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Abstract

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Insomnia in places of detention: a review of the most recent research findings

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ABSTRACT

Up to 40% of prisoner patients in a general medicine outpatient service seek medical consultation for sleep problems. This paper provides a brief overview of what is known about insomnia and its treatment from studies on non-detained patients and discusses the relevance of the findings from studies in liberty for prison health care. The clinical and ethical issues of insomnia in prison are described, followed by a summary of the existing studies on insomnia in prison.

The results of the reported studies show that insomnia in places of detention should not be reduced to a secondary problem related to substance abuse and mental illness, as it appears to be an independent situational problem. Correctional health care physicians' evaluation of insomnia is insufficient. Drug prescription works well in some patients, but has a limited effect in completely relieving insomnia in others.

A clear need exists for the education of prison health care professionals on insomnia evaluation and management. Additional non-pharmacological treatment in the prison health care setting should be used more frequently. Prison health care services should develop clear guidelines based on research evidence about insomnia and which contain treatment recommendations based on the principle of equivalence of health care outside and inside places of detention.

INTRODUCTION

Although insomnia is a frequent reason for medical and psychiatric consultation in prisons, studies on insomnia in correctional institutions are rare. Most studies on insomnia have targeted patients or populations in liberty (Bixler et al., 1979; Mellinger et al., 1985; Ford and Kamerow, 1989; Gallup Organization, 1991; Hohagen, 1996; Kupfer and Reynolds, 1997; Ohayon, 2002; Leopando

et al., 2003; Sateia and Nowell, 2004; Ohayon and Lemoine, 2004). In this article, a brief overview is provided of what is known about insomnia and its treatment from the studies on non-detained patients and the relevance of the findings from studies in liberty for correctional health care is discussed. The clinical and ethical issues of insomnia in prison are described, followed by a summary of the existing studies on insomnia in prison. Conclusions from studies in liberty and in places of detention will be drawn on how insomnia should be dealt with in correctional health care and recommendations on worthwhile further studies of these issues in prison medicine are given.

INSOMNIA: GENERAL RESEARCH FINDINGS

According to numerous studies, the prevalence of insomnia symptoms ranges from 10% to 48% in the general population of western Europe (Ohayon, 2002; Ohayon and Lemoine, 2004). In France, where 19% of the general population was found to suffer from insomnia, two-thirds of them reported repercussions on daytime functioning (Ohayon and Lemoine, 2004). A similar prevalence is found in the US. Insomnia is a persistent problem in approximately ten per cent of US Americans. One-third of the adult population in the United States has suffered at least once during their life from a sleep problem. In Europe and the US, higher rates of insomnia are seen in women, people who are less educated or

unemployed, separated or divorced individuals, medically ill patients, those with recent stress, and those suffering from depression, anxiety, or substance abuse (Bixler et al., 1979; Mellinger et al., 1985; Ford and Kamerow, 1989; Gallup Organization, 1991; Hohagen, 1996; Kupfer and Reynolds, 1997; Leopando et al., 2003; Sateia and Nowell, 2004; Ohayon and Lemoine, 2004).

Several classifications of sleep disorders exist of which the most widely known are the International Classification of Sleep Disorders (ICSD) 1990, the DSM-IV (APA, 2000) classification and the ICD-10 (WHO, 1992). The DSM-IV classification distinguishes primary sleep disorders, dyssomnias (getting the right amount, quality of sleep) which include primary insomnia, primary hypersomnia, and non-specified dyssomnia related to environmental factors (noise, light, frequent disturbances). Further listed categories of sleep disorders are parasomnias (e.g. sleepwalking disorder), sleep disorders due to a general medical condition, sleep disorders related to another mental disorder, most typically depression, anxiety or psychosis (the mental disturbance must be sufficiently severe), and, finally, substance induced sleep disorders.

According to Sateia and Novell (2004), the subjective perception of insomnia is at least as important as the objective alterations in sleep patterns and, therefore, the disorder is best assessed and treated with this idea in mind.

Acute (short term) insomnia (< 3-4 weeks) is most often related to situational stress, medical or psychological disorders and circadian changes due to jet lag or shift work. Interventions are mainly indicated to alleviate the acute stress, to educate patients and to introduce short-term treatment strategies comprising sleep hygiene and, when necessary, hypnotics.

