

Clinical Practice Assessment of Primary Care Practices in the Detection and Management of Shift Work Disorder: Laying the Groundwork for Delivering CME and Measuring Educational Outcomes

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INTRODUCTION

Background

Shift work disorder (SWD) is a circadian rhythm sleep disorder (CRSD) characterized by excessive sleepiness and/or insomnia in people who work nonstandard schedules that range from occasional, on-call overnight duty, to rotating schedules, to steady, permanent night work.¹ This heterogeneity makes it very difficult to estimate the prevalence of shift work and SWD; however, both are common.² It is estimated that one in five workers in the United States do some form of shift work, and further that 32.1% of night workers and 26.1% of rotating workers met the minimal diagnostic criteria for SWD.³ For patients with the condition, the excessive sleepiness is associated with poor work performance, heightened risk of injury to self and others, and impaired quality of life.^{4,5}

Optimal, evidence-based practice for the diagnosis and management of SWD is documented in practice parameters from the American Academy of Sleep Medicine (AASM), which are summarized in Table 1⁶ and in recent clinical reviews authored by sleep experts.^{2,3}

Table 1. AASM Summary Recommendations for the Evaluation and Management of SWD⁶

Evaluation Strategies
<ul style="list-style-type: none"> Use of a sleep log or diary is indicated in the assessment of patients with a suspected CRSD. Actigraphy is indicated to assist in evaluation of patients suspected of CRSDs, including SWD. Actigraphy is useful as an outcome measure in evaluating the response to treatment for CRSDs. Polysomnography is indicated to rule out another primary sleep disorder in patients with symptoms suggestive of both a CRSD and another primary sleep disorder, but is not routinely indicated for the diagnosis of CRSDs.
Treatment Strategies
<ul style="list-style-type: none"> Planned napping before or during the night shift is indicated to improve alertness and performance among night shift workers. Timed light exposure in the work environment and light restriction in the morning, when feasible, is indicated to decrease sleepiness and improve alertness during night shift work. Administration of melatonin prior to daytime sleep is indicated to promote daytime sleep among night shift workers. Hypnotic medications may be used to promote daytime sleep among night shift workers. Carryover of sedation to the nighttime shift with potential adverse consequences for nighttime performance and safety must be considered. Modafinil[*] is indicated to enhance alertness during the night shift for SWD. Caffeine is indicated to enhance alertness during the night shift for SWD.
<small>* Armodafinil is an agent that is related to modafinil; however, it was not available at the time of development of these guidelines.</small>

Aim of Study

Given the increasing number of adults whose employment involves shift work and the public health emphasis on accidents that result from sleepiness both on the job and off, shift work disorder (SWD) is of particular significance,⁷ yet it is underdiagnosed and undertreated.³ Primary care physicians (PCPs) are uniquely positioned to improve the safety and quality of life of people with SWD.^{4,5} While the specific SWD-related practice patterns and gaps in clinician knowledge, competence, and performance related to SWD have been previously studied,⁸ ongoing investigation of these gaps is warranted. The aim of this study was to measure and document the clinical gaps and practice patterns among PCPs related to SWD. Results could then be used to inform clinician educators (i.e., CME providers) on the educational design of ongoing continuing medical education (CME) activities that help PCPs provide better, evidence-based, guideline-recommended care for patients with SWD, at the point of care.

METHODS

A mixed methodology using two measurement tools was employed: a quantitative Clinical Practice Assessment Questionnaire (CPAQ) and formal, qualitative, in-depth interviews (IDIs) that also offered some opportunity for quantitative data collection for which qualitative data offered context. The faculty members of upcoming educational activities on SWD worked with educational planners and outcomes researchers to craft the instruments around the assessment of knowledge of the American Academy of Sleep Medicine (AASM) guidelines for diagnosis and treatment of SWD.

The IDIs were conducted using scripted questions in a Discussion Guide. Both tools assessed the nature of agreement that SWD was part of the PCP scope of practice; the level of awareness of AASM practice guidelines; self-rated confidence in ability to diagnose and treat SWD; and rates of implementation of AASM-recommended practice strategies. The IDIs further investigated PCP awareness of SWD and its effects on patients and public health, and explored deeper levels of information regarding many common items between the two tools than could be gathered in the 18-item CPAQ.

