
Original Article

Is justice good for your sleep? (And therefore, good for your health?)

Benjamin Hale^{a,*} and Lauren Hale^b

^aEnvironmental Studies and Philosophy, University of Colorado, Boulder 1333 Grandview Avenue, Box 488, Boulder, Colorado 80309-0488, USA.

E-mail: bhale@colorado.edu

^bGraduate Program in Public Health, State University of New York-Stony Brook, HSC Level 3, Room 071, Stony Brook, NY 11794-8338, USA.

E-mail: lhale@notes.cc.sunysb.edu

*Corresponding author.

Abstract In this paper, we present an argument strengthening the view of Norman Daniels, Bruce Kennedy and Ichiro Kawachi that justice is good for one's health. We argue that the pathways through which social factors produce inequalities in sleep more strongly imply a unidirectional and non-voluntary causality than with most other public health issues. Specifically, we argue against the 'voluntarism objection' – an objection that suggests that adverse public health outcomes can be traced back to the free and voluntary choices of individual actors. Our argument proceeds along two lines: an empirical line and a conceptual line. We first show that much of the empirical research on sleep supports the view that those with fewer opportunities are those who have poorer sleep habits. We then argue that sleep-related decisions are not of the same nature as most other lifestyle choices, and therefore are not as easily susceptible to the voluntarism objection.

Social Theory & Health (2009) 7, 354–370. doi:10.1057/sth.2009.15

Keywords: sleep; justice; social determinants of health; sleep duration; health disparities

In the February/March 2000 edition of the *Boston Review*, Norman Daniels, Bruce Kennedy and Ichiro Kawachi asked whether justice is good for one's health (Daniels *et al*, 2000). Their answer? Yes – and public health professionals should do what they can to promote a just society. Their argument ties current epidemiological research in the social determinants of health to Rawlsian political theory and suggests that unequal distributions of liberty, opportunities or resources can negatively influence the health of society.



Their paper sparked a series of replies, some of which were supportive, but many others of which were critical. Criticisms of the argument ranged from skepticism about their use of aggregate and individual-level data to more theoretical concerns about their characterization of justice. With regard to their claims about individual-level data, one primary point of concern has been about the causal link between wealth and health. For example, many health disparities can be traced back to differences in lifestyle between the rich and poor, some of which may be voluntary. One question is whether individuals who are poor are the same individuals who *choose* unhealthy lifestyles, or whether there is something about being poor that causally and *non-voluntarily leads to* unhealthy lifestyles. Daniels *et al* counter that the health disparities between the rich and poor arise from ‘identifiable causal pathways,’ but the nature of this causality is nevertheless unclear.

In this paper, we present an additional argument supporting the position that justice is good for one’s health. We argue that the pathways through which social factors produce inequalities in sleep more strongly imply a unidirectional and non-voluntary causality than with most other public health issues. Our argument strengthens the so-called ‘gradient argument’ (section 1.1, below) by providing theoretical support for the view that there are identifiable, non-voluntary causal pathways to poor sleep. As sleep is associated with health (Colten *et al*, 2006), the argument can explain at least some of the widely observed social disparities in health, that are highlighted by the social determinants of health literature.

We approach this argument in the following manner. First, we give an overview of the paper by Daniels, Kennedy and Kawachi, focusing specifically on what we will be calling the ‘gradient argument.’ We then present the ‘voluntarism objection’ as one possible criticism of their reasoning.¹ This objection suggests that adverse public health outcomes can be traced back to the free and voluntary choices of individual actors. In section 2, we show that much of the empirical research on sleep supports the view that those with fewer opportunities are those who have poorer sleep habits. We go on to show in section 3 that sleep-related decisions are not of the same nature as most other lifestyle choices, and therefore are not as easily susceptible to the voluntarism objection. We then offer our sleep argument in sections 4 and 5 and discuss possible implications of our view.

Justice and Inequality as Determinants of Health

The argument of Daniels, Kennedy and Kawachi advances two positions that draw strongly from Rawls’ theory of justice as fairness. On one hand, their



argument advances a position related to 'point of delivery' medical services, and proposes that health care ought to be distributed so as to even out health inequities. On the other hand, the argument advances a position related to matters 'upstream' from the healthcare system, and argues that 'fair distributions of liberty, opportunity and basic resources' can dramatically influence health.