With regard to chronic insomnia (>4 weeks), a pharmacological approach has dominated treatment choices in the past. The effectiveness of hypnotic drugs is well-established for short-term treatment of acute insomnia. However, effectiveness of long-term treatment is not proven. Most studies lasted less than six weeks. The effects found in short-term

pharmacotherapy trials seem to degrade over time in patients with chronic insomnia. In addition, many health care professionals fear potential side effects of hypnotics, as well as the risk of habituation and tolerance (Kupfer and Reynolds, 1997).

Non-pharmacological treatments have been found to result in long lasting and clinically significant improvement. This is the case if these treatments are use alone or accompanied by pharmacological treatment. Patients suffering from secondary insomnia problems, i.e. insomnia attributable to medical or psychiatric illness, benefit from non-pharmacological treatments as will patients with primary insomnia. Most non-pharmacological treatments are based on cognitive-behavioural methods. They can be used as single or combined approaches and taught to individuals or groups during therapeutic sessions or using self-administered written or audio-visual material. Examples of these treatments are stimulus control therapy, sleep restriction, sleep hygiene, paradoxical intention, progressive muscle relaxation, and cognitive therapy (Spielman et al., 1987; Morin et al., 1994, 1999; Murtagh and Greenwood, 1995; Edinger et al., 2001; Backhaus et al., 2001; Sateia and Nowell, 2004).

INSOMNIA IN PLACES OF DETENTION

The most important research questions

A French study has examined the effects of life conditions in detention (Association Lyonnaise de Criminologie et d'Anthropologie Sociale, 1991). Clearly, these conditions as well as the difficult experience of imprisonment play an important role concerning the prevalence of sleep disturbance complaints (Zimmermann and von Allmen, 1985; Harding and Zimmermann, 1989; Vasseur, 2001; Elger, 2004a; Vasseur, 2001; Ross and Richards, 2002; Elger, 2004a; Feron et al., 2005). Post-traumatic stress disorder (PTSD) is present in a sizeable number of prisoners and is also known to cause insomnia Krakow et al., 2004; DeViva et al., 2004). Other factors are pre-existing psychiatric morbidity, drug misuse, the lack of physical activity and daytime napping (Bourgeois, 1997; Andersen et al., 2000). The subjective

impression of insomnia might also have been related mainly to the boredom (Levin and Brown, 1975) felt during long periods when the cells stay closed at night, making prisoners feel that they should sleep longer than they need from a physiological point of view.

Many questions persist regarding the prevalence, causes and types of insomnia in places of detention as well as the efficacy of different treatment strategies. Typical questions warranting more research are:

- (i) Are most sleep complaints of prisoners caused by secondary insomnia due to substance abuse and PTSD, as well as pre-existing psychiatric disorders, including pre-existing insomnia?
- (ii) Is insomnia mostly 'situational'?
- (iii) How important are new psychological symptoms such as reactive anxiety and depression related to the incarceration as compared to environmental conditions such as noise, light, promiscuity, violence and rape?

Answering these questions is important in order to define the most adequate and efficient management strategies. In this respect, it is also important to know how correctional health care professionals evaluate and treat insomnia and what the outcomes of their management are.

Existing studies in the prison environment that provide answers to the research questions

Studies have been obtained through a search in Medline, on the National Commission on Correctional Health Care (NCCHC) website (NCCHC, 2005) and the three journals on correctional health care that are accessible through this website but which are not listed in Medline, as well as a search for books through Amazon. The used search terms were: sleep, sleep problems, sleep disorders, insomnia, hypnotics, prison, correctional. The search yielded only one study carried out in the US (Rogers et al., 2003), and several studies from Europe (Last, 1979; Jaeger and Monceau, 1996; Elger et al., 2002; Elger, 2003; Lekka et al., 2003; Elger, 2004a, 2004b; Feron et al., 2005).

