The Prevalence and Management of Poor Sleep Quality in a Secondary Care Mental Health Population

Michelle O'Sullivan, MSc^{1,2}; Masuma Rahim, PsychD^{1,2}; Christopher Hall, PsychD³

¹School of Psychology, University of Surrey, Surrey, UK; ²Surrey & Borders Partnership Mental Health NHS Foundation Trust, Surrey, UK; ³South-West London & St George's Mental Health NHS Trust, London, UK

Study Objectives: Poor sleep quality, particularly insomnia, has been identified as a frequent problem among individuals with mental health difficulties. Comorbid sleep difficulties adversely affect quality of life and functioning, and have been associated with the causation and maintenance of a number of psychiatric disorders, as well as increasing the risk of relapse. The study objectives were to ascertain clinician knowledge related to insomnia, investigate sleep quality among service users in a community mental health setting in the UK, and evaluate service provision of evidence-based interventions for sleep difficulties.

Methods: A cross-sectional design was used. Nineteen clinicians completed a questionnaire on their clinical practice. Seventy-three service users completed the Pittsburgh Sleep Quality Index and provided self-report data on interventions received and associated satisfaction.

Results: Clinical staff demonstrated deficits in knowledge of insomnia symptomatology. Sixty-four percent (95% CI 54% to 74%) of service users were identified as poor sleepers on

the PSQI. Sixty-one percent of poor sleepers had not been offered support for sleep difficulties. The most common support received was prescribed psychotropic medication (32%). Cognitive behavioral therapy was the intervention rated as most helpful but was only received by 6%.

Conclusions: This study highlights inadequacies in providing evidence-based interventions for sleep difficulties. Key recommendations include training clinicians in the identification of sleep difficulties and provision of evidence-based interventions, provision of cost-effective transdiagnostic group interventions, and formalizing assessment and treatment pathways for service users with sleep difficulties.

Keywords: insomnia, sleep disturbance, sleep quality, CBT, cognitive-behavioural therapy, comorbid insomnia, mental health, sleep disorders, prevalence

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Poor sleep quality, particularly insomnia, is a frequent problem among individuals with mental health difficulties,² with reported prevalence rates of up to 78% in inpatient and outpatient populations.^{3,4} The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition Text Revision (DSM-IV-TR)⁵ classifies “insomnia” as difficulty in initiating or maintaining sleep, or finding that sleep is non-restorative, for a period exceeding one month. Females are twice as likely to meet diagnostic criteria for insomnia, and the disorder persists for over three years in approximately 50% of those diagnosed.⁶

Insomnia can be described as either an independent disorder (primary) or as a symptom of a mental disorder (secondary).⁷ Regardless of onset temporal sequence, insomnia can evolve into an independent disorder.⁷ Comorbid sleep difficulties negatively affect quality of life and functioning, and have been associated with the causation and maintenance of a range of psychiatric disorders, with increased risk of relapse.^{2,8} A “cyclical” relationship has been conceptualized, whereby sleep problems exacerbate psychiatric difficulties and vice versa.²

Individuals' experience of sleep is subjective,⁹ and the literature demonstrates a discrepancy between sleep satisfaction indicators when using validated self-report questionnaires and simply asking users of mental health services, with service users reporting lower rates of difficulties than empirical measures.⁴ Using a service-specific self-report sleep questionnaire,

BRIEF SUMMARY

Current Knowledge/Study Rationale: Comorbid sleep problems are common in those with mental illness. There is a dearth of evidence regarding the prevalence of insomnia among those in contact with secondary mental health services, as well as limited understanding of the interventions provided.

Study Impact: There is a lack of knowledge related to insomnia among clinical staff and an absence of effective, evidence-based intervention for those who present with comorbid sleep difficulties. There is a need for formal assessment and treatment pathways for those with comorbid sleep problems.

