Wake up psychology! Postgraduate psychology students need more sleep and insomnia education

Wake Up Psychology! Postgraduate Psychology Students Need More Sleep and Insomnia Education

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Abstract

Objective: Poor sleep can significantly impact mental health. Despite this, sleep education is absent from the curriculum of many psychology training programs. The current study examined the amount of sleep education delivered within postgraduate psychology programs in Australia. It also developed a new survey tool to capture postgraduate psychology students' experience of sleep education.

Method: Two cross-sectional sleep education surveys were emailed to postgraduate psychology programs across Australia via the Heads of Department and Schools of Psychology Association. The first survey explored sleep education from postgraduate psychology program coordinators' perspectives (n = 35; survey response rate = 73%), while the second custom-designed survey examined postgraduate psychology students' perspectives (n =152).

Results: Program coordinators reported a median of 2.00 hours (range 0-9) of didactic sleep education delivered within postgraduate psychology programs. Postgraduate students, however, reported receiving a median of only 1.00 hour (range 0-40) of sleep education, with 47% of students reporting no sleep education. Most students acknowledged already working with clients experiencing sleep disturbances (68%), yet they disclosed low confidence and self-efficacy to manage sleep disturbances in psychology practice. Despite delivering minimal sleep education, thematic analysis indicated that program coordinators viewed sleep education as an important topic for trainee psychologists. Program coordinators preferred sleep education to supplement the postgraduate curriculum, preferably online (63%), whereas students chose clinical supervision (61%).

Conclusions: Postgraduate psychology training programs deliver minimal sleep education to trainee psychologists in Australia. Enhanced integration of sleep education within the postgraduate psychology curriculum is required to improve mental health outcomes.

Keywords: education and training, clinical psychology, sleep, sleep disorders, curriculum

Introduction

Sleep and mental health are inextricably linked. Between 50-80% of people with a mental health condition experience disturbed sleep, defined as sleep of insufficient quality or quantity (Bartlett & Jackson, 2016; Morin & Ware, 1996). However, sleep disturbances are more than just symptoms of mental health conditions; problems with sleep can impair emotional regulation, leading to a vicious and escalating cycle between poor sleep, mental health symptoms and difficulties with daytime functioning (Bartlett & Jackson, 2016; Freeman et al., 2017; Goldstein & Walker, 2014). Sleep disturbances such as insomnia, therefore, require independent assessment and treatment (American Psychiatric Association, 2013). However, psychologists have historically given low clinical priority to sleep, despite empirically supported psychological therapies for sleep disturbances (e.g., Cognitive Behavioural Therapy for Insomnia (CBT-I)) demonstrating positive flow-on effects to mental health, including improved mood and reduced depression severity (Cunningham & Shapiro, 2018; Vargas & Perlis, 2020; Wu, Appleman, Salazar, & Ong, 2015). Therefore, sleep is considered an important transdiagnostic factor to address in mental health treatment (Bartlett & Jackson, 2016; Harvey, 2009; Harvey, Murray, Chandler, & Soehner, 2011).

Despite the importance of addressing sleep disturbances in the mental health context, most postgraduate psychology training programs do not prioritise sleep education in their curricula. Only 6% of accredited graduate clinical psychology programs in the U.S. and Canada offered a formal course in sleep in 2009, with 41% of programs providing no training in the clinical assessment, diagnosis or management of sleep disorders (Meltzer, Phillips, & Mindell, 2009). Past reports of sleep education within graduate psychology programs across the U.S., Canada and the U.K. have shown similar low levels of sleep education (Lichstein et al., 1998; Pflugardt-Lang, 1997; Stepanski & Perlis, 2003; Stores & Wiggs, 1998). These low levels of sleep education have implications for psychology practice. For example,

postgraduate psychology students in the U.S. report low levels of self-efficacy and clinical confidence in behavioural sleep medicine (BSM); an emerging area of sleep medicine and psychology that focuses on empirically supported psychological and behavioural interventions to improve sleep and coexisting conditions (Peachey & Zelman, 2012; Society of Behavioral Sleep Medicine, 2020). These findings are consistent with the medical education literature, which reports that medical students internationally also receive very little sleep education and lack sleep medicine skills, with minimal improvement over time (Almohaya et al., 2013; Meaklim et al., 2020; Mindell et al., 2011; Orr, Stahl, Dement, & Reddington, 1980; Romiszewski et al., 2020; Rosen et al., 1998; Rosen, Rosekind, Rosevear, Cole, & Dement, 1993; Stores & Crawford, 1998; Urquhart, Orme, & Suresh, 2012). No recent published data exist, as far as the authors are aware, regarding the current level of sleep education or BSM skills for postgraduate psychology students in Australia.

Our future psychology workforce may, therefore, be ill-equipped to treat sleep disturbances in clinical practice due to their limited exposure to sleep education in postgraduate training. There are currently no Australian Psychology Accreditation Council (APAC) training requirements in sleep disorders for postgraduate psychology programs (Australian Psychology Accreditation Council, 2019). In addition, a recent parliamentary inquiry into sleep health awareness in Australia identified that healthcare practitioners, including psychologists, had limited awareness of sleep health and recommended more education and training in the area (Parliament of Australia, 2019). Given that untreated sleep disturbances can worsen the duration and severity of mental health conditions, such as depression, the Australian psychology workforce may be lacking essential clinical sleep assessment and treatment skills that have the potential to improve mental health outcomes (Bartlett & Jackson, 2016).

Without adequate sleep education for psychologists during postgraduate training, a significant gap between evidence and practice will remain, which may negatively impact mental health outcomes in Australia. There is currently no research available regarding the amount or type of sleep education provided within Australian postgraduate psychology programs. Therefore, the primary aim of this study was to determine the current level of sleep education and training delivered to postgraduate psychology students in Australia. The study also aimed to explore postgraduate psychology students' attitudes, confidence and practice in BSM using a custom-designed survey.

Methods

Two online cross-sectional surveys investigated the amount of sleep education and training provided to Australian postgraduate psychology students. While both surveys examined the amount, type, and coverage of sleep education in the curricula, one survey assessed the perspective of postgraduate psychology program coordinators. The other captured the perspective of postgraduate psychology students. Gathering data from both postgraduate psychology program coordinators was a method similarly used by Scott, Pachana, and Sofronoff (2011), allowing for triangulation of the data by providing different views on the same research question (Denzin, 2012; Flick, 2008). Both surveys were anonymous. The study received Human Research Ethics Committee approval from the host institution in October 2018.

Participants

Participants were postgraduate psychology program coordinators and students from 40 universities/education providers across Australia. Identifying details from universities and education providers were not collected to retain response anonymity and increase the participation rate. Inclusion criteria for the student survey were any person currently studying a postgraduate psychology coursework program (full-time or part-time) at an Australian

university that enabled them to apply for registration as a psychologist upon program completion. Participants were excluded if they were not currently studying a postgraduate psychology coursework program in Australia.

Measures and Procedure

The Heads of Departments and Schools of Psychology Association (HoDSPA) was contacted to provide assistance with study recruitment. On behalf of the study researchers, HoDSPA sent an email about the study to their members around Australia. This email requested for HoDSPA members to forward a study recruitment email that invited postgraduate psychology program coordinators at their university to participate in the study between December 2018 and February 2019. After providing their online consent to participate, program coordinators completed a 30-item online survey (Appendix 1). The survey items drew on similar sleep education surveys of program coordinators/directors of clinical psychology programs in the U.S. (Meltzer et al., 2009), undergraduate medical programs (Almohaya et al., 2013; Mindell et al., 2011; Orr et al., 1980; Rosen et al., 1998; Rosen et al., 1993), and medical specialty/residency training programs.(Avidan, Vaughn, & Silber, 2013; Khawaja et al., 2017; Mindell et al., 2013; Salas et al., 2013; Sullivan & Cao, 2017).