Epidemiology of insomnia in places of detention

Published studies on epidemiology concerning insomnia and hypnotics prescriptions come from Germany, France, Belgium and the remand prison 'Champ-Dollon' in Geneva, Switzerland. A study in Germany (Last, 1979) found that 54% of all the inmates of the prison in Straubing complained about sleep problems. Among prisoners older than 50 years, sleep complaints were noted less frequently, in only 43% of these detainees.

Jaeger and Monceau (1996) have conducted several studies on the epidemiology of hypnotics and anxiolytic medication prescriptions in France. First, they obtained the prescription statistics from pharmacies of 99 detention centres. These centres were responsible for 31,845 detainees from a total of 52,000 individuals detained in France at the time of the study. The results indicated that most prescribed psychotropic drugs were benzodiazepines and sedative neuroleptics. Both types of substances counted for two-thirds of all prescriptions distributed by the pharmacies. A closer analysis of the data showed a great variation of the quantity of psychotropic prescriptions in different places of detention. Fewer hypnotics and tranquillizers were prescribed in the post-trial detentions centres ('prisons' in US terminology) than in the remand prisons (US: 'jails') included in the study. In addition, fewer prescriptions of these drugs were found in detention centres where more activities were offered, such as work or the possibility to practice sports.

A retrospective study in Belgium (Feron et al., 2005) examined the use of primary care services by prisoners from all 33 prisons in Belgium, including remand prisons. The study included 513 patients over a total of 182 patient years. The most common reasons for primary care consultations were administrative procedures (22%) followed by psychological problems (13.1%). Psychological reasons for consultations (n=481) involved mainly (71%) feeling anxious, sleep disturbance, and prescription of psychoactive drugs. Sleep disturbances accounted for about 20% of the psychological problems. The limitation of this

study is related to the fact that only primary care consultations were examined. It is not known how many prisoners had seen a psychiatrist because of sleep problems. However, it is probable that prisoners who saw a general practitioner for sleep problems, and not a psychiatrist, were those who did not show evidence of any psychiatric illness and were suffering mainly from 'situational' insomnia.

The studies from Switzerland come from a single remand prison in Geneva that has an average population of 300 to 400 inmates and provides about 3000 outpatient primary care consultations per year. About 90% of the medical consultations during one year were included and concerned 995 patients. This study found that insomnia is a frequent complaint: 44.3% of the 995 patients were found to suffer from insomnia, of whom 51% (n=223) were drug misusers (Elger, 2004a). The most frequently reported reason for insomnia was anxiety related to incarceration. A further analysis of the records of the non-substance-abusing insomnia patients indicated that chronic forms of insomnia were more common than transitory insomnia, defined as lasting less than three weeks. A higher percentage of the insomnia patients than of non-insomnia patients suffered from anxiety or depression in prison, had a history of medical and psychiatric disease, and received prescriptions of psychotropic and analgesic medications. It was concluded from this study that in non-substance-abusing patients, insomnia is not just a transitory problem of adaptation to incarceration, but a more chronic problem lasting more than three weeks and related to a higher degree of medical and psychological problems, mainly during incarceration.

INSOMNIA AND PSYCHIATRIC DISEASE

A study conducted in the US (Rogers et al., 2003) is interesting concerning the possible causes of insomnia, in particular whether the prevailing type of insomnia in places of detention is insomnia secondary to substance abuse or other chronic pre-existing or new psychiatric disorders. Rogers et al. (2003)

employed the Schedule of Affective Disorders and Schizophrenia-Change Version (SADS-C) in two US American correctional samples and carried out a validation of the subscales. This instrument has four subscales: (i) dysphoria, (ii) psychosis, (iii) mania, and (iv) insomnia. Rogers et al. (2003) recommend that psychologists use these four dimensions in screening patients for prominent Axis I symptoms. The subscales help to evaluate patients' key symptomatology.