Poulin et al.¹⁰ found that individuals with a diagnosis of schizophrenia were more likely to describe sleep-onset insomnia, yet reported normal sleep satisfaction when compared with healthy controls. It is suggested that such discrepancies in perceived need may have a significant impact on engagement in insomnia-related treatment.

At present, there are no National Institute for Health and Care Excellence (NICE) Guidelines relating to the assessment and treatment of insomnia or associated sleep difficulties, although there is guidance related to the use of newer hypnotic drugs.¹¹ The British Association for Pharmacology released a consensus statement in 2010 noting that insomnia is often a chronic condition lasting over two years, that the prevalence is

higher in females, and that approximately half of all diagnoses of insomnia are related to psychiatric disorders.¹² The statement suggests that clinicians should ask service users explicitly about their sleep pattern and that sleep diaries be employed to aid accurate diagnosis. There is accumulating evidence for the effectiveness of cognitive behavioral therapy for insomnia (CBTi): systematic reviews of 85 clinical trials, involving 4,194 participants indicate that CBTi achieves moderate to large effect sizes.^{13,14} Traditionally in individuals for whom insomnia is comorbid, treating the primary disorder should resolve secondary sleep difficulties,⁷ although this dichotomy is not adequately grounded in empirical evidence. This has been acknowledged in DSM-V through the coding of “insomnia disorder” whenever diagnostic criteria are met regardless of coexisting conditions.^{15,16} Perceiving sleep difficulties as secondary rather than comorbid can result in their neglect as a treatment target, despite both the lack of responsiveness to treatment and simultaneous improvements in comorbid psychiatric difficulties.⁷ Although there is a paucity of rigorous controlled designs, preliminary studies of CBTi in comorbid disorders have demonstrated positive outcomes for both sleep variables and clinical symptoms across a range of diagnoses, including depressive disorders, posttraumatic stress disorder, alcohol dependence, and psychosis.^{17–21} Despite the burgeoning literature on mindfulness-based insomnia interventions, particularly in relation to chronic illness,^{22,23} there is a dearth of evidence for psychological therapies for insomnia outside of CBTi, particularly in the context of comorbid psychiatric difficulties.

Although sleep difficulties, including insomnia, are often comorbid in those with mental health problems, there has been little investigation of the degree to which mental health professionals are aware of the diagnostic criteria related to insomnia. There has also been limited research into the prevalence of comorbid sleep disorders in those in contact with secondary mental health services, and there are no published studies assessing subjective sleep quality in secondary care mental health service users in the UK. This study was carried out in a Community Mental Health Team (CMHT). The CMHT aims to provide evidence-based treatment for all service users who present with disturbed sleep warranting a diagnosis of insomnia, but at present, it is not clear whether this standard is being met. The aims of this study were to ascertain the extent to which clinicians query clients' experience of insomnia-related symptomology and to establish the prevalence of poor sleep quality experienced by service users receiving care under the CMHT. Additionally, we aimed to ascertain whether service users experiencing sleep difficulties are dissatisfied with their sleep quality, determine the extent to which service users have been offered evidence-based treatment for difficulties and what have they found helpful, and make recommendations for future treatment provision.

METHODS

Participants

Fifteen of 19 CMHT clinicians participated, including medical ($n = 4$), nursing ($n = 3$), social work ($n = 6$), and allied health professionals ($n = 2$). The total caseload was 372 service

users. All service users seen by the CMHT in the period of a month were asked to participate. Exclusion criteria included being seen for initial assessment only, insufficient English fluency, and experiencing active acute symptoms of a mental disorder at the time of data collection. Of 221 eligible participants, 23 declined to participate, and one was ineligible as an interpreter was required. A further 124 were not contactable or did not respond, leaving a final sample size of 73 and response rate of 33%. Using the Daniel and Cross formula for sample size calculation for prevalence studies,²⁴ on the basis of a level of confidence of 95%, an expected prevalence of 66% of poor sleep quality in psychiatric outpatients using the Pittsburgh Sleep Quality Index (PSQI),⁴ and a precision value of 0.1, a sample of 73 was sufficient using a finite population correction. A large precision value was chosen due to feasibility related to resource limitations. The precision value met the assumption of normal approximation.

