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CLINICAL REVIEW

Prevalence, associated factors and management of insomnia in prison populations: An integrative review

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SUMMARY

Prisoners have many potential risk factors for insomnia including mental ill health and substance misuse. However, literature on prevalence, associated factors and management of insomnia in prison has yet to be systematically examined in this group. The paper objective was to synthesise and appraise the research that examines insomnia in a prison environment. An integrative literature review using thematic analysis was conducted to critically reflect on the current evidence base and outline a prospective research agenda. From the original 384 sourced papers, 33 met the inclusion criteria and were subsequently included for review. Definitions of insomnia and assessment tools used in studies varied considerably making the overall validity of findings uncertain. Notably, no studies used a recommended measure to assess insomnia disorder (ID). Thematic analysis yielded five themes: 1) the varied prevalence of insomnia; 2) the comorbidity of insomnia, psychiatric disorder and substance misuse; 3) the negative influence of prison-related situational and environmental factors on insomnia; 4) the role of hypnotic medication, and, 5) preliminary indications that non-pharmacological treatment can improve sleep. The methodological heterogeneity and variable quality across studies in the assessment of insomnia means conclusive data on prevalence, associated factors and management is lacking. Nonetheless, sleep problems are common and impairing in prison, are linked to comorbid conditions and negatively influenced by the prison environment, which routinely provides limited scope for effective management. Future research in prison populations is needed to reliably identify insomnia prevalence and determine how it can be managed effectively.

Introduction

In the United States, nearly 1% of the adult population is incarcerated at any one time [1]. It has been estimated that the majority of prisoners have some type of mental disorder [2–5]. While much work has focused on mental health and physical comorbidity in prison populations (see [2] for review), there has been comparatively little research on insomnia specifically, either as a symptom of these disorders or a disorder in its own right. Crucially, the prison context may both directly interfere with sleep-wake regulation and present a barrier to effective management of sleep disturbance.

General population studies report that around a third of people experience general insomnia symptoms and between 5 and 15% experience clinically defined insomnia disorder (ID) [6,7]. This wide prevalence range reflects the differing definitions of insomnia and the variety of assessment tools adopted by different studies [8]. In terms of agreed definitions of insomnia, all three commonly used sleep classification manuals accept that the main symptoms of insomnia are a persistent problem initiating or maintaining sleep; experiencing early morning awakenings; and/or non-restorative sleep [9–11]. To obtain disorder status at a clinical threshold, daytime functioning such as concentration, work productivity and mood must be adversely affected. The most widely accepted risk factors for insomnia are: being female [12]; increasing age [13–15]; and comorbid physical and psychiatric disorders [7]. Insomnia can negatively impact on quality of life [16] and is a risk factor for the future onset of cardiovascular disease, depression and anxiety disorder and even mortality [17]. However, hypnotic medication (e.g., zopiclone, zolpidem, diazepam etc.) [18] and non-

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Abbreviations

AvPD	avoidant personality disorder
BME	black and minority ethnicities
BNF	British National Formulary
BPD	borderline personality disorder
C	control group
CBT	cognitive behavioural therapy
CHIPS	Cohen-Hobernab inventory of physical symptoms
CIS-R	clinical interview schedule
DPD	dependent personality disorder
DSM-III	Diagnostic and Statistical Manual of Mental Disorders, 3rd edition
EEG	electroencephalography
EOG	electrooculography
GAS	global assessment scale
GHQ	general health questionnaire
GP	general practitioner
GS	good sleepers
HDRS	Hamilton depression rating scale
ICPC-2	International classification of primary care-version 2
ICSD-2	International classification of sleep disorders-version 2
ID	insomnia disorder
ISI	insomnia severity index
NPT	nocturnal penile tumescence
NSM	non-substance misusing
NSMI	non-substance misusers with insomnia
NSMNI	non-substance misusers without insomnia
PAI	personality assessment index
PD	personality disorder
PR	progressive relaxation
PRSC	progressive relaxation/stimulus control
PSIQ	psychology services inmate questionnaire
PSQI	Pittsburgh sleep quality index
RCGP	Royal College of General Practitioners
RCSQ	Richard Campbell's sleep questionnaire
RCT	randomised controlled trial
RDC-1	research diagnostic criteria
RPS	Royal Pharmaceutical Society
SADS-C	schedule of affective disorders and schizophrenia-change version
SCI	sleep condition indicator
SCS	sleep complaints scale
SPD	schizotypal personality disorder
SMI	substance misusers with insomnia
SMNI	substance misusers without insomnia
TM	transcendental mediation
UK	United Kingdom
USA	United States of America

pharmacological treatments (e.g., cognitive behavioural therapy (CBT) etc.) [19–21] can improve insomnia, health and non-health related quality of life symptoms [16].

Around 90% of prisoners have some sort of mental disorder including personality and substance misuse disorders [22]. The high prevalence of mental disorder, physical health problems, substance misuse issues and prescription medications within prison settings may also compound premorbid sleep disturbances, given the recognised relationship between sleep and health [3,4,23,24]. Due to the nature of the prison regime normal sleep-wake patterning may be affected through interruption of usual daily routines [25]; forced contact with others [26]; fear of violence [27]; and lack of autonomy [28]. Features of the physical environment are also likely to confer further disturbance to sleep-wake regulation including exposure to extreme hot or cold temperatures [29]; experiencing too much or too little light [30]; excessive noise [30,31] (e.g., cell doors slamming, prisoners shouting, keys jangling etc.); and inadequate bedroom setup (e.g., poor mattress quality) [32]. It is not known what non-pharmacological interventions for insomnia are offered across the prison estate internationally, however some general interventions have been recommended in the United Kingdom (UK) policy literature, including psychological therapies, lavender, milky drinks and sleep hygiene advice as preferable to prescribing medication [28].

There has been only one other review conducted in this area to date. In a scoping review published in 2007, Elger [33] asked three research questions: 1) are sleep complaints in prisoners caused by substance misuse, post traumatic stress disorder and mental disorder including insomnia; 2) is insomnia situational; and; 3) what is the importance of reactive anxiety and depression due to being imprisoned compared to prison environmental factors (e.g., light, noise etc.). The review included nine research studies in its analysis, however inclusion and exclusion criteria were not identified and there was no objective evaluation of study quality. Thus there remains the need for an up-to-date rigorous review, which examines these factors. Therefore, in this integrative review we collate, describe and discuss the available insomnia-prison literature, identifying key themes for research and practice. The paper will critically reflect on the method and quality of conducted studies, and outline a thorough research agenda, delineating a series of studies required to further elucidate the prevalence and management of insomnia in prison settings.

Methodology

Systematic reviews and meta-analyses rigorously assess research evidence, usually concentrating on gold standard studies including randomised controlled trials (RCTs). There was a clear lack of RCTs in this area therefore an integrative review method was chosen. This approach permits an integrated assessment and comparison of many different research methods (e.g., experiment, semi-structured interview etc.), regardless of design [34]. An integrative review routinely consists of five stages of work: search strategy, search outcome, data extraction, data evaluation and data synthesis [35]. These stages are outlined below with reference to our particular study.

Search strategy

Cochrane Library, Embase, MEDLINE, Evidence Based Medicine Reviews and PsycINFO were identified as the over-arching databases to be interrogated. A series of search operators of insomnia-related terms were developed, with insomnia-related terms sleep, sleepless*, sleep problem, sleep disturbance*, hypnotic, z-drug, zopiclone, zolpidem, zaleplon and melatonin searched in conjunction with prison-specific terms, including prison, imprison*, prisoner, inmate, correctional, jail, custody, offender, detainee or incarcerat*. All ages were included. Reports were also retrieved from Google Scholar and included in the review. Finally, in an attempt to capture any recent peer reviewed and/or data-based grey literature, requests for information were circulated via email distribution lists, professional networks and social media.