Rogers et al. (2003) found that they were surprised by the emergence of the insomnia subscale as a separate dimension. Their assumption had been that various phases of insomnia would be aligned with the dysphoria subscale. Why did insomnia form a separate dimension? The authors suggest two non-exclusive explanations. The first is based on nosological considerations which would be valid both inside and outside places of detention. The findings of the study could be interpreted as an indicator that, in general, insomnia does not mainly constitute a specific inclusion criterion for particular disorders. Instead, the data suggests that insomnia may be independent of diagnosis and is not limited to disorders associated with dysphoria. The second explanation refers to the fact that the study has been carried out among detainees and therefore the conditions of detention play a role. For persons with or without mental disorders detained in large metropolitan jails, these conditions represent highly unstable environments. As a consequence, many inmates experience apprehension about their personal safety, resulting in anxiety, hyper-vigilance, and sleep disturbances (Rogers et al., 2003). Therefore, the emergence of insomnia as a distinct dimension may reflect its salience in corrections, independent of other symptom patterns. This study shows that insomnia in places of detention cannot be explained by the hypothesis that it is only secondary to, or part of, psychiatric disorders. If it is true that the prison environment causes independent 'situational' insomnia, it seems unlikely that it will entirely respond to treatment indicated for dysphoria and specific psychiatric disorders.

Perceptions of correctional officers in France: possible factors associated with insomnia

Jaeger and Monceau (1996) conducted interview and questionnaire studies in five remand prisons and a central prison with three sites (Fleury-Mérogis, Lyon, and Clairvaux) in France. Sixty interviews were carried out with members of the prison administration and the opinions of 317 prison officers ('guards' or 'wardens' in US) were obtained from a questionnaire study. The security personnel as well as the members of the prison administration expressed the opinion that the consumption of hypnotics/tranquillizers by inmates of their establishments increases if high numbers of detainees have to share the same cell; during distressing phases of trial, especially close to the judgment; when relationships with guards are bad; and when higher numbers of drug addicts are incarcerated. These results point to the existence of at least three factors that are possible causes for insomnia in places of detention:

- (1) 'External' conditions of detention such as the number of inmates per cell;
- (2) 'Internal' reactions to the situation, such as anxiety related to the trial and anger resulting from conflicts with the security personnel.
- (3) Pre-existing conditions characteristic for the population of prisoners as a whole: the high prevalence of drug abuse associated with secondary insomnia and dependence on hypnotics and tranquillizers.

Possible factors associated with insomnia and hypnotics prescriptions according to other studies

A study carried out in the Geneva remand prison has examined the prescription of hypnotics and tranquillizers in comparison with a non-prison outpatient clinic (Elger et al., 2002; Elger et al., 2004). The authors analysed consultations with general practitioners and one psychiatrist at the outpatient clinic of the Geneva prison, Champ-Dollon, during three weeks. The total number of consultations reported was 269 which involved 179 patients. Analysis of the treatment prescribed during

the first consultation of each patient showed that 41% of the 179 patients did not receive any psychoactive drug prescriptions, whereas the majority received either one (30%), two (25%) or three (4%) psychotropic drugs (Bindschedler, 2004). Almost one quarter (24%) of patients were treated by a hypnotic drug, and 20% by an anxiolytic BZD; 30% received a BZD for a different diagnosis, mostly to treat acute withdrawal symptoms resulting from various forms of addiction, 13% received methadone, 4% had an anti-depressant and 8% a neuroleptic medication.

A comparison of the 113 (prison) and 151 (urban policlinic) male patients younger than 39 years showed important differences concerning the quality and quantity of psychoactive prescriptions. Ten times more prison patients than patients from the urban policlinic received a treatment of benzodiazepines. The differences could not be explained by the high percentage of drug addicts in prison since they persisted even when considering only prisoners who were not known to be street drug, alcohol or long time BZD consumers. The study results suggested that factors related to the prison environment explain the main part of the differences.

Jaeger and Monceau (1996) also conducted 102 personal interviews with French detainees, whether or not they were suffering from insomnia. The prisoners interviewed were in pre-trial or post-trial detention in Fleury-Mérogis, Lyon, Clairvaux, Saint Paul, Saint Joseph or Strasbourg. During these interviews, detainees expressed the opinion that hypnotics and tranquillizers are very important to help them survive their imprisonment. Inmates are convinced that these medications reduce suffering, as well as the risk of suicide and violent behaviour, because their experience of taking hypnotics means they are able to sleep at night and are less aggressive and calmer during the day. Substantial numbers of prison administrators and security staff questioned in the same country agreed with the views expressed by the prisoners. According to 30% of the prison officers, hypnotics and tranquillizers help detainees tolerate detention; 4%-15% expressed the view that these

medications help detainees to live together peacefully and 4%-12% felt that the hypnotics and tranquillizers help to maintain discipline.