Program coordinators were then asked, with permission by HoDPSA members at each Australian institution that offered postgraduate psychology training in 2018, to forward an email that invited postgraduate psychology students at their university to participate in the second, student-focused survey. Student participants could opt-in to a lucky draw to win one of four AUD $100 e-gift vouchers for completing the survey. Email addresses for the lucky draw were kept separate from survey responses to retain response anonymity. The invitation email featured an online link to a custom-designed 97-item behavioural sleep medicine survey called the Graduate Psychology Students' Knowledge, Attitudes, and Practice in Sleep

survey (GradPsyKAPS) (Appendix 2 for GradPsyKAPS). The survey was developed using the principles of a modified Delphi method (Boerner, Coulombe, & Corkum, 2015). A list of initial survey items was generated by the first author by undertaking a comprehensive review of the published sleep education and knowledge surveys administered to students in psychology (Peachey & Zelman, 2012), medicine (Almohaya et al., 2013; Mindell et al., 2011; Salas et al., 2013; Sateia, Reed, & Christian Jernstedt, 2005; Stamm, Taylor, Nguyen, & Hardin, 2015; Zozula, Bodow, Yatcilla, Cody, & Rosen, 2001), psychiatry (Khawaja et al., 2017), neurology (Avidan et al., 2013) and pharmacy (Tze-Min Ang, Saini, & Wong, 2008). It also drew upon sleep practice surveys delivered to BSM practitioners (DelGuercio, 2018), psychologists (Zhou, Mazzenga, Gordillo, Meltzer, & Long, 2020) and psychosocial cancer workers (Sweeney & Wu, 2019). The list of initial survey items went through two rounds of review by two senior members of the research team (I.R. and M.L.J.). The modified list of items was then reviewed by the research team (H.M., I.R., M.L.J., M.J., L.J.M.), with seven psychologists, external to the research team, also reviewing survey items. Based on group consensus, the survey items were developed. Drafted items were reviewed for clarity, comprehension and accuracy of answers prior to the consolidation of the final measure. The estimated completion time of the student survey was 30 minutes.

Data Analysis

Online surveys were conducted using Qualtrics. Quantitative data were analysed in SPSS 25.0. Descriptive statistics were calculated for sleep education, training, experience, attitudes, beliefs, self-efficacy, confidence, preparedness to treat, and barriers to sleep education variables. On items with missing responses, sample sizes (*n*) for the individual items are reported. For variables where participants reported a range of numbers (e.g., 6-12 hours), the midpoint of the values (e.g., 9 hours) was coded. Items recorded on a 7-point Likert scale were collapsed into overall agreement, midpoint (neither agree or disagree), and

disagreement items for data display purposes. For the student data, a total of 163 students completed the survey; 11 participants in total were excluded from data analyses, two due to missing data on all variables and nine for being enrolled in a research-only degree that did not qualify for psychologist registration post-degree. The final data analysis included 152 student participants. Three outlying cases were removed from the analysis of the students' sleep education data due to these students' selecting and completing specialist sleep training likely outside of their programs, or completing training that was not didactic in nature (e.g., 10000 hours of sleep education) and greatly exceeded 1.5 times the IQR (Tukey, 1977).

Two qualitative approaches were used to analyse participants' free-text responses to survey questions. First, thematic analysis was used to flexibly identify, analyse and report patterns or themes within participants' free-text responses to a final survey question asking for additional comments about sleep education within postgraduate psychology programs (Braun & Clarke, 2006, 2019). The approach to identifying codes and creating themes was inductive (i.e., data-driven). Two members of the research team (H.M. and I.R.) analysed both postgraduate coordinators' and students' free-text comments together, allowing for discussion and collaborative decision-making around codes and themes. The thematic analysis followed the six-phase process outlined by Braun and Clarke (2006). Second, a basic content analysis was performed on participants' free-text responses to a survey item about sleep education topics that postgraduate coordinators would like taught in their programs. Content analysis was chosen as it allowed for the categorisiation and quantification of data within participants' typically brief free-text responses, instead of generating themes (Vaismoradi, Turunen, & Bondas, 2013). In addition, free-text responses for strategies that students found helpful to improve their clients' sleep were also used to generate a word cloud, which provides a visual representation of the data (http://www.wordle.net/) (Lawrenson & Evans, 2013).

Results

Participant Demographics

Forty-eight postgraduate program coordinators were identified from 40 universities/education providers offering postgraduate psychology training programs across Australia. Thirty-five program coordinators responded to the survey (response rate = 73%). Most participants reported coordinating Master of Clinical Psychology programs (59%), followed by Master of Professional Psychology programs (17%). Program coordinators from all states and territories across Australia, except Tasmania and Northern Territory, responded to the survey. Most participants were from Victoria (30%), Queensland (24%) and New South Wales (21%).

The second, student-focused survey analysed responses from 152 postgraduate psychology students (88% female). Most students were completing Master of Psychology programs (47%), followed by combined Masters/PhD (23%). The majority of students were completing degrees that would prepare them to practice as a psychologist with an area of endorsement in clinical psychology (64.2%). Almost half of the students were in their 6th year of psychology education (44%), followed by 5th-year students (25%). Students from all states and territories in Australia participated in the online survey, except for the Northern Territory and Tasmania, with the most participants from Victoria (33%), New South Wales (21%) and Western Australia (19%).

Sleep Education Within Psychology Programs

Didactic Sleep Education

Program Coordinators (*n* = 35). Postgraduate program coordinators reported a median of 2.00 hours (range 0-9) of didactic sleep education delivered to students throughout postgraduate psychology programs (Figure 1).

Students (*n* = 138). Postgraduate psychology students reported receiving a median of one hour (range 0-40) of sleep education during their postgraduate training program. Almost half of postgraduate students (47%) reported receiving no sleep education during their postgraduate psychology degree to date. When students reflected on the number of hours of sleep education received during their honours/postgraduate diploma degree, students reported a median of 0 hours (range 0-36). More than half of these students (57%) reported receiving no sleep education at all. The highest number of sleep education hours were reported during undergraduate psychology training programs, with a median of three hours of sleep education (range 0-30). Figure 1 displays the distribution of didactic sleep education hours across undergraduate, honours and postgraduate psychology programs. The thematic analysis also identified variability in sleep education between universities as an important theme in students' free-text responses (Table 1).

Academic Faculty with Sleep Expertise

Program Coordinators (*n* = 34). Fewer than half of program coordinators reported that there were faculty members who specialised in sleep, sleep disorders or circadian rhythms within their psychology department (44%). Of the programs that included such faculty expertise, a median of two staff members with sleep expertise were employed within these psychology departments.

Students (*n* = 138). Thirty-nine percent of postgraduate students reported the presence of academic faculty or supervisors with sleep expertise at their university. Most postgraduate students reported being unsure (53%) if there were any academics at their university with sleep expertise. Eight per cent reported no sleep expertise amongst academic faculty. As the survey was anonymous, no data on which university provided sleep education to students could be inferred.