The 'point of delivery' position depends on the assumption that better health allows an individual to secure his ends; and in this respect, reasons that health (and health care) should be distributed along with other primary goods. Health is argued to be a primary social good, necessary for moral agents to come to reflective equilibrium about what principles are best to govern them.

The 'upstream' position relies on the social determinants of health research to assert that those with fewer opportunities and resources tend to have poorer health; and indeed, that it is this inequity that *causes*, or at least corresponds directly to, the poor health. Their view is that inequities in the distribution of opportunities can have a negative impact on health.

To argue their position, their paper employs three sets of empirical findings made by a variety of prominent social epidemiologists regarding the relationship between health and justice: (a) the observation that a country's prosperity is directly related to its health, but that wealth is not the sole determining factor in health (the 'Cross-National Inequality Argument'; Boyle *et al*, 2006), (b) the observation that health depends not only on the amount of wealth in a system, but also on how wealth is distributed (the 'Relative wealth Hypothesis'; Wilkinson, 1992; Wilkinson, 1996; Kawachi and Kennedy, 1999; Wilkinson and Pickett, 2008) and (c) the observation that health distributions follow a socioeconomic gradient (the 'gradient argument'; Marmot *et al*, 1991; Marmot and Feeney, 1997; Marmot, 2003). They connect these data with the justice literature by suggesting that health effects emerge through identifiable causal pathways: 'Some of these occur at the societal level, where income inequality creates a pattern for the distribution of social goods, such as public education, thereby affecting access to life opportunities – which are, in turn, strong determinants of health' (Daniels *et al*, 1999).

If we were to smooth out these inequities, they recommend, inequalities in health might also flatten. In their case, however, there is always an attendant and conflating question of responsibility (and thus human causality). They face the problem that it is never clear whether it is an autonomous agent who is responsible for having voluntarily chosen poor health behaviors, and therefore is disenfranchised because of bad autonomous decision making (we call this the 'voluntarism objection' below); or whether it is the disenfranchisement that has created the poor health circumstance, and therefore the citizen is unhealthy because he has fewer opportunities available to him.



We do not have adequate analyses of sleep data to make cross-national comparisons as would be required to comment on the cross-national inequality argument or the relative wealth hypothesis, and so we cannot argue along inequality lines as they do. It is the third argument related to individual socioeconomic status, the ‘gradient argument,’ that we are equipped to reinforce.

The gradient argument

Their gradient argument builds upon the widely recognized empirical observation that health follows a social gradient (Marmot *et al*, 1991; Marmot and Feeney, 1997; Adler *et al*, 1999; Berkman and Kawachi, 2000). This gradient shows that it is not only those who are materially deprived who have poor health – the poorest of the poor – but that along a spectrum, health tracks the income and opportunity level of citizens at all levels of socioeconomic position. Lower-middle-income groups tend to be healthier than low-income groups, but not healthier than middle-income groups; middle-income groups tend to be less healthy than upper-middle income groups; and so on.

Evidence from countries and populations with universal health care also reveals this gradient, suggesting that there is some element other than *access* to health care at play in the health of citizens (Marmot *et al*, 1991). The social determinants of health literature shows that societal factors, such as income and education, which are steered by policy mechanisms, such as differential investment in human capital and educational spending, are therefore closely associated with health. Even though the authors stress that one cannot infer causality from the data, they nevertheless reason that ‘income inequality is not a “mysterious” cause of undesirable health outcomes. It works through identifiable causal pathways, including unequal access to opportunities such as education, healthy employment and health care; reduced social cohesion; distortions in political participation; and the stress effects of relative lack of control.’ (Daniels *et al*, 1999)

The gradient argument, not unreasonably, *implies* causality because there are observed levels of inequity in health. Even among those who otherwise have access to health care, there must be some external factor not directly related to health care causing the health effects. And also because we can identify these plausible causal pathways, we can infer that changes in income inequality or educational inequality will result in changes in health inequality. It stands to reason, then, that those interested in promoting public health should look to the policies that influence these social factors in order to improve public health.