A Greek study (Lekka et al., 2003) compared the characteristics of 192 inmates receiving prescribed benzodiazepines (BZD) in a high-security Greek prison at therapeutic doses and 192 inmates without prescriptions of BZD. Although this comparison was carried out independently of any insomnia complaints, the study provides additional interesting findings concerning the characteristics of detainees treated with hypnotics or tranquillizers and is therefore reported here. BZD users were significantly more often on remand, more often unemployed before imprisonment, more often single, divorced, or widowed than non BZD users. Significantly, more BZD users than non-users appeared to suffer from psychiatric disease, since a higher proportion of the former than the latter were taking antidepressant and antipsychotic medications and had a history of psychiatric hospitalisation, as well as a history of illicit intravenous drug use. In addition, BZD users scored notably higher on Hamilton's Rating Scale for Anxiety (HAM-A) and Zung's Self-Rating Depression Scale (SDS) than non-BZD users. A history of psychiatric hospitalization, illicit drug use, unemployment, symptoms of anxiety, and a positive test for hepatitis C (antibodies to the hepatitis virus) were independently associated with BZD use in this prison, according to multivariate logistic regression analysis.

In Germany, Last (1979) found that among prisoners older than 50 years, physical diseases, in particular cardiovascular disorders, cause sleep disturbances in 19% of the detainees. Five per cent of sleep problems were due to an abuse of coffee or nicotine and the remaining sleep complaints were due to emotional disturbances in the broadest sense.

Management and efficiency of insomnia treatment in detention

In Germany, physicians were convinced that the usual medical treatment for simple insomnia was not successful in a prison setting (Last, 1979). According to the author of this study, the prisoners 'abused the normally used

medicaments to get into a state of ecstasy.' Therefore, in the German prison, herbal medications ('with a vegetable basis'), neuroleptics and antidepressants were the preferred treatments.

In the Geneva remand prison, two studies examined the management and efficiency of insomnia treatment (Elger, 2003; Elger, 2004b). In the first study, the severity and duration of insomnia in detention were analysed by measuring sleep quality and its different components using the Pittsburgh Sleep Quality Index (Buysse et al., 1989). This instrument was chosen because the PSQI is known to provide a reliable, valid and standardised measure of sleep quality, to discriminate between 'good' and 'poor' sleepers and to permit a brief, clinically useful assessment of a variety of sleep disturbances that might affect sleep quality. The 19-item self-rating questionnaire yields a global score between 0 and 21. A global score >5 is considered to be an indicator of relevant sleep disturbances. It consists of seven components: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, sleep medication, and day dysfunction (the latter being defined as trouble staying awake while eating meals, watching television or engaging in social activity).

The total PSQI scores found in the remand prison among 52 randomly chosen patients complaining of insomnia were 12.3 +/- 4.7. These scores were similar to, or worse than, those of patients with primary insomnia (Backhaus et al., 2002), long term hypnotic drug users (Morgan et al., 2003), end stage renal disease patients or HIV patients who complain of sleep disturbances (Tsay and Chen, 2003; Dreher, 2003). In the Swiss remand prison (Elger, 2003), follow-up of 40 patients after ten days and 16 patients after two months showed significant improvements. Nevertheless, it has to be noted that PSQI scores stayed at high levels (10.6 after ten days and 9.6 after two months). The study did not find any differences in patients' GHQ (general health questionnaire) scores and conditions of imprisonment after ten days or two months as compared with the first time point at which the PSQI was administered. However, the study

suggested factors to which changes could be attributed. 'Stressful events' were reported by 74% of insomniac prisoners when they were first evaluated by the PSQI, but only by 54% of insomniac prisoners after ten days. In addition, an increased medication intake after ten days was observed. After two months, a decrease in the number of room-mates from a mean of 2.8 to 2.1 was noted that could have influenced sleep quality. After ten days and after two months more than 90% of the re-evaluated patients took hypnotics. It might be reassuring that no medication increase occurred between ten days and two months and that sleep quality was stable (scores 10.6 and 9.6). However, this also means that the prisoners included in the study manifested a chronic requirement of hypnotics in spite of efforts of their physicians to include non-pharmacological measures: in this study sleep hygiene information was distributed during the consultations.