Behavioural sleep medicine placements and research opportunities

Program Coordinators (*n* = 31). Twenty-nine percent of programs reportedly offered students the opportunity to complete a clinical placement at a sleep disorder or insomnia clinic. More than half of programs (55%) offered a placement where sleep disturbances were a common presenting problem, although not the primary reason for referral (e.g., mood or anxiety clinics). Program coordinators reported that placements in family services, rehabilitation (hospital) clinics, and prisons were additional opportunities for students to work with clients with sleep issues. Twenty-six per cent of programs did not offer any placements with exposure to sleep disturbances, and 13% of program coordinators were unsure if students had access to clinical placement opportunities relevant to sleep disturbances. In terms of research, 29% of program coordinators reported awareness of current postgraduate students completing sleep-focused research projects. In comparison, 23% of program coordinators reported being unsure that any students were completing sleep research projects.

Students (*n* = 142). Seven percent of postgraduate students reported completing sleep-focused psychology placements/internships, mostly at sleep or insomnia clinics. Nine percent reported completing a sleep-focused research project during postgraduate training, while 12% of students reported previously completing a sleep-focused research project during their honours or undergraduate degrees. Additionally, thematic analysis indicated sleep-focused practical experience improved students skills and confidence in BSM. (Table1).

Experience Working with Clients with Sleep Disturbances

Program Coordinators (*n* = 21). Program coordinators reported that it was common practice for students to work with clients experiencing sleep disturbances, estimating that more than half of students (57%) would see a client with a sleep disturbance while on a psychology placement.

Students (*n* = 122). Most students (68%) reported that they had already worked with a client who had experienced a sleep disturbance. Students estimated that almost half (47%) of all clients they had worked with reported difficulties with sleep. Seventy-one per cent of these students reported that they had found a general approach or strategy to improve their clients' sleep, with free text responses indicating that this predominantly included sleep hygiene (Figure 2).

Type of behavioural sleep medicine training during postgraduate programs

Program coordinators (*n* = 22). Most program coordinators (95%) reported providing access to training in the treatment of sleep disturbances, and 62% reported giving training in sleep history/assessment. Fewer programs reported student exposure to a sleep laboratory (41%) or actigraphy equipment (27%). No program coordinators offered a specific subject or course on sleep in their postgraduate program. The most common mode of sleep education delivery was via lectures as part of another subject or course (63%), research project/thesis (54%) or clinical work on placements (51%). Less common delivery modes were via guest lectures (14%) or workshops/professional development sessions (14%). Eleven per cent of programs did not include any sleep education in the curriculum, and 3% of program coordinators reported being unsure of how much sleep education was included in the curriculum.

Overall, program coordinators' satisfaction with sleep education teaching topics varied. Program coordinators were mostly 'neutral' or 'moderately satisfied' with the level of teaching in various areas of sleep, such as across neurocognitive disorders and cognition (e.g., memory). However, almost a quarter of program coordinators acknowledged that important sleep education topics were not taught in their program, including normal sleep, sleep physiology, assessment of sleep, and treatment of sleep issues for both adults and

children/adolescents. Comorbid sleep and mental health problems was the topic that postgraduate coordinators were most satisfied with.

Students (*n* = 143). Students reported a range of training experiences related to evidence-based assessment and interventions for sleep disturbances during their postgraduate program, with sleep diaries/logs the most common (50%; Figure 3). For students who had received training in sleep questionnaires (29%), the measures most frequently identified were the Insomnia Severity Index, Epworth Sleepiness Scale and the Pittsburgh Sleep Quality Index. Overall, the thematic analysis indicated that many students believed sleep education within postgraduate psychology training was inadequate (Table 1).

Beliefs and attitudes towards behavioural sleep medicine

Program Coordinators (*n* = 31) Sleep education was viewed as an important topic for postgraduate students. Most program coordinators thought sleep education was important, rating it as 'absolutely essential' (13%), 'very important' (55%), or 'of average importance' (23%). Only 8% reported sleep education as 'of little importance'. Thematic analysis also highlighted that many program coordinators viewed sleep education as an important topic to teach trainee psychologists (Table 2).

Students (*n* = 129). The results pertaining to students' beliefs and attitudes towards BSM are displayed in Table 3. Overall, data showed that students were not familiar with current evidence-based practice guidelines for sleep disorders, with 72% agreeing that sleep hygiene was an effective treatment for sleep disturbances like insomnia; and 69% agreeing that treating the underlying cause of sleep disturbances, such as anxiety and depression, would improve most sleep complaints rather that treating sleep disturbances in their own right. Students' responses varied regarding whether poor sleep hygiene is the main reason behind clients' experience of sleep disturbances. In addition, around a third of students (36%) indicated they relied on their own personal knowledge and experience with sleep to provide

advice to clients, rather than what they learnt about sleep at university. Importantly, however, students agreed that education and training in BSM was important. Thematic analysis supported this finding, with students reporting that learning sleep strategies was useful for their psychology work (Table 1). Students also mostly agreed with items relating to intentions to further their education and training in BSM.

Self-efficacy in Behavioural sleep medicine

Students (*n* = 128). Overall, 69% of students 'agreed' that they knew the common sleep disturbances seen in various mental health disorders. However, more than half of the students 'disagreed' that they had skills in the assessment and diagnosis of sleep disturbances (59%) or felt comfortable using empirically supported interventions to treat sleep disturbances (53%). Also, almost half of students 'disagreed' that they know where to go to access further sleep training if required (49%). The thematic analysis identified that students who completed sleep placements, research or work experience reported increased skills and confidence in BSM (Table 1). In contrast, another theme highlighted that some students believed that BSM education was not necessary for them or their career path. This indicates a lack of understanding of the implications of poor sleep on many aspects of occupational, social and cognitive functioning.

Preparedness to Assess and Treat Sleep Problems

Students (*n* = 129). Students mostly reported feeling 'a little prepared' to conduct a thorough evaluation of their clients' sleep when a client reported a sleep disturbance (35%), and 42% indicated feeling 'not prepared' to treat sleep disturbances using an evidence-based approach (Figure 4).

Treatment confidence in sleep disorders

Students (*n* = 129). Overall, students' confidence to treat sleep disorders was low. Most students reported being 'not confident at all' to treat the different sleep disorders, such

as insomnia (41%), circadian rhythms disorders (50%), hypersomnias (78%), parasomnias (80%), and obstructive sleep apnoea (71%). Students reported feeling confident to treat sleep disturbances comorbid with other mental health issues, with 76% of students being at least 'a little confident' to address these types of sleep issues.

Sleep Knowledge

Students (*n* = 112). Postgraduate students scored an average of 57% (SD ± 12%; range = 12% - 86%) on the 35-item sleep knowledge quiz, contained within the survey.

Barriers to Sleep Education

Program Coordinators (*n* = 31). Only 12% of coordinators reported no implementation barriers for sleep education due to the existing training offered within their program. The biggest barriers to implementing sleep education within the psychology curriculum were a lack of time (80%), no direct APAC requirements (40%), as well as a lack of importance (26%), sleep expertise (26%), and training materials (13%). Thematic analysis also reinforced these findings that sleep education was unable to fit within the current curriculum requirements (Table 2).

Increasing sleep education for postgraduate psychology students

Program Coordinators (*n* = 29). Program coordinators reported that: (1) having access to online sleep training modules for students to complete in their own time (63%); (2) being able to share sleep resources with other universities (43%); (3) having more psychology placements available in sleep (41%); and (4) access to 'sleep experts' to provide guest lectures (40%) were all very important to increase the likelihood of sleep education being incorporated into the curriculum. Thematic analysis also supported the idea of having sleep content accessible online, through placements, or extra courses, so sleep education could supplement the curriculum (Table 2).

Program coordinators provided support for implementing a standardised curriculum in sleep to feature in their postgraduate psychology programs. When asked about the amount of time they could provide within their program for sleep education, a median of 4.00 hours (range = 0-10) was reported. Only 13% advised that they would 'probably not' implement a standardised sleep curriculum, however, the thematic analysis suggested that this was related to the desire for sleep experts to deliver the training (Table 2).

Content analysis of program coordinators' (n = 15) free-text responses identified that intervention/treatment for sleep disorders was the most popular sleep education topic endorsed for teaching in postgraduate psychology programs (73%). Sleep assessment was the second most popular (60%), followed by generic sleep issues/disorders (47%), diagnosis (20%), insomnia (20%), circadian rhythms (13%), comorbid sleep issues (6%), the impact of sleep on mental health (6%), and counselling (6%).

Students (n = 119). Students reported that the three most-preferred ways for them to learn more about the assessment and treatment of sleep disturbances were: (1) supervision from an experienced psychologist (61%); (2) attending in-person seminars (54%); and (3) completing an online course (46%). Only 3% of students were not interested in any further sleep education.

Discussion

This study provides a valuable contribution to the sleep and psychology education literature as it is the first study to: (1) investigate the amount and type of sleep education within postgraduate psychology training programs in Australia; (2) examine both postgraduate students' and program coordinators' perspectives of sleep education within postgraduate psychology programs; (3) develop a survey tool (GradPsyKAPS) to explore students' experience of sleep education during postgraduate psychology training; and (4) include both quantitative and qualitative findings. The results demonstrate that most

postgraduate psychology students receive minimal sleep education despite most students already working with clients experiencing sleep disturbances as part of their standard clinical placements (e.g., mood or anxiety clinics). Almost half of the students had not received any sleep education throughout their postgraduate training. Students reported receiving most didactic sleep education during their undergraduate psychology degree; however, sleep assessment and treatment skills for clinical practice are not taught at the undergraduate level. Additionally, postgraduate students reported low levels of self-efficacy, confidence and perceived skills in BSM. Overall, this study demonstrates that limited sleep education is provided during postgraduate psychology training despite the high co-occurrence of sleep and mental health disorders. Regardless of the cause of the sleep disturbance, and whatever comorbidities are present, sleep issues need to be assessed and treated in their own right, as stated in the DSM-5 (American Psychiatric Association, 2013). Notably, both postgraduate students and program coordinators acknowledged that sleep education was an important area for psychology training and were open to increasing sleep education, preferably through online programs or clinical supervision.

Limited sleep education has implications for psychology practice in Australia, with postgraduate students reporting low confidence and skills to manage the sleep disturbances experienced by their clients. The results show insufficient training that sleep disturbances should be assessed and treated as a distinct mental health issue in its own right. Students also relied on sleep hygiene for clinical treatment of sleep problems such as insomnia, despite its lack of efficacy compared to CBT-I (Bjorvatn, Fiske, & Pallesen, 2011; Chung et al., 2018; Schutte-Rodin, Broch, Buysse, Dorsey, & Sateia, 2008; Stepanski & Perlis, 2003). However, most postgraduate students and program coordinators believed that sleep was an essential area of education and training for psychologists despite barriers to implementation, including a lack of time within the curriculum or direct APAC requirements. Most participants reported

being open to more sleep education in the curriculum and future professional development opportunities. Importantly, many postgraduate students showed initiative in seeking out further information on sleep, as well as opportunities to gain experience in clinical sleep settings.

The current study's findings depict limited sleep education within postgraduate psychology programs in Australia, which is consistent with international research in relation to medical and psychology education. First, the medical education literature has consistently reported a similarly limited number of hours of sleep education (1.5-2.6 hours) within medical training programs, internationally (Almohaya et al., 2013; Mindell et al., 2011; Romiszewski et al., 2020; Rosen et al., 1998; Urquhart et al., 2012). Second, in line with Meltzer et al. (2009), formal courses in sleep are predominantly absent in postgraduate psychology curriculum (0% in Australia and 6% in the U.S.). By comparison, our findings showed that more Australian psychology departments have staff with sleep expertise (44%) compared to the U.S. (17%) (Meltzer et al., 2009). However, the number of sleep experts within these Australian psychology departments with sleep expertise, overall, was low (*Med* = 2). Australian programs reported offering more access to training than U.S. based programs in sleep history and assessment skills (62% vs 21%) and treatment of sleep disturbances (96% vs 31%) (Meltzer et al., 2009). However, these differences may be due to variation in questionnaire wording between surveys, with Australian program coordinators asked if they 'provided access to' sleep education/training and U.S. programs asked if they 'offered' sleep education/training. When answering this question, Australian program coordinators may have taken into account access to external placements and research opportunities.

The survey also revealed that sleep disturbance assessment and treatment skills were not taught at all in approximately 25% of programs in Australia. With program coordinators only reporting a median of two hours of didactic sleep education within postgraduate

programs, the sleep education and training provided are unlikely to be sufficiently comprehensive to enhance clinical skills. Perhaps not surprisingly, students reported low levels of confidence, self-efficacy and preparedness in taking a sleep history or treating sleep disturbances using an evidence-based approach.

Overall, our results demonstrate that psychology training programs in Australia have not prioritised sleep education. Despite such high comorbidity between sleep disturbances and mental health conditions, sleep education is not commonplace within postgraduate psychology programs in Australia. Psychologists often assume that sleep disturbances are only symptoms of mental health conditions; however, this view is now outdated, and current guidelines recommend that sleep disturbances are managed in addition to other mental health conditions (American Psychiatric Association, 2013). The recent parliamentary inquiry into sleep health awareness in Australia has highlighted the need to improve sleep education for all healthcare providers, especially psychologists, in Australia (Parliament of Australia, 2019). Program coordinators identified several barriers that will need to be addressed to improve sleep education in psychology programs, including a lack of time and direct APAC requirements. Sleep education and awareness must, therefore, also be a priority for all parties involved in regulating and providing psychology education, including APAC, Australian Health Practitioner Regulation Agency (AHPRA), federal and state governments, university regulators and professional societies (e.g. Australian Psychological Society) (Meaklim et al., 2020). This study highlights that there is a strong need to improve BSM training within postgraduate psychology programs. Increased BSM education will ultimately provide all trainee psychologists with the necessary skills to assess and manage the sleep disturbances that often co-occur with mental health conditions in clinical practice.

Study strengths

The strengths of this study include: (1) the creation of a new survey tool to capture

postgraduate psychology students experience of sleep education using the principles of a modified Delphi method; (2) a high response rate from program coordinators around Australia; (3) a large sample size for postgraduate students, and; (4) the use of multiple reports to gather responses on sleep education, allowing for data triangulation. Triangulation aids the validation of data by cross-verifying information from two or more sources and adds more scientific rigour, depth and breadth to research methods (Denzin, 2012; Flick, 2008). Gaining the perspectives of both program coordinators and students in this current study has enabled a richer, more detailed assessment of the level of sleep education and training.

Limitations of the study

Limitations of this study include the use of a cross-sectional online student survey, providing only a snapshot of information at the stage of training the students were completing (most were in their final year of training). The study recruitment email and participant informed consent statements advertised that the study was investigating sleep and sleep disorders, specifically. This may have biased responses from students who had received more sleep education or placement experience throughout their postgraduate training. However, the results still indicate insufficient sleep education is provided within postgraduate programs. Lastly, the majority of students were affiliated with Master of Clinical Psychology programs, rather than other areas of psychology (e.g., health or counselling psychology). This may be responsible for students reporting more comfort addressing sleep disturbance occurring within the context of primary mental health conditions rather than sleep disorders per se. However, this does not preclude students from needing to assess for DSM-5 sleep disorders that co-occur with primary mental health conditions or managing them with empirically supported treatments, such as CBT-I.

Future directions

We hope that this study will act as a catalyst for further research and educational

opportunities in BSM for postgraduate psychology students, both in Australia and internationally. Firstly, the GradPsyKAPS questionnaire would benefit from statistical validation for use in future sleep education research. Additionally, future research should design and evaluate a BSM course to supplement the postgraduate psychology curriculum, either as part of coursework requirements, an additional workshop, or an online course. Creative online training resources in sleep should also be developed to support students' professional development in sleep and sleep disorders. Additionally, access to psychology supervisors with clinical and theoretical experience and knowledge in BSM would help all students to put their sleep knowledge into practice. There may be larger societal barriers over and above the decisions about the postgraduate psychology curriculum by program coordinators that we will need to address in these pursuits, such as wider misunderstandings that still exist within Australia about the importance of sleep for mental health.

Conclusion

This study demonstrates that trainee psychologists receive insufficient sleep education to equip them with the necessary skills and confidence to manage sleep disturbances in psychology practice. As such, a significant gap between evidence and practice will remain for the management of sleep disorders in the mental health context. With both postgraduate psychology students and program coordinators endorsing the importance of sleep education in the psychology curriculum, this study aims to act as a catalyst for more sleep education and BSM assessment and treatment skills to be integrated into the postgraduate psychology curriculum. Increasing sleep education will ensure that all future psychologists possess a strong foundation of sleep knowledge and skills, ultimately improving the sleep and mental health of their clients, but also reducing the burden of sleep disturbances on society at large. The task of increasing the amount of sleep education into postgraduate psychology programs will require advocacy and education to the broader population, including the federal

government, university regulators, psychology and medical professions.

Key Points

What is already known on this topic

1. Sleep disturbances commonly co-occur with mental health conditions, often with a bidirectional relationship.
2. Trainee clinical psychologists in the U.S. receive limited sleep education, which may impact their ability to manage the sleep disturbances in clinical practice.
3. There are currently no Australian Psychology Accreditation Council training requirements in sleep and sleep disorders for postgraduate psychology programs, despite the bidirectional relationship between sleep and mental health.

What this topic adds:

1. This is the first study to examine sleep education within postgraduate psychology programs in Australia.
2. We show that (1) a median of only two hours of didactic sleep education is delivered within postgraduate psychology programs, (2) almost half (47%) of postgraduate students received no sleep education during their training, (3) sleep issues were a common presenting complaint for postgraduate students to address on placement, and (4) overall, graduate students reported low levels of confidence and self-efficacy to manage sleep disturbances in clinical practice.
3. Postgraduate psychology students in Australia need more sleep education to manage the sleep disturbances that commonly co-occur with mental health conditions.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author.

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References

Almohaya, A., Qrmli, A., Almagal, N., Alamri, K., Bahammam, S., Al-Enizi, M., . . . Bahammam, A. S. (2013). Sleep medicine education and knowledge among medical students in selected Saudi Medical Schools. *BMC Med Educ, 13*(1), 133. doi:10.1186/1472-6920-13-133

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*: American Psychiatric Pub.

Australian Psychology Accreditation Council. (2019). Accreditation Standards for Psychology Programs. Retrieved from https://www.psychologycouncil.org.au/standards_review

Avidan, A. Y., Vaughn, B. V., & Silber, M. H. (2013). The current state of sleep medicine education in US neurology residency training programs: where do we go from here? *Journal of Clinical Sleep Medicine, 9*(03), 281-286.

Bartlett, D. J., & Jackson, M. (2016). The bidirectional nature of sleep problems and psychopathology. *Medicine Today, 17*(3), 23-28.

Bjorvatn, B., Fiske, E., & Pallesen, S. (2011). A self-help book is better than sleep hygiene advice for insomnia: A randomized controlled comparative study. *Scandinavian Journal of Psychology, 52*(6), 580-585.

Boerner, K. E., Coulombe, J. A., & Corkum, P. (2015). Core competencies for health professionals' training in pediatric behavioral sleep care: a Delphi study. *Behav Sleep Med, 13*(4), 265-284. doi:10.1080/15402002.2013.874348

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589-597. doi:10.1080/2159676x.2019.1628806

Chung, K. F., Lee, C. T., Yeung, W. F., Chan, M. S., Chung, E. W., & Lin, W. L. (2018). Sleep hygiene education as a treatment of insomnia: a systematic review and meta-analysis. *Fam Pract, 35*(4), 365-375. doi:10.1093/fampra/cmx122

Cunningham, J. E. A., & Shapiro, C. M. (2018). Cognitive Behavioural Therapy for Insomnia (CBT-I) to treat depression: A systematic review. *J Psychosom Res, 106*, 1-12. doi:10.1016/j.jpsychores.2017.12.012

DelGuercio, M. D. (2018). What Type of Training Predicts Adherence to CBT-I Among Professionals Specializing in the Treatment of Insomnia?

Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research, 6*(2), 80-88. doi:10.1177/1558689812437186

Flick, U. (2008). *Designing qualitative research*: Sage.

Freeman, D., Sheaves, B., Goodwin, G. M., Yu, L. M., Nickless, A., Harrison, P. J., . . . Espie, C. A. (2017). The effects of improving sleep on mental health (OASIS): a randomised controlled trial with mediation analysis. *Lancet Psychiatry, 4*(10), 749-758. doi:10.1016/S2215-0366(17)30328-0

Goldstein, A. N., & Walker, M. P. (2014). The role of sleep in emotional brain function. *Annu Rev Clin Psychol, 10*, 679-708. doi:10.1146/annurev-clinpsy-032813-153716

Harvey, A. G. (2009). A transdiagnostic approach to treating sleep disturbance in psychiatric disorders. *Cognitive behaviour therapy, 38*(S1), 35-42.

Harvey, A. G., Murray, G., Chandler, R. A., & Soehner, A. (2011). Sleep disturbance as transdiagnostic: consideration of neurobiological mechanisms. *Clin Psychol Rev, 31*(2), 225-235. doi:10.1016/j.cpr.2010.04.003

Khawaja, I. S., Dickmann, P. J., Hurwitz, T. D., Thuras, P. D., Feinstein, R. E., Douglass, A. B., & Lee, E. K. (2017). The State of Sleep Medicine Education in North American Psychiatry Residency Training Programs in 2013: Chief Resident's Perspective. *Prim Care Companion CNS Disord, 19*(4). doi:10.4088/PCC.17br02167

Lawrenson, J. G., & Evans, J. R. (2013). Advice about diet and smoking for people with or at risk of age-related macular degeneration: a cross-sectional survey of eye care professionals in the UK. *BMC Public Health, 13*(1), 564.