But, there is a gaping hole in this position. One might object, as no doubt many choice egalitarians or political libertarians object, that the plausible pathways reveal voluntary preferences (or what some social scientists call ‘selection effects’), and not external causal forces, that influence the health of



citizens.² Perhaps those who place little value on money or education also place little value on health. If this is the case, it is not that some public policy mechanism is *causing* poor health outcomes, but that the public policy is *reflecting the preferences* of a given population. We call this the ‘voluntarism objection.’³

The voluntarism objection

Many public health issues stem from individual decisions that are presumably tied tightly to preferences and desires on the part of citizens. But, the preferences and desires of citizens are not always clear when evaluating data. One might conjecture, for example, that obesity is a *result* of poor education, as obese people tend to have less education. Indeed, this is the thrust of the causal pathways approach and implied by the language of social ‘determinants.’ But this assumes too much. One could equally say that obesity is not so much *caused* by poor education, as caused by informed *decisions* that individuals make with regard to their preferences about food and health. Perhaps it just is the case that heavier people place more value on food than those who are less heavy; and perhaps it just is the case that these are the same people who do not value education or higher incomes.

One can account for some of the public health outcomes tied to social determinants by appealing directly to the *choices* of individuals and not to *external* social determinants. It could be, for instance, that smokers love to smoke, and so therefore tradeoff the pleasure they get from smoking with the risk to their health; or that the sexually promiscuous find that some level of risk enhances their pleasure, and so make a similar tradeoff. Insofar as these choices can always be undertaken as a tradeoff, it is a tricky business to claim that social systems that allow their citizens to freely choose their actions are unfair. This is particularly true in liberal democracies where freedom of choice is equated with respect for persons.

But, disregard the tradeoffs associated with each choice and examine instead the nature of the justification that one might offer for such a choice. Smokers are either driven to smoke because they love smoking; or they smoke for some other reason, such as that smoking contributes to their image among their peers. Usually, smokers smoke for some combination of many such factors. What is important to see, however, is that the reasons that one has for smoking affect not only our understanding of the cause and our consequent understanding of what the appropriate public policy response should be,⁴ but also our understanding of what kind of value the decision bears.

More importantly, the question of justice is tied directly to the type of justification that a citizen offers for his actions. If an action is freely chosen for its own sake, then that action is presumably an action with some direct value for the agent. If the action is freely chosen for the sake of some other purpose, then



the action has only instrumental value for the agent and is worth only as much as its efficiency at bringing about the other purpose. In the latter ‘instrumental’ case, it is the purpose that carries the value for the agent and not the act itself. The public health official must not only determine the policy that will bring about the best health consequences, but also weigh the degree to which the policy thwarts the self-set ends of citizens. Public policy responses that do not respect the voluntary preferences of citizens violate basic principles of justice by not treating citizens as ends in themselves.

The Sleep Research

Literature on sleep duration, health and functioning

Generally speaking, many people believe that more sleep is associated with improved health and human function. However, a large body of empirical evidence shows that both ends of the sleep duration distribution are associated with higher morbidity and mortality risks (Kripke *et al*, 1979; Wingard and Berkman, 1983; Qureshi *et al*, 1997; Kripke *et al*, 2002; Patel *et al*, 2004; Tamakoshi and Ohno, 2004). Studies repeatedly show that a span of 6.5–7.5 hours of sleep on an average weeknight is associated with the lowest risk of all-cause mortality (Wingard and Berkman, 1983; Kripke *et al*, 2002; Tamakoshi and Ohno, 2004). Studies further show that longer sleep durations may even be associated with greater mortality than shorter sleep durations. Not surprisingly, this interpretation of the findings of greater mortality with long sleep durations is controversial. For example, long sleep duration may also be a marker for sleep apnea, a sleep disorder that is associated with fragmented sleep. However, as the relationship between long sleep and poor health is so commonly observed, we suggest that there may be something more fundamental underlying the relationship that is more important than measurement error or confounding comorbidities.

Relationship between sleep duration and socioeconomic factors

Earlier research explores how socioeconomic factors are correlated with short, mid-range and long sleep durations. In 2005, Hale introduced a model in which sleep is characterized as having two suboptimal categories (short and long sleep duration) and one optimal sleep duration (midrange sleep duration) (Hale, 2005). This is in contrast to earlier models of sleep in which sleep is allowed to be a continuous variable (Biddle and Hamermesh, 1990; Moore *et al*, 2002; Jefferson *et al*, 2005; Lauderdale *et al*, 2006). This difference in classification is an improvement over earlier models in that it not only better fits with the empirical relationship between sleep and health described above, but also because it better suits a view about the nature of the decision to sleep.