In another study in the same prison (Elger, 2004b) the clinical management of insomnia complaints in non-substance-misusing prisoners was examined in order to judge the quality of medical consultation and the effectiveness of drug prescription. This study was done retrospectively and included the medical records of 112 non-substance-misusing prisoners complaining of insomnia at medical consultation over a one-year period. Aspects examined were the documentation of the history of the insomnia complaint, the documentation of the clinical evaluation and of the type, duration and effectiveness of treatment. Findings included a prescription of hypnotics to 111 patients (80% benzodiazepines or Zolpidem) and a limited documented insomnia work-up: information from the history about sleep habits, sleep latency and previous hypnotic use had been noted for less than a third of the patients, and information about the impact of insomnia, such as fatigue, on daily activity in only 7%. In more than 60% of the patients, insomnia complaints persisted for more than three weeks. In 37% patients, improvement was complete (defined subjectively based on patients' complaints), in 18% it was absent, and in 30% it was incomplete while taking the

prescribed hypnotics. Patients with or without only partial improvement of insomnia received the highest number of hypnotics (mean 2.4, versus 1.4 for patients with total improvement, 95% CI of the difference: 0.71.4). It was concluded from this study that correctional health care physicians' evaluation for insomnia was incomplete, although similar to studies involving 'normal' US physicians working outside correctional facilities.

Drug prescription in the prison did not seem to have been effective in completely relieving insomnia complaints in a sizeable number of patients.

SUMMARY AND CONCLUSIONS FROM ALL STUDIES IN DETENTION

Insomnia complaints are frequent. Up to 40% of prisoner patients in a general medicine outpatient service seek medical consultation for sleep problems. Insomnia in places of detention cannot be reduced to a secondary problem related to substance abuse and mental illness, but appears to be an independent situational problem. Correctional health care physicians' evaluation of insomnia is insufficient. Drug prescription works well in some patients, but has a limited effect in completely relieving insomnia in others. Several major conclusions arise. First, a clear need seems to exist for the education of prison health care professionals on insomnia evaluation and management. Second, additional non-pharmacological treatment in the prison health care setting should be used more frequently. Third, prison health care services should develop clear guidelines for their personnel that are based on research evidence about insomnia. These guidelines should contain the general recommendation to take insomnia complaints seriously and they should address the recommended diagnostic steps and management recommendations, including non-pharmacological treatment.

Treatment recommendations should be based on the principle of equivalence and should not deprive prisoners of medication that is used for non-detained patients. No evidence exists so far that the prescription of BZD hypnotics should be replaced in general in

prisons by neuroleptics or antidepressants. Most neuroleptics have serious side effects, as have certain classes of antidepressants. If guidelines in places of detention differ from those used outside the prison setting, the consequences of the treatment practice should be strictly monitored before and after any changes.

Fourth, more studies in correctional facilities are needed to evaluate different treatment strategies. What is the feasibility of non-pharmacological treatment in prison? What are the outcomes of non-pharmacological treatment as compared with pharmacological treatment? Do guidelines change practice? What is the compliance with guidelines by clinicians? What is the effect of different treatment strategies on violence, suicide, and the severity of complaints, as well as on clinically observed symptoms? Ideally, the studies should be conducted in parallel in different prison types and in different countries.