The IDIs were 20- to 30-minute, one-on-one, telephone-based interactions with twenty PCPs who had demonstrated interest in the topic by responding to the invitation to interview and agreeing to participate in a chart-review CME webinar on SWD after interviews concluded. IDI physicians each received an honorarium of \$200 for their participation in these and planned follow-up outcomes interviews to occur in 2013. The CPAQ instrument was distributed online to a random, nationwide sample of PCPs.

RESULTS

Demographics

CPAQ (N = 62): There were sixty-two nationwide CPAQs completed. All survey respondents were primary care clinicians.

IDI (N = 20): Pertaining to the 20 physicians who participated in IDIs, 55% worked in a small group practice (defined as 2-20 physicians); 85% had been in clinical practice for over 15 years; and 65% saw 400 patients or more per month. These nationwide physicians provided contact telephone numbers for their interviews in 19 area codes.

“Ownership” and Role in Providing SWD Care

- Scope of practice:** 79% of primary care clinicians responding to the CPAQ and 100% of primary care physicians in IDIs said that SWD was within their scope of practice.
- Currently diagnose and treat SWD:** 90% of IDI respondents said that they were currently diagnosing and treating SWD.
- Have identified and diagnosed SWD during the past six months:** 85% of IDI respondents said that they had identified and diagnosed SWD among patients seen during the past six months. Of these physicians (n = 15), the median number of patients who received diagnoses of SWD in the previous six months was 10.

RESULTS, cont'd

Comments shared by IDI physicians about SWD and the primary care scope of practice

"I would say that it is, particularly because I practice in a lower-middle class population and a lot of our folks are cleaning offices overnight, sometimes they have more than one job. I have a lot of folks in the health care industry, nurses and nurses aides, guys who work construction. A lot of the load work is done around here at night. It's not an uncommon issue."

"Well of course it is [within my scope of practice as a primary care physician]. Primary care physicians treat the whole patient, and this is not a thing that gets referred out to a sleep specialist. This is a very common problem and it needs to be treated."

Comments shared by IDI physicians about awareness and use of SWD guidelines

"I have read them but I can't name them for you, though."

"I go by my own clinical experience and practice."

"I would say probably there is a lack, but many doctors don't like to use any excess tools or guidelines."

"Well there's the sleepiness scale and there are many guidelines. I find that it is simplest just to ask the standard questions. In other words, if a patient nods off during the day, do they sometimes doze off at a traffic light; how many cups of coffee do they drink? The other thing is ... do they have difficulty falling asleep and how many hours they sleep, that sort of thing."

Awareness and Perceptions of Awareness Regarding SWD

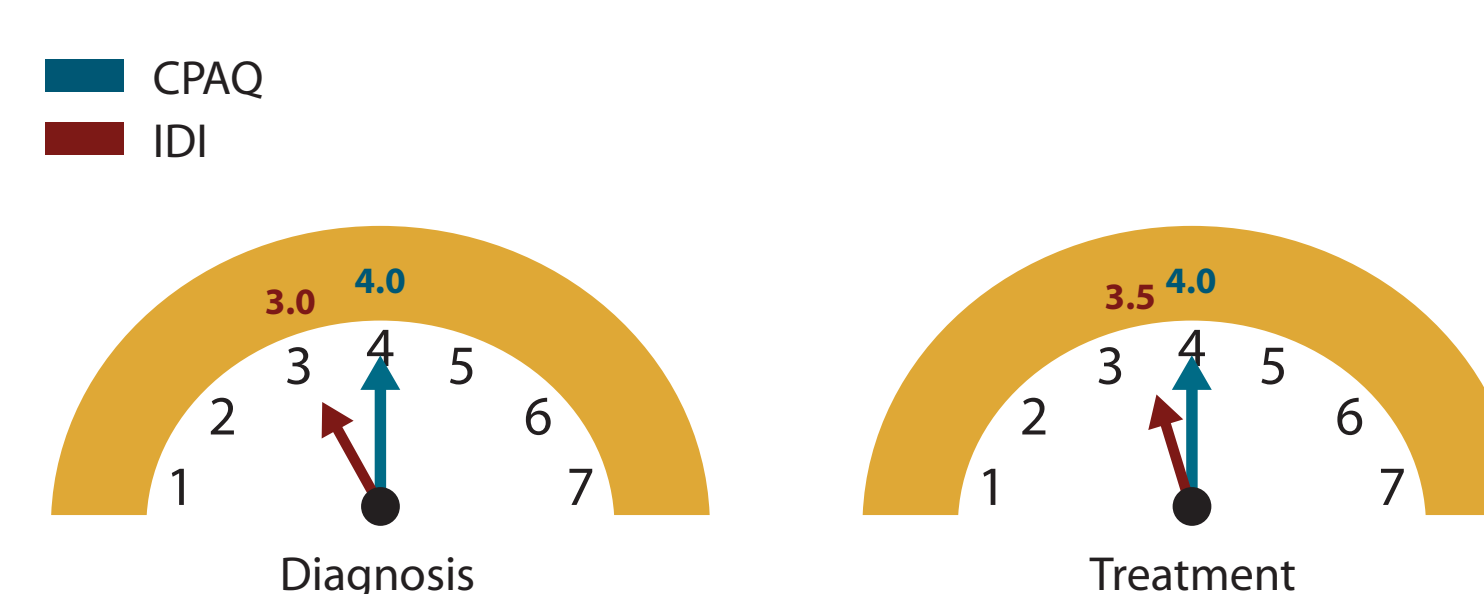
Responses indicated that awareness of guidelines was low, and there was agreement that general awareness about SWD was low (see Table 2).

Questions	% Responding "Yes"	
	CPAQ	IDI
Are you familiar with any guidelines for identification and diagnosis or treatment of shift work disorder?	39%	10%
Do you think that there is a lack of awareness about the availability of diagnostic tools among PCPs?	–	95%
Do you think that there is lack of awareness about the availability of office tools or aids among PCPs about how to appropriately treat shift work disorder?	–	95%

Confidence (Self-Efficacy) in Ability to Diagnose and Treat SWD

Self-rated confidence regarding the ability to diagnose and treat SWD was rated in the mid-range, both being below 4 on a 7-point Likert scale (see Figure 1.) Respondents had slightly higher confidence in their ability to treat SWD than to diagnose it.

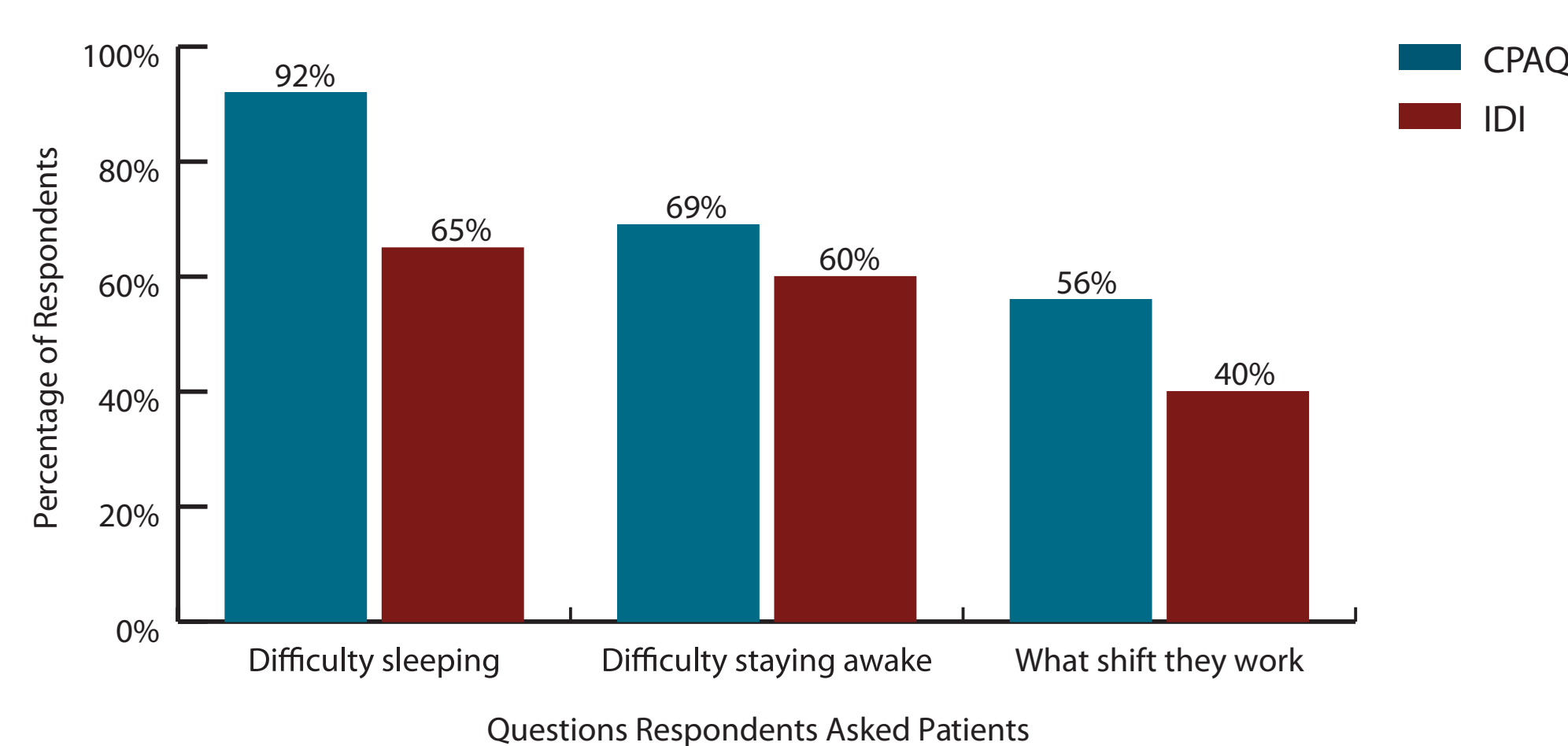
Figure 1. Median Ratings for Confidence in SWD Diagnosis and Treatment



Performance of a SWD Symptom and Risk Factor Assessment

A large proportion of respondents did not routinely ask their patients relevant sleep history questions, with approximately half asking about shift work (see Figure 2).

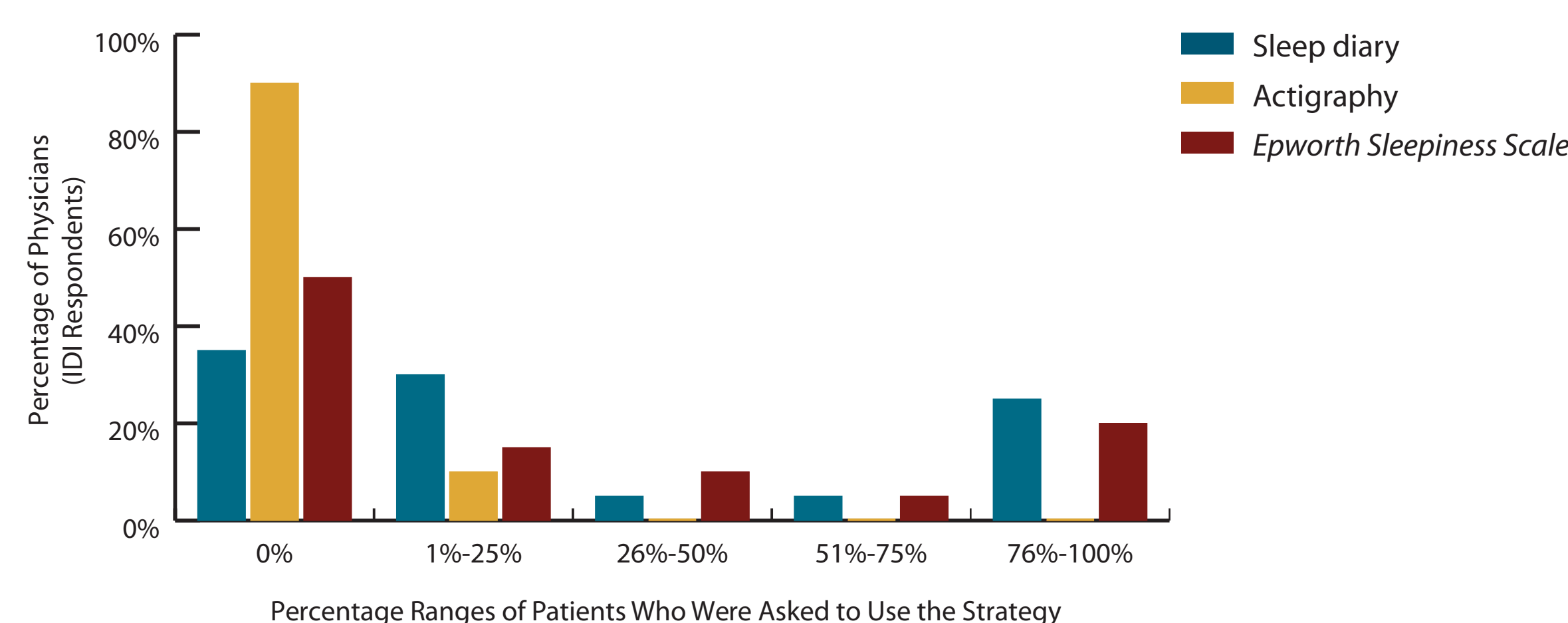
Figure 2. Physician Respondents Who Routinely Ask their Patients Relevant Questions About Sleep



Use of AASM Guideline-Recommended Strategies

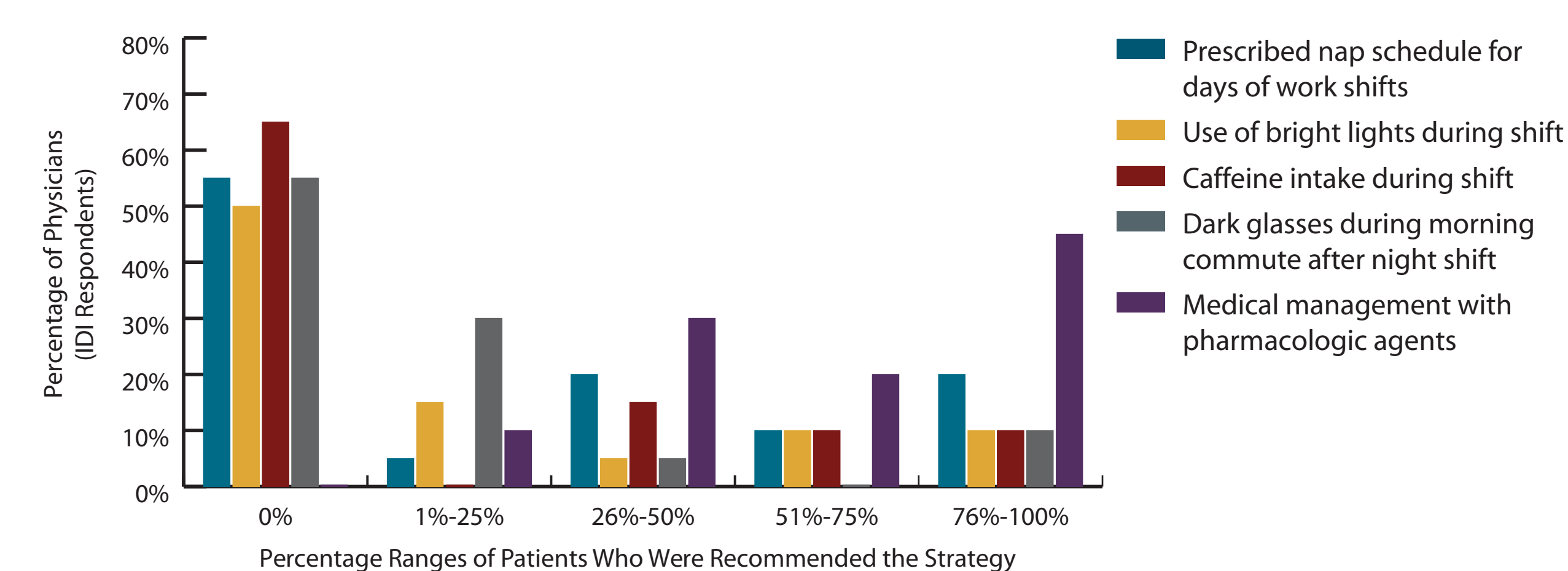
Many guideline-recommended strategies were underused (see Figures 3 and 4.) Among three diagnostic tools, actigraphy had the lowest usage, at no more than 25% of patients; and the sleep diary had greater usage than the Epworth Sleepiness Scale. Among treatment strategies, medical management with pharmacologic agents was used among many more patients than were four nonpharmacologic strategies. Specifically, approximately half of IDI physicians suggested nonpharmacologic strategies to 0% of patients (indicating suboptimal use of these strategies). Nearly half of these physicians recommended medical management to 75% or more of their patients, and all physicians employed pharmacologic therapy in at least some of their patients. Modafinil and armodafinil were those most commonly used.

Figure 3. IDI Physician Respondents Who Used AASM Guideline-Recommended Diagnostic Tools for SWD



RESULTS, cont'd

Figure 4. IDI Physician Respondents Who Used AASM Guideline-Recommended Treatment Strategies for SWD



Comments shared by IDI physicians about treatment strategy

"Well there's really only one [treatment strategy]. I prescribe medication. We try to educate patients on doing their best to try to keep their sleeping patterns as normal as possible but their job doesn't always allow that to happen. So medications for some people is [sic] all they can do."

"I really don't have much of a strategy. I figure if they're really tired on the job I ask them to drink a lot of coffee [or] have them drink 5-hour energy drink."

"Two you want me to limit [to two things I do for treating sleep disorders]? Okay. Let's say balanced lifestyle and by that I mean good habits, healthy diet, exercise, stress management. And number two, not necessarily in that order, is good sleep hygiene. That's where it starts before medications come in."

"I ask them to change their work shift."

Results Summary

- While the majority of respondents felt that SWD was within their scope of practice, few were aware that established treatment guidelines are available.
- As a result of low awareness of the AASM guidelines on SWD, many clinicians underused guideline-recommended diagnostic and treatment strategies.
- Regarding evaluation and diagnostic strategies, use of sleep diaries, performing actigraphy testing, and administration of the Epworth Sleepiness Scale were employed at rates that were lower than desired. Rates of actigraphy testing were particularly low.
- Regarding treatment strategies, the nonpharmacologic strategies (i.e., prescribed napping before night shift, bright light therapy during a night shift, caffeine intake during a night shift, and wearing dark glasses during the morning commute after a night shift) were used at low rates in most patients, whereas pharmacotherapy with alerting agents was used at more desirable rates.
- Confidence (self-efficacy) in the ability to diagnose and treat SWD was moderate among CPAQ respondents and IDI physicians, and was slightly lower for diagnosis than for treatment.
- In subgroup analysis on guideline awareness, lower percentages of IDI physicians than CPAQ respondents knew of guidelines, and nearly all IDI physicians said that PCPs lack awareness of tools. These IDI physicians also had lower confidence in diagnosing SWD than their counterparts who responded to the nationwide CPAQ and had shown a greater awareness of guidelines.

CONCLUSIONS

Knowledge levels and practice implementation of evidence-based recommendations in the AASM guidelines for diagnosis and treatment of SWD are suboptimal. Clinicians reviewing these findings should adopt use of the AASM guidelines and effective office tools in assessing for SWD, instead of relying on gestalt. Such a guideline-driven approach will enhance achievement of improved patient outcomes. Professionals involved in CME should develop activities that improve knowledge and use of AASM guidelines and that enhance PCPs' confidence in SWD diagnosis and management. Such activities will enable physicians to more readily plan comprehensive treatment that patients can agree with and adopt for better health. The CME activity that was developed since these data were collected targets the identified gaps within a research framework of clinical performance and patient-reported health outcome questions. Educational outcomes surveys, interpretations, and patient-reported outcome assessments are underway and will continue through Summer 2013, for comparison against the select baseline data reported here.

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