Ethics approval was not required for this study; however, it was formally registered with the Clinical Audit Team at the associated NHS Trust.

Design and Measures

A cross-sectional design was used. A questionnaire was designed to ascertain clinicians' knowledge of the symptoms associated with a diagnosis of insomnia and their clinical practice related to sleep difficulties. This questionnaire data was corroborated where possible using the electronic records system.

To establish the prevalence of poor sleep quality among service users, the Pittsburgh Sleep Quality Index (PSQI),¹ which measures retrospective sleep quality over a one-month period and discriminates between good and poor sleepers, was selected. The PSQI has good internal consistency and test-retest reliability.²⁵ A total score > 5 indicates clinically significant sleep disturbance with 89.6% sensitivity and 86.5% specificity.¹ The PSQI has been deemed suitable for telephone administration (Buysse, personal communication, 2013). Participants were asked an additional 4 questions to ascertain subjective sleep satisfaction, which interventions they had been offered, and treatment satisfaction.

Procedure

Clinicians were provided with a questionnaire asking about their knowledge of insomnia-related symptomatology and their clinical practice related to sleep problems. One-third of initial assessments carried out over a 5-month period were randomly selected to have their clinical notes reviewed to ascertain whether sleep had been discussed generally, or symptoms of insomnia had been explored more specifically ($n = 49$). Additionally, the clinical notes of 3 service users per clinician ($n = 57$) relating to telephone and face-to-face contacts in the past 6 months were randomly selected and searched for terms related to “sleep” and “insomnia.”

All service users seen by the CMHT in the period of one month were assessed for eligibility for participation in the prevalence arm of the study. Eligible participants were contacted by telephone by a researcher, briefed on the study, and asked to provide consent. As a high proportion of service users were not contactable by phone, clinicians were given questionnaires

to distribute to eligible participants. Fifty-two questionnaires were completed by telephone; a further 21 were returned by clinicians. Primary diagnoses and age were obtained from client records following provision of verbal consent.

Data Analysis

Data were analyzed using IBM SPSS 20. Descriptive statistics established the number of clinicians aware of the diagnostic criteria related to insomnia; and prevalence of service users experiencing poor sleep quality, satisfaction with sleep quality, quantity/frequency of and satisfaction with treatments offered. Pearson correlation coefficient explored the relationship between age and sleep quality. Independent samples t-tests tested for sex differences in sleep quality and differences in sleep satisfaction between good and poor sleepers. A two-way ANOVA determined if primary diagnosis and ethnicity had a significant impact on sleep quality. MANOVA determined if participants with various diagnoses differed in terms of type of sleep difficulties, as captured by the component scores of the PSQI.

RESULTS

Sample Properties

The mean age of participants was 45.75 (SD 13.16); 52% were female. **Table 1** and **Table 2** outline participants' primary diagnoses and self-identified ethnicity respectively. Nine percent of the data were missing, which is within Bennett's acceptable range for missing data,²⁶ and was managed by pairwise exclusion.

Main Findings

Clinicians' Knowledge and Practice

Seventy-three percent of clinicians were aware that difficulty getting to sleep was a symptom of insomnia, and 67% knew that difficulty staying asleep was also symptomatic. Only 47% knew that waking up tired was associated with the disorder, and 27% thought (incorrectly) that daytime drowsiness was symptomatic. Each discipline demonstrated incomplete knowledge relating to diagnostic criteria. All clinicians stated that they asked about the quality of service users' sleep at assessment, yet clinical notes indicated only 71% of service users were asked. Sixty percent of clinicians reported that they asked at each appointment, a third reported asking at alternate appointments, and one clinician (7%) reported asking less often. Clinical notes indicated sleep was recorded as being discussed during 30% of service user contacts.