Lichstein, K., Nichols, C., Perlis, M., Stepanski, E., Tatman, J., & Waters, W. (1998). Report on sleep training in clinical psychology programs. *Chicago, IL: American Academy of Sleep Medicine*.

Meaklim, H., Jackson, M. L., Bartlett, D., Saini, B., Falloon, K., Junge, M., . . . Meltzer, L. J. (2020). Sleep education for healthcare providers: Addressing deficient sleep in Australia and New Zealand. *Sleep Health*.

Meltzer, L. J., Phillips, C., & Mindell, J. A. (2009). Clinical psychology training in sleep and sleep disorders. *J Clin Psychol, 65*(3), 305-318. doi:10.1002/jclp.20545

Mindell, J. A., Bartle, A., Ahn, Y., Ramamurthy, M. B., Huong, H. T., Kohyama, J., . . . Goh, D. Y. (2013). Sleep education in pediatric residency programs: a cross-cultural look. *BMC Res Notes, 6*(1), 130. doi:10.1186/1756-0500-6-130

Mindell, J. A., Bartle, A., Wahab, N. A., Ahn, Y., Ramamurthy, M. B., Huong, H. T., . . . Goh, D. Y. (2011). Sleep education in medical school curriculum: a glimpse across countries. *Sleep Med, 12*(9), 928-931. doi:10.1016/j.sleep.2011.07.001

Morin, C. M., & Ware, J. C. (1996). Sleep and psychopathology. *Applied and Preventive Psychology, 5*(4), 211-224. doi:10.1016/s0962-1849(96)80013-8

Orr, W. C., Stahl, M. L., Dement, W. C., & Reddington, D. (1980). Physician education in sleep disorders. *J Med Educ, 55*(4), 367-369. doi:10.1097/00001888-198004000-00009

Parliament of Australia. (2019). *Bedtime Reading: Inquiry into Sleep Health Awareness in Australia*. Retrieved from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report

Peachey, J. T., & Zelman, D. C. (2012). Sleep education in clinical psychology training programs. *Training and Education in Professional Psychology, 6*(1), 18-27. doi:10.1037/a0026793

Pflugardt-Lang, S. (1997). Training regarding sleep and sleep disorders: A survey of clinical psychology programs (Unpublished doctoral dissertation). *Wisconsin School of Professional Psychology, Milwaukee, WI*.

Romiszewski, S., May, F. E. K., Homan, E. J., Norris, B., Miller, M. A., & Zeman, A. (2020). Medical student education in sleep and its disorders is still meagre 20 years on: A cross-sectional survey of UK undergraduate medical education. *Journal of sleep research*, e12980.

Rosen, R., Mahowald, M., Chesson, A., Doghramji, K., Goldberg, R., Moline, M., . . . Dement, W. (1998). The Taskforce 2000 survey on medical education in sleep and sleep disorders. *Sleep, 21*(3), 235-238. doi:10.1093/sleep/21.3.235

Rosen, R. C., Rosekind, M., Rosevear, C., Cole, W. E., & Dement, W. C. (1993). Physician education in sleep and sleep disorders: a national survey of U.S. medical schools. *Sleep, 16*(3), 249-254. doi:10.1093/sleep/16.3.249

Salas, R. E., Gamaldo, A., Collop, N. A., Gulyani, S., Hsu, M., David, P. M., . . . Gamaldo, C. E. (2013). A step out of the dark: improving the sleep medicine knowledge of trainees. *Sleep Med, 14*(1), 105-108. doi:10.1016/j.sleep.2012.09.013

Sateia, M. J., Reed, V. A., & Christian Jernstedt, G. (2005). The Dartmouth sleep knowledge and attitude survey: development and validation. *Sleep Med, 6*(1), 47-54. doi:10.1016/j.sleep.2004.07.013

Schutte-Rodin, S., Broch, L., Buysse, D., Dorsey, C., & Sateia, M. (2008). Clinical guideline for the evaluation and management of chronic insomnia in adults. *J Clin Sleep Med, 4*(5), 487-504. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/18853708

Scott, T. L., Pachana, N. A., & Sofronoff, K. (2011). Survey of current curriculum practices within Australian postgraduate clinical training programmes: Students' and programme directors' perspectives. *Australian Psychologist, 46*(2), 77-89.

Society of Behavioral Sleep Medicine. (2020). Society of Behavioral Sleep Medicine Mission and Goals. Retrieved from https://www.behavioralsleep.org/index.php/about-our-organization/sbsm-mission-and-goals

Stamm, D. S., Taylor, S., Nguyen, U. T., & Hardin, K. (2015). Survey Evaluating Sleep Education Catalyzed Change in Residency Training. *International Journal of Clinical Medicine, 6*(07), 444.

Stepanski, E., & Perlis, M. (2003). A historical perspective and commentary on practice issues. *Treating Sleep Disorders: Principles and Practice of Behavioral Sleep Medicine. Hoboken: John Willey*, 3-26.

Stores, G., & Crawford, C. (1998). Medical student education in sleep and its disorders. *J R Coll Physicians Lond, 32*(2), 149-153. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/9597633

Stores, R., & Wiggs, L. (1998). *Sleep education in clinical psychology courses in the UK.* Paper presented at the Clinical Psychology Forum.

Sullivan, S., & Cao, M. (2017). Survey of Sleep Education Offered by US Pulmonary and Critical Care Fellowship Training Programs. *Chest, 152*(4), A554.

Sweeney, B. M., & Wu, L. J. (2019). Perceptions, skills, and knowledge of sleep-related difficulties and their treatment in a cancer psychosocial workshop. *Journal of the New Zealand College of Clinical Psychologists, Volume 2, 2019*, 3-12.

Tukey, J. W. (1977). *Exploratory data analysis* (Vol. 2): Reading, Mass.

Tze-Min Ang, K., Saini, B., & Wong, K. (2008). Sleep health awareness in pharmacy undergraduates and practising community pharmacists. *J Clin Pharm Ther, 33*(6), 641-652. doi:10.1111/j.1365-2710.2008.00963.x

Urquhart, D. S., Orme, J. A., & Suresh, S. (2012). Survey of undergraduate sleep medicine teaching in UK medical schools. *Arch Dis Child, 97*(1), 90-91. doi:10.1136/archdischild-2011-301073

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences, 15*(3), 398-405.

Vargas, I., & Perlis, M. L. (2020). Insomnia and depression: clinical associations and possible mechanistic links. *Curr Opin Psychol, 34*, 95-99. doi:10.1016/j.copsyc.2019.11.004

Wu, J. Q., Appleman, E. R., Salazar, R. D., & Ong, J. C. (2015). Cognitive Behavioral Therapy for Insomnia Comorbid With Psychiatric and Medical Conditions: A Meta-analysis. *JAMA Intern Med, 175*(9), 1461-1472. doi:10.1001/jamainternmed.2015.3006

Zhou, E. S., Mazzenga, M., Gordillo, M. L., Meltzer, L. J., & Long, K. A. (2020). Sleep Education and Training among Practicing Clinical Psychologists in the United States and Canada. *Behav Sleep Med*, 1-10. doi:10.1080/15402002.2020.1860990

Zozula, R., Bodow, M., Yatcilla, D., Cody, R., & Rosen, R. C. (2001). Development of a Brief, Self-Administered Instrument for Assessing Sleep Knowledge in Medical Education: "The ASKME Survey". *Sleep, 24*(2), 227-233. doi:10.1093/sleep/24.2.227

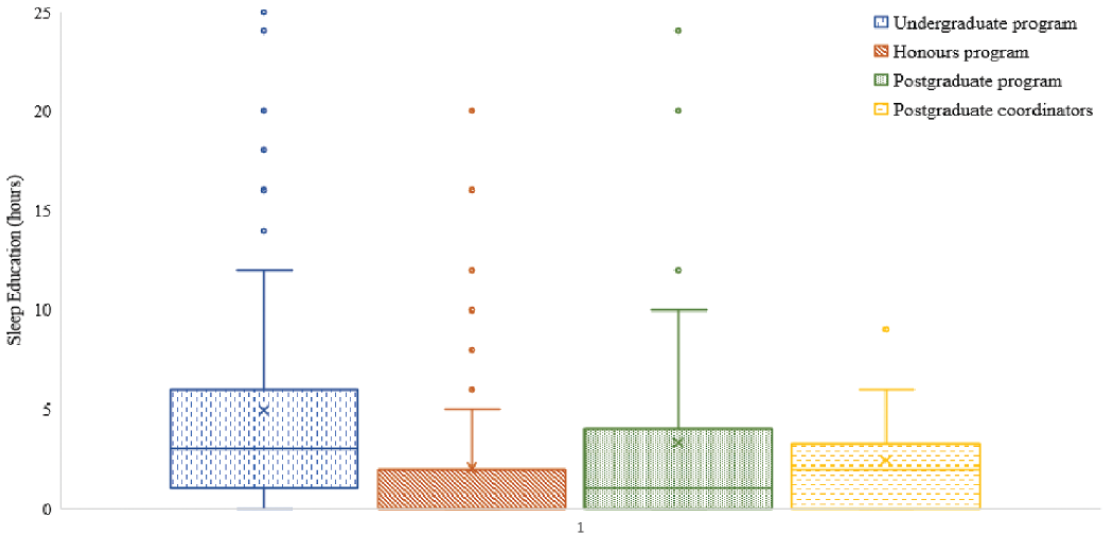

Figure 1

Didactic sleep education (hours) reported by postgraduate program coordinators and postgraduate psychology students across their psychology education

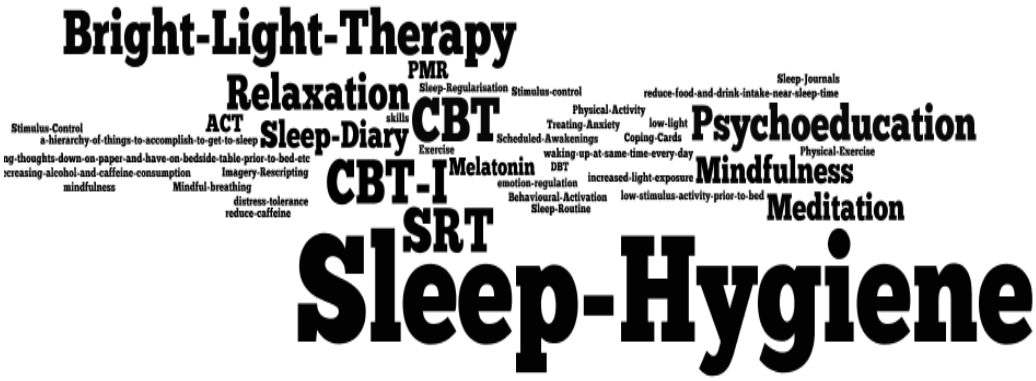

Figure 2

Word cloud for strategies used for sleep by trainee psychologists. Note: SRT = Sleep Restriction Therapy; CBT-I = Cognitive Behavioral Therapy for Insomnia; ACT = Acceptance and Commitment Therapy; PMR = Progressive Muscle Relaxation; DBT = Dialectic Behaviour Therapy.

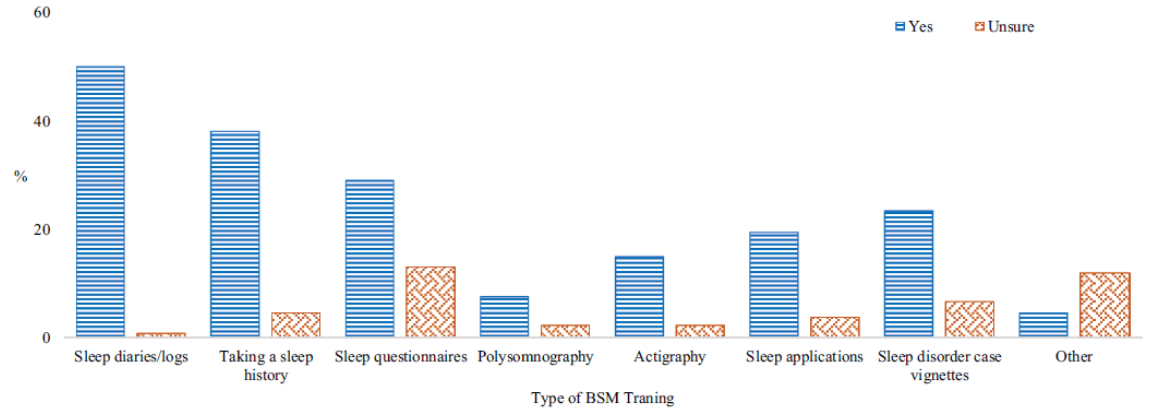

Figure 3

Type of behavioral sleep medicine training reported by postgraduate students

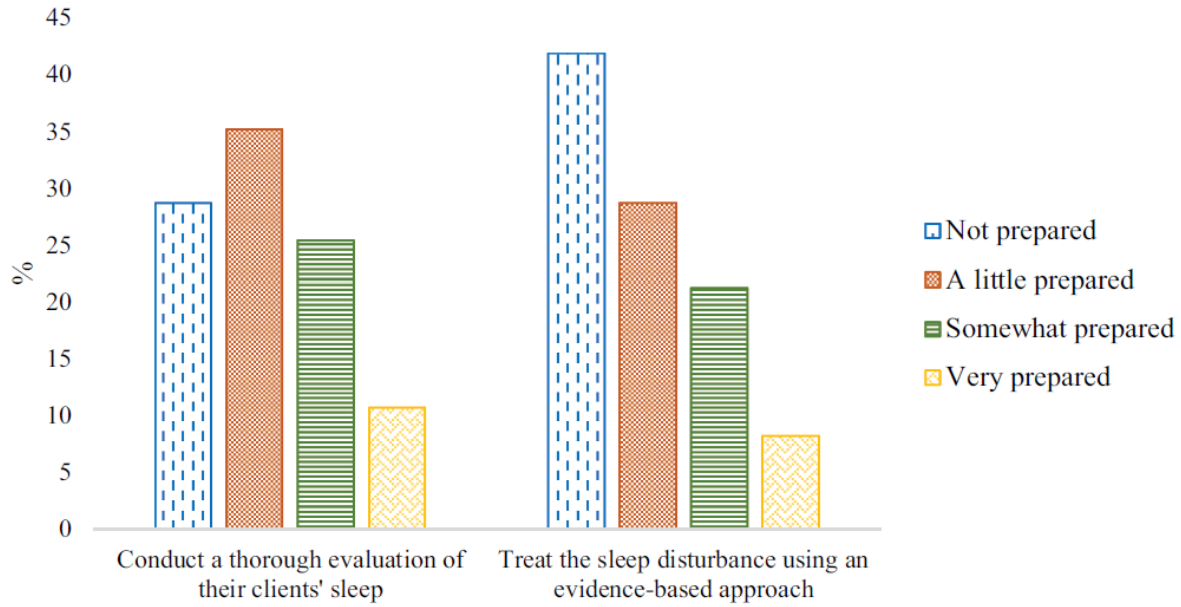

Figure 4

Students' preparedness to assess and treat sleep disturbances

Table 1.

Thematic analysis of postgraduate psychology students' comments about sleep education (n = 21)

Theme	Code	Example quotes
Variability in sleep education	• Variable training • Minimal training • Extensive training • Difference between undergraduate and postgraduate	*"I went to two different universities - the uni I was at for undergrad had a big focus on sleep research, so we spent far more time there on sleep disorders (but this was undergrad so there was nothing about treatment or assessment). The uni I am at now for my postgrad doesn't have this same research focus and thus we haven't done much on sleep"* *"My undergrad and honours was completed at a university with very limited representation of sleep and circadian rhythm researchers so it was a rude awakening (ha!) to start postgrad at another university where the entire psych department is primarily funded by sleep research"*
Sleep-focused practical experience develops skills and confidence	• Confidence from experience • Opportunity • Remember what was practiced • Sleep Lab Experience • Sleep Research Experience • Placement experience • Initiative	*"I think that my responses to these questions would be very different if I did not do my placement at a sleep lab and then go on to work for that same lab. Having now worked there for 2+ years I am quite confident with sleep related psychology. If I had not been given the opportunity I was, purely from my undergraduate studies I would feel inadequate and unable to answer a lot of questions people have about sleep"* *"I ran the Stress seminar, and teaching others about the relationship between stress and sleep was the thing I remember most which I now use whenever someone has either sleep or stress issues"*
Inadequate sleep education	• Inadequate • Minimal training • Not taught at undergraduate level • Disappointing • Needed to learn through external resources	*"In [name of university] for undergrad and honours, we learnt absolutely nothing about sleep. All that I learnt I found online, particularly from Dr Matthew Walker - a sleep scientist who makes YouTube videos. Also, from reading the literature about various mental disorders"* *"We have very little training, if any, about how to assess and treat sleep disorders"* *"... but [I] have not yet received any training specific to the assessment of sleep or treatment of sleep disorders in postgraduate study. This is disappointing, as sleep disturbance certainly seems to be an important contributing factor and symptom of physical and psychological illness"*
Sleep education is not necessary	• Not applicable • Not seeing clients yet • Not relevant • No exposure	*"Being an organisational psychologist, I do not have much interaction with sleep disorders"* *"As I am training to be an organisational psychologist, diagnosing and treating mental illnesses (including those*

		related to sleep) is not likely to be a core part of my job in the future"
Sleep strategies are useful	• Important • Sleep strategies are needed • Common problem • Useful	*"Having a tool kit of strategies to give clients to improve sleep is important as sleep issues are so common"* *"Learning about the sympathetic and parasympathetic nervous systems was useful also and I have used this psychoeducation with many clients"*

Table 2.

Thematic analysis of program coordinators' comments about sleep education (n = 8)

Theme	Code	Example quotes
Unable to fit within curriculum	• Programs full • Jam packed curriculum • Many disorders to teach • APAC Guidelines Program Constraints	*"The issue is finding space in the already full programs and convincing admin that it is worth investing in teaching content that may not be directly required in APAC standards"* *"We cannot teach how to approach every disorder that exists"*
Sleep education is important	• Important • Good potential • Already introduced	*"I think you've identified a very important area for curriculum development considered the propensity"* *"Thanks - I think this is an important area but I haven't heard many colleagues highlight it as an area of need, despite how frequently clients present with it"*
Best training is provided by experts	• Expertise • Combining knowledge and practice • Specialised • Familiarity • Experience	*"I answered 'probably not' if a standardised sleep curriculum was made available, as I believe the best training can be performed as per the expertise of the teacher. At this specialist end of training, it's important to combine the teaching of knowledge (e.g., theories, research studies) with experience working with clients. As we specialise in insomnia and circadian rhythm disorders across the lifespan, we can answer virtually any question postgrads ask us. But I wouldn't be so skilled in answering questions about shift work or working in a corporate context"*
Sleep education should supplement the curriculum	• Online • Placements • Additional study • Transferable skills • Student interests	*"The curriculum is jam-packed - but this is important, and I am happy to add in additional online workshops for our students as requirements"* *"We cover a range of theoretical and applied perspectives in order that students might transfer these to particular populations they work with the students at master's level require a solid foundation in theories practice that will guide them in their beginning practice - specific issues such as sleep can come from learning on placements, on-line and post graduate study if that is where the students interests and requests from industry lie. We cannot teach how to approach every disorder that exists"*

Table 3

Students' beliefs and attitudes about sleep psychology (percentage of responses)

Beliefs and Attitude	Item	Overall Disagree	Neither agree nor disagree	Overall Agree
Causes of sleep disturbances	Sleep hygiene is an effective treatment for sleep disturbances, such as insomnia	18	10	72
	Poor sleep hygiene is the main reason why clients experience sleep disturbances, such as insomnia	40	29	31
	Addressing the underlying cause of sleep disturbances, such as anxiety or depression, will improve most sleep complaints	14	18	68
	Alcohol promotes sleep quality	99	01	0
Improving sleep in practice	Apart from listening with empathy, there is little I can do about the sleep problems of my paediatric or adolescent clients	92	4	4
	Apart from listening with empathy, there is little I can do about the sleep problems of my adult clients	92	2	6
	Apart from listening with empathy, there is little I can do about the sleep problems of my older adult clients	91	3	6
	Telling my clients to get more rest improves most sleep complaints	69	18	13
	Most of the information I provide to clients on sleep is based on my own personal knowledge and experiences with sleep, rather than what I learnt at university	58	6	36
Importance of behavioral sleep medicine	Taking a sleep history is a necessary part of routine assessment by all psychologists	13	10	77
	I think it is important to have written information to give to clients regarding sleep hygiene	5	0	95

	Health professionals, other than psychologists, should provide most of the assessment and counselling for sleep and sleep problems	66	20	14
	Counselling patients about sleep is not as important compared to counselling them about depression and anxiety	77	13	10
	I believe that psychologists should be involved in the management of sleep disorders with a medical component, such as obstructive sleep apnoea or restless legs syndrome	12	17	71
	The psychology of sleep and chronobiology should NOT be emphasised in postgraduate psychology training programs	88	6	6
	I believe that learning about behavioral sleep medicine should be a standard part of the undergraduate psychology curriculum	0	6	95
	I believe that learning about behavioral sleep medicine should be a standard part of the postgraduate psychology curriculum	3	6	91
	Cognitive behavioural therapy for insomnia should be a standard part of the postgraduate psychology curriculum	6	10	84
Intentions for further sleep education	I think training in sleep and chronobiology is important for my future psychology work	9	6	85
	I am interested in learning more about sleep and chronobiology	3	4	93
	I believe all psychologists should understand the relationship between sleep and mental health	0	0	100
	I plan to continue learning about the psychology of sleep and chronobiology	6	11	83
	I would be interested in receiving further training in the psychology of sleep and sleep disorders	3	2	95

Note. This table reports the 7-point Likert scale collapsed into agreement, mid-point and disagreement items.