sleep problems within the team' (Table 7.3, item 5) (rho = 0.63, p < 0.001) and

'promotion of the nursing options to influence sleep problems' (Table 7.3, item 8) (rho = 0.62, $p < 0.001$).

- *Results of the qualitative study*

A total of 10 interviews, 10 notes and 2 sheets with answers to open questions were included for analysis. The data were gathered on all three wards. By analysis, seven categories were identified: importance, applicability, continuity, effect, adaptation, commitment and patients.

- *Importance*

Most nurses greeted the interventions with enthusiasm. The interventions were perceived as a needed alternative to sleep medication. According to the nurses, medication is strongly presented as the solution for sleep problems. A nurse declared that such an intervention might contribute to the empowerment of his discipline:

> *"That makes everybody initially enthusiastic; this is something for us."*

- *Applicability*

Prior to the implementation, nurses shared the opinion that the interventions were applicable. Some of them expressed that working with new interventions also meant 'getting accustomed' to new ideas and working procedures and a change of habits. There were also doubts however: Some nurses doubted whether a patient would have the persistence required to continue the intervention long enough for any improvement to be detectable. They think that sleep medication is more reliable. Doubts were also expressed about getting the patient motivated to try alternative interventions.

Some nurses who had to work with SC were concerned about a particular aspect: the fact that patients are advised to leave their room if they cannot fall asleep. Ward regulations prescribe bedtime at 23:30 pm at the latest, and peace and quiet during the night. One nurse wrote:

> *"What do you do if they're not asleep by this time? Should they continue walking about the ward, until it gets a bit too cosy?"*

During the application, nurses working with SC pointed out some aspects that hindered the application of the intervention. One of these is experienced as insurmountable: During inpatient admission, the bedroom is the only private place on the ward. This room is thus not only used for sleep but also as a place to receive visitors, as a place to escape from arousals and to perform other private occupations. It is therefore very hard, if not impossible, to meet one of the most important requirements of SC: re-associate sleep with the bedroom.

The application of MAR was generally experienced as an easily applicable intervention.

- *Continuity*

During the project, both researchers and contact nurses became aware that the continuity of applying the interventions, especially filling-in the sleep quality monitor was an aspect of concern. Regardless of the ward, the analyses revealed that neither the utilisation of the intervention nor the monitoring became part of the routine during the course of the project. Therefore the continuity of the project was challenged. Striving for continuity demanded much effort from the contact nurse.

A number of reasons were given for the lack of continuity. The perceived lack of time was mentioned most often. Activities in the context of this project were experienced as an extra effort, on top of the busy schedule of daily practice. Another reason often mentioned is the lack of a sense of collective responsibility.

Although the routine monitoring of sleep quality was presented as an essential part of the care, many nurses on the intervention wards made a clear distinction between the actual intervention and the corresponding monitoring. The first aspect was experienced by most as a useful supplement to their care. However, the latter aspect met with resistance. Although the importance of outcome monitoring was emphasized during instruction, many experienced this aspect as an unwelcome side-effect:

> *"Filling in those forms; most of them had the impression of working for a project instead of improving sleep quality."*

At some point, both the utilisation of the intervention and the data collection on the ward on which MAR was being applied stalled entirely. Interviews with key

nurses pointed out two causes: failing technology and a lack of collective responsibility. Failing technology refers to MP3 players that broke down easily and were awkward to use. We chose for a re-introduction of the intervention. Again, the method was explained during meetings and via written material. The MP3 players were replaced by new, robust and more intuitive players. Reminders were sent by email. These actions led to the more structured use of MAR and monitoring of sleep quality on a more regular basis.

All contact nurses declared that their role in continuation was essential. Moreover, the process of assessment, monitoring and continuous application of the intervention was very dependent on their contribution. The important role of the contact nurses in continuity was seen as both a positive and a negative aspect. Negative, because it was experienced as a 'symptom of lack of sense of collective responsibility':

> *"It [the project] always remained our 'thing'. It never became a team concern."*

But many nurses also declared that it was extremely important that especially the administration was seen as the responsibility of one or two appointed nurses. Another role of the contact nurse that was greatly appreciated was the promoting of continuity through repeating the 'message of importance'. Sending emails as reminders was a valued tool for the improvement of continuation.

- *Effect*

Nurses on the wards applying the intervention did not observe better sleep due to the interventions. However, most of them did observe other positive effects. They mentioned increased attention for sleep and sleep problems within the team but also the fact that the communication with the patient on this topic increased as well as shifting in focus from quantity of sleep to quality.

Many nurses felt that the intervention led to sleep problems being approached in a different way, i.e. the patient is given an active role, being more responsible for their own behaviour through reflection, and in control of changing their own behaviour:

> *"I think that this thinking about sleep and sleep medication is very important. It forces the patients to reflect; you got them thinking."*

- *Commitment*

A major issue during the course of the project was the commitment of participating nurses. Although the large majority of nurses declared that the intervention was supported by the team, there were major individual differences observed in terms of effort. The analyses revealed three aspects that influence both the commitment of individual nurses, and the commitment of the group. First, the activities in the context of the project were experienced as a burden; an extra effort was demanded over and above normal everyday practice. Second, nurses had the idea that some colleagues had ambivalent thoughts about the project to say the least. The project encroached on their own working methods and ideas:

> *"There are stubborn colleagues with lots of knowledge and skills but they are stuck to their own working method; that's non-negotiable."*

Third, some nurses were not happy with the idea that the project is also a research activity:

> *"There isn't a lot of resistance toward ideas from outside, but there are people [nurses] who feel resistance toward research."*

Another factor that most probably influenced the commitment of nurses was the fact that the project was initiated from outside the structure of the ward and the team. Although the project was organised in close cooperation with representatives of the team, some nurses never felt that the intervention was part of their organisational structure.

- *Adaptation*

Adaptation refers to applying the intervention, but deliberately changing its execution. The analyses revealed that the interventions, especially SC, were subject to adaptation. The interventions were partially modified in line with the practical limitations, but also with the prevailing ideas of some nurses about what constitutes best care for their patients. Although there is hard scientific evidence supporting SC, some nurses found some principles difficult to apply and in conflict with their own ideas about good care. One of them stated:

> *"I deliberately barred some patients from leaving their bed if they were awake or I resolutely sent them to bed if they couldn't sleep, to prevent them shifting their day/night rhythm."*

Another aspect is the fact that SC requires maintaining regular waking- and bedtimes during the entire week. Most nurses share the opinion that this is the best advice. At the same time, some nurses think this is an unreasonable demand during the weekend and 'grant' their patients a well deserved lie-in.

The intervention based on MAR was also subject to adaptation. Although the short anamnesis, sleep hygiene education and sleep quality monitoring was presented as an integral part of the intervention, they were sometimes left out, or the intervention was carried out in a way other than had been described and/or instructed.

- *Patients*

Many nurses who worked with SC identified problems in the motivation and the (cognitive) restrictions of the severely mentally ill patients. But medication also interferes with the application of the non-pharmacological interventions. Many nurses stated that patients were very keen on getting sleep medication for their sleep problem and do not feel that they are taken seriously when non-pharmacological interventions are applied.

> *"I find that many inpatients are hardly motivated and I had expected more. It is hard to get them involved. Patients are very attached to their medication and are not very open for an alternative. If you start [talking] about it, they stress out. They are afraid they will lose their pills."*

Nurses of all involved wards reported that some patients had trouble filling-in the sleep monitor. Patients had trouble interpreting the visual analogue scale and put their remarks in the margin. It appeared troublesome to report an average assessment over the previous week. Also the importance of repeated assessment is not always understood by patients because they do not understand the benefit.

DISCUSSION

To investigate the applicability of two brief evidence-based interventions, we introduced these interventions in current inpatient mental health care. The first question in this study was: What do nurses perceive as obstacles to implementation and applicability? Nurses share the opinion that both SC and MAR can be applied but they indicate that it is difficult to motivate patients to try non-pharmacological interventions. 'Available time', 'busyness on the ward' and 'cooperation of patients' were perceived as the main obstacles. When these results are compared with results that we found a year before implementation, we found an indication that 'the seriousness' of most obstacles decreased during implementation/application. This is most probably due to the investment in training and support.

We found that the perception of success is related to the impression of effectiveness, the increased attention for sleep problems within the nursing team and the perception that the options to influence sleep problems are increased. But the nurses disagreed as to whether the project was a success. This might be related to the considerable problems that were met during application. The analyses of the qualitative data showed operational and commitment issues.

Operational issues are difficulties and barriers for applicability, caused by practical hindrances. An important issue in the MAR condition – failure of the technology – was easily resolvable. But the problems that appeared while applying SC, due to the contextual limitations, appeared insurmountable. These problems led to adaptations that compromised the fundaments of the intervention.

Commitment issues are difficulties and barriers for applicability, caused by personal beliefs that are not in accordance with the intervention's principles, or caused by incoherent opinions within a team. Nurses working in inpatient mental health care distinguish themselves from other professionals in mental health care by working in a mono-disciplinary team. According to Katzenbach and Smith (1993), a team is *"…a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they are mutually accountable*". In the scope of our study results, our attention is particularly directed to the property 'committed to performance goals'. We found that the involved teams lacked unity in 'goal commitment' when introducing and applying alternative care for sleep problems: Prior to the project, differences

within the team became apparent in areas of trust in the efficiency and applicability of the proposed interventions. During the project, these differences became visible in terms of efforts and motivation. This lack of common 'goal commitment' led to the individual members of the teams becoming increasingly demotivated. As a result, the teams did not act (sufficiently or at all) as disseminators and 'guardians of continuity'. This confirms an important conclusion by Hunt (1996): *"If recognition [of an urge to change] does not take place within each and every individual who has to put the changed practice into practice, then it is unlikely to happen."*

Our last question to be answered was: What conditions are needed to apply an evidence-based intervention for sleep problems in practice? First, we found that the context must provide the right conditions to apply an intervention. Adaptation to the context and/or its limitations can seriously compromise the effect of the intervention. Second, we found that 'the nursing team' is a very important factor for the implementation of evidence-based interventions on ward level. Especially SC requires coordinated actions during the day and night and might therefore be vulnerable to failure when 'team commitment' is not optimal.

Commitment to a change of care can easily be compromised by persisting and conflicting individual beliefs, incoherent opinions within the team, lack of trust in effectiveness and applicability and – most of all – the lack of a collective urge for change and responsibility for continuity.

CONCLUSIONS

This study showed that MAR can be applied in inpatient psychiatry. It also showed that the application of SC meets insurmountable operational issues. Secondly, we conclude that 'the nursing team' is a very important factor for the implementation of evidence-based interventions on ward level. A lack of a collective urge for change and responsibility for continuity in the nursing team are important factors in failure.

Implementing new care approaches for sleep problems is a demanding task for nurses: initially it introduces extra work in a daily care schedule that is already tight, it requires a rearrangement of activities and responsibilities, and last but not least, it requires letting go of prevailing activities and beliefs. Prevailing activities are often firmly rooted in (personal) experiences and are trusted to be effective.

Also, ‘the force of the nursing team’ must be taken into account. Implementation strategies should go further than developing the intrinsic motivation of individual team members. It should also invest in mutuality and ‘goal commitment’.

Table 7.3 Outcomes of the questionnaire (1/2)

Question and answer possibility	MAR‡ (n = 11)	SC* (n = 9)	Comparison (n = 8)
		Median	
1. Did you undertake activities as part of this project? 0 = I did nothing at all → 10 = I was very busy performing them	5.0	5.0	6.5
2. Did this project change the procedure about the care for sleep? 0 = It did not change at all →10 = It changed a lot	4.0	5.0	3.0
3. What is your impression about the effectiveness of the intervention? 0 = No effect at all →10 = It is very effective	4.0	5.0	-
4. Did your knowledge about sleep and sleep problems increase through this project? 0 = Not at all → 10 = Hugely increased	4.0	6.0	5.0
5. Has this project attracted attention for sleep problems within the team? 0 = Not at all → 10 = Hugely attracted	5.0	5.0	5.0
6. Is 'sleep' more often a topic of conversation between patient and nursing staff, due to the project? 0 = No, absolutely not → 10 = Absolutely	6.0	6.0	4.5
7. Is 'sleep' more often a topic of conversation between the nursing staff and the physician? 0 = No, absolutely not → 10 = Absolutely	3.0	4.0	2.5
8. Do you think the project promotes the nursing options to influence sleep problems in a positive way? 0 = No, absolutely not → 10 = Yes, a lot	6.0	7.0	5.5

Table 7.3 Outcomes of the questionnaire (2/2)

Question and answer possibility	MAR‡ (n = 11)	SC* (n = 9)	Comparison (n = 8)
		Median	
10. Do you think that the anamneses promote the attention for sleep problems? 0 = No, absolutely not → 10 = Yes, a lot	5.0	8.0	7.0
11. Do you think that the sleep quality monitor promotes the attention for sleep problems? 0 = No, absolutely not → 10 = Yes, a lot	6.0	6.5	7.0
12. What is your opinion about the contribution of SC/ MAR to the care for sleep problems? 0 = It does not contribute at all → 10 = It contributes a lot	6.0	7.0	-
13. What is your opinion about the contribution of sleep hygiene education to the care for sleep problems? 0 = It does not contribute at all → 10 = It contributes a lot	7.0	7.5	-
14. What is your opinion about the feasibility of the intervention? 0 = Impossible to perform → 10 = Very easy to perform	7.0	6.5	8.0
15. What is the importance of an 'intermediating nurse' for the introduction of the intervention on the ward? 0 = Not important at all → 10 = Absolutely necessary	7.0	8.0	8.0
16. I think that up till now, the project has been ... 0 = An absolute failure → 10 = Extremely successful	5.0	6.0	6.0

‡ = Music-assisted relaxation

* = Stimulus Control

Table 7.4 Change of perception of obstacles for implementation

	Current study‡	Previous study*	Change
Busyness on the ward	42.3	53.9	-11.6
Available time	42.3	50.7	-8.4
Cooperation of patients	38.4	48.8	-10.4
Support of other disciplines	36.0	27.7	+8.3
Present knowledge	30.7	52.7	-22.0
Support of colleagues	23.1	13.8	+9.3
Necessary techniques, experiences and skills	23.0	65.6	-42.6
Motivation of colleagues	29.2	12.8	+16,4
Trust of patients	16.0	42.1	-26.1
Own motivation	7.7	7.1	+0.6

‡ Sum score of the answers 'large obstacle' and 'an obstacle'.

* Sum score of the answers 'large obstacle' and 'an obstacle' (de Niet et al. 2009a)

Chapter 8

Summery and general discussion

Proem

The first part of this chapter, summarises the results and conclusions from the studies in this thesis. The second half discusses the findings and the implications and I formulate an answer to the key questions of this thesis: Does the application of the principles of EBP lead to improved nursing care for sleep problems? And: If this development is impeded, then what are these barriers and how can these be overcome?

As I shall show, issues concerning the improvement of nursing care for sleep problems are examples of a broader problem regarding valid knowledge not being used in practice. Therefore, some broader recommendations for improving this aim are presented.

Summary and conclusions about current care

In the first phase of the project, two studies were used to investigate current care (Chapter 2: de Niet et al. 2008) study aimed to acquire knowledge about the quality of sleep of adult and elderly patients who received inpatient or outpatient mental health nursing care. It also aimed to identify key factors in perceiving a sleep problem.

We found that nurses in both inpatient and outpatient mental healthcare are frequently confronted with patients suffering from sleep problems: 36% of these patients perceived a sleep problem and when a validated instrument for this assessment was used, as many as 66% were labelled as a 'bad sleeper'.

Four symptoms of insomnia were found to be predictors of a perceived sleep problem (not keeping up enthusiasm, having bad dreams, waking up early or in the middle of the night, not staying awake during social activities). The fifth predictor was the use of sleep medication: Patients who used sleep medication most scored significantly worse on all sleep parameters. Almost three-quarters of the patients who perceived having a sleep problem used sleep medication three or more times a week. These 'intensive users' scored significantly worse on all aspects of sleep quality, compared to the patients who used sleep medication less than once a week. The question arose as to whether the intensive use of sleep medication adversely affects the quality of sleep. From previous research (Poyares

et al. 2004) it is known that chronic intake of benzodiazepines for insomnia may be associated with poorer sleep and that the users' wish to improve daytime functioning is usually unfulfilled (Kripke 2000). This implied that in the development of best practice nursing care, non-pharmacological interventions should be assigned a prominent role as an alternative for the use of hypnotics.

The results of this study showed that sleep problems in mental healthcare are an extensive problem, and all nurses could be confronted not only with the night-time consequences of these problems, but with daytime consequences as well.

The second study (Chapter 3: de Niet et al. 2009b) aimed to provide insight into the current nursing care for sleep problems and to explore the nurse's opinion about it. We explored the knowledge base of the current care and asked nurses what obstacles they foresaw for the implementation of alternative, evidence-based care.