Service User Experiences

Mean PSQI score was 9.05 (SD 5.13). A cutoff of 5 discriminates those with good sleep quality with those with poor sleep quality. Sixty-four percent (95% CI 54% to 74%) were identified as poor sleepers and 26% as good sleepers. Mean sleep duration was 6.88 h (SD 2.52). Mean sleep latency was 56.82 min (SD 55.90), and mean sleep efficiency was 73% (SD 22.93). Age was not significantly correlated with Total PSQI score ($r_{64} = -0.11$, $p = 0.39$). There were no significant

Table 1—Primary diagnoses.

Diagnosis	Percentage in Sample
Psychosis	56.2%
Bipolar affective disorder	19.2%
Depression	15.1%
Obsessive compulsive disorder	2.7%
Personality Disorder	2.7%
Mixed anxiety and depression	2.7%
Alcohol dependence	1.4%

Table 2—Participants' self-identified ethnicity.

Ethnicity	Percentage in Sample
White British	47.9%
Black or Black British – African	9.6%
Black or Black British – Caribbean	8.2%
British Pakistani	6.8%
Black or Black British – other	5.5%
White – other European	5.5%
Asian British – Indian	4.1%
White Irish	2.7%
Black or Black British – mixed	2.7%
Asian British – other	1.4%
Asian British – East African Asian	1.4%
Other – Chinese	1.4%
Mixed – White and Black Caribbean	1.4%
Other	1.4%

Table 3—Mean PSQI Total scores across diagnostic categories.

Primary Diagnosis	Mean	Standard Deviation
Obsessive compulsive disorder	14.50	3.54
Depression	11.50	4.81
Mixed anxiety and depression	11.50	9.12
Bipolar affective disorder	10.00	4.93
Psychosis	7.70	4.68
Personality disorder	7.50	10.61

sex differences in Total PSQI score ($t_{64} = -0.067$, $p = 0.95$). There were no significant main effects for primary diagnosis ($F_{5, 65} = 1.18$, $p = 0.33$), ethnicity ($F_{13, 65} = 0.728$, $p = 0.725$), or for an interaction effect ($F_{7, 65} = 0.328$, $p = 0.937$) on Total PSQI score. There was no significant difference between participants with different primary diagnoses on the components of the PSQI ($F_{7, 54} = 0.86$, $p = 0.69$; Pillai's Trace = 0.47, partial eta squared = 0.09). **Table 3** summarizes the mean PSQI scores for each diagnostic category.

Poor sleepers were significantly more dissatisfied with their sleep quality than good sleepers ($t_{54} = -7.21$, $p < 0.001$), with a small-medium effect size of 0.45. However, 10% and 26% of participants who were identified as poor sleepers were very satisfied or fairly satisfied with their sleep, respectively. Thirty-seven percent of all participants had been offered support for sleep difficulties from the CMHT, while 62% had not. Sixty-one percent of poor sleepers had not been offered

Table 4—Sleep intervention and associated helpfulness.

Intervention	Percentage Received	Percentage Perceived to be Very Helpful	Percentage Perceived to be Fairly Helpful	Percentage Perceived to be Fairly Unhelpful	Percentage Perceived to be Very Unhelpful
Sleep medication prescribed	31.5% (n = 18)	16.6%	61.1%	22.2%	0.0%
Sleep hygiene	20.5% (n = 15)	40.0%	46.6%	13.3%	0.0%
CBT	5.5% (n = 4)	25.0%	75.0%	0.0%	0.0%
Other support*	4.2% (n = 3)	0.0%	33.3%	33.3%	33.3%

* Other support included referral to another service and medication advice.

support. Twenty-six percent of good sleepers had been offered support. As the temporal sequence of sleep quality and timing of intervention is unknown, we did not examine specific treatment provision and sleep quality or satisfaction. **Table 4** summarizes the type of support received and its reported helpfulness.

DISCUSSION

Overall, 73% of clinicians were aware that “difficulty getting to sleep” was associated with a diagnosis of insomnia, although the figure dropped for the criterion “difficulty staying asleep” (67%) and “waking up tired” (47%). Only 27% of clinicians were aware that “daytime drowsiness” was not in itself symptomatic. It appears that there is a lack of knowledge regarding insomnia-related symptomology among clinicians at the CMHT. All clinicians indicated on the questionnaire that they asked newly referred service users about their sleep. However, a review of clinical notes suggested only 71% of assessments include discussion related to the quality of the individual’s sleep. Sixty percent of clinicians reported asking at each appointment, a third reported asking at alternate appointments, and one clinician reported asking less often. Clinical notes indicated sleep was recorded as being discussed during 30% of service user contacts.

In an investigation of the experiences of those using the CMHT, 64% of service users were identified as experiencing poor sleep quality using the PSQI. This prevalence is consistent with rates reported in inpatient and outpatient settings in the Netherlands,⁴ and contributes to the sparse literature on the prevalence of sleep difficulties in community mental health service users. Mean sleep latency was 57.82 minutes, which is dramatically above the 15 minutes perceived to be normal, with over 30 minutes deemed problematic.¹ The minimum accepted level for normal sleep efficiency is 85%¹; our participants’ mean sleep efficiency was 73%. Similarly to the study of Niet de et al.,⁴ the association between being a poor sleeper on the PSQI and sleep dissatisfaction was statistically significant, yet 36% of participants identified as poor sleepers were satisfied with their sleep. Sleep disturbances identified by the PSQI may not always be experienced as having a negative impact on sleep quality, and emphasizing the subjective nature of sleep quality. Sex and age did not have any significant effect on Total PSQI. Primary diagnosis did not have a significant effect on Total PSQI score, or on the individual components of the PSQI, suggesting that across diagnoses participants experience similar sleep difficulties.

Sixty-one percent of poor sleepers were not offered support for sleep difficulties. Twenty-six percent of good sleepers had received support for their sleep; however, it is not known from the study design if these individuals were poor sleepers prior to intervention. The most common support received was psychotropic medication (31.5%), which 78% reported as helpful and 22% as unhelpful. NICE guidance¹¹ on the use of hypnotic drugs emphasizes the provision of sleep hygiene as part of the overall management strategy for insomnia, yet only 21% of participants reported receiving information on sleep hygiene. While there is insufficient evidence to suggest sleep hygiene alone is effective, there is consensus on its value in combination with other therapies.²⁷ Regardless of whether participants had received information on sleep hygiene or simply had not recalled it, this finding demonstrates the deficit of basic psychological interventions for sleep difficulties as adjuncts to medication. Only 6% of participants received CBT—the most highly rated intervention, with 100% of those who received it finding it helpful. The British Association for Psychopharmacology¹² consensus statement on evidence-based treatment of sleep difficulties highlights the benefits of combined pharmacotherapy and CBT, with optimum outcome for persistent insomnia achieved by combined medication and CBT in acute therapy followed by discontinuation of medication and continuation of CBT in the longer term.²⁸

Implications for Practice

The results of this study suggest that clinicians have an insufficient understanding of sleep difficulties and that they may benefit from brief training regarding identification of disturbed sleep. The results also suggest that clinicians overestimate how likely they are to ask about problems associated with sleep. This is consistent with research suggesting that clinical staff often overestimate their own practice,²⁹ as well as the social desirability bias, whereby respondents provide answers showing them in a positive light, which is well-documented.^{30,31} Further studies requiring clinicians to evaluate their own clinical practice should ensure that they either use questionnaire measures in conjunction with measures of social desirability, or as this study has done, corroborate responses with multiple sources of information.