For instance less education is associated with both short and long sleep duration (Hale, 2005; Adams, 2006; Hale and Do, 2007). One study using US data finds that people without a high school degree are more likely to be both short sleepers (OR = 1.43, $P < 0.01$) and long sleepers (OR = 1.61, $P < 0.001$) on the weekdays, relative to people with a college degree (Hale, 2005). Other US data show that individuals with a college degree are 21 per cent ($P < 0.001$) less likely to be short sleepers, and 46 per cent ($P < 0.001$) less likely to be long sleepers than those with a high school degree (Hale and Do, 2007). Adams found this to be true of women, but not statistically significant for men in UK data (Adams, 2006).

Unemployment and retirement are both associated with increased risks of long sleeping. The Hale studies (Hale, 2005; Hale and Do, 2007) found that people who are unemployed and retired have an increased likelihood of long sleeping on the weekdays compared to people who work fewer than 36 hours in the week (OR = 1.43, $P < 0.05$ and OR = 1.90, $P < 0.01$ and OR = 1.91, $P < 0.001$ and OR = 1.31, $P < 0.05$, for unemployment and retirement, respectively).

Marital status is also correlated with sleep duration in a non-linear manner. Relative to being married, separated/divorced (OR = 1.29, $P < 0.05$), widowed (OR = 2.04, $P < 0.001$) and single people (OR = 1.61, $P < 0.001$) are more likely to be short sleepers compared to married people (Hale, 2005). Hale and Do (2007) find similar relationships in the NHIS in which widowed and divorced people are more likely to be short sleepers compared to married people controlling for other social characteristics (Hale and Do, 2007). They also find that single people are more likely to be long sleepers compared to married people.

Hale and Do found that controlling for individual characteristics, such as education, obesity and smoking behaviors, short and long sleep durations are more common in black Americans than in white Americans (OR = 1.41, $P < 0.001$ and OR = 1.62, $P < 0.001$ for short and long sleeping, respectively). A portion of the increased risk of short sleep duration for blacks can be explained by adding in controls for neighborhood characteristics, that is, living in cities), but this does not explain all of the relationship.

Non-linear relationships are also found between sleep duration and overweight and smoking patterns. Overweight people are 26 per cent ($P < 0.001$) more likely to be short sleepers and 14 per cent ($P < 0.05$) more likely to be long sleepers than their normal weight counterparts (Hale and Do, 2007). In addition, current smokers have a 25 per cent increased risk of being a short sleeper and a 22 per cent increased risk of being a long sleeper relative to their non-smoking peers (Hale and Do, 2007).



Short and long sleep duration is not the only dimension upon which social status predicts poor sleep. Indeed, low levels of education have also been associated with poor quality of sleep (Moore *et al*, 2002; Arber *et al*, 2007), increased insomnia risk (Gellis *et al*, 2005; Hale *et al*, 2007) and increased sleep apnea (Young *et al*, 2002).

Implications for autonomy

We interpret the empirical evidence to suggest that people who have more opportunities available to them, who have more control over their life projects – that is, people who have a distinct track record of self-governance and purpose – are those who have more optimal sleep durations and better quality sleep overall. The difference in how to classify sleep (whether as a linear variable or as a categorical one, in which both ends of the sleep duration distribution are considered to be high risk) reveals relationships between a variety of social factors, including income and education. For example, whereas some authors have not found a statistically significant relationship between education and sleep duration when sleep is modeled linearly, the categorization of sleep into short, mid-range and long sleep duration show clear patterns in which less education is statistically significantly associated with suboptimal sleep durations (Hale, 2005; Hale and Do, 2007). Where the empirical data support this view, much of the logic that also supports this view can be understood by assessing the nature of the decision to sleep.

The Decision to Sleep

Sleep is a peculiar behavior. The decisions that characterize it are significantly different than other public health behaviors. There are four observations about the decision to sleep that tie into the sleep research and into our argument.⁵

Sleep is cheap, available to all and a component of everyone's lives

Almost everybody, with the arguable exception of the homeless and the deranged, regardless of upbringing or educational level, has access to many, if not most, of the conditions that make possible healthy sleep. The Sociologist Simon Williams describes sleep as 'an inescapable fact of our embodiment' (Williams, 2008). Moreover, nobody is immune from reasoning about sleep. We must all, as a fact of our biology, make decisions related to our sleep behaviors.