The results of this study showed that the majority of daytime interventions provided to prevent sleep problems in current mental healthcare nursing are structural, involving a structured environment with set times for going to bed and getting up, and stress management activities. Little use was made of psycho-educational, assessment, or informing activities. Sleep problems during the night were mostly dealt with through observation, environment control, and stress management.

We found that experience, knowledge gained by initial training and eminent advice were the most frequently used knowledge sources in the care for sleep problems. Nurses seemed to be aware of the importance of sleep and the importance of a good nursing management for sleep problems. However, the study showed a discipline that is rather conservative in its assessment and approach, mostly relying on experience and less on evidence. Nurses were quite satisfied with current care and thought that the patients were satisfied as well. Despite this satisfaction, they were largely willing to apply alternative, evidence-based interventions. Yet they identified the lack of available knowledge, skills and time to be the largest obstacles for implementing such interventions.

The main conclusions of phase I were:

- Sleep problems are an extensive problem in psychiatric care
- Treatment with hypnotics does not seems to provide a satisfactory answer
- The current nursing care for sleep problems is hardly evidence-based
- Mental healthcare nurses are rather satisfied about their care

Summary and conclusions about the available evidence

In the second phase of the project, an inventory of the available scientific evidence for alternative care for sleep problems was made. The first study (Chapter 4: de Niet et al. 2009a) was a meta-analysis. This study aimed to evaluate the efficacy of music-assisted relaxation for the improvement of sleep quality in adults and elderly patients.

Five randomised controlled trials with six treatment conditions and a total of 170 participants in intervention groups and 138 controls met our inclusion criteria. Music-assisted relaxation had a moderate effect on the sleep quality of patients with sleep complaints (standardized mean difference: 0.74). Subgroup analysis revealed no statistically significant contribution of accompanying relaxation measures.

It was concluded that music-assisted relaxation can be used without intensive investment in training and materials and is therefore cheap, easily available and can be used by nurses to promote music-assisted relaxation to improve sleep quality.

A second study (Chapter 5: de Niet et al. 2009c) was a review of systematic reviews concerning non-pharmacological interventions to improve sleep quality in insomnia. This study evaluated the quality and conclusions of 16 systematic reviews concerning 17 different interventions. Evidence for efficacy was found for 7 of these interventions. Nevertheless, many of the reviews included lacked sufficient methodological quality. Adequate evidence of a moderate effect (SMD = 0.74) was found for music-assisted relaxation. Weak evidence indicating a large effect was found for multi-component cognitive behavioural therapy (SMD =

1.12), progressive muscle relaxation (SMD = 0.97), stimulus control (SMD = 1.30) and the group 'behavioural only' interventions (SMD = 0.91).

It was concluded that the non-pharmacological treatment of insomnia would benefit from renewed systematic reviews. These reviews should be based on a rigorous methodological approach. Until such time, clinicians must be aware that systematic reviews about the efficacy of non-pharmacological interventions for insomnia are not always 'high-level evidence' per se.

Phase II of the project made it very clear that searching and, in particular, appraising the quality of scientific knowledge requires advanced, academic skills.

The main conclusions of phase II are:

- There is evidence for alternative and effective non-pharmacological interventions
- Much of the evidence provided by systematic reviews is lacking methodological quality

Summary and conclusions about the feasibility of two interventions

In the third and last phase of the project, two interventions were introduced into practice. Obstacles foreseen for the implementation and application of the evidence-based interventions (lack of knowledge, skills, time and busyness) were anticipated as much as possible. This was intended to make other, non-obvious and unexplored barriers during implementation and application more visible.

The first intervention was based on music-assisted relaxation (MAR) and the second on stimulus control (SC). The first intervention demands little team cooperation while the second involves considerable team cooperation. In a pilot study, based on a quasi experimental design (Chapter 6: de Niet et al. 2010), the interventions were taught on two admission wards of a psychiatric hospital. A third ward served as the control condition. Sleep quality was monitored using the Richards Campbell Sleep Questionnaire (RCSQ). The first questions to answer were: Can these interventions be effectively applied by mental healthcare nurses? And is there a difference between both interventions?

The primary variables of interest were the item 'sleep quality', and the RCSQ total score. The mean change scores of the treatment groups were compared with

the mean score of the comparison group by means of a student's *t*-test. Estimates of effect were calculated. When SC was applied by inpatient mental healthcare nurses, no statistically significant improvement of sleep quality or the RCSQ total score was found. When music-assisted relaxation was applied, a statistically significant improvement in sleep quality was found. This intervention showed a large effect size (SMD = 0.83). It was concluded that there is a strong indication that mental healthcare nurses can apply music-assisted relaxation effectively.

The next questions to answer in this phase were: Is this knowledge (the two interventions) applicable in an inpatient setting for mental health patients? And is there a difference between these interventions? To answer this question a combination of a qualitative study using data from interviews and notes and a quantitative study using questionnaires was employed. The results showed (Chapter 6: de Niet et al. 2010) that nurses shared the opinion that both SC and MAR can be applied. However, they indicated that patients are hard to motivate to try non-pharmacological interventions. They perceived the lack of available time, busyness on the ward and the lack of cooperation of patients as the main obstacles. The perception of a successful implementation was correlated with the perception of gained attention for sleep problems, the perception of increased care options for sleep problems and the impression of effectiveness.

Qualitative data showed that the effectiveness of the interventions was compromised by operational issues, commitment issues, adaptation to contextual limitations and conflicting individual beliefs. We concluded that music-assisted relaxation can be applied in inpatient mental healthcare. The application of stimulus control met with insurmountable operational issues.

We also concluded that 'the nursing team' is a very important factor for implementation of evidence-based interventions on ward level. The lack of a shared urge for change and responsibility for continuity are important factors contributing to failure.

The main conclusions of phase II are:

- There is a strong indication that mental healthcare nurses can apply MAR effectively.
- MAR is feasible in inpatient mental healthcare.
- The application of SC met insurmountable operational issues.

- The nursing team is a very important factor for the implementation of evidence-based interventions on ward level.

The questions that I stated in the introductory chapter of this thesis can be answered as follows: The nursing care for sleep problems can be improved by applying the principles of EBP. However, this process does not occur spontaneously and there are many problems at different levels that hinder the course of this. Before formulating an answer on how to overcome these problems, the limitations of the entire project need to be discussed.

Limitations

The limitations of the single studies in this thesis are described in chapter 2 to chapter 7. In this section I shall particularly focus on the principle and procedural choices I made. While reflecting, some issues appeared that need discussion.

First, this thesis was not initiated by a shared problem: I – the author of this thesis – personally determined that the nursing care for sleep problems was problematic and therefore had to be the prime subject. The starting point was not an assessed and generally recognised problem. It might be assumed that a shared problem would have revealed fewer issues. However, as will be described in a next chapter, the issues identified are typical for a broader problem that is encountered in many studies and projects that aims to improve care.

Secondly, when I explored the scientific findings concerning non-pharmacological interventions for sleep problems I found a wealth of studies. My intention was to provide a compact, but nevertheless comprehensive, overview. I therefore made a review of systematic reviews. However, such an approach introduces the disadvantages of reduction and does not provide insight in other high quality evidence, for instance in the form of individual RCTs. Moreover, the outcome measure of interest was restricted to sleep quality. As reported in Chapter 5, sleep quality as an outcome measure is the most commonly used measure and is relatively easy to determine. Sleep quality therefore suits nursing practice best. With the approach chosen, studies with other even more objective outcome measures, like polysomnographic or actigraphic data, were not taken into consideration.

Third, I chose to follow the sequence of principles of EBP rather strictly. As stated in Chapter 1, science plays a dominating role in EBP. This led to a process in which scientific results were implemented in a rather 'straightforward' manner. In fact, I was 'suffering' from a restricted view of EBP, which I shall explain in this Chapter. Such an approach encompasses the danger of 'throwing out the baby with the bathwater'; a (too) strict approach can lead to the rejection of opportunities to improve. However, this approach revealed many issues along the way. In other words; the limitations of this approach have provided insight into these limitations.

Fourth, when introducing and applying the scientific findings in practice, I chose an inpatient setting. Patients in those settings mostly suffer from serious and often long-lasting psychiatric (and sleeping) problems. Focussing on these patients might have limited the generalisability of our findings. Moreover, when data amongst patients was gathered and when the interventions were applied in practice, no differentiation in disorder was made. Such a differentiation could have revealed possible differences in the extent of the problem or in the effect of the intervention.

Fifth, and this is not in accordance with 'good EBP practice', I neglected the patients' preferences. EBP is the integration of scientific results, the professionals' expertise and the patients' preferences. Of course, patients were free to accept or decline the care offered, but their opinion about the care offered was not explored during its delivery. It is also not known if adaptation of the interventions to the patient's preferences took place and if so, to what extent.

A gap appears

- *Problems on multiple levels*

We found that the magnitude of sleep problems in mental healthcare is considerable. The current care in which hypnotics are used intensively does not appear to provide a satisfactory answer. The nursing care currently provided for these problems is hardly evidence-based. However, we found evidence for effective non-pharmacological interventions for these problems. Now the question is why this evidence is not used in current practice.

If the findings are laid alongside the principles of EBP (Table 1.1) then it can be concluded that evidence-based nursing care for sleep problems is impeded at several levels. First, we found that the majority of nurses are reasonably satisfied with the care currently provided. This satisfaction prevents nurses from being driven by uncertainty; the first principle of EBP. This lack of urge to change hinders the initiation to improve care.

Second, we found evidence for effective interventions. However, this evidence is not presented in the form of practical recommendations in guidelines. Searching and appraising research information outside guidelines requires advanced skills. The vast majority of mental healthcare nurses lack these advanced skills. Consequently, they are not capable of following the second and third principles of EBP.

The fourth principle of EBP requires one to 'quantify and communicate uncertainties with probabilities'. This means that nurses should be able to balance current habits and new information. This can only be done in practice. However, our phase 3 study showed that the implementation of new care for sleeping problems encounters many pitfalls.

It might be concluded that there is a difference between what science recommends and what is practised. Apparently there is a gap between these two entities. This gap impedes the development of nursing care for sleep problems. However, the lack of development of nursing care for sleep problems is not an isolated one. Concerns about the under-utilisation of research findings have frequently been discussed in the literature.

- *A broader problem*

In its report *Crossing the quality chasm* (IOM, 2001), the American Institute of Medicine (IOM) concluded that healthcare science and technology are developing at a rapid pace, while healthcare delivery is lagging behind; *'…between the health care that we now have and the health care that we could have lies not just a gap, but a chasm*'. It can generally be stated that there is a difference between the care that science recommends based on its findings, and the care that is actually delivered. A gap is often used in literature as a metaphor to depict this difference.

The gap between research and practice is universally recognised in all fields of nursing (i.e. Hunt 1996, Sitzia 2001, Mulhall 2001). It is generally concluded that

the incorporation of scientific knowledge into nursing practice has proved troublesome to date. Although the literature on this subject in the field of mental health nursing is very scarce, this field does not appear to be an exception. The results of a survey among mental healthcare nurses in Northern Ireland (Parahoo 1999) showed that these nurses have positive attitudes towards research. However, the survey also provided some evidence which suggests that mental healthcare nurses utilise fewer research findings and read less research literature than general nurses.

The finding that mental healthcare nurses scarcely use scientific knowledge sources for clinical decision making about sleep problems is in accordance with previous findings. Research by Estabrooks (1998) and Pravikoff et al. (2005) also showed that fewer reliable sources are used in decision making concerning somatic care. They found that knowledge from the initial nursing training, personal experience and advice from colleagues are the most frequently used knowledge sources. It is obvious that these outdated and unreliable knowledge sources are unlikely to provide the most adequate care. In fact, these sources can even perpetuate 'bad practice'. Such practice is therefore undesirable. Moreover, this has to change because patients and society are increasingly asking for professionals who provide powerful, safe and effective interventions. The integration of research findings into clinical decision making is an essential condition to meet these desires.

In general it can be stated that there is a difference between the care that science recommends based on its findings, and the care that is actually delivered. A gap is often used in literature as a metaphor to depict this difference. But what is this gap? If we want to cross this gap then we must investigate its nature. As a matter of fact; our studies in phase I (the practice) and II (the science) were an exploration of its cliffs and edges.

The gap explored

In order to formulate sound recommendations to bridge the identified gap, our findings in the next section are supplemented and compared with those of other studies. We found two types of issues: practical barriers and a principal barrier.

- *Practical barriers*

Practical barriers are problems that are encountered during searching, accessing, implementing and applying knowledge. 'Lack of knowledge and skills' is such a problem. There is a wealth of studies in all fields of nursing, from all over the world, which have identified these practical barriers or barriers. Studies which particularly provide insight in practical barriers in the development of evidence-based interventions in mental healthcare nursing are scarce. One study on this subject (Carrion et al. 2004) showed results that are rather consistent with the findings of a review (Kajermo et al. 2010) concerning different fields. It can therefore be reasonably assumed that barriers in this field will not differ significantly. Moreover, the barriers identified seem rather consistent over time, locations and settings. Kajermo et al. (2010) concluded in their review; '*Overall, identified barriers were consistent over time and across geographic locations, despite varying sample size, response rate, study setting, and assessment of study quality*.'

Most of these problems can be overcome with targeted actions. However, these practical problems must not be played down. Some of them are very persistent and seem to be related to perpetuating elements in nursing culture, presentation and/or organisational structures. Research has already identified general and almost universal problems. Table 8.1 presents an overview of most cited barriers.

Furthermore, local barriers could play a key role in problematic implementations. To deal with these, prior to the implementation of new care, a 'diagnostic analysis' of the target group and target setting is recommended (Grol 2001).

Table 8.1 Frequently cited and found barriers for the utilisation of research findings (1/2)

Lack of time
The perceived lack of time is a consistently identified barrier. Insufficient time to implement new ideas and lack of time to read research are the most cited barriers (Kajermo et al. 2010). Our study (de Niet et al. 2009b) confirmed this finding.
Lack of authority to change practice
Nurses feel that they lack influence and means to change practice on the basis of research findings. According to Kajermo et al. (2010) this is the third most cited barrier.
Lack of skills to find and interpret research findings
The lack of these skills is identified as a significant barrier of EBP. Utilizing evidence-based practice when providing patient care requires a range of skills. These skills include the ability to locate research evidence, to interpret statistics, to appraise the quality and applicability of the research findings, and to evaluate the effects of interventions on patient outcomes. The review by Kajermo et al. (2010) shows that 'The statistical analyses are not understandable' is the fourth most cited barrier.
Lack of support and team dynamics
Changing practice stands or falls with cooperation. The review by Kajermo et al. (2010) showed that nurses feel a lack of support from other staff and that physicians do not cooperate with implementation. Yet working in a multidisciplinary team can also be an issue. In inpatient settings, nursing is mainly a team matter. Dynamics within the team, like different opinions among individuals, can be an important barrier for dissemination of research findings. Laker (2009) stated; *'Staff suggested that whilst some team members are prepared to work hard to ensure change happens equally there are some who are not which hinders success by decreasing motivation.'* Sitzia (2001) also identified poor team working as a barrier to research utilisation. Our own study (de Niet et al. accepted) confirmed this observation. We identified the lack of common goal commitment as the main reason for the differences between individual members of a team.
Inadequate facilities
Inadequate facilities for implementation are the sixth most cited barrier. But also the accessibility of information is cited very often (fifth most according to Kajermo et al. 2010).
Lack of awareness and knowledge of research
Many nurses are unaware of research information (Kajermo et al. 2010). In fact, most nurses are unfamiliar with research and EBP processes. Until recently, research methods were not part of initial nursing education. Since 'unknown is unloved', most nurses fail to see the value of research findings. According to Kajermo et al. (2010), the incapability to evaluate the quality of research findings is the tenth most cited barrier.
Nursing culture
Nursing, not rooted in an academic tradition, is characterised by an emphasis on 'doing' and traditions (Salmond 2007). Experience is one of the most valued sources for clinical decisions. A study by Nicolas et al. (2005) among perioperative staff showed that seeking information does not form a part of the culture of the job, except for training purposes. Sitzia (2001) mentioned, in particular, ritualistic care, the lack of authority and incentives as specific disadvantageous aspects of nursing culture.

Table 8.1 Frequently cited and found barriers for the utilisation of research findings (2/2)

Other frequently cited barriers (Kajermo et al. 2010)
- The nurse is isolated from knowledgeable colleagues
- The nurse feels results are not generalisable to own setting
- Research reports are not readably available
- The research is not reported clearly

A principle barrier

Besides the practical barriers, we also found a more severe, principle barrier: The apparent mismatching between science and practice. Hutschemaekers (2009, p. 12) spoke of 'fundamental laws which are standing in the way', when referring to the unbridgeable differences between science and practice. Science and practice view care from opposite perspectives (the cliffs of the gap). They therefore have different pictures even though they are dealing with the same phenomena. Whereas science generates decontextualised knowledge deductively, practice is exclusively concerned with the context and generates knowledge inductively. This leads to knowledge that at first sight appears to be incompatible and in a different language. Therefore, first and foremost, the gap is the manifestation of lacking dialectics between science and practice. We also found this manifestation in our project. At times, the scientific findings clashed with personal ideas and contextual limitations, and applying the findings did not entirely lead to the expected results.

Despite the difference in perspective between science and practice, an entente is needed. According to Hutschemaekers (2009, p. 18) science and practice can boost each other to great heights. Exchanging and combining knowledge generated from different perspectives will lead to a broad and complementary knowledge field.

The awareness of a possible synergy between practice and science has only recently emerged within the discipline of nursing. However, at present there is still no 'marriage' but just a hesitant engagement. But nursing practice and science need to do more than calmly scout the added value of a potential alliance. Developments in society and important parties like patients are demanding more than just a courtship: the parties have to marry and produce healthy offspring!

The scientist-practitioner is one of the attempts to bridge the differences between science and practice. The scientist-practitioner model first emerged in

1950 (Raimy 1950). At the national conference for training of clinical psychologists in Boulder (Colorado – United States), an educational model was proposed that would lead to a professional who was a scientist and competent researcher as well as a practitioner applying knowledge and techniques to solve the problems of clients. In theory, the scientist-practitioner is an ideal mediator. However, after more than five decennia we must conclude that the scientist- practitioner is not (yet) able to fulfil the expected mediating role. This concern is often expressed (e.g. Gelso 2006; Wood 2009; Hutschemaekers 2009). Despite this observation, the role of scientist-practitioner has been developed within nursing (clinical nurse specialist, nurse practitioner). Disappointment looms. Is it realistic to expect these novice mediators to bring together partners who are barely attracted and who are not capable of understanding each other? At the very least, their task should be supported by additional measures.

The challenge is to start and maintain dialectics between practice and science in the nursing discipline; to aim for a synergy between the value of practice knowledge and scientific knowledge. But how can this be achieved in mental healthcare nursing? How can a fruitful entente originate? The answer lies in dealing with practical barriers but also with the principle barrier. Introducing (more) scientist-practitioners in the nursing discipline might be just a part of the solution. Building a bridge between science and practice will also require the preparation of other, basic conditions.

A bridge to build

This section will provide an answer to the second part of the second key question: How can these barriers be overcome? We previously concluded that the implementation of valid knowledge in practice is impeded at several levels. We also saw that this problem does not solely apply to the development of care for sleep problems. Rather it is typical of a broader problem: The recommendations of science are not applied in practice.

It may be concluded that the straightforward ‘recipe’ to improve care, the four principles of EBP presented in Table 1.1, is not sufficient. Specifically resolving the practical barriers identified is not enough. More fundamental changes are needed to transform mental health nursing into a mode wherein scientific findings are sought and used.

Based on the barriers identified and the principle barrier between science and the mental healthcare nurses' practice, three major themes can be derived:

1. *The lack of urge for change within the discipline*

Studies into the barriers for utilising research findings and EBP are largely performed from the perspective of the clinicians (the nurses). However, another barrier identified is the essential change of attitude and behaviour needed to apply the principles EBP. Salmond (2009) stated: 'Transition to an EBP culture will require a shift from only 'doing' to inclusion of time for reflection'. Indeed, moving away from traditional practice should always start with reflection on the current practice, posing the question 'can it be done better?' as well as the will to change current practice. However, the nursing discipline seems rather confident about its care and is relying on experience and training college knowledge as sufficient knowledge sources to base their care on. Therefore, the current care is scarcely questioned and so the urge for change is lacking; there is ignorance of reflectiveness and questioning.

EBP assumes that the professional continuously doubts his practice. Such questioning catalyses an ongoing active acquirement of valid knowledge. However, this does not happen spontaneously in practice. A mode is therefore needed that is characterised by 'uncertainty'. Doubting current care is essential for realising an urge for change. Trust in traditional knowledge sources like personal experiences and eminence consultation need to be replaced by questioning the current care and the ongoing drive to improve.

2. *The incapability to unlock valid knowledge*

In general, the mental healthcare nurse is not a scientist. Only recently has research become part of the educational curricula of nursing training. As a result, many nurses lack the skills and knowledge needed to search, assess and interpret scientific findings. These skills are needed because science communicates in a language that the practitioner does not master. Moreover, the average mental healthcare nurse is not even aware of scientific knowledge. And when valid knowledge is offered in the form of multidisciplinary guidelines, this is structured in such a way – by medical

diagnoses and in an inaccessible style ? that it does not fit the nursing perspective on care.

3. *The lack of an adequate structure to allow valid knowledge to be translated into improvements*

   At present, there is not a structure that facilitates the urge, search and use of valid knowledge. The mental healthcare nursing discipline needs a framework, a logical and methodological structure, in which reflection is encouraged, uncertainties are accepted and doubts are transformed into answerable questions.

As a result of these observations, I pose three criteria that can enhance the use of research findings in the clinical decision making of mental healthcare nurses. These criteria aim to create the most essential conditions:

- First, there must be reflection to 'foster' an urge for change.
- Second, there must be a structure in which reflection, the balance for alternatives and the incorporation of valid knowledge are logical steps.
- Third, there must be knowledge and skills.

Proposed bridge-building material

- *Reflection to 'foster' an urge for change*

If traditional practice is to move towards well funded care, it is vital that an urge for change is felt. Lewin (1951) called this 'unfreezing': to realise that the old ways of doing things are unsustainable and that change is desirable. However, such an urge does not appear spontaneously. An urge develops when the conviction is born that the current care must and can be improved. Only then can practice 'learn' towards improved care. For Schön and Argyris (1978) learning involves the detection and correction of error. But how can such detection take place?

Issues for improvement and thus developing an urge for change, requires a specific professional quality: reflection. Reflection is a common concept in sociology literature and is it thoughtfully cogitated by the American philosopher

Donald Schön (1930-1997). Reflection is about challenging our assumptions. Although commonly used, many different definitions can be found. A clear description is given by Reid (1993): '*Reflection is a process of reviewing an experience of practice in order to describe, analyse, evaluate and so inform learning about practice*'. Schön (1987) introduced two distinctive forms of reflection: reflection-in-action and reflection-on-action. The former occurs when performing an action; the professional is thinking about what he is doing while doing it. The latter refers to the deliberant thinking about an event after it happened. The professional thinks about what he has done in order to discover issues of improvement (i.e. lack of knowledge or competences).

The purpose of reflection is described by Jarvis (1992): '*Reflective practice is something more than thoughtful practice. It is that form of practice that seeks to problematize many situations of professional performance so that they can become potential learning situations and so the practitioners can continue to learn, grow and develop in and through practice'*.

The core of this statement is the verb 'to probletamize'. Reflective practice involves a 'doubting attitude', characterised by 'not taking the current practice for granted' and thus posing 'wicked questions' (Salmond 2007) with the purpose to start a route for improvement. According to Salmond (2007), examples of 'wicked questions' are: Why are we doing it this way? Is there a better way to do it? And what is the evidence for what we do? Salmond further stated that such a practice *'…call for all practitioners to adopt a mindset of informed scepticism'*.

Literature encourages nurses to become reflective practitioners. But how can this be achieved? How can a rather smug, non-academically educated discipline be tempted to adopt an attitude of 'informed scepticism'? Just the advice or directive to 'be reflective' is unlikely to be fruitful. Nurses need to be provoked to develop reflective skills. Many interventions for this purpose can be considered, for instance:

- Education: Initial and post-initial education should explicitly develop reflective skills with their trainees. Reflection models (i.e. Gibbs 1988, Johns & Graham 1996, Atkins & Murphy 1994) can be taught as practical guides on how to reflect in practice.
- A congruent culture: The organisational culture and important values of the nursing culture should be congruent. That is, the organisation nurses work in needs to be explicit about the value of reflection, in both word

and deed. Reflection must be facilitated and carried out and practised in all organisational layers.
- Positive incentives should be awarded to nurses who positively distinguish themselves by reflection on the practice they are working in.
- Role models and peer assessment: Inspiring leaders in reflection (role models) should work in practice and not only in education. They should convey the value of reflection and stimulate their fellow nurses. Peer assessment is the assessment by equals. Fellow nurses are able to reflect on the products of their colleagues.
- Blocking: Blocking elements of traditional practice – the so called faits accompli ? might facilitate creativeness. Professionals are forced to search for other strategies.
- Stimulate 'a shift of perspective': Measures that stimulate nurses to view illness and organisation of care from another perspective might unsettle traditional practice.

› A stimulating structure

A second essential for the use of scientific findings in clinical decision making in mental healthcare nursing is an environment in which reflection, the balance for alternatives and the incorporation of valid knowledge are logical steps. Such a structure provides a natural and logical base for informed scepticism. This calls for a methodical approach that invites the professional to continuously explore needs, alternatives and the effect of his actions during the course of the treatment.

Calling for a methodological approach is nothing new. However, in this thesis I call for methodical practice as the core of EBP. Such a practice has been developed by my colleagues and I (Tiemens et al. 2010). It will be briefly discussed here. Typical of this approach are the 'instants at ease' (stop and think) before making clinical decisions. These 'instants at ease' are structurally embedded reflections. Such reflections facilitate the questioning of routine care and enable the search for the most recent knowledge. To determine when an 'instant at ease' ought to be taken, the model developed divides a care process into five phases. These phases are described in Table 8.2.

Every new phase in the treatment process marks the place for an 'instant at ease'. With such a methodical approach, the professional is regularly standing back from the treatment process to reflect on what is happening. These reflection moments are needed to make all implicit actions and knowledge explicit. Only then can decisions about the next steps in the care process be taken together with the patient.

Superficially, this model is similar to the sequence of principles of EBP (Table 1.1). However, EBP concerns one dimension of the treatment process (interventions or diagnostic procedures), whereas this model distinguishes three dimensions in the care process: the working alliance, the treatment process and the conditions. Table 8.3 provides a description of each dimension. The underlying assumption of this model is that the success of the treatment depends on more than effective interventions. The lack of quality of the working alliance, for instance, can be the essential factor when treatment is stagnating. Therefore all dimensions of the treatment process must be methodologically reflected upon.

In the methodical approach that we developed (Tiemens et al. 2010), what needs to change is determined for each of these dimensions. A goal is therefore set for each dimension. Next, the best means to accomplish the goal are sought and a specific and balanced plan is made to realise the goal. In fact, in the first three phases (see Table 8.3), a hypothesis is proposed each time: In a patient with problem X, treatment by intervention Y, will lead to goal Z. In the next two phases theses hypotheses are tested: The progression is carefully monitored to determine if the results are moving in the desired direction and the process and products are evaluated. Table 8.4 provides an overview of the entire process in relation with the dimensions.

The main advantage of our model is the integration of two powerful concepts into the clinical decision making; reflection (learning by retrospection) and evidence-based practice (the incorporation of valid knowledge in clinical decision making). Reflection informs the professional and the patient about the progression and/or barriers to this progression. When expectations are not being met then questions can be asked about the relationship between the patient and the professional, the treatment options offered and the treatment goals. These questions are the starting point for a quest for valid knowledge about alternatives. When these alternatives are found, a new hypothesis is formulated and a new cycle of care will start.

Table 8.2 Phases in treatment according to Tiemens et al. (2010)

Phase 1	**From problem to target**
In this phase, the problem(s) of the patient will be clarified. This should result in a clear definition of treatment targets. Goals make clear what the results of the treatment should be and what resources are needed to achieve these.	
Phase 2	**From target to resources**
Resources (diagnostics tools, interventions) are sought to accomplish the targets determined. Initially, the evidence for effectiveness, safety and applicability are paramount.	
Phase 3	**From general to specific**
In this phase, the resources are customised to the individual patient: His preferences, experiences and other specific characteristics. This results in a care plan.	
Phase 4	**From expectations to results**
In this phase the care plan is executed and the progress is monitored. Whenever possible, monitoring is performed using standardised instruments. The provided data is used to adapt the treatment when needed.	
Phase 5	**From results to meaning**
An evaluation is a planned review of the entire process, aimed at providing information to determine sequential steps.	

Table 8.3 Dimensions in the caring process*

The working alliance
A good cooperation is essential for effective care, treatment or a diagnostic procedure. The quality of the working alliance is a strong predictor of the success of the treatment. Therefore, ensuring a good working alliance is a primary requirement in mental healthcare. However, a working alliance is not stable during the process. The alliance must therefore be reviewed on a regular basis and explicit action taken if necessary.
The treatment process
Within this dimension, a distinction is made between the 'building blocks' (decisions about diagnosis and interventions) and the process itself. With building blocks, questions like 'what diagnostic test provides most certainty?' or 'what intervention leads to the best reduction of symptoms?' should be asked. The process itself encompasses the cohesion between the building blocks, and thus the entire treatment process. This is, for example, the sequence of interventions.
The conditions
The conditions are the total of expertises and organisational resources needed to treat the patient adequately. The conditions encompass the professional, the (multidisciplinary) team and the organisation. These elements must be able to provide, each on their respectively level, the required skills, support and facilities.

***** According to Tiemens et al. (2010)

Table 8.4 The five phases in treatment in the three dimensions

Phase / Dimension	**1. From problem to target**	**2. From target to resources**	**3. From general to specific**	**4. From expectations to results**	**5. From results to meaning**
Working alliance					
	Workable alliance	Determine how this can be reached	Planning	The continuous monitoring of the alliance	Is the alliance (still) workable?
Building Blocks					
Diagnosis	More certainty about the disorder or complaint	Determine which instrument is best	Planning for assessment	Assessment and interpretation	Is there more certainty?
Interventions	Treatment or care objective	Determine the best means	Making part of care plan	Execute and monitor	Is the objective accomplished?
The process	Treatment objective	Determine the best care programme	Making the care plan	Execute and monitor	Is the objective accomplished?
Conditions					
Professional	Required expertise	Determine how/where/from who to obtain	Educational plan or 'renting' expertise	Conducting training and monitoring results	Has the expertise been obtained?
Team	Required role of team/colleagues	Determine how this can be obtained or organised	Planning	Execute and monitor	Has the role been obtained?
Organisation	Required facilities	Determine how this can be obtained or organised.	Planning	Execute and monitor	Have the facilities been obtained?

- Knowledge and skills

Knowledge and skills are vital for using scientific findings in the provision of care. Such an approach requires many, often advanced aspects; reflective skills (questioning the current practice and explicitly formulate practice problems), search skills (searching scientific sources), knowledge about scientific methodology and terms (epidemiologic terms, critical appraisal of validity, reliability and generalisability), and transfer skills (implementation). Moreover, a high proficiency in English is needed. Can all these skills and knowledge be expected from mental healthcare nurses who have mostly followed vocational education? Can and must every mental healthcare nurse be a competent developer and adopter of evidence-based practice? In my opinion, this is neither feasible nor necessary. It is not feasible because educating all mental healthcare nurses in advanced competences and techniques would require an enormous investment. Moreover, not all nurses need, can or want to learn the required advanced competences: A differentiation in tasks and competences is therefore desirable.

Strauss et al. (2004) distinguish between three modes in which physicians can practice evidence-based medicine: as a doer, a user or a replicator. A replicator is a practitioner who is guided by evidence-based clinical guidelines but who is also able to identify gaps in practice and translate this gap into clinical questions. A user does the same but is also able to ask a focussed clinical question containing all relevant components and to seek new knowledge. Lastly, a doer is a physician who masters all competences needed for the steps of the EBP process. Such a trichotomy is a workable model for nurses too. Using the metaphor of a gap or chasm between research and practice that needs to be bridged, a model can be proposed with three distinctive roles for mental healthcare nurses: bridge users, bridge builders and bridge engineers. These roles can closely fit both the main scope of the care that is provided by these nurses and their level of education. For instance, guidelines can be followed for routine care. Following guidelines does not require expert skills or competences. Rather this mode requires trust in the guideline recommendations and the ability to make a conscious appraisal of patient preferences, clinical experience and the evidence provided. Moreover, although routine is the main feature, knowledge must not be taken for granted and so ‘bridge users’ need reflective skills as well.

In a less predictable situation, the recommendations provided by guidelines do not (always) provide sufficient solutions. Here, creativity is called for. Therefore,

bridge builders should master the skilful translation of the encountered knowledge gaps into answerable questions and competences to seek and appraise new knowledge.

As last, experts (engineers) are needed to support practitioners with well-founded guidelines and expert competences to help them in their quest for knowledge. They can design bridges by translating valid knowledge into feasible and accessible recommendations. Moreover, they can support clinicians in their quest for knowledge. Table 8.5 provides an overview of this proposed model.

Table 8.5 Proposed model of evidence based roles in mental healthcare nursing

	Bridge users	**Bridge builders**	**Bridge engineers**
		As previous plus:	As previous plus:
Skills needed:	- Follow guidelines - Conscious appraisal and fit - Reflection - Identify uncertainties	- Translate knowledge gaps into questions - Seek and appraise new knowledge	- Development of guidelines and CATs* - Helpdesk for complex questions - Seek and appraise new knowledge at an advanced level

* Clinical Appraised Topics (= a short summery of evidence)

Between dream and sleep

Nursing care for sleep problems based on valid knowledge, leading to a satisfying result (sleep), is a desire, a wish and a need. But between the dream (the wish to improve) and a really healthy and refreshing sleep (the result) lays a path that needs to cross a gap. In this thesis, I have explored this gap and have found that it consists of practical barriers and a principle barrier. Bridging this gap requires the removal of barriers and a 'change of mode': mental healthcare nurses need an adaptation of their working mode. Changing the mode of an entire discipline - that is rather traditional - into EBP mode is no simple matter. However, the vast majority of mental healthcare nurses are not hostile to the idea of using scientific knowledge in clinical decision making. In fact, awareness and intentions are present. But intentions are not enough.

The new mode should be characterised by questioning (reflection), and quest (searching for alternatives). Such a mode can be called EBP. However, the

traditional, rather straightforward EBP view of the transition of valid knowledge is too limited to lead to real changes in practice.

Just like refreshing sleep, the change to the EBP mode cannot be realised by an 'over the counter' solution nor can it be forced. Both processes are served by optimal (pre-) conditions. The preparation of these conditions requires a well coordinated and labour-intensive investment. Much remains to be done before mental healthcare nurses will provide care for sleep problems that is based on valid knowledge. However, there is no reason to despair. Large ships need time to change course, but eventually they do.

Chapter **9**

Samenvatting en algemene discussie

(Summery and discussion in Dutch)

Introductie

Veel patiënten in de geestelijke gezondheidszorg lijden aan slaapproblemen. Verpleegkundigen worden vaak geconfronteerd met de negatieve gevolgen van deze problemen. Ik heb echter de indruk dat psychiatrisch verpleegkundigen met te weinig 'gereedschap' zijn uitgerust om deze problemen het hoofd te bieden. Maar ik heb ook de indruk dat er in de laatste decennia er weinig is veranderd aan deze zorg. Dit riep vragen op; is er werkelijk zo weinig veranderd? En als dat zo is; wat is daar de oorzaak van? Is de zorg die twee decennia geleden werd toegepast nog steeds de meest adequate?

Om dit te onderzoeken werd een project in drie fasen ondernomen. In deze fasen waren de principes van Evidence-based practice leidend (EBP, zie Tabel 9.1). Evidence-based practice is een praktijk waarbij de best beschikbare kennis wordt geïntegreerd met de klinische expertise en de voorkeuren van de patiënt.

In de eerste fase van het project werd de omvang van het probleem en de huidige zorg onderzocht. In de tweede fase werd de beschikbare evidence voor alternatieve verpleegkundige zorg geïnventariseerd. In de derde fase werd een deel van de gevonden evidence toegepast in de praktijk

In het eerste deel van dit hoofdstuk zullen de resultaten en conclusies van de studies in dit proefschrift worden samengevat. In het tweede deel worden deze bevindingen en de implicaties behandeld en zal ik een antwoord formuleren op de voornaamste vraag van dit proefschrift: Leidt de toepassing van de principes van EBP tot een verbetering van de verpleegkundige zorg voor slaapproblemen? En: Als deze ontwikkeling wordt gehinderd, wat zijn dan de barrières en hoe kunnen deze worden overwonnen?

Ik zal laten zien dat de problemen die ontstaan tijdens de verbetering van de verpleegkundige zorg voor slaapproblemen een voorbeeld zijn van een breder probleem; valide kennis wordt niet in de praktijk toegepast. Daarom zullen brede aanbevelingen worden gedaan voor het oplossen van dit probleem.

Tabel 9.1 Essentiële elementen of principes van EBP*

Principe	
1	Herken onzekerheden in de klinische praktijk
2	Gebruik wetenschappelijke kennis om die onzekerheden te verminderen
3	Maak onderscheid tussen sterke en zwakke evidence
4	Weeg onzekerheden met de waarschijnlijkheden af

* Glasziou et al. 2007, p. 3

Samenvatting en conclusies over de huidige zorg

Om de huidige zorg te onderzoeken werden er in de eerste fase van het project twee studies uitgevoerd. De eerste studie (Hoofdstuk 2: de Niet et al. 2008) had ten doel kennis te verwerven over de slaapkwaliteit van volwassen en oudere patiënten die klinische of ambulante behandeld werden in de geestelijke gezondheidszorg. De studie beoogde ook de belangrijkste factoren te identificeren voor in de perceptie van een slaapprobleem.

We vonden dat zowel verpleegkundigen in de klinische als in de ambulante geestelijke gezondheidszorg (GGZ) vaak worden geconfronteerd met patiënten die lijden aan slaapproblemen: 36% van deze patiënten ervaren een slaapprobleem en wanneer een gevalideerd instrument werd gebruikt, werd zelfs 66% bestempeld als een 'slechte slaper'.

Vier symptomen van slapeloosheid bleken voorspellers van een slaapprobleem te zijn: gebrek aan enthousiasme overdag, nare dromen, vroeg of midden in het de nacht wakker worden, niet wakker kunnen blijven tijdens sociale activiteiten. De vijfde voorspeller was het gebruik van slaapmedicatie: Patiënten die de meeste slaapmedicatie gebruikten scoorden aanzienlijk slechter op alle slaap parameters. Bijna driekwart van de patiënten die een slaapprobleem ervaren gebruiken drie of meer keer per week slaapmedicatie. Deze 'intensieve gebruikers' scoorden aanzienlijk slechter op alle aspecten van slaapkwaliteit, in vergelijking met de patiënten die minder dan eenmaal per week slaapmedicatie gebruiken. De vraag rees of het intensieve gebruik van slaapmedicatie een slechte invloed op de kwaliteit van de slaap heeft. Uit eerder onderzoek (Poyares et al. 2004) is bekend het chronische gebruik van benzodiazepinen bij slaapproblemen gepaard kan gaan met een slechte slaapkwaliteit en dat de gebruikers de wens om 'overdag beter te willen functioneren ’ meestal onvervuld blijft (Kribke 2000). Dit betekent dat bij de ontwikkeling van verpleegkundige best practice, niet-farmacologische

interventies mogelijk een prominente rol als alternatief voor slaapmiddelen zouden kunnen krijgen.

De resultaten van deze studie toonden aan dat slaapproblemen in de psychiatrische zorg een groot probleem zijn en dat alle verpleegkundigen tijdens de nacht kunnen worden geconfronteerd met deze problemen maar ook met de gevolgen daarvan overdag.

De tweede studie (Hoofdstuk 3: de Niet et al. 2009b) beoogde inzicht te verschaffen in de huidige zorg voor slaapproblemen en de meningen van verpleegkundigen over die zorg te verkennen. We stelden vast welke kennisbron in de huidige zorg wordt gebruikt en vroegen de verpleegkundigen welke obstakels ze verwachten wanneer alternatieve en evidence-based zorg wordt geïmplementeerd.

De resultaten van dit onderzoek lieten zien dat de meerderheid van de interventies die overdag worden toegepast om slaapproblemen te voorkomen in de huidige GGZ, structurerend van aard zijn. Ze behelzen bijvoorbeeld een gestructureerd ritme met vastgestelde bedtijden en stressmanagement.

Er wordt weinig gebruik gemaakt van psycho-educatie, het vaststellen van problemen of informerende activiteiten. Gedurende de nacht worden slaapproblemen vooral benaderd met observatie, zorgen voor een gunstig slaapmilieu en stress management.

We vonden dat ervaring, kennis die is opgedaan tijdens de initiële opleiding en het advies van eminente collega's, de meest gebruikte kennisbronnen zijn. Verpleegkundigen blijken zich bewust te zijn van het belang van een gezonde slaap en een goede zorg daarvoor. De studie liet echter ook zien dat de discipline nogal conservatief is in zijn benadering als het gaat om het vaststellen van een slaapprobleem. Ze vertrouwen vooral op ervaring en in veel mindere mate op evidence. Verpleegkundigen bleken redelijk tevreden te zijn met de huidige zorg en dachten dat patiënten dat ook zouden zijn.

Ondanks deze tevredenheid bleken ze bereid om alternatieve, evidence-based interventies toe te passen maar ze verwachtten dat een gebrek kennis, een gebrek aan vaardigheden en een gebrek aan tijd de belangrijkste obstakels voor implementatie zouden zijn.

De belangrijkste conclusies van fase I zijn:

- Slaapproblemen zijn een aanzienlijk probleem in de psychiatrie.
- Behandeling met slaapmiddelen lijken geen bevredigend antwoord te kunnen bieden.
- De huidige verpleegkundige zorg is nauwelijks gebaseerd op evidence.
- Psychiatrische verpleegkundigen zijn redelijk behoorlijk tevreden over hun zorg.

Samenvatting en conclusies over de beschikbare evidence

In de tweede fase van het project werd de beschikbare wetenschappelijke kennis over alternatieve zorg geïnventariseerd. Het eerste onderzoek (Hoofdstuk 4: de Niet et al. 2009a) was een meta-analyse. Deze studie had ten doel om het effect van ontspanning door middel van muziek (MAR) op de verbetering van slaapkwaliteit bij volwassen en ouderen vast te stellen.

Vijf gerandomiseerde en gecontroleerde trials (RCT's) met zes behandelcondities en een totaal van 170 participanten in de interventiegroep en 138 in de controlegroep, bleken aan onze inclusiecriteria te voldoen. MAR bleek een middelgroot effect te hebben op de slaapkwaliteit van patiënten met slaapproblemen (standardized mean difference: 0.74). Een subgroep analyse liet geen statistisch significante bijdrage zien van aanvullende maatregelen.

We concludeerden dat MAR kan worden gebruikt zonder dat een intensieve investering nodig is in training en materialen. Het is daarom goedkoop, gemakkelijk toepasbaar en het kan worden toegepast door verpleegkundigen om de slaapkwaliteit te verbeteren.

Een tweede onderzoek (Hoofdstuk 5: de Niet et al. 2009c) was een review van systematische reviews betreffende niet-farmacologische interventies om de slaapkwaliteit bij insomnia te verbeteren. Dit onderzoek beoordeelde de kwaliteit en de uitkomsten van 16 systematische reviews betreffende 17 verschillende interventies. Er werd bewijs voor effectiviteit gevonden voor zeven van deze interventies. Echter, veel van deze reviews ontbeerden methodologische kwaliteit.

Adequate evidence voor een middelgroot effect (SMD = 0.74) werd gevonden voor ontspanning door muziek (MAR). Zwakke evidence voor een groot effect werd gevonden voor multicomponent cognitieve gedragstherapie (SMD = 1.12), progressieve spier ontspanning (SMD = 0.97), stimulus controle (SMD = 1.30) en de groep 'alleen gedragsinterventies' (SMD = 0.91).

We concludeerden dat de behandeling door middel van niet-farmacologische interventies gebaat zou zijn met hernieuwde systematische reviews. Deze reviews zouden gebaseerd moeten zijn op een strikte methodologische aanpak. Tot die tijd moeten clinici zich er van bewust zijn dat de systematische reviews over het effect van niet-farmacologische interventies voor insomnia, niet per se en altijd hoog niveau evidence zijn.

Fase II van dit project liet ook duidelijk zien dat het zoeken en vooral het vaststellen van de kwaliteit van wetenschappelijk kennis, geavanceerde en academische vaardigheden behoeft.

De belangrijkste conclusies van fase II zijn:

- Er is evidence voor alternatieve en effectieve niet-farmacologische interventies.
- Veel van de evidence in de vorm van systematische reviews ontberen methodologische kwaliteit.

Samenvatting en conclusies over de toepasbaarheid van twee interventies

In de derde en laatste fase van dit project werden er twee interventies in de praktijk gebracht. Er werd daarbij zoveel mogelijk geanticipeerd op voorziene obstakels bij de implementatie en toepassing van de interventies (gebrek aan kennis, gebrek aan vaardigheden, gebrek aan tijd en drukte). Dit werd gedaan om andere, onbekende en nog niet onderzochte barrières bij de implementatie en toepassing zichtbaar te maken.

De eerste interventie was gebaseerd op ontspanning door muziek (MAR) en de tweede op stimulus controle (SC). De eerste interventie vereist weinig team samenwerking terwijl de tweede interventie een behoorlijke teamsamenwerking

vereist. In een pilot-onderzoek, gebaseerd op een quasi-experimenteel design (Hoofdstuk 6: de Niet et al. 2010), werden de twee interventies geïnstrueerd op twee opnameafdelingen van een psychiatrische instelling. Een derde afdeling functioneerde als controle afdeling. De slaap kwaliteit werd gemonitord door middel van de Richards Campbell Sleep Questionnaire (RCSQ). De eerste vraag die moest worden beantwoord was: Kunnen deze interventies effectief worden toegepast door psychiatrische verpleegkundigen? En: Is er een verschil tussen de twee interventies?

De primaire variabelen van in de studie waren de items 'slaapkwaliteit' en de RCSQ totaal score. De gemiddelde verschilscore van de behandelgroepen werden vergeleken met de gemiddelde score van de vergelijkingsgroep door middel van t-toetsen. Schattingen van het effect (effectgrootte) werden berekend.

Het toepassen van stimulus controle door psychiatrisch verpleegkundigen leidde niet tot een statistisch significante verbetering van de slaapkwaliteit of de RCSQ totaal score. Het toepassen van MAR leidde wel tot een statisch significante verbetering van de slaapkwaliteit. Deze interventie leidde tot een groot effect (SMD = 0.83). Er werd geconcludeerd dat er een sterke indicatie is dat psychiatrische verpleegkundigen MAR effectief kunnen toepassen.

De volgende vraag die in deze fase moest worden beantwoord was: Is deze kennis (de twee interventies) toepasbaar door verpleegkundige in een klinische GGZ setting? En: Is er een verschil tussen beide interventies? Om die vragen te beantwoorden werd een combinatie gemaakt van een kwalitatieve studie door middel van interviews en aantekeningen en een kwantitatieve studie. De resultaten (Hoofdstuk 6: de Niet et al. 2010) lieten zien dat verpleegkundigen van mening zijn dat zowel SC als MAR kunnen worden toegepast maar ze gaven aan dat patiënten moeizaam te motiveren zijn om niet-farmacologische interventies te proberen. Ze ervaren een gebrek aan tijd, drukte op de afdeling en de samenwerking met patiënten als belangrijke obstakels. Een ervaren succesvolle implementatie bleek gecorreleerd met een ervaren toegenomen kennis over slaapproblemen, het ervaren van toegenomen opties in de zorg voor slaapproblemen en de indruk van effectiviteit.

De kwalitatieve gegevens lieten ook zien dat de effectiviteit van de interventies werd geschaad door operationele problemen, aanpassing aan de contextuele beperkingen en conflicterende persoonlijke ideeën. We concludeerden dat MAR kan worden toegepast in de klinische GGZ zorg. De toepassing van SC werd

gehinderd door onoverkomelijke operationele problemen. We concludeerden ook dat 'het verpleegkundig team' een belangrijke factor is als evidence-based interventies op afdelingsniveau worden geïmplementeerd. Het ontbreken van een gemeenschappelijke drang tot verandering en verantwoordelijkheid voor continuïteit zijn belangrijke factoren die kunnen bijdragen aan mislukking.

De belangrijkste conclusies van fase II zijn:

- Er is een sterke aanwijzing dat verpleegkundigen in de GGZ MAR effectief kunnen toepassen.
- MAR is uitvoerbaar in klinische GGZ zorg.
- De toepassing van SC wordt gehinderd door onoverkomelijke praktische problemen.
- Het verpleegkundig team is een belangrijke factor bij de implementatie van evidence-based interventies op afdelingsniveau.

De eerste vraag '*Leidt de toepassing van de principes van EBP tot verbetering van de verpleegkundige zorg voor slaapproblemen?*' kan bevestigend worden beantwoord. Echter, dit proces ontstaat niet spontaan en ook gedurende het beloop wordt het gehinderd op verschillende niveaus.

Beperkingen

In deze paragraaf zullen een aantal beperkingen worden besproken die het gevolg zijn van een aantal principiële en procedurele keuzen die ik heb gemaakt.

Ten eerste lag er geen gedeeld probleem aan de basis van dit proefschrift. Het was de auteur van dit proefschrift die bepaalde dat de verpleegkundige zorg voor slaapproblemen problematisch was.

Ten tweede: Bij mijn verkenning van wetenschappelijke literatuur werd een grote hoeveelheid onderzoeksresultaten gevonden betreffende niet-farmacologische interventies. Omdat het mijn intentie was een compacte en toch uitgebreid overzicht te maken, heb ik gekozen voor een review van systematische reviews. Een dergelijke aanpak introduceert echter de gevaren van reductie en geeft dus geen inzicht in andere evidence van hoge kwaliteit zoals in de vorm van

losse RCTs. Bovendien heb ik mij beperkt tot de uitkomstmaat slaapkwaliteit. Daardoor bleven andere met andere uitkomstmaten buiten beschouwing.

Ten derde: Ik heb er voor gekozen om de reeks van principes van EBP strikt te volgen. Echter, de rol van wetenschap is nogal dominant in EBP. Deze aanpak heeft geleid tot een proces waarbij de wetenschappelijke resultaten behoorlijk rechtstreeks in de praktijk werden gezet. Een dergelijke aanpak behelst het gevaar om 'het kind met het badwater weg te gooien'. Een te strikte hantering kan leiden tot het afwijzen van mogelijkheden om te verbeteren. Echter, een dergelijke aanpak maakte ook de problemen tijdens het proces zichtbaar. In andere woorden: de beperkingen van deze benadering gaven juist inzicht in deze beperkingen.

Ten vierde: Ik koos voor een klinische setting voor de introductie van de wetenschappelijke resultaten in de praktijk. Patiënten binnen dergelijke settings leiden veelal aan ernstige en langdurende psychiatrische problemen. Door me tot deze groep te beperken is mogelijk de generaliseerbaarheid van onze bevindingen beperkt.

Ten slotte - en dit is niet in overeenstemming met 'goede EBP' - heb ik de voorkeuren van de patiënt veronachtzaamd. EBP is de integratie van wetenschappelijke kennis, de expertise van de professional en de voorkeuren van de patiënt. Uiteraard waren de patiënten vrij om de aangeboden zorg te accepteren of af te wijzen, maar hun mening over die zorg werd niet verkend. Het is ook niet bekend of de interventies werden aangepast aan de wensen van de patiënt en in welke mate.

Een kloof wordt zichtbaar

We vonden dat de omvang van slaapproblemen in de GGZ aanzienlijk is. De huidige zorg waarbinnen er intensief slaapmiddelen wordt gebruikt lijkt geen bevredigende oplossing hiervoor te bieden. De verpleegkundige zorg voor deze problemen is nauwelijks evidence-based. Toch is er evidence beschikbaar voor de effectiviteit van niet-farmacologische interventies. De vraag is nu waarom deze evidence niet in de huidige zorg wordt toegepast.

Als de bevindingen naast die van de principes van EBP (Tabel 1.1) worden gelegd, dan kan worden geconcludeerd dat evidence-based verpleegkundige zorg

wordt belemmerd op verschillende niveaus. Ten eerste vonden we dat de meerderheid van de verpleegkundigen behoorlijk tevreden zijn over de huidige geboden zorg. Deze tevredenheid voorkomt dat verpleegkundigen door onzekerheid worden gedreven; het eerste principe van EBP. Dit gebrek van gedrevenheid tot veranderen verhinderd het aanzetten tot verandering van zorg.

Ten tweede vonden we evidence voor effectieve interventies. Echter, deze evidence is niet beschikbaar in de vorm van praktische aanbevelingen in de richtlijnen. Het zoeken en beoordelen van evidence buiten de richtlijnen vereist geavanceerde vaardigheden. De grote meerderheid van psychiatrisch verpleegkundigen beschikt niet over deze vaardigheden. Als gevolg daarvan kunnen zij het tweede en derde principe van EBP niet uitvoeren.

Het vierde principe van EBP vereist dat iemand de onzekerheden tegen de zekerheden afweegt. Dat betekent dat verpleegkundigen in staat moeten zijn om de gebruikelijke gewoonten af te wegen tegen nieuwe informatie. Dit kan alleen in de praktijk gebeuren. Het onderzoek in fase 3 liet echter zien dat het implementeren van nieuwe zorg in de praktijk vele valkuilen kent.

Er kan worden geconcludeerd dat er een verschil is tussen hetgeen de wetenschap adviseert en wat er in de praktijk gebeurt. Klaarblijkelijk is er een kloof tussen deze twee entiteiten. Deze kloof verhindert de ontwikkeling van de verpleegkundige zorg voor slaapproblemen. Het gebrek aan ontwikkeling van verpleegkundige zorg voor slaapproblemen is echter geen geïsoleerd geval. Regelmatig worden zorgen over het te weinig toepassen van wetenschappelijke bevindingen in de literatuur besproken.

- *Een breder probleem*

In het rapport *Crossing the quality chasm* (IOM 2001) concludeert het American Institute of Medicine (IOM) dat zorgwetenschap en technologie in een snel tempo ontwikkelen terwijl het toepassen achterblijft; *'…tussen de zorg die wij kennen en de zorg die we zouden kunnen krijgen ligt geen kloof maar een afgrond*'. In het algemeen kan gezegd worden dat er een verschil is tussen wat de wetenschap aanbeveelt op basis van diens bevindingen en wat er daadwerkelijk geleverd wordt. In de literatuur wordt hiervoor vaak een kloof als metafoor gebruikt.

De kloof tussen onderzoek en praktijk wordt universeel herkend in alle velden van verpleging (bv. Hunt 1996, Sitzia 2001, Mulhall 2001). Algemeen wordt de conclusie getrokken dat het toepassen van wetenschappelijke kennis in de verpleegkundige praktijk tot op heden problematisch is. Hoewel de literatuur over dit onderwerp in de psychiatrische verpleegkundige zeldzaam is, lijkt dit geen uitzondering te zijn. De uitkomsten van een onderzoek onder Noord-Ierse psychiatrisch verpleegkundigen (Parahoo 1999) liet zien dat deze verpleegkundigen een positieve attitude hebben jegens onderzoek. Het onderzoek liet echter ook aanwijzingen zien dat psychiatrische verpleegkundigen minder onderzoeksbevindingen gebruiken en minder lezen dan algemene verpleegkundigen.

De bevinding dat psychiatrisch verpleegkundigen maar zelden wetenschappelijke bronnen gebruiken voor hun klinische beslissingen betreffende slaapproblemen komt overeen met eerdere bevindingen. Onderzoek van Estabrooks (1998) en Pravikoff et al. (2005) lieten ook zien dat minder betrouwbare bronnen worden gebruikt voor de klinische beslissingen in de somatische zorg. Zij vonden dat kennis uit de initiële opleiding, persoonlijke ervaringen en advies van een collega de meest gebruikte kennisbronnen zijn. Het is duidelijk dat deze achterhaalde en onbetrouwbare bronnen niet de meest geschikte zijn om de meest adequate zorg op te baseren. Sterker, deze bronnen kunnen zelfs ‘slechte praktijken’ in stand houden. Een dergelijke praktijk is dus onwenselijk. Bovendien moet een dergelijke praktijk veranderen omdat patiënten en de maatschappij de professional toenemend vragen om krachtige, veilige en effectieve interventies. De integratie van wetenschappelijk bevindingen in de klinische praktijk is een essentiële voorwaarde om aan deze wensen tegemoet te komen.

Er kan worden gesteld dat er een verschil is tussen wat de wetenschap aanbeveelt op basis van diens bevindingen en de zorg die daadwerkelijk wordt geleverd. Een kloof wordt zichtbaar. Maar wat is die kloof? Als we deze kloof willen overbruggen dan moeten we de aard daarvan onderzoeken. Feitelijk waren de onderzoeken die zijn verricht in fase 1 (de praktijk) en 2 (de wetenschap) een verkenning van de oevers en de wanden.

De kloof verkent

Ten einde goed gefundeerde aanbevelingen te doen om de vastgestelde kloof te overbruggen worden in de volgende paragraaf onze bevindingen aangevuld en vergeleken met die van eerdere studies. We vonden twee typen van problemen: praktische barrières en principiële barrières.

- *Praktische barrières*

Praktische barrières zijn problemen die worden ondervonden tijdens het zoeken, beoordelen, implementeren en toepassen van kennis. 'Een tekort aan kennis en vaardigheden' is een dergelijk probleem. Er is een overvloed aan studies op het gebied van verpleging van over de hele wereld die praktische barrières vaststellen. Onderzoek dat inzicht geeft in de praktische barrières in de ontwikkeling van evidence-based interventies in de psychiatrische verpleging is echter zeldzaam. Een onderzoek over dit onderwerp (Carrion et al. 2004) liet resultaten zien die overeenstemmen met de bevindingen van een review (Kajermo et al. 2010) betreffende uiteenlopende verpleegkundige zorg. Het is daardoor redelijk om aan te nemen dat de barrières in de psychiatrische verpleging niet erg zullen afwijken. Bovendien lijken de geïdentificeerde barrières consistent in tijd, locatie en setting. Kajermo et al. (2010) concludeerden in hun review; '*In het algemeen zijn de geïdentificeerde barrières consistent in tijd, tussen geografische locaties, ondanks de variëteit in steekproef grootte, mate van respons, onderzoekssetting en de kwaliteit van het onderzoek '*.

De meeste van deze problemen kunnen worden overwonnen door gerichte acties. Echter, praktische problemen moeten niet worden onderschat. Sommigen daarvan zijn zeer hardnekkig en lijken verband te houden met bestendigde aspecten van de verpleegkundige cultuur en/of organisatorische structuur. Onderzoek tot nu toe heeft een reeks algemene en vrijwel universele problemen geïdentificeerd. Tabel 9.2 geeft een overzicht van de meest geciteerde barrières.

Daarenboven kunnen lokale barrières een sleutelrol spelen in problematische implementaties. Om die te overwinnen wordt geadviseerd om voor de implementatie van nieuwe zorg een diagnostische analyse van de doelgroep en de doelsetting te ondernemen (Grol 2001).

Tabel 9.2 Frequent geciteerde en gevonden barrières voor de toepassing van onderzoeksbevindingen (1/2)

Een gebrek aan tijd
Het gebrek aan tijd dat wordt ervaren is een consistente barrière. Te weinig tijd om nieuwe ideeën te implementeren en om onderzoeksartikelen te lezen zijn de meest geciteerde barrières (Kajermo et al. 2010). Ons onderzoek (de Niet et al. 2009b) bevestigde deze bevinding.
Gebrek aan autoriteit om zaken te veranderen
Verpleegkundige ervaren een gebrek aan invloed en middelen om de praktijk te veranderen op basis van onderzoeksbevindingen. Volgens Kajermo et al. (2010) is de derde meest geciteerde barrière.
Gebrek aan vaardigheden om onderzoeksbevindingen te zoeken en te interpreteren.
Het gebrek aan deze vaardigheden is een belangrijke barrière voor EBP. Het toepassen van evidence-based zorg vereist een reeks van vaardigheden. Deze vaardigheden houden in: de mogelijkheid om onderzoek te zoeken, de statistiek te beoordelen, de kwaliteit te beoordelen en het effect van de interventies te evalueren. De review van Kajermo et al. (2010) liet zien dat 'De statistiek is niet te begrijpen', de vierde meest geciteerde barrière is.
Gebrek aan steun en team dynamiek
Het veranderen van de praktijk staat en valt met samenwerking. De review van Kajermo et al. (2010) liet zien dat verpleegkundigen een gebrek aan steun ervaren van andere disciplines en dat artsen niet samenwerken bij implementatie. Maar ook het werken in een multidisciplinair team kan een probleem zijn. In klinische settings is verplegen vooral een team aangelegenheid. Dynamiek binnen het team, zoals onderling verschillende meningen, kan een belangrijke barrière zijn bij de disseminatie van onderzoeksbevindingen. Laker (2009) verklaarde; '*Het personeel gaf aan dat terwijl sommige teamleden bereid zijn hard te werken om de verandering te bewerkstelligen, er tegelijk anderen zijn die dat niet doen en dat verhinderd succes vanwege een afnemende motivatie*.' Sitzia (2001) stelde ook vast dat een gebrekkige teamsamenwerking een barrière voor het toepassen van onderzoeksresultaten kan zijn. Ons eigen onderzoek (de Niet et al. 2010 ge*accepteerd)* bevestigde deze waarneming. Wij stelden vast dat het ontbreken van een gezamenlijk gedragen doel de hoofdreden was voor de verschillen tussen de individuele leden van een team.
Inadequate faciliteiten
Inadequate faciliteiten voor de implementatie is de zesde meest geciteerde barrière. Maar ook de beschikbaarheid van informatieve is vaak vermeld (vijfde meest geciteerde volgens Kajermo et al. 2010).
Gebrek aan bewustzijn van kennis en onderzoek
Veel verpleegkundigen zijn zich niet bewust van onderzoeksresultaten (Kajermo et al. 2010). De meeste verpleegkundigen zijn zelfs niet bekend met onderzoek en EBP processen. Tot voor kort waren methoden van onderzoek geen onderdeel van initiële verpleegkundige opleidingen. En omdat 'onbekend is onbemind', zien de meeste verpleegkundigen de meerwaarde niet van onderzoek. Volgens Kajermo et al. (2010) is de onbekwaamheid om de kwaliteit van onderzoek te beoordelen, de tiende meeste geciteerde barrière.
Verpleegkundige cultuur
Verpleegkunde, niet geworteld in een academische traditie, wordt gekenmerkt door een nadruk op 'doen' en tradities (Salmond 2007). Ervaring is een van de meest gewaardeerde bronnen voor het nemen van klinische beslissingen. Een onderzoek door Nicolas et al. (2005) onder operatie personeel liet zien dat het zoeken naar informatie geen deel vormt van de cultuur van het vak, met uitzondering van training doeleinden. Sitzia (2001) vermelde in het bijzonder rituele zorg, het gebrek aan autoriteit en stimulansen als specifieke nadelen van de verpleegkundige cultuur.

Tabel 9.2 Frequent geciteerde en gevonden barrières voor de toepassing van onderzoeksbevindingen (2/2)

Andere veel geciteerde barrières (Kajermo et al. 2010)
- De verpleegkundige werkt gescheiden van deskundige collega's
- De verpleegkundige vindt dat de resultaten niet toepasbaar zijn binnen diens setting
- Onderzoeksverslagen zijn niet gemakkelijk beschikbaar
- Het onderzoek is niet helder gerapporteerd

Een principiële barrière

Naast praktische barrières vonden we ook een meer ernstige, principiële barrière: De klaarblijkelijke mismatch tussen wetenschap en praktijk. Hutschemaekers (2009, p. 12) sprak van 'fundamentele wetten die in de weg staan', refererend aan de niet te overbruggen verschillen tussen wetenschap en praktijk. Wetenschap en praktijk beschouwen de zorg vanuit verschillende perspectieven (de zijden van de kloof). Ze hebben daardoor een verschillend beeld zelfs als ze naar het zelfde verschijnsel kijken. Daar waar wetenschap door deductie gedecontextualiseerde kennis genereert, is de praktijk uitsluitend bezig met de context en genereert zo op inductieve wijze kennis. Dit lijkt op het eerste gezicht onverenigbaar en bovendien is er een verschil in taal. Daarom is de kloof eerst en bovenal de manifestatie van ontbrekende dialectiek tussen wetenschap en praktijk. We vonden deze manifestatie ook in ons project. Soms botsten de wetenschappelijke bevindingen met persoonlijke opvattingen en de toepassing van de bevindingen leidde niet geheel tot de verwachtte resultaten.

Ondanks het verschil in perspectief tussen wetenschap en praktijk is een entente nodig. Volgens Hutschemaekers (2009, p. 18) kunnen wetenschap en praktijk elkaar tot grote hoogte opstuwen. Het uitwisselen en combineren van kennis vanuit verschillende perspectieven zal leiden tot een breed en complementair kennisveld.

De verpleegkundige discipline is zich nog maar net bewust van een mogelijke synergie tussen wetenschap en praktijk. Er is echter nog geen sprake van een 'huwelijk' maar van een voorzichtige 'verloving'. Maar de verpleegkundige praktijk en wetenschap moeten meer doen dan een voorzichtige verkenning van de meerwaarde van een mogelijke alliantie. Ontwikkelingen in de maatschappij en

belangrijke partijen zoals patiëntenverenigingen eisen meer van een verkering: partijen moeten trouwen en gezonde kroost verwekken!

De scientist-practioner is een van de pogingen om de verschillen tussen wetenschap en praktijk te overbruggen. Het model van de scientist-practitioner dateert van 1950 (Raimy 1950). Op de nationale conferentie voor de opleiding tot klinische psychologen in Boulder (Colorado – Verenigde Staten) werd een onderwijskundig model voorgesteld die zou leiden tot een professional die een wetenschapper en een competent onderzoeker is en tegelijk een clinicus die kennis en techniek toepast om de problemen van patiënten op te lossen. In theorie is de scientist-practitioner een ideale mediator. Echter, na meer dan vijf decennia moeten we concluderen dat de scientist-practitioner (nog) niet de verwachtte rol van mediator vervuld. Deze zorg wordt veelvuldig geuit (o.a. Gelso 2006, Wood 2009, Hutschemaekers 2009). Ondanks deze waarneming wordt de rol van scientist-practitioner ook in de verpleegkundige discipline ontwikkeld (verpleegkundig specialist, nurse practitioner). Teleurstelling staat op de loer. Is het realistisch om van deze novice mediators te verwachten om partners bijeen te brengen die nauwelijks tot elkaar zijn aangetrokken en die niet in staat zijn elkaar te begrijpen? Op zijn minst zal deze taak moten worden ondersteund door aanvullende maatregelen.

Het is de uitdaging om de dialectiek tussen wetenschap en praktijk te starten en te onderhouden; om te streven naar een synergie tussen de waarde van de praktijk en wetenschappelijke kennis. Maar hoe kan dit worden bereikt binnen de verpleegkundige discipline? Hoe kan een vruchtbare entente ontstaan? Het antwoord ligt in het hanteren van de praktische barrières maar ook van de principiële barrière. Het introduceren van (meer) scientist-practitioners is misschien maar een deel van de oplossing. Het bouwen van de brug tussen wetenschap en praktijk vereist het maken van andere, basale voorwaarden.

De bouw van een brug

Deze paragraaf zal antwoord geven op de tweede hoofdvraag: Hoe kunnen deze barrières worden overwonnen? We hebben eerder geconcludeerd dat de implementatie van valide kennis in de praktijk wordt verhinderd op meerdere niveaus. We zagen dat dit probleem ook opgaat voor de ontwikkeling van zorg voor slaapproblemen. Het is eerder een kenmerk van een breder probleem: De aanbevelingen vanuit de wetenschap worden niet toegepast in de praktijk.

Er mag worden geconcludeerd dat het 'eenvoudige recept' om zorg te verbeteren – langs de vier principes van EBP zoals beschreven in tabel 1.1 – niet voldoet. Er zijn meer fundamentele veranderingen nodig om de psychiatrische verpleging om te zetten in een modus waarbinnen wetenschappelijk bevindingen worden gezocht en toegepast.

Gebaseerd op de geïdentificeerde barrières en de principiële barrière tussen wetenschap en de praktijk van de psychiatrische verpleging, werden drie grote thema's afgeleid:

1. Het gebrek aan de drang om te veranderen binnen de discipline

Studies naar de barrières voor het toepassen van onderzoeksbevindingen en EBP zijn vooral uitgevoerd vanuit het perspectief van de clinicus (de verpleegkundige). Een andere geïdentificeerde barrière is de essentiële verandering van attitude en gedrag die nodig is om de principes van EBP toe te passen. Salmond (2009) verklaarde: '*Veranderen in een EBP cultuur vraagt om een verschuiving van alleen doen naar inclusie van tijd voor reflectie*'. Inderdaad, afstand nemen van de traditionele praktijk zal altijd moeten beginnen met reflectie op de huidige praktijk, het stellen van de vraag 'kan het beter worden gedaan?' alsook de wil om de huidige praktijk te veranderen. De verpleegkundige discipline lijkt echter nogal tevreden over de geleverde zorg en vertrouwd op ervaring en schoolkennis als toereikende kennis om de zorg op te baseren. Daardoor wordt de huidige zorg nauwelijks in twijfel getrokken en is er geen drang om te veranderen; er is onwetendheid over reflectie en bevragen.
EBP veronderstelt dat de professional continu twijfels heeft over zijn praktijk. Dat bevragen katalyseert een doorlopende actieve vraag naar valide kennis. In de praktijk gebeurt dat echter niet spontaan. Er is daarom een modus nodig die wordt gekarakteriseerd door 'onzekerheid'. Twijfels hebben over de huidige zorg is essentieel voor het realiseren van een drang tot verandering. Het vertrouwen in traditionele kennisbronnen zoals persoonlijke ervaringen en 'éminence consultatie' moeten worden vervangen door het bevragen van de huidige zorg en een blijvende wil om te verbeteren.

2. *Het onvermogen om valide kennis aan te boren*

   In het algemeen zijn psychiatrische verpleegkundigen geen wetenschappers. Nog maar recent werd onderzoek een deel van de onderwijs curricula van verpleegkundige opleidingen. Als gevolg daarvan missen nog veel verpleegkundigen de vaardigheden en de kennis die nodig is om wetenschappelijke kennis te zoeken, te beoordelen en te interpreteren. Deze vaardigheden zijn noodzakelijk omdat wetenschap in een taal communiceert die de gemiddelde psychiatrische verpleegkundige niet meester is. En als de valide kennis wordt aangeboden i n de vorm van multidisciplinaire richtlijnen, dan is dat gestructureerd in een manier – op basis van medische diagnosen en in een ontoegankelijke stijl – die niet aansluit bij het verpleegkundig perspectief.

3. *Het gebrek van een adequate structuur die er voor zorgt dat valide kennis wordt omgezet in verbeteringen*

   Op dit moment is er geen structuur die de drang tot veranderen, het zoeken en het toepassen van valide kennis mogelijk maakt. Psychiatrische verpleging heeft een kader nodig, een logische en methodologische structuur waarin reflectie wordt aangemoedigd, onzekerheden worden geaccepteerd en twijfels worden omgezet in beantwoordbare vragen.

Als het gevolg van deze observaties poneer ik een drietal criteria die het gebruik van wetenschappelijke bevindingen in het nemen van klinische beslissingen kunnen versterken. Deze criteria beogen de meest essentiële voorwaarden te creëren:

- Ten eerste, er moet reflectie zijn om de drang tot verandering te bevorderen.
- Ten tweede, er moet een structuur zijn waarbinnen reflectie, het afwegen van alternatieve en het incorporeren van valide kennis logische stappen zijn.
- Ten derde, er moeten vaardigheden en kennis zijn.

Aanbevolen brugbouw materiaal

- *Reflectie om de drang tot verandering te bevorderen*

Als de traditionele praktijk moet bewegen richting een goed gefundeerde zorg, dan is het van belang dat een drang tot verandering wordt gevoeld. Lewin (1951) noemde dit 'unfreezing' (ontdooien): realiseren dat de oude manier van dingen doen onhoudbaar is en dat verandering wenselijk is. Een dergelijke drang ontstaat echter niet spontaan. Een drang ontwikkeld als er de overtuiging is dat de huidige zorg moet en kan veranderen. Alleen dan kan de praktijk 'leren' richting verbetering. Volgens Schön en Argyris (1978) houdt leren de detectie en correctie van fouten in. Maar hoe kan die detectie plaatsvinden?

Problemen bij de verbetering en dus de ontwikkeling van een drang tot verandering vereist een specifieke professionele kwaliteit: reflectie. Reflectie is een algemeen concept in de sociologische literatuur dat stevig is doordacht door de Amerikaanse filosoof Donald Schön (1930 – 1997). Reflectie gaat over het uitdagen van onze aannames. Hoewel veelvuldig gebruikt kunnen er veel verschillende definities van worden gevonden. Een duidelijke definitie is die van Reid (1993): '*Reflectie is een proces van het beschouwen van praktijk teneinde deze te beschrijven, analyseren, evalueren en aldus te leren van die praktijk'*. Schön (1987) introduceerde twee onderscheidende vormen van reflectie: reflection-in-action en reflection-on-action. Het eerste gebeurt tijdens het uitvoeren van een actie; de professional denkt na over wat hij doet terwijl hij een actie uitvoert. De laatste gaat over het bewust nadenken over wat er is gebeurt na een gebeurtenis. De professional denkt na over wat hij heeft gedaan teneinde zaken voor verbetering te ontdekken (bv. het gebrek aan kennis of competenties).

Het doel van reflectie is beschreven door Jarvis (1992): '*Reflectieve praktijk is meer dan doordachte praktijk. Het is die praktijk die veel situaties van professioneel handelen problematiseert zodat ze mogelijke leersituaties worden en aldus kunnen professionals doorlopend leren, groeien en ontwikkelen in en door de praktijk'*.

De kern van deze verklaring is het werkwoord 'problematiseren'. Een reflectieve praktijk behelst 'een twijfelende attitude', gekenmerkt door 'de huidige praktijk niet voor lief nemen' en aldus het stellen van 'wicked questions' (= uitdagende vragen)(Salmond 2007) die als doel hebben een weg richting verbetering te

openen. Volgens Salmond (2007) zijn voorbeelden van 'wicked questions': Waarom doen we het op deze manier? Is er een betere manier om het te doen? En, wat is de evidence voor hetgeen we doen? Salmond verklaarde verder dat een dergelijke praktijk *'…een appèl doet op clinici om een houding van gegrond scepticisme aan te nemen'*.

De literatuur moedigt verpleegkundigen aan om reflectieve hulpverleners te worden. Maar hoe kan dit worden bereikt? Hoe kan een nogal tevreden, niet-academisch geschoolde discipline worden verleid tot het aannemen van een houding van 'gegrond scepticisme'? Alleen een advies of een oproep om reflectief te zijn is waarschijnlijk vruchteloos. Verpleegkundigen moeten worden uitgedaagd om reflectieve vaardigheden te ontwikkelen. Er kunnen veel interventies voor dit doel worden overwogen, bijvoorbeeld:

- Onderwijs: initieel en postinitieel onderwijs zal expliciet reflectieve vaardigheden moeten ontwikkelen bij studenten. Reflectiemodellen (bv Gibbs 1988, John & Graham 1996, Atkins & Murphy 1994) kunnen worden onderwezen als praktische richtlijnen hoe te reflecteren in de praktijk.
- Een congruente structuur: De organisatorische structuur en de belangrijkste waarden van de verpleegkundige structuur moeten congruent zijn met elkaar. Dat wil zeggen; de organisatie waar verpleegkundigen in werken moeten expliciet de waarde van reflectie uitdragen, zowel in woorden als in daden. Reflectie moet worden gefaciliteerd, uitgedragen en beoefend in alle lagen van de organisatie.
- Positieve prikkels moeten worden afgegeven aan verpleegkundigen die zich positief onderscheiden door reflectie in de praktijk.
- Rol modellen en 'peer assessment': inspirerende leiders in reflectie (rolmodellen) zouden moeten werken in de praktijk en niet in het onderwijs. Zij moeten de waarde van reflectie overdragen en hun collega's stimuleren. Peer assessment is de beoordeling door gelijken. Collega verpleegkundigen zijn in staat hun producten te vergelijken met die van hun collega's.
- Blokkeren: Het blokkeren van elementen van de traditionele praktijk – de zogenaamde fait accompli – zouden creativiteit kunnen bevorderen. Professionals worden zo namelijk gedwongen zo alternatieve strategieën te zoeken.
- Een verandering van perspectief bevorderen: Maatregelen die verpleegkundigen stimuleren om hun kijk op ziekte en de organisatie van

zorg vanuit een ander perspectief te beschouwen zouden de traditionele praktijk kunnen doen veranderen.

- *Een stimulerende structuur*

Een tweede essentieel element dat nodig is voor het gebruik van wetenschappelijke bevindingen in klinische besluitvorming in de GGZ is een omgeving waarin reflectie, het afwegen van alternatieven en het incorporeren van valide kennis, logische stappen zijn. Een dergelijke structuur levert een natuurlijke en logische basis voor gegrond scepticisme. Dit vergt een methodische benadering die professionals doorlopend uitnodigt om behoeften, alternatieven en het effect van acties te exploreren.

Het oproepen tot een methodologische benadering is niet nieuw. Ik pleit in dit proefschrift echter voor een benadering waarbij de methodische praktijk de kern is van EBP. Een dergelijke praktijk is ontwikkeld door mijn collega's en mijzelf (Tiemens et al. 2010). Het zal hier kort worden uitgelegd. Kenmerkend voor deze benadering zijn de 'passen op de plaats' (stop en denk) voordat klinische beslissingen worden genomen. Deze 'passen op de plaats' zijn structureel ingebouwde reflectiemomenten. Deze reflectiemomenten bevorderen het bevragen van routinematige zorg en zorgt dat er wordt gezocht naar de best beschikbare kennis. Om te bepalen wanneer een dergelijke 'pas op de plaats' moet worden gemaakt verdeeld het model het zorgproces in vijf fasen. Deze fasen worden beschreven in tabel 9.3.

Elke nieuwe fase in het zorgproces markeert de plaats voor een 'pas op de plaats'. Bij een dergelijke benadering neemt de professional regelmatig even afstand van het zorgproces om te reflecteren op hetgeen gebeurt. Deze reflectiemomenten zijn nodig om impliciete acties en kennis expliciet te maken. Allen dan kunnen beslissingen over de volgende stappen in het zorgproces samen met de patiënt worden gemaakt.

Op het eerste gezicht lijkt dit model op de reeks van principes van EBP (Tabel 1.1). EBP houdt zich echter bezig met een dimensie van het zorgproces (de interventie of de diagnostische procedure) terwijl dit model drie verschillende dimensies in het zorgproces onderscheidt: de therapeutische relatie, het behandelproces en de voorwaarden. Tabel 9.4 biedt een overzicht van deze dimensies. De onderliggende assumptie van dit model is dat het succes van een

behandeling van meer afhankelijk is dan alleen van effectieve interventies. Een therapeutische relatie van gebrekkige kwaliteit bijvoorbeeld, kan een essentiële factor zijn in het stagneren van de behandeling. Daarom moet op alle dimensies van het zorgproces methodisch worden gereflecteerd.

Tabel 9.3 Fasen in de behandeling volgens Tiemens et al. (2010)

Fase 1	**Van probleem naar doel**
In deze fase worden de problemen van de patiënt duidelijk. Dit zal moeten resulteren in een heldere definiëring van de behandeldoelen. Doelen maken duidelijk wat de resultaten van de behandeling zouden moeten zijn en welke middelen nodig zijn om deze doelen te behalen.	
Fase 2	**Van doel naar middel**
Middelen (diagnostische instrumenten, interventies) worden gezocht om de gestelde doelen te bereiken. Vooralsnog zijn evidence voor effectiviteit, veiligheid en beschikbaarheid de primaire focus.	
Fase 3	**Van confectie naar maatwerk**
In deze fase worden de gevonden middelen zo nodig aangepast aan de individuele patiënt: diens voorkeuren, ervaringen en andere specifieke eigenschappen. Dat resulteert in een zorgplan.	
Fase 4	**Van verwachtingen naar resultaat**
In deze fase wordt het zorgplan uitgevoerd en de voortgang geregistreerd. Indien mogelijk worden hiervoor gestandaardiseerde instrumenten gebruikt. De gegevens hiervan worden, indien nodig, gebruikt om de zorg aan te passen.	
Fase 5	**Van resultaat naar betekenis**
Een evaluatie is een geplande terugblik op het gehele proces met als doel informatie te verkrijgen die gebruikt wordt om de volgende stap te bepalen.	

Tabel 9.4 Dimensies in het zorgproces*

De therapeutische relatie
Een goede samenwerking is essentieel voor effectieve zorg, behandeling of een diagnostische procedure. De kwaliteit van de therapeutische relatie is een sterke voorspeller van het succes van de behandeling. Daarom is het verkrijgen van een goede relatie een primaire voorwaarde in de GGZ. Een therapeutische relatie is echter niet stabiel tijdens het gehele proces. Deze relatie moet daarom tijdens het proces regelmatig worden beschouwd en actie moet worden ondernomen indien noodzakelijk.
Het zorgproces
Binnen deze dimensie wordt onderscheid gemaakt tussen de 'bouwstenen' (beslissingen over de diagnostiek en interventies) en het proces zelf. Bij de keuze van bouwstenen moeten vragen zoals 'welke diagnostische test geeft de meeste zekerheid?' of 'welke interventie leidt tot de grootste reductie van klachten' worden gesteld. Het proces zelf houdt de cohesie tussen de bouwstenen in en dus het gehele zorgproces. Dit is bijvoorbeeld de volgorde van interventies.
De voorwaarden
De voorwaarden zijn het geheel van expertises en organisatorische middelen die nodig zijn om de patiënt adequaat te helpen. De condities behelzen de professional, het (multidisciplinaire) team en de organisatie. Deze elementen moeten in staat zijn, elk op zijn niveau, de noodzakelijke vaardigheden, ondersteuning en faciliteiten te bieden.

***** Volgens Tiemens et al. (2010)

In de methodische benadering die we hebben ontwikkeld (Tiemens et al. 2010) worden zaken die moeten veranderd vastgesteld in elke dimensie. Voor elke dimensie wordt een doel gesteld. Vervolgens worden de best beschikbare middelen gezocht om dat doel te bereiken en wordt een specifiek en afgewogen behandelplan gemaakt om de gestelde doelen te bereiken. Feitelijk worden in de eerste drie fasen (zie tabel 9.4) telkens hypothesen getoetst: Zal bij patiënt met probleem X, een behandeling met interventie Y, leiden tot doel Z? In de volgende twee fasen wordt er zorgvuldig gemonitord om te bepalen of de resultaten naar de gewenste richting gaan. Tevens worden het proces en het product geëvalueerd. Tabel 9.5 biedt een overzicht van het gehele proces in relatie met de dimensies.

Het belangrijkste voordeel van ons model is de integratie van twee krachtige concepten in het nemen van klinische besluiten: reflectie (leren door retrospectie) en evidence-based practice (de incorporatie van valide kennis). Reflectie informeert de professional en de patiënt over de voortgang en/of de barrières tijdens de voortgang.

Bijlage A laat een voorbeeld zien van een dergelijk proces. Als de verwachtingen niet worden waargemaakt dan worden vragen gesteld over de relatie tussen de patiënt en de hulpverlener, over de geboden behandelopties en de gestelde doelen. Deze vragen zijn het beginpunt voor een zoektocht naar valide kennis over alternatieven. Als deze alternatieven worden gevonden zal een nieuwe hypothese worden geformuleerd en zal een nieuwe zorgcyclus starten.

Tabel 9.5 Methodisch werken

Fase / Dimensie	1. Van probleem naar doel	2. Van doel naar middel	3. Van confectie naar maatwerk	4. Van verwachting naar resultaat	5. Van resultaat naar betekenis
Therapeutische relatie					
	Werkbare therapeutische relatie	Bepalen hoe die te verkrijgen of behouden	Plan maken	Werken aan en voortdurend peilen van de relatie	Is de relatie (nog steeds) werkbaar?
Bouwstenen					
Diagnose	Meer zekerheid over probleem	Bepalen beste instrument	Plan maken voor afname	Afnemen en interpreteren	Meer zekerheid verkregen?
Interventies	Behandeldoel of zorgdoel	Bepalen beste interventie	Onderdeel behandelplan maken	Uitvoeren en monitoren	Is het werkdoel gehaald?
Het proces	Behandeldoel	Bepalen beste traject	Behandelplan maken	Uitvoeren en monitoren	Is het behandeldoel gehaald?
Voorwaarden					
Professional	Benodigde expertise	Bepalen hoe / waar / door wie te verkrijgen	Opleidingsplan maken of expertise inhuren	Uitvoeren en registreren / monitoren	Is de expertise verkregen?
Team	Benodigde rol van team/collega's	Bepalen hoe dit verkregen / georganiseerd kan worden	Plan of afspraken maken	Uitvoeren en registreren	Is de rol gerealiseerd?
Organisatie	Benodigde faciliteiten	Bepalen hoe dit verkregen / georganiseerd kan worden	Plan maken	Uitvoeren en registreren	Zijn de faciliteiten / andere organisatie gerealiseerd?

- *Kennis en vaardigheden*

Kennis en vaardigheden zijn van vitaal belang voor het gebruiken van wetenschappelijke bevindingen in het verlenen van zorg. Dit vraagt namelijk om geavanceerde vaardigheden; reflectieve vaardigheden (het bevragen van de huidige zorg en het expliciet formuleren van praktische problemen), zoekvaardigheden (het doorzoeken van wetenschappelijke bronnen), kennis van wetenschappelijk methoden en termen (epidemiologische termen, kritische beoordeling van de validiteit, betrouwbaarheid en generaliseerbaarheid), en overdracht vaardigheden (implementatie). Bovendien is een kennis van de Engelse taal noodzakelijk. Kunnen al deze vaardigheden en kennis worden verlangd van psychiatrisch verpleegkundigen die voornamelijk een middelbare beroepsopleiding hebben gevolgd? Kan en moet elke psychiatrisch verpleegkundige een competent ontwikkelaar en volger zijn van evidence-based practice? Naar mijn mening is dit niet haalbaar noch wenselijk. Het is niet haalbaar omdat de scholing vaan alle psychiatrisch verpleegkundigen in geavanceerde competenties en technieken een enorme investering zal vergen. Bovendien kunnen en willen niet alle verpleegkundigen getraind worden in vaardigheden. Het is ook niet nodig; een differentiatie in taken en competenties is wenselijk.

Strauss et al. (2004) onderscheiden drie modes waarin artsen evidence-based medicine kunnen beoefenen: als een ‘doer’ (doener), als een ‘user’ (gebruiker) en als een ‘replicator’ (volger). Een replicator is een professional die wordt geleid door richtlijnen maar die ook tekortkomingen in de praktijk kan herkennen en deze kan vertalen in klinische vragen. Een user doet hetzelfde maar is ook in staat de klinische vraag om te zetten in een adequate zoekvraag en daarmee te gaan zoeken. Tenslotte is een doer een professional die alle competenties heeft om alle stappen van EBP te doorlopen. Een dergelijke trichotomie is ook voor verpleegkundigen een werkbaar model. Gebruikmakend van de metafoor van de kloof tussen wetenschap en praktijk die moet worden overbrugd kan een model worden voorgesteld dat drie onderscheidbare rollen voor de psychiatrisch verpleegkundige behelst: bruggebruikers, brugbouwers en brugingenieurs. Deze rollen kunnen nauw aansluiten bij het verschil in het onderwijsniveau van verpleegkundigen.

Richtlijnen kunnen worden gevolgd als er sprake is van routinematige zorg. Het volgen van richtlijnen vereist geen expert vaardigheden of competenties. Deze rol veronderstelt vertrouwen in de aanbevelingen vanuit de richtlijnen en de

kundigheid om een bewuste afweging te maken, gebruikmakend van de waarbij de patiëntvoorkeuren, de klinische expertise en de aangeboden evidence. Maar ondanks dat deze situatie zich kenmerkt door routine moet kennis niet zondermeer voor lief worden genomen en dus worden ook bruggebruikers verondersteld te reflecteren op de praktijk.

In een minder voorspelbare situatie bieden de aanbevelingen vanuit de richtlijnen niet (altijd) bevredigende oplossingen. Hier wordt een beroep gedaan op creativiteit. Daarom moeten brugbouwers het vertalen van praktisch problemen in beantwoordbare vragen beheersen maar ook vaardigheden hebben om kennis te zoeken en te beoordelen.

Tenslotte zijn experts (ingenieurs) nodig om hulpverleners te ondersteunen met goed gefundeerde richtlijnen en expert competenties om hen te helpen in hun zoektocht naar kennis. Zij kunnen 'bruggen ontwerpen' door het vertalen van valide kennis in bruikbare en toepasbare aanbevelingen. Tabel 9.6 geeft een overzicht van het voorgestelde model.

Tabel 9.6 Voorstel voor een model van EBP rollen binnen de psychiatrische verpleging

	Brug gebruikers	**Bruggenbouwers**	**Brug ingenieurs**
		Als vorige plus:	Als vorige plus:
Vaardig in:	- Volgen van richtlijnen - Bewuste beoordeling en aanpassing - Reflectie - Identificeren van onzekerheden	- Vertalen van kennis tekorten in vragen - Zoeken en beoordelen van nieuwe kennis	- Ontwikkelen van richtlijnen en CATs* - Helpdesk voor complexe vragen - Zoeken en beoordelen van nieuwe kennis op expert niveau

* Clinical Appraised Topics (= een korte samenvatting van evidence)

Tussen droom en slaap

Verpleegkundige zorg voor slaapproblemen die gebaseerd is op valide kennis, leidend tot een bevredigend resultaat (slaap) is een verlangen, een wens en een behoefte. Maar *tussen* de *droom* (de wens tot verbetering) *en* een werkelijke gezonde en verfrissende *slaap* (het resultaat) ligt een pad dat een kloof moet overbruggen. In dit proefschrift heb ik die kloof verkent en heb gevonden dat die kloof bestaat uit praktische barrières en een principiële barrière. Het overbruggen van die kloof vereist het weghalen van die barrières en een verandering van modus: psychiatrisch verpleegkundigen zouden hun werkmethode moeten aanpassen. Het veranderen van een modus van een gehele discipline – die nogal traditioneel is ingesteld – in een EBP modus is geen gemakkelijke zaak. De grote meerderheid van psychiatrisch verpleegkundigen staat echter niet afwijzend tegenover het gebruik van wetenschappelijke bevindingen in het nemen van klinische beslissingen. Feitelijk is het besef en de intenties al aanwezig. Maar intenties zijn niet genoeg.

Een nieuwe modus zal moeten worden gekenmerkt door bevragen (reflectie) en zoeken (naar alternatieven). Een dergelijke modus zou EBP kunnen heten. Echter, de traditionele, nogal rechtlijnige opvatting van EBP over de transitie van valide kennis is te beperkt om te leiden tot echte veranderingen in de praktijk.

Net als een verfrissende slaap kan de verandering in een EBP modus niet worden gerealiseerd door ‘kant-en-klare oplossingen’ noch kan het worden geforceerd. Beide processen vereisen een goed gecoördineerde en intensieve investering. Er moet nog veel worden gedaan voordat psychiatrisch verpleegkundigen zorg voor slaap zullen toepassen die gebaseerd is op valide kennis. Er is echter geen reden om te wanhopen. Grote schepen veranderen maar langzaam van koers, maar uiteindelijk doen ze het wel.

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Dankwoord

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Bijlage

Casus: Verstoorde slaap en verstoorde behandeling

Mevrouw J. is een 43-jarige vrouw. Zij is aangemeld voor een ambulante behandeling vanwege een gegeneraliseerde angststoornis. Haar behandelaar wordt een ervaren verpleegkundig specialist. Gezien het beeld komt mevrouw J. in aanmerking voor een standaardbehandeling overeenkomstig het zorgprogramma. De behandeling bestaat uit 15 sessies cognitieve therapie. Bij intake klaagt mevrouw J. echter niet alleen over haar angsten maar ook over ernstige inslaapproblemen; ze ligt soms meer dan een uur wakker in bed. Ook wordt zij ’s nachts regelmatig wakker waarna weer het inslapen een probleem is. ’s Morgens ervaart ze haar slaap dan ook vaak niet als bevredigend. Ze ervaart haar inslaapproblemen als ernstig en denkt dat die verder herstel in de weg staan.

De inslaapproblemen werden toe nu tot door de huisarts behandeld door middel van een inslaapmiddel (midazolam). Bij de intake zegt ze dat dit middel nauwelijks meer werkt en vraagt om een verhoging van de dosis. Een geconsulteerde psychiater besluit echter het inslaapmiddel te staken. Hij adviseert de verpleegkundig specialist (VS) een niet-farmacologische interventie met mevrouw J. te bespreken en toe te passen. De VS stemt daar mee in maar mevrouw J. geeft aan geen vertrouwen te hebben in de mogelijkheden van de VS om haar te helpen met haar inslaapprobleem; hij kan immers geen inslaapmiddelen voorschrijven en alleen daar heeft ze vertrouwen in.

Stap 1: Van probleem naar doel

Mevrouw J. komt binnen het zorgprogramma angststoornissen in aanmerking voor een standaard behandeling door middel van cognitieve therapie. Deze behandeling richt zich echter niet op een ander probleem dat mevrouw J. prominent presenteert; inslaapproblemen. Ze denkt dat dit een herstel in de weg staat en verwacht specifieke aandacht voor dit probleem.

De beslissing van de psychiater om het inslaapmiddel te staken is ingegeven door de kennis dat deze middelen kunnen leiden tot afhankelijkheid. Bovendien vermoedt hij dat het slapen vooral wordt bemoeilijkt door piekeren. Dit probleem kan volgens hem beter direct worden aangepakt. De VS is het daar mee eens. Deze is bereid naar een andere oplossing te zoeken maar realiseert zich dat een goede relatie met mevrouw J., op basis van vertrouwen, een eerste vereiste is.

- *De therapeutische relatie*

De VS beaamt dat hij geen medicijnen kan voorschrijven maar verteld de vrouw dat er ook efficiënte niet-medicamenteuze behandelingen bestaan die hij kan toepassen. Ook informeert hij haar over de nadelen die verbonden zijn aan het langdurige gebruik van slaapmiddelen. Hij verzekerd de vrouw dat hij een goed behandelvoorstel zal doen en haar alle informatie zal verstrekken die haar mogelijk kan overtuigen. De VS en mevrouw J. komen overeen dat pas een interventie wordt ingezet als mevrouw overtuigd is dat een zinvolle inzet is. Deze overeenkomst zal worden vastgelegd in het behandelplan.

- *De bouwstenen*

Over de behandeling van haar angstklachten worden mevrouw J en de VS het snel eens. Ze stellen als doel dat de behandeling moet leiden tot een reductie van 60% van de score op de Zelfbeoordelingsvragenlijst (ZBV, Van der Ploeg et al. 1980). Deze schaal maakt deel uit van de zorgmonitor.

Maar mevrouw J. en haar behandelend VS zijn het er ook over eens dat de inslaapproblemen een oplossing behoeven. Als doel wordt gesteld dat het inslapen over twee maanden niet langer dan 30 minuten zal duren. Ook komen zij samen tot de conclusie dat wellicht piekeren het inslapen bemoeilijkt. Maar mogelijk spelen ook andere factoren een rol. Daar moet meer duidelijkheid over worden verkregen.

De VS vreest het gevaar dat de slaapproblemen chronische klachten worden en wil daarom direct starten met een interventie. Hij stelt voor in ieder geval te starten met een slaapdagboek; hiermee kan meer duidelijkheid over eventuele andere belemmerende factoren worden verkregen maar kan ook het effect van een interventie worden vastgesteld. Mevrouw J. stemt daarmee in. Deze afspraken worden vastgelegd in een behandelplan. Daarin wordt tevens vastgelegd dat er een evaluatie zal plaatsvinden na 8 sessies.

- *Het proces*

De VS streeft er naar de behandeling van de angststoornis en het inslaapprobleem gelijktijdig te laten plaatsvinden. Ze mogen elkaar echter niet negatief beïnvloeden.

- *De voorwaarden*

Vooralsnog zijn er geen problemen te verwachten ten aanzien van de mogelijkheden van de ter beschikking staande middelen, de organisatie of de betrokken hulpverleners.

- *Samenvatting*

De therapeutische relatie

1. Mevrouw J. heeft vertrouwen in de mogelijkheden van de verpleegkundig specialist om haar slaapprobleem op te lossen

De bouwstenen

2. Er is inzicht in factoren die van negatieve invloed zijn op het inslapen
3. De angstklachten zijn na 8 sessies met 60% afgenomen
4. Over twee maanden zal het inslapen niet langer dan 30 minuten duren

Het proces

5. De behandeling van de angststoornis en het inslaapprobleem kunnen gelijktijdig plaatsvinden

Stap 2: Van doel naar middelen

- *De therapeutische relatie*

De VS geeft mevrouw J. een folder waarin de nadelen van langdurig gebruik van slaapmiddelen worden uitgelegd. Verder belooft hij haar dat hij op zoek zal gaan naar een effectieve interventie voor haar slaapprobleem. Mevrouw J. zegt dat ze graag het bewijs wil zien van die effectiviteit. De VS beloofd daarom om het bewijs van effectiviteit te laten zien. Dat vindt mevrouw J. een sympathiek idee.

- *De bouwstenen*

Voor haar angststoornis zal mevrouw J. de standaardbehandeling van 15 sessies cognitieve therapie ondergaan.

Wat betreft de inslaapproblemen vertrek de VS vanuit de hypothese dat piekeren het inslapen verhinderd en dus wil hij een interventie inzetten die afleid van piekeren. Hij raadpleegt de multidisciplinaire richtlijn voor angststoornissen maar vind daarin geen aanbeveling van een niet-farmacologische interventie die hij in dit specifieke geval kan gebruiken. Hij vermoedt echter dat het toepassen van ontspanning door middel van muziek (MAR) voor het slapen mogelijk een oplossing kan bieden. En stelt daarom een vraag op volgens de PICO structuur: Kan bij een piekerende vrouw (P), muziek (I) de slaapkwaliteit verbeteren (O)? Hij zoekt vervolgens een aantal elektronische dbases met de zoektermen worrying AND music AND sleep quality. Aanvankelijk vind hij geen treffers. Na het weglaten van het woord worrying vindt hij 32 treffers. Hij kiest na beoordeling van de kwaliteit van de evidence voor een meta-analyse op basis van een aantal RCTs. Dit artikel verteld dat muziek een middelgroot effect kan hebben op de ervaren slaapkwaliteit. Bovendien leest hij: "*Because there is evidence that music has the potential to reduce anxiety, it holds the promise for counteracting psychological presleep arousal and thus improving the preconditions for sleep*".

- *Het proces*

Vooralsnog ziet de VS geen bezwaren in het gelijktijdig behandelen van de angststoornis met cognitieve therapie en van het slaapprobleem met muziek.

- *De voorwaarden*

Vooralsnog zijn hierin geen belemmeringen geconstateerd.

Stap 3: Van confectie naar maatwerk

- *De therapeutische relatie*

De VS heeft een kopie gemaakt van de betreffende meta-analyse en legt die voor aan mevrouw J. Hij legt uit wat de gevonden resultaten betekenen. Mevrouw J. zegt dat ze daar weinig van snapt maar is zeer verheugd dat er zo serieus gezocht

is naar een oplossing voor haar probleem. Ze geeft duidelijk aan dat het geven van uitvoerige informatie haar vertrouwen voeden. De VS maakt zich daarom geen zorgen over de kwaliteit van de therapeutische relatie en besluit die niet met een speciaal instrument te monitoren. Wel komen zij overeen dat de VS tijdens ieder consult expliciet zal informeren naar de mening van mevrouw J. over deze relatie en haar vertrouwen.

- *De bouwstenen*

De standaard behandeling door middel van cognitieve therapie voor de angststoornis van mevrouw J. lijkt vooralsnog adequaat en behoeft niet te worden aangepast.

Mevrouw J. staat open voor de voorgestelde interventie voor haar slaapprobleem. Ze wil er graag mee aan de slag. Maar hoe kan ze dit het beste toepassen? Ze wil graag daarbij geholpen worden. De VS vermoedt dat een goede afstemming aan de smaak en omstandigheden van mevrouw J. cruciaal is om succes te kunnen bereiken.

- *Het proces*

Er zijn in dit stadium geen problemen op dit vlak.

- *De voorwaarden*

De VS realiseert zich dat hij een aantal zaken niet goed weet; welke muziek kan het beste toegepast worden? En: hoe kan de interventie vorm worden gegeven in de praktijk? Na een kort telefonisch overleg met een muziektherapeut maakt hij voor de mevrouw J. een afspraak met de muziektherapeut. Deze beschikt namelijk over een enorme hoeveelheid muziek zodat precies op de voorkeuren van de cliënt kan worden afgestemd. Bovendien heeft hij mp3 spelers te leen die zeer geschikt zijn voor dit doel.

Stap 4: Van verwachtingen naar resultaten

- *De therapeutische relatie*

De VS informeert tijdens ieder consult naar de mening van mevrouw J. over de therapeutische relatie met hem en of zij vertrouwen heeft in de ingezette weg. Steeds geeft zij blijk van vertrouwen en er blijkt sprake van een adequate therapeutische relatie.

- *De bouwstenen*

De cognitieve gedragtherapie voor de angststoornis kan zoals verwacht, zonder problemen worden toegepast.

Voor de behandeling van het slaapprobleem heeft de muziektherapeut samen met mevrouw J. een zorgvuldige selectie gemaakt van muziek. Ze bleek een grote voorkeur te hebben voor Händel maar de therapeut heeft haar ook kunnen interesseren voor rustige muziek van de componisten Satie, Schumann en Elgar. De muziek is vervolgens op een mp3 speler gezet. Deze speler heeft een zacht omhulsel zodat deze zonder bezwaar in bed kan worden gebruikt. Mevrouw is door de muziektherapeut aangeraden de muziek elke dag voor het slapen aan te zetten en zich daar helemaal aan over te geven. Verder heeft de therapeut gezegd dat ze niet snel mag opgeven. Ondertussen legt mevrouw J. haar slaapkwaliteit en haar gedragingen rond haar slaap contentieus vast in een slaapdagboek.

- *Het proces*

De therapie vindt plaats zoals is afgesproken en er zijn geen problemen in de uitvoering.

- *De voorwaarden*

De bemoeienis van de muziektherapeut blijkt zeer waardevol. Hij kan de expertise leveren die de VS ontbeert. Afgesproken wordt dat mevrouw J. een aantal afspraken met de muziektherapeut zal maken om de therapie optimaal te laten verlopen en eventueel bij te stellen.

Stap 5: Van resultaat naar betekenis

Zoals overeengekomen in het behandelplan werden de resultaten van de behandeling na 8 sessies geëvalueerd. Richtinggevend daarbij zijn niet allen de resultaten van de zorgmonitor maar vooral de mening van mevrouw J. en die de VS heeft van haar functioneren.

- *De therapeutische relatie*

De therapeutische relatie is tijdens ieder gesprek tussen de VS en mevrouw J. expliciet aan de orde. Het aanvankelijke gebrek aan vertrouwen is echter tijdens de behandeling geen issue meer geweest. Zij zijn het er samen over eens dat er op dit vlak geen probleem (meer) is.

- *De bouwstenen*

Uit de monitorgegevens blijkt dat de standaard behandeling voor de angstklachten tot nu toe goede resultaten laat zien. De score op de ZVB is afgenomen van 98 punten naar 48 punten: een reductie van 51%.

Uit het bijgehouden slaapdagboek bleek inderdaad dat piekeren voor het slapen de hoofdoorzaak is van de slaapproblemen. Maar er bleek ook dat een aantal andere aspecten ook een rol kunnen spelen. Zo drinkt mevrouw J. ‘s avonds minstens drie bekers koffie. De VS legt uit welke negatieve gevolgen dit kan hebben op de slaapkwaliteit en adviseert haar dringend over te gaan op cafeïnevrije koffie. Uit het slaapdagboek bleek verder dat de inslaaptijd weinig is afgenomen (van gemiddeld 70 minuten tot 60 minuten). Desondanks ervaart mevrouw J. een betere slaapkwaliteit. Het cijfer dat zij bij aanvang gaf aan haar ervaren slaapkwaliteit was een 3. Dat is ondertussen een 6. Ze is daar tevreden over want een deel van haar piekeren heeft plaatsgemaakt voor mooie, rustgevende klanken. Hoewel strikt genomen het gestelde doel niet is behaald, is mevrouw J. tevreden over het bereikte resultaat.

- *Het proces*

De VS kon aanvankelijk geen antwoord vinden voor het specifieke probleem in de richtlijnen. Hij is blij dat hij iets verder heeft gekeken. Hij heeft daarmee een

interventie gevonden die geen bijwerkingen heeft en die toch tot tevredenheid stemt.

Mevrouw J. geeft aan dat het spelen van de muziek voor het slapen een deel een ritueel begint te worden. Ze voelt zich daar prettig bij. Ze vindt het ook een prettig idee dat ze zelf invloed heeft op haar slaapkwaliteit en daarbij niet afhankelijk is van pillen.

› *De voorwaarden*

Mevrouw J. blijkt tevreden over hetgeen haar is aangeboden en is vooral blij met - zoals ze dat zelf zegt – dat haar klacht zo serieus is genomen en dat ze werd betrokken bij de keuze van de interventie. Samen waren ze het eens dat het inschakelen van een muziektherapeut een goede keuze was.

› *Samenvatting*

De therapeutische relatie

1. Mevrouw J. heeft vertrouwen in de mogelijkheden van de verpleegkundig specialist om haar slaapprobleem op te lossen.

– Het aanvankelijke gebrek aan vertrouwen in een effectieve niet-farmacologische behandeling van de slaapklachten is weggenomen door een goede informatieverstrekking.

Vervolg: Voortzetten van zorgvuldige informatievoorziening en de therapeutische relatie in ieder gesprek blijven evalueren.

De bouwstenen

2. Er is inzicht in factoren die van negatieve invloed zijn op het inslapen.

– Uit het slaapdagboek blijkt dat naast het piekeren ook de forse inname van cafeïne een negatieve factor kan zijn.

Vervolg: Er hoeft vooralsnog geen nadere diagnostiek plaats te vinden.

3. De angstklachten zijn na 8 sessies met 60% afgenomen.

– Na 8 sessies is een afname van 51% bereikt. Verwacht wordt het gestelde doel na 15 sessies gehaald zal zijn.

Vervolg: voortzetten van de standaardbehandeling.

4. Over twee maanden zal het inslapen niet langer dan 30 minuten duren.

– De inslaaptijd is slechts weinig afgenomen. Er is echter nog een effect te verwachten van de afname van cafeïne inname. Bovendien blijkt de ervaren slaapkwaliteit te zijn verbetert.

Vervolg: Muziek als therapie voortzetten en cafeïne inname verminderen.

Het proces

5. De behandeling van de angststoornis en het inslaapprobleem kunnen gelijktijdig plaatsvinden.

– De interventies hebben geen negatieve wisselwerking .

Vervolg: gelijktijdig blijven aanbieden.

› *Opmerkingen*

Deze casus laat zien dat een geprotocolleerd behandelaanbod niet altijd toereikend is. In bovenstaande casus stond een comorbide klacht een effectieve behandeling in de weg. Naast de standaard aanpak was er ook een gedeeltelijk maatwerk noodzakelijk. De methodische aanpak, waarbij regelmatig een pas op de plaats werd gemaakt, maakte het probleem niet alleen duidelijk maar nodigde de hulpverlener uit tot het zoeken naar alternatieven.

De casus maakt ook duidelijk dat gevonden bewijs niet altijd zondermeer toepasbaar is maar aangepast dient te worden aan een specifieke context of cliënt. Het gevaar daarbij is dat een dusdanige aanpassing plaatsvindt dat het effect verloren gaat. Dezelfde methodische aanpak vraagt echter ook om het zorgvuldig evalueren van de resultaten. Wordt er een zinvolle weg bewandeld en komt het doel in zicht?

Deze methodische aanpak biedt een gecontroleerde en overzichtelijke behandeling en brengt de resultaten van wetenschappelijk onderzoek, professionele expertise en patiëntenvoorkeuren bij elkaar.

Tabel A.1 De casus in vijf fasen (1/3)

Fase / Dimensie	1. Van probleem naar doel	2. Van doel naar middelen	3. Van confectie naar maatwerk	4. Van verwachtingen naar resultaten	5. Van resultaten naar betekenis
Therapeutische relatie					
	Probleem: Geen vertrouwen in de mogelijkheid van de VS om het slaapprobleem op te lossen Doel: De patiënt heeft vertrouwen in de mogelijkheid van de VS om het slaapprobleem op te lossen	Informatie over MAR en de effectiviteit daarvan	Bespreken van de gevonden evidence	Het monitoren van de mening van de patiënt over de vaardigheden, elke sessie	Doel bereikt: De patiënt heeft vertrouwen in de vaardigheden
Bouwstenen					
Diagnose	Probleem 1: Onzekerheid over de oorzaken van het slaapprobleem Doel 1: Meer zekerheid over de oorzaken	1: Vaststellen van gedrag en slaapkwaliteit	1: Bijhouden van een slaapdagboek instellen	1: Gebruik van een slaapdagboek	1: Doel bereikt: Piekeren blijkt de belangrijkste oorzaak van de inslaapproblemen maar cafeïne inname zou een mede oorzaak kunnen zijn

Tabel A.1 De casus in vijf fasen (2/3)

Fase / Dimensie	1. Van probleem naar doel	2. Van doel naar middelen	3. Van confectie naar maatwerk	4. Van verwachtingen naar resultaten	5. Van resultaten naar betekenis
***Bouwstenen** (vervolg)*					
Interventies	Probleem 2: Gegeneraliseerde angststoornis Doel 2: Reductie van 60% van de klachten na 8 sessies	2: Standaard behandeling door cognitieve therapie	2: Aanpassing is niet noodzakelijk	2: Monitoren van klachten door de ZBV. Evaluatie na 8 sessies	2: Het doel is nog niet behaald maar er is een sterke reductie van de angstklachten
	Probleem 3: Inslaap problemen Doel 3: Inslapen binnen 30 minuten	3: Vinden van evidence voor door muziek ondersteunde ontspanning (MAR)	3: Toepassen van MAR door zelfgeselecteerde rustgevende muziek op een mp3 speler.	3: Iedere nacht consequent toepassen	3: Het doel is nog niet behaald maar er is een sterke verbetering van de slaapkwaliteit
Het proces	Gelijktijdige behandeling van problemen	Bepalen of expertise voor toepassen MAR aanwezig is	Consensus over het zorgplan	Controleren of interventies geen negatieve invloed hebben op elkaar	1: Continueren van de standaard behandeling 2: Continueren van MAR 3: Reductie van cafeïne inname

Tabel A.1 De vijf fasen in de behandeling, in drie dimensies weergegeven (3/3).

Fase / Dimensie	**1. Van probleem naar doel**	**2. Van doel naar middelen**	**3. Van confectie naar maatwerk**	**4. Van verwachtingen naar resultaten**	**5. Van resultaten naar betekenis**
Condities					
Professional	De VS heeft onvoldoende expertise om MAR toe te passen[1]	Kort telefonisch overleg met een muziektherapeut	Plannen van consulten bij een muziektherapeut	Begeleiding van een muziektherapeut	Begeleiding van een muziek therapeut was adequaat
Team	-	-	-	-	-
Organisatie	-	-	-	-	-

1: Dit probleem werd feitelijk in stap 3 van het zorgproces vastgesteld. Voor de helderheid is dit aspect echter vanaf stap 1 beschreven

Curriculum Vitae
en publicaties

Curriculum Vitae

Gerrit werd geboren op 21 november 1960 te Scheveningen. Na de middelbare school koos hij voor scholing en werk in de zorg. Tijdens zijn beroepsopleiding tot klinisch chemisch analist werkte hij in ondermeer een algemeen ziekenhuis en een verpleeghuis.

Na het vervullen van zijn dienstplicht in een verpleeghuis in Den Haag, koos hij voor de verpleging in de psychiatrie. Het toenmalige APZ Wolfheze werd het opleidingsinstituut. Na het voltooien van de toenmalige inservice opleiding schoolde hij zich in management.

Na langdurig in de praktijk gewerkt te hebben als avond, nacht en weekendhoofd besloot hij in 2000 om aan de rijksuniversiteit Utrecht verplegingswetenschap te studeren. In 2004 studeerde hij af. Tijdens deze studie kwam hij in aanraking met het onderzoeksinstituut van de Gelderse Roos, GRIP genaamd, en in het bijzonder met de directeur daarvan, die later zijn promotor zou worden: Giel Hutschemaekers. Samen met Giel en zijn latere copromotor Bea Tiemens werd bij ZonMW een aanvraag ingediend voor een subsidie om onderzoek te doen. Deze aanvraag werd gehonoreerd en betekende het begin van een promotietraject. Hij werd junior onderzoeker en onderzocht de verpleegkundige zorg voor slaapproblemen in de psychiatrie. Uit dit onderzoek ontsproten een zestal internationale publicaties. Eén van deze publicaties werd genomineerd voor de Anna Reynvaan wetenschapsprijs 2010.

Tussen 2004 en 2010 was Gerrit redactielid van het vakblad PsychoPraxis/PsychoPraktijk. Thans is hij nog vaste medewerker daarvan. Daarnaast is hij regelmatig betrokken (geweest) bij het onderwijs aan verpleegkundigen; als tijdelijk praktijkbegeleider, als tijdelijk docent, in examencommissies en thans is hij waarnemend opleider van de opleiding tot verpleegkundig specialist-GGZ.

Gedurende zijn loopbaan veranderde Gerrit niet van werkgever, maar zijn werkgever veranderde wel van naam. APZ Wolfheze werd onderdeel van de Gelderse Roos en deze organisatie zal spoedig fuseren met GGz Nijmegen tot Pro Persona.

Gerrit woont sinds 1984 samen met Loes van Dusseldorp. Joost en Willem zijn hun zonen.

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- Internationaal

Niet de G, Tiemens B, Lendemeijer B & Hutschemaekers G (2008). Perceived sleep quality of psychiatric patients. *Journal of Psychiatric and Mental Health Nursing* 15, 465-470.

Niet de G, Tiemens B, Lendemeijer B & Hutschemaekers G (2009). Music-assisted relaxation to improve sleep quality: Meta-analysis. *Journal of Advanced Nursing* 65, 1356-1364.

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- Nationaal

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Publicaties, niet in relatie tot dit proefschrift

- Internationaal

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Niet de G. (2010). Vissen voor beginners: zelf op zoek naar evidence. *Psychopraktijk* 2, 34-36.

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Niet de G. (2011). Debriefing na een ingrijpende gebeurtenis: Redding of ritueel? *Nederlands Tijdschrift voor Evidence Based Practice* Geaccepteerd.

- Boeken

Tiemens B, Kaasenbrood A & de Niet G. (2010) *Evidence based werken in de geestelijke gezondheidszorg. Methodisch werken als oplossing*. Houten: Bohn Stafleu Van Loghum.

If you have gained a respite of either in sleep you have gained more than the mere respite. Both the probability of recurrence and of the same intensity will be diminished; whereas both will be terribly increased by want of sleep. This is the reason why sleep is so all-important. This is the reason why a patient waked in the early part of his sleep loses not only his sleep, but his power to sleep. A healthy person who allows himself to sleep during the day will lose his sleep at night. But it is exactly the reverse with the sick generally; the more they sleep, the better will they be able to sleep.

Florence Nightingale. *Notes on nursing* (1859)