With 66% of participants identified as poor sleepers, and 61% of poor sleepers not being offered any intervention for sleep difficulties, this study highlights the shortcomings of secondary care services in providing evidence-based treatment to service users with clinically significant disturbed sleep. Findings suggest clinicians would benefit from brief training on the

provision of evidence-based interventions. This should ensure clinicians feel confident in providing information on sleep hygiene, and clinical psychologists and psychiatrists are working in alliance to provide the most effective pathways of care. That only 6% of service users were offered CBT is most likely a result of limited provision, with only one full-time clinical psychologist and one half-time trainee clinical psychologist in the service. With limited availability of resources, services should consider group CBT interventions which are accruing an evidence base for service users with comorbid conditions, ranging from day-long workshops³² to rolling four-week groups.³³ The similar profile of sleep difficulties across diagnoses supports the use of a transdiagnostic intervention approach.^{8,34} A transdiagnostic approach also allows for the addition of optional modules to target any possible disorder-specific presentations.⁸

This study also highlights the importance of simply asking service users to subjectively report sleep satisfaction, particularly if being referred on for intervention. Although formal assessment may indicate disturbed sleep, if service users are subjectively satisfied with their sleep quality this could pathologize what they perceive as normal and be an inefficient use of valuable intervention resources when service users may not be motivated to engage.

Finally, in light of these findings, it is recommended that secondary care services develop policies for assessing and providing evidence-based interventions for service users experiencing disturbed sleep. This is particularly important in context of findings on the variability in clinicians' competencies related to sleep difficulties and overestimation of clinical practice.

Strengths and Limitations

Acknowledging the importance of potential biases in self-evaluation,²⁹ this study supported self-report data by corroborating with clinical notes. This method allowed clinical practice itself to be examined rather than simply perceptions of clinical practice. However, clinicians may have asked about the quality of their sleep but not recorded it. If relevant information is not recorded in notes, clinical outcomes may be adversely affected.³⁵ Most pertinently, if sleep disturbances are neither routinely investigated nor noted, appropriate interventions will not be offered.

Sample size and non-response bias limit this study. It is unknown if the 124 unreachable service users were significantly different on the study variables compared to respondents. Clinicians distributed questionnaires to access service users who did not answer their phones, and while this produced some additional participants, it is not known how this unobtainable data could influence our findings. However the study's prevalence power calculation indicates that the sample was sufficient to obtain a prevalence rate within the service with a confidence interval width of 20%. Power calculations were not completed for other research questions as these were deemed secondary; therefore, insignificant findings for diagnosis, age, and ethnicity may be a consequence of insufficient power. While Buysse (personal communication, 2013) described the PSQI as suitable for telephone administration, there are no psychometric data published on its validity via this medium. The absence of temporal markers in the study design also meant we were unable to determine if

treatment had been offered to service users when they were experiencing sleep difficulties at the time, for instance, if the 6% who received CBT were dissatisfied with their sleep prior to intervention. No pharmacological data was collected as due to the quantity and range of such interventions used at secondary care level the sample size would have been too small to produce statistically meaningful results.

Further Work

This was the first study to attempt to establish the prevalence of sleep problems among service users in a UK mental health secondary care service, and to ascertain the extent to which clinical staff understand a diagnosis of insomnia. In light of this study's findings the following recommendations are made:

Clinicians should be trained in the effective identification of insomnia and in the provision of evidence-based interventions. Given the prevalence of reported sleep difficulties, services should consider provision of high volume cost-effective psychological interventions such as transdiagnostic day-long workshops and rolling four-week groups. In addition to formally assessing sleep difficulties, service users' satisfaction with sleep should be considered and discussed with them prior to being referred for intervention. Formal assessment and intervention pathway protocols for sleep difficulties should be developed and evaluation of the clinical and cost-effectiveness of future interventions should be undertaken.

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Address correspondence to: Michelle O'Sullivan, MSc, School of Psychology, University of Surrey, Guildford, Surrey GU2 7XH UK; Tel: +44 (0) 1483 683551; Email: m.o'sullivan@surrey.ac.uk

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