One cannot choose one's uninterrupted sleep duration

Norman Malcolm argued 50 years ago that one cannot assert the phrase 'I am sleeping' without inspiring a contradiction (Malcolm, 1956). We believe that the



same holds true with regard to sleep duration. Once one is sleeping, one can no longer make any further decisions with regard to their sleep. One no more chooses sleep durations than one chooses when to fall asleep or when to wake up. Even disregarding the prevalence of sleep disorders, and accepting that, more or less, the non-disordered can set their body's bedtimes and their body's wake times, it seems clear either that we cannot will ourselves to sleep after a bedtime; or that we cannot will ourselves awake if we are sleeping. This is because sleep duration is not knowable while sleeping, but only after waking: 'only on waking do I get a sense of how long I have slept for, a fallible sense at that, given I can never accurately audit my own sleep' (Williams, 2008).

Regrettably, space does not allow the extensive conceptual discussion that much of our argument requires, although we argue this point at length elsewhere (Hale and Hale, 2009). Regardless of whether one agrees with the conceptual argument, it should ring true that sleep is not an activity that we choose in the way that we might choose to eat another 500 calorie slice of cake or to smoke another cigarette. At best, sleeping is dependent upon habits and non-sleep-related life decisions. The decision to sleep is therefore not like other public health decisions that involve both *whether* to act and *how much* to consume. It involves the invocation of practices that, at best, can be said to give rise indirectly to healthy sleep durations. Examples of these everyday practices that affect sleep include when and how much food, caffeine, tobacco and alcohol one consumes; whether and when one exercises; and how one organizes his work and social life schedules.

One cannot value sleep for its own sake

If I smoke a cigarette, I do so either for the experience of the cigarette or for some other purpose. Following the same reasoning that one cannot rightly be understood to experience sleep and be sleeping simultaneously, we think it reasonable to assume that one cannot value sleep for its own sake. One cannot assert, 'I like the experience of being asleep,' for instance, without invoking a performative contradiction (Macdonald, 1953). To suggest so is akin to asserting 'I like the experience of being dead' or 'I like the experience of being unconscious.' One is either sleeping and thus not experiencing, or one is experiencing and thus not sleeping. Similarly, the phrase, 'I love to sleep,' either means 'I love the experience of sleeping,' which it could not mean; or 'I love the restorative feeling that sleep brings me,' in which case one is sleeping for the sake of something else. Any sort of value that sleep may have is therefore value that it has by virtue of its restorative function (as Aristotle suggests) or by virtue of what it enables us to do in wake time.

Even if one shifts the value of sleeping to apparent sleep-time experiences, such as dreams, it is neither the case that one can will oneself to dream



(and thus be certain that this is a reason to sleep); nor that one can choose to go to sleep for the purpose of experiencing dreams (and thus invoke the reason that one will effectively go unconscious in order to have an experience) (Macdonald, 1953). Supposing that sleep is the only means through which one might have a dream – like general anesthesia is the only means through which one might have the experience of waking during a colonoscopy – the sleep itself provides the means for the valued experience, and cannot be experienced in itself. For many of the same reasons that one cannot experience sleep, one cannot experience dreams if one is truly sleeping. Finally, one cannot say with any security what the value of the experience of dreaming will be: will it be nightmarish or will it be pleasant? Valuing dreaming, therefore, is not like valuing a hike in the woods or a midsummer's swim. It is always the case that one sleeps for the purpose of something else.

We admit that this too is a somewhat controversial claim, and regret that we cannot address this conceptual claim at length here either. In any case, we find it descriptively implausible that most, if not all, people would choose to sleep for the purpose of experiencing their dreams or for its own sake.

One engages in sleep for the purposes of other projects

If I decide to head to bed, I do so for the purpose of rejuvenating myself for the next day or for the purpose of overcoming exhaustion that has made me ineffective during this present day. I go to bed 'in order to' make my waking life more enjoyable and successful. The decision to sleep is thus best understood as maintaining an essential 'in order to' structure. Some of this 'in order to' reasoning is reflected in the sorts of explanations that researchers offer as to why people are or are not sleeping: that one is too busy; under a lot of stress; or unemployed (with nothing to do). One sleeps in order to maintain the ability to fulfill one's projects.