REFERENCES

- American Psychiatric Association (2000) *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Washington, APA.
- Andersen H.S., Sestoft D., Lillebaek T., Gabrielsen G., Hemmingsen R. and Kramp P.A. (2000) Longitudinal study of prisoners on remand: psychiatric prevalence, incidence and psychopathology in solitary vs. non-solitary confinement. *Acta. Psychiatr. Scand.* **102**, 19–25.
- Association Lyonnaise de Criminologie et d'Anthropologie Sociale (1991) Ouvrage collectif sous la direction de Gonin, D; commandé par le ministère de la justice (June). *Conditions de vie en détention et pathologie somatique*. Paris, Ministère de la Justice.
- Backhaus J., Hohagen F., Voderholzer U. and Riemann D. (2001). Long-term effectiveness of a short-term cognitive-behavioral group treatment for primary insomnia. *Eur. Arch. Psychiatry. Clin. Neurosci.* **251**, 35–41.
- Backhaus J., Junghanns K., Broocks A., Riemann D. and Hohagen F. (2002). Test-retest reliability and validity of the Pittsburgh Sleep Quality Index in primary insomnia. *J. Psychosom. Res.* **53** (3), 737–40.
- Bindschedler M. (2004). *Prescription médicamenteuse non psychotrope à la prison préventive de Champ-Dollon en 1997*. Doctoral thesis No. 10356. Geneva, Medical Faculty of the University of Geneva.
- Bixler E.O., Kales A., Soldatos C.R., Kales J.D. and Healey S. (1979) Prevalence of sleep disorders in the Los Angeles metropolitan area. *Am. J. Psychiatry* **136**, 1257–62.
- Bourgeois D. (1997). Sleep disorders in prison. *Encephale* **23**, 180–3.
- Buyssse D.J., Reynolds C.F., Monk T.H., Berman S.R. and Kupfer D.J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry. Res.* **28**, 193–213.
- DeViva J.C., Zayfert C. and Mellman T.A. (2004). Factors associated with insomnia among civilians seeking treatment for PTSD: an exploratory study. *Behav. Sleep Med.* **2** (3), 162–76.
- Diagnostic Classification Steering Committee (1990) *International Classification of Sleep Disorders: Diagnostic and Coding Manual*. Rochester, NM, American Sleep Disorders Association.
- Dreher H.M. (2003). The effect of caffeine reduction on sleep quality and well-being in persons with HIV. *J. Psychosom. Res.* **54** (3), 191–8.
- Edinger J.D., Wohlgemuth W.K., Radtke R.A., Marsh G.R. and Quillian R.E. (2001). Cognitive behavioral therapy for treatment of chronic primary insomnia: a randomized controlled trial. *J.A.M.A.* **285**, 1856–64.
- Elger B.S., Goehring C., Revaz S.A. and Morabia A. (2002). Prescription of hypnotics and tranquilizers at the Geneva prison's outpatient service in comparison to an urban outpatient medical service. *Soz. Präventivmed.* **47**, 39–43.
- Elger B.S. (2003). Does insomnia in prison improve? Prospective study of insomnia among remanded prisoners in Geneva using the Pittsburgh Sleep Quality Index. *Med. Sci. Law* **43** (4), 334–44.
- Elger B.S. (2004a). Prevalence, types and possible causes of insomnia in a Swiss remand prison. *Eur. J. Epidemiol.* **19**, 665–77.
- Elger B.S. (2004b). Management and evolution of insomnia among non substance abusers in a Swiss remand prison. *Swiss Med. Wkly.* **134**, 486–99.
- Elger B.S., Bindschedler M., Goehring C., Antonini Revaz S. (2004). Evaluation of drug prescription at the Geneva prison's outpatient service in comparison to an urban outpatient medical service. *Pharmacoepidemiol. Drug Saf.* **13**, 633–44.
- Feron J.M., Paulus D., Tonglet R., Lorant V. and Pestiaux D. (2005). Substantial epidemiological description and possible explanations. *J. Epidemiol. Community Health* **59**, 651–5.
- Ford D.E. and Kamerow D.B. (1989). Epidemiologic study of sleep disturbances and psychiatric disorders: An opportunity for prevention? *J.A.M.A.* **262**, 1479–84.
- Gallup Organization (1991). *Sleep in America: A National Survey of US Adults*. Princeton, NJ, National Sleep Foundation.

- Harding T. and Zimmermann E. (1989). Psychiatric symptoms, cognitive stress and vulnerability factors. A study in a remand prison. *Br. J. Psychiatry*. **155**, 36–43.
- Hohagen F. (1996). Nonpharmacological treatment of insomnia. *Sleep* **19**, S50.
- Jaeger M. and Monceau M. (1996). *La consommation des médicaments psychotropes en prison*. Ramon Krakow B., Haynes P.L., Warner T.D., Santana E., Melendrez D., Johnston L., Hollifield M., Sisley B.N., Koss M. and Shafer L. (2004). Nightmares, insomnia, and sleep-disordered breathing in fire evacuees seeking treatment for posttraumatic sleep disturbance. *J. Trauma Stress* **17** (3), 257–68.
- Kupfer D.J. and Reynolds C.F. (1997). Management of insomnia. *N. Engl. J. Med.* **336**, 341–6.
- Last G. (1979). Sleep disorders in a isolation situation. (Hyposomnia in older convicts). *Z. Gerontol.* **12** (3), 235–47.
- Lekka N.P., Paschalis C., Papadourakis A. and Beratis S. (2003). Characteristics of inmates receiving prescribed benzodiazepines in a high-security Greek prison. *Compr. Psychiatry*. **44** (5), 409–14.
- Leopando Z.E., dela Cruz A., Limoso D.D.V., Marcos J.A. and Alba M.E. (2003). Clinical practice guidelines on the diagnosis and management of insomnia in family practice: Part 2. *Asia Pacific Family Medicine* **2** (1), 45–50.
- Levin B.H. and Brown W.E. (1975). Susceptibility to boredom of jailers and law enforcement officers. *Psychol. Rep.* **36**, 190.
- Mellinger G.D., Balter M.B. and Uhlenhuth E.H. (1985) Insomnia and its treatment: Prevalence and correlates. *Arch. Gen. Psychiatry* **42**, 225–32.
- Morgan K., Thompson J., Dixon S., Tomeny M. and Mathers N. (2003). Predicting longer-term outcomes following psychological treatment for hypnotic-dependent chronic insomnia. *J. Psychosom. Res.* **54** (1), 21–9.
- Morin C.M., Culbert J.P. and Schwartz S.M. (1994). Nonpharmacological interventions for insomnia: a meta-analysis of treatment efficacy. *Am. J. Psychiatry* **151**, 1172–80.
- Morin C.M., Hauri P.J., Espie C.A., Spielman A.J., Buysse D.J. and Bootzin R.R. (1999). Nonpharmacologic treatment of chronic insomnia: an American Academy of Sleep Medicine review. *Sleep* **22**, 1134–56.
- Murtagh D.R. and Greenwood K.M. (1995). Identifying effective psychological treatments for insomnia: a meta-analysis, *J. Consult. Clin. Psychol.* **63**, 79–89.
- National Commission on Correctional Health Care: <http://www.ncchc.org> (accessed August 8, 2005).
- Ohayon M.M. (2002) Epidemiology of insomnia: what we know and what we still need to learn. *Sleep. Med. Rev.* **6** (2), 97–111.
- Ohayon M.M. and Lemoine P. (2004) Daytime consequences of insomnia complaints in the French general population. *Encephale* **30** (3), 222–7.
- Rogers R., Jackson R.L., Salekin K.L. and Neumann C.S. (2003) Assessing Axis I symptomatology on the SADS-C (Schedule of Affective Disorders and Schizophrenia-Change Version) in two correctional samples: the validation of subscales. *J. Pers. Assess.* **81** (3), 281–90.
- Ross J.I. and Richards S.C. (2002). *Behind bars: surviving prison*. Indianapolis, Alpha Books.
- Sateia M.J. and Nowell P.D. (2004). Insomnia. *Lancet* **364**, 1959–73.
- Spielman, A.J. Saskin, P. and M.J. Thorpy (1987) Treatment of chronic insomnia by restriction of time in bed. *Sleep* **10**, pp. 45–56.
- Tsay S.L. and Chen M.L. (2003). Acupressure and quality of sleep in patients with end-stage renal disease—a randomized controlled trial. *Int. J. Nurs. Stud.* **40** (1), 1–7.
- Vasseur V. (2001). *Médecin chef à la prison de la santé*. Paris, Le Livre de Poche.
- World Health Organisation (1992) *International Statistical Classification of Diseases (ICD-10)*. Geneva, WHO.
- Zimmermann E. and von Allmen M. (1985). Consultations médicales et consommations médicamenteuses en cours de détention préventive à la prison de Champ-Dollon. *Soz. Präventivmed.* **30**, 312–21.