Episode: *Ethics Talk: Sleep as a Vital Sign*

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[00:00:03] TIM HOFF: Welcome to *Ethics Talk*, the *American Medical Association Journal of Ethics* podcast on ethics in health and health care. I'm your host, Tim Hoff. A third of US adults experience poor quality or insufficient sleep, and some even have diagnosable sleep disorders such as sleep apnea. Poor quality sleep and sleep insufficiency can cause or exacerbate health problems like heart disease, kidney disease, high blood pressure, diabetes, stroke, depression, many more. These are all reasons we need to attend ethically and clinically to the conditions of quality, sufficient sleep. Poor sleep can also increase risk of injury on the roads due to drowsy driving and in workplaces, for example. Both the Chernobyl and the Three Mile Island nuclear meltdowns were partially attributed to sleep deprivation among key staff. Multifactorial influences on sleep quality and duration suggest that helping individual patients sleep better should complement a broader public health approach to the social and cultural preconditions for sleep of good quality and good duration.

This episode of the podcast, and this month's issue of the Journal, conceives of sleep as a communal natural resource requiring good stewardship from clinicians, policy makers, health organizations, and all of us.

With us today to discuss sleep health and to help us learn how we can all sleep better is Dr Lauren Hale, professor in the Department of Family, Population, and Preventive Medicine; core faculty in the Program in Public Health; and director of the PhD Population Health and Clinical Outcomes Research Program at Stony Brook University in New York. Dr Hale is also the former chair of the board for the National Sleep Foundation and founding editor in chief of *Sleep Health*. Dr Hale, thank you so much for being on the podcast.

DR LAUREN HALE: Thank you so much for having me, Tim. [music fades]

[00:02:00] HOFF: The emerging concept of sleep health, as you suggest in a 2020 article, is more helpful than focusing on individual sleep disorders for building a holistic view of sleep. While listeners are likely familiar with some common sleep disorders like the ones I mentioned in the intro narration here—insomnia, sleep apnea, for example—can you introduce our listeners to sleep health as a concept and explain why it's useful?

HALE: Sure. I'm really happy, always happy to talk about the concept of sleep health. And I'll note that the term was originally coined by my co-author and collaborator, Dan Buysse, in the mid 2010s, so it's kind of a newish term. And coincident to his writing

about the concept of sleep health, I was working with the National Sleep Foundation, and we were creating a journal. I was the founding editor of the journal of the same name. We did that simultaneously. Dan didn't know what we were doing, and we didn't know what he was doing. But we created this at a time when sleep as a field was growing into the world of public health. We recognized that sleep was a public health issue, and we needed to change the conversation from sleep medicine, which was primarily focused on individuals with sleep disorders and sleep pathologies, into a public health issue, a population-wide issue.

And the concept of sleep health basically embraces its multidimensionality—I'll talk about that in a second—and also makes it about wellness and a process. It's typically measured through this rather simplistic scale that Dan created called RU SATED. It's six dimensions: regularity, satisfaction, alertness, timing, efficiency, and duration. And the idea is everybody at any point should be thinking about all of these dimensions of their sleep, both within themselves, but also at a population level. And we can compare across subgroups of the population which populations have better sleep health. What can we do to improve sleep health over time? And the idea was just to turn it into a measurable population health issue rather than a disease.

[00:04:40] HOFF: Sleep disturbance and sleep deprivation, as this month's whole issue, and in fact, your previous response have argued, are public health concerns. The effect of poor sleep on individuals' health is well documented, but its effects on safety might be a little bit less well known. For example, the US Department of Transportation notes that there were 693 deaths from drowsy driving in 2022 and 91,000 crashes from drowsy driving in 2017. Which other downstream effects does poor sleep have beyond these individual health concerns?

HALE: Thank you so much for raising the public safety issues that are a direct result of poor sleep. Drowsy driving, fatigue, impulsive behavior, all of those things do affect public safety. And I'll note that the Department of Transportation numbers, they're doing the best they can, but they are likely underestimates because sleepiness or drowsy driving is not easily measured. And if there's another, more visible cause of the crash, then that's more likely to be recorded than drowsy driving. So, yes, there are major safety concerns across all forms of transportation. There are train accidents, airplane crashes, shipping accidents, and kind of famously, the Challenger explosion had a fatigue-management-related source. So, transportation is a big area where we see public safety risk.

We also see it in other fields as well, including medicine. There's increased risk of medical error if anybody in the health care system is impaired or sleepy. We also see it in any other night shift worker, whether it's police officers, firemen, security guards. Anybody who is doing anything at night on a shift where their body may not be functioning optimally is likely to be impaired and has implications for public safety.

[00:06:54] I want to go one step beyond public safety, though, because public health is not just about safety. There are other ways in which impaired sleep at a population level affects other people. It's not just the individual effects on physical health, psychological

well-being of my own poor sleep, but if I'm not doing well in my day, I'm a parent, that's going to affect how I parent. If I'm a teacher who is sleep deprived or a social worker or a nurse, that's going to affect how I do my job. So, there are many ways beyond just safety, they might be less visible, but that one person's poor sleep health affects other people's experiences. And that's the way in which sleep connects us all.

HOFF: Mmhmm. Yeah, I remember while developing this issue coming across this statistic that something like 30 percent of American adults report sleeping less than the recommended seven hours a night. So, this certainly does seem like an issue that is widespread.

HALE: Absolutely.

[00:08:02] HOFF: But unlike the strategies to address other public health concerns such as substance use or smoking, you can't fight poor sleep with taxation or criminalization, for example. Whether or not those tactics are successful is for a different episode. But the point here is that it's difficult to disincentivize poor sleep. So, if we're going to respond to society-wide protections for the social and cultural conditions that nourish quality and sufficient sleep for everyone, where do we start?

HALE: As a society, we should be aspiring to create conditions for healthy, restorative sleep for everyone. That's what motivated me originally in doing this work, is noticing that there's unequal distribution of sleep. And I guess I want to talk about two sources of, you know, areas we can address. One is we need to get to a place where there isn't a need for chronic vigilance. And the second is, what are the structural conditions that we can change or improve to facilitate sleep? So, first, I'm going to talk about the vigilance because I actually think that's, one, harder but also, more important. And then we can talk about structural because it's a little bit easier

On the vigilance issue, this is a term introduced by the developmental psychologist Rendahl really talking about children's sleep, saying, well, sleep is an opponent process to vigilance. And I love this idea that you can't sleep well if you're concerned about the external environment, if you're concerned about what's happening in the room next door, what's going to happen tomorrow. Or broadening it to adults, any feeling of threat will impair the ability to fall asleep, stay asleep, and achieve quality restorative sleep that everybody needs for optimal functioning. So, depending on your age and location and characteristics, what you need to do to reduce this need for vigilance for a good night sleep is going to vary.

For kids, it seems obvious and confirmed that kids need a safe and loving home to fall asleep. They also need the other conditions of a routine, of the basic standards. But that's for kids. For young adults, maybe it's about having enough money in your bank account to know you can cover your car costs to get to your job, to be able to pay your rent. For parents, it could be something like not having to worry about caregiving needs of either your own kids or your adults, or stuff going on in your workplace, a threat of losing their job. If you live in a more disadvantaged neighborhood, maybe you're concerned about violence. There are so many ways. And then, of course, there's the

vigilance due to pervasive racism. You know, there are so many ways in which chronic vigilance is likely a source of impaired sleep among many populations.

And what can we do to address this is very hard, but we need to facilitate opportunities for job security, financial security, inclusion, community, all of these things, safe communities, all of these factors that are really hard to address. But I think that's kind of at the core of how we can get to a better place on sleep health for some of the most at-risk populations.

[00:11:57] Then the second, which is maybe more structural issues, include what are the conditions that we need to get people the schedules and the lifestyle for better sleep? And the clearest example of this is school start time, high school students. Unfortunately, you probably know this, that over 70 percent of teens are not getting the eight or more hours per night of sleep that they need for optimal functioning. Maybe not even optimal, but sufficient sleep that they need. And there are constraints around this. One thing is during puberty, teenagers undergo a phase delay. They are biologically driven to stay up later, and yet almost—I don't want to say not all—but over 80 percent of high schools start before 8:30 in the morning. So, these kids are constrained at the front end. They're going to bed too late, and at the back end they're needing to wake up too early. Never mind all of the other social and peer pressures going on which might be interfering with their sleep, with major consequences for kids' wellbeing. Not just their physical and emotional wellbeing, but of course, the public safety, things you mentioned before, and their learning and decision making as well.

So, we know, and we've known, for 30 years that high schools start too early in the US. The American Academy of Pediatrics speaks about this. Of course, the Sleep Societies speak about this. And yet there is such resistance, really frustrating resistance, from communities all over to say, this is the way we've always done it. I've had, I went to school early, I survived. Let's not change school start times. It's convenient to have no changes in bus schedule, sports schedules, etc. And so, that's an example where I think, well, we know what to do and we're not doing it. That's a structural change that we should, that everybody should be making immediately. Thankfully, California and Florida are already on the right page, but they're the first two states in the country to do that.

[00:14:15] But there are other big policy issues that affect sleep as well. One is daylight saving time. A lot of people think, ooh, daylight saving time is about that inconvenient week when the clocks shift. And it is inconvenient, and car crashes do go up when the day gets suddenly shortened and people get less sleep. That's just in the week afterward. But there's a bigger problem is that you can tell from experimental data by looking within the same time zone that people who live on the side of the time zone that gets more light at night, they're staying up later and they're getting less sleep, and they have worse health outcomes for a range of reasons. It's hard to show exactly that it's causal, but there's enough evidence to support the idea that we should not be having a portion of the year with more light at night, and we should be keeping to standard time, permanent standard time. And that's another structural issue where I think the benefits to society, I think, are pretty clear.

Those are two of the big kind of policy issues that affect sleep health at the population level. But there are many other ways that communities and businesses and employers can affect sleep health through more local policies, whether that's employment, hours, flexible work schedules, investing in education and training about sleep health, and prioritizing employee wellbeing. These are all smaller things that people can do to help improve sleep health so that people aren't sleep deprived or as sleep deprived. We're all going to be a little bit sleep deprived.

HOFF: Sure. Yeah, I can relate to that, and I'm sure our audience can too.

HALE: Yeah.

[00:16:15] HOFF: You've mentioned a few times that poor sleep quality and duration and its effects are not evenly distributed across the population.

HALE: Yep.

HOFF: So, can you talk a bit more about who is bearing the brunt of this poor sleep and how a good vision of sleep equity can be incentivized in policy and then motivated in practice?

HALE: When I started working in this area, I came as an outsider. I was a demographer. I had no knowledge or training in sleep. I've learned to now kind of embrace that, that I came from the outside. I was interested in disparities in the population by race/ethnicity, by socioeconomic status in health. I was interested in mortality as an outcome. And then when I learned how important sleep is for cardiovascular disease, immune function, I thought, wait, this could be a pathway in which we see disparities across the population. So I started this research focusing primarily on minority populations where we do see big Black/White differences in sleep duration, and also some disorders, especially sleep apnea, and also looking at educational differences in sleep. And then kind of I broadened my scope to say, oh, wait. These disparities in sleep health start at younger ages, and they may be driven by family and cultural factors as well, including things like bedtime routines might be less of an option in low-income households where shift work is more common or where parents need to work multiple jobs in order to pay the rent or pay the bills. And so, and then once I started looking at kids, you start to think about, oh, what about these teenagers in the high schools?

[00:18:10] And so, who is most at risk? Pretty much everyone is at risk of not getting the sleep they need, but vulnerable populations who are vulnerable for other reasons, who have less control over their lives, I link it to autonomy. If you have less control over your lives, your life, your sleeping conditions, you not only can't control whether your room is cool, dark, and quiet, you can't control things that are causing you stress. You can't control whether you feel safe. And this just immediately draws me to institutionalized populations. Think about a patient in a hospital. You have very little control over the conditions of your hospital room. It's very noisy. There's a lot of intrusion. I understand these are regular activities in a hospital, but it's not a good environment for sleep. Similarly, incarcerated populations have very little control over their environment. They

may have reasons to feel unsafe. Certainly, the conditions of a bed are not ideal while incarcerated. And taken to the extreme level, homeless individuals or the unhoused have also a huge amount of uncertainty and lack of control over their sleeping conditions.

[00:19:33] HOFF: Mmhmm. Yeah, and it seems like responding to those populations requires unique approaches. Improving the sleep for patients in clinical settings seems very different than improving the sleep for people experiencing homelessness, for example.

HALE: Absolutely, yeah.

HOFF: But if we could identify broader policy-level interventions to motivate sleep equity for all, what might those look like?

HALE: The good news, I would say from my perspective, is that the strategies and policies that benefit sleep health of the population are aligned with a lot of other strategies to reduce health disparities. So, this is because sleep is on the pathway toward health. So, some recommendations at the policy level include improving economic opportunities, whether that's through more or better education or job training access, increasing minimum wage, or improving salaries or benefits for individuals so they aren't struggling to make ends meet. Improving neighborhood, not just in terms of how it looks, but how safe one feels living in their environment, whether there are opportunities for daily physical activity, getting that early morning light in the morning is good. And also, feeling safe and supported, having trust in your neighbors. All of those are consistent with other efforts to improve communities and their health and also come with benefits for sleep.

[00:21:26] HOFF: So, what should health professions students and trainees, perhaps the ones listening to this episode, learn and know about working with patients experiencing poor quality or insufficient sleep?

HALE: Med students are learning so many things. I get it. I appreciate it. But they're not talking about sleep in the four years of medical school, so that should increase. Students need to learn about how fundamental sleep is for basically every organ in the human body, and then the long reach of all its consequences on not just individual wellbeing, but societal wellbeing. So that's one, is increase awareness. And I know that doesn't always translate into changes in behaviors, but it might.

Second, I think every patient interaction should at least consider treating sleep like a vital sign. People should be asked about how their sleep health is, how, you know, maybe not all six dimensions, but at least some of the dimensions. What's going on with your sleep? Can we screen for sleep disorders? What can we do to address your sleep complaints? Which includes sleep hygiene, lifestyle modifications, or CBTI, for example. So, those are things that can be done with patients. And then finally, I think clinicians should be attentive to other social and contextual factors, whether it's shift work or discrimination or even cultural differences in lifestyle that may affect either their sleep or

other health behaviors. [theme music returns] And being sensitive to these cultural backgrounds could improve both trust and adherence to whatever treatment plans are recommended.

[00:23:34] HOFF: Dr Hale, thank you so much for your time on the podcast. I appreciate the chance to talk with you.

HALE: Thank you. It's been fun.

HOFF: That's all for this episode of *Ethics Talk*. Thanks to Dr Lauren Hale for joining us. Music was by the Blue Dot Sessions. To read the full issue on *Sleep Stewardship* for free, visit our site, journalofethics.org. For all of our latest news and updates, follow us on X @journalofethics, and we'll be back next month with an episode on *Peace in Health Care*. Talk to you then.