Because sleep habits are tied directly to our projects, it stands to reason that those in control of their projects are those in control of their sleep (through their reasoning about their projects). It is unlikely that they are just lazy (because this would suggest long sleep alone), and it is unlikely that they are just overworked and stressed (because this would suggest short sleep alone). It is possible that these populations are some combination of the overworked and stressed as well as the lazy; but we think the evidence shows that it is not this. The evidence shows that people in more control of their lives are the ones who sleep more optimally.⁶

The important point is not that any specific set of projects is tied to poor or better sleep habits, but that projects in general are tied to sleep habits. Moreover, these projects can be understood non-substantively, such that it matters little what the project is, but only how the agent is related to it. Projects that are freely chosen and developed by agents are projects that we consider *life projects*



or *ground projects*, projects that make the agent's life a life worth living (Williams, 1981). As the life project is constitutive of the agent's identity, the agent's involvement in and endorsement of the project must be freely and autonomously chosen.

The Sleep Argument

We now offer our response to the voluntarism objection.

First, accept that poor sleep duration is tied necessarily to poor health. What it is to sleep poorly, by definition, is to sleep less or more than a given set of normal hours, such that shorter or longer sleeping tracks poor health.

Second, accept that one cannot choose one's sleep duration, which is especially true with long sleeping durations.

Third, accept that sleep is not the sort of objective that one can engage or value for its own sake.

Fourth, accept that reasoning about sleep must always be tied to other projects, because sleep, more than almost any other behavior, is directly affixed to the functioning of the agent.

Fifth, accept that having a life project entails having set the life project for oneself and not having been directed by another. Simply working for someone else, slogging through life, does not necessarily involve having a life project.

Accepting all these, we arrive at the conclusion that our sleep practices are governed by our degrees of autonomy and not the other way around. That is, we sleep better when we have some reason to sleep. Although it is probably true that our sleep practices impinge on our functioning and our clear-headedness, if it is the case that we cannot directly choose our sleep duration or choose to sleep for its own sake, it is always the case that we are setting our sleep parameters, even if foggy-headed from lack of sleep, on projects that we must attend to during waking. If we do not have a reason to sleep and, say, set our sleep parameters based on the false notion that we can somehow choose our sleep durations like we might choose to spend time at the gym or at the bar, then it is not the case that we will *become* less self-directed, but that we have not been self-directed in the first place. We have been, as it were, acting under an illusion about sleep behaviors.

Overcoming the Voluntarism Objection

There are two critical moves in our argument. The first is to conceive of justice as respect for persons or respect for a person's autonomy. On this read, inequality is only a symptom of a social structure that does not respect persons.



The second is to characterize sleep as tied to our autonomous projects, such that it can be understood neither as biologically determined nor as voluntarily chosen, but as influenced by the degree to which we are engaged in, or engaged by, our projects. If certain social determinants show a close relationship to our sleep habits, as they do, there is good reason to believe that what they may be doing is reflecting the extent to which individuals are or are not engaged in their life projects.

The sleep research suggests that good sleep behaviors track autonomy. Where other health behaviors involve decisions that can be said to be tradeoffs between health and some other activity, the gradient data can only explain these behaviors as unjust if it proposes that socioeconomic status indicates a lack of autonomy. But, because one cannot voluntarily choose one's sleep duration, because one cannot value sleep for its own sake and because sleep decisions are always tied to our other projects, it must be the case that one's sleep-related behaviors are always tied to the amount and quality of projects that one has available to him.

Here, then, we can see the peculiar nature of sleep and its relation to social justice. People with lower education often earn less and require fewer skills to function in their jobs. We take this as a fact about the demands of the workforce and educational system. But life projects are not limited to jobs or employment. There are many other life projects, such as child rearing, intellectual hobbies, political involvement and so on, that require a significant investment of cognitive time and resources. All told, it is our hypothesis that the lower the level of required functioning, the less reason people have to sleep; or to be concerned about their sleep behaviors. This, in turn, suggests not only that they are less capable of making clear-headed decisions after nights of poor sleep, but more importantly, that they are less self-directed (both because the sleep harms their functioning on a day-to-day basis and because their sleep habits signal that they do not have a reason to be concerned about their functioning). If they are less self-directed, they are less healthy, less engaged and less susceptible to the respect of others.

This is revealing about justice. What is at issue when we speak of respecting the autonomy of the individual is the degree to which an individual's actions can be said to be voluntary and self-directed. As we have argued that sleep is a tricky matter that cannot be said to be voluntarily chosen but by deference to other projects, we have argued, in effect, that sleep research can offer at least one critical connection between justice (respecting the autonomy of citizens) and health.

Construing autonomy in terms of life projects, we find a clear connection between autonomy and sleep; and by extension, between autonomy and health. It appears that the directive for public health policy should be clear – facilitate autonomy. The just society is a society in which the autonomy of citizens is



respected; and a measure of the just society is the degree to which its citizens are sleeping well and are healthy.

Conclusion

Daniels, Kennedy and Kawachi have provided an empirical argument that health is tied to availability of liberty, opportunity and resources. However, any of the indicators that they assess – jobs, wealth, race, social status – could be understood in a bidirectional manner – either it is the case that health causes the undesirable social status, or it is the case that the undesirable social status causes poor health. To overcome the problem with causality, they argue from the perspective of the gradient, suggesting that there is enough evidence to link the social determinants causally to the health behaviors, through identifiable and plausible pathways.

Our argument suggests that autonomous agency, or the ability to pursue and secure one's ends, gives rise to better sleep habits and practices, which are tied to health as well as to justice. That is, the attachment to procedural justice in our argument is an attachment by way of the autonomy of the individual and sleep practices; and not by way of health inequities and life decisions. Our argument suggests that those who are less autonomous – meaning that they have not cultivated for themselves projects, or that they are either not generating or taking advantage of opportunities – sleep suboptimally. In this respect, suboptimal sleep is most certainly tied to health (for that is what it means to be suboptimal); and in this respect, suboptimal sleep is tied to lack of autonomy.

Daniels, Kennedy and Kawachi must lean on the 'identifiable causal pathways' to make their argument persuasive, but they are thwarted by the voluntarism objection. The nature of their dependent variable, health, is such that one never knows whether one is respecting the voluntary choices of individuals. But, our argument ties the socioeconomic pathways more directly to the behavior: and it does so because sleep is inextricably caught up in our autonomy. Without sleep we cannot function adequately. Without projects that demand our clear-headed functioning, we have little reason to make the extra effort required to regulate our sleep duration. Insofar as this is true, the data suggest a clear causality that lack of autonomy, lack of self-generated projects for which one claims ownership, *causes* poor sleep habits, and not the other way around.

We cannot demonstrate this with eating decisions, sexual decisions, alcohol decisions, drug decisions or smoking decisions. But sleep is different. Sleep must be understood as tied directly to our autonomy. Sleep is therefore



important not because it gives rise to justice or to a better functioning democracy, but exactly the other way around, because it indicates, as health does, the degree to which a functioning democracy provides its citizens with the liberty, opportunity and resources that they need to be self-governed. In other words, justice is good for your sleep; and it is similarly good for your health.

About the Authors

Benjamin Hale is Assistant Professor of Philosophy and Environmental Studies at the University of Colorado at Boulder. He is co-editor of the *Journal of Ethics, Place and Environment*, former Director of the Center for Values and Social Policy and Affiliate Fellow of the Center for Science Technology and Policy Research. Hale holds a PhD in Philosophy, with a specialization in ethics, and an MPA in Natural Resource Policy.

Lauren Hale is Assistant Professor of Preventive Medicine at the State University of New York at Stony Brook in the Graduate Program in Public Health. Dr Hale received her PhD from the Princeton University and was later a postdoctoral fellow at the RAND Corporation. Hale studies and teaches the social determinants of health, with a focus on the demography of sleep.

Notes

- 1 Theoretical variants of this objection stem from the literature on moral luck. At least one such central criticism can be found in G. A. Cohen's critique of Rawls. Other related concerns have been discussed by Saul Smilansky in his characterization of choice egalitarianism (see references below). More practical variants of this objection appear in commentary on the original essay. Marcia Angell, in her response to Daniels, Kennedy and Kawachi, writes that without controlling for socioeconomic status, 'it is impossible to know whether the increased prevalence of asthma in the children of smokers is really because of passive smoking or because smokers are more likely to be poor, and poverty itself is associated with asthma for other reasons.' Emmanuela Gakidou, Julio Frenk and Christopher Murray ask, 'What about volition? How much of the distribution of health expectancy for a population is due to fully informed choices of individuals who have a taste for risky behavior? This seems like a very slippery slope. What choices affecting health are fully informed? Would we exclude the effects of tobacco on health expectancy because smoking is a choice?' Some references include (Cohen, 1992, 1995, 1997; Angell, 2000; Gakidou *et al*, 2000; Smilansky, 2003).
- 2 Selection effects, unlike voluntary preferences, call attention to both voluntary and involuntary third factors.
- 3 A related objection – the 'health begets wealth' objection – is that people in poor health (either through voluntary or involuntary means) are less economically productive through direct and indirect pathways related to their health condition. Thus, there is a reversal of the relationship between social status and well-being. On account of space limitations, we cannot take up this objection here. Instead, we restrict our discussion to the voluntarism objection.



- 4 If teens smoke because they love the taste of cigarettes, our response might lean in a particular direction. If they smoke because they feel that they will impress their peers, our response might lean in a different direction. With almost all other health issues, the prescription for a cure is unclear; should we work to improve education about the issue, distributing pamphlets and marking cigarette packages with skulls and crossbones? Or, should we strive to make it clear that cigarettes are unhip?
- 5 What follows might be roundly criticized as highly speculative. But, it is only highly speculative if one gives it a psychological gloss. We are not arguing about the psychology of sleep. Indeed, we have little data on the psychology of sleep decisions. Rather, we are talking about the preconditions of sleep decisions – conditions that precede any psychological characterization of the decision. There is little question that we can be led to believe that we are doing something when we do not have control over what we are doing. We can, for instance, believe ourselves to be choosing to take a drug and yet, at the same time, be desiring the drug for some reason outside of our control. Or, we might, for instance, believe that we are very good at trajectory calculations if we can catch a baseball with impressive ease. Of course, catching baseballs is a somatic response that could not possibly involve an elaborate trajectory calculation.
- 6 We agree with one reviewer that there is an unresolved tension between deterministic and voluntaristic accounts, particularly with regard to the social determinants of health literature. Indeed, this is largely what our argument aims to undercut. We are suggesting instead that the voluntarism objection is much less compelling when one introduces considerations about the social determinants of sleep.

References

- Adams, J. (2006) Socioeconomic position and sleep quantity in UK adults. *Journal of Epidemiology and Community Health* 60(3): 267–269.
- Adler, N.E., Marmot, M., McEwen, B.S. and Stewart, J. (1999) *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*, Vol. 896. New York: Annals of the New York Academy of Sciences.
- Angell, M. (2000) Pockets of poverty. *Boston Review* 25(1): 4–19.
- Arber, S., Hislop, J., Bote, M. and Meadows, R. (2007) Gender roles and women's sleep in mid and later life: A quantitative approach. *Sociological Research Online* 12(5).
- Berkman, L.F. and Kawachi, I.O. (2000) *Social Epidemiology*. New York: Oxford University Press.
- Biddle, J.E. and Hamermesh, D.S. (1990) Sleep and the allocation of time. *The Journal of Political Economy* 98(5): 922–943.
- Boyle, M.H., et al (2006) The influence of economic development level, household wealth and maternal education on child health in the developing world. *Social Science & Medicine* 63(8): 2242–2254.
- Cohen, G.A. (1992) Incentives, inequality and community. In: G. Peterson, (ed.) *The Tanner Lectures on Human Values*, Vol. 13 Salt Lake City, UT: University of Utah Press, pp. 263–329.
- Cohen, G.A. (1995) The pareto argument for inequality. In: E. Paul, (ed.) *Contemporary Political and Social Philosophy*. Cambridge: Cambridge University Press, pp. 160–165.
- Cohen, G.A. (1997) Where the action is: On the site of distributive justice. *Philosophy & Public Affairs* 26: 3–30.
- Colten, H.R., Altevogt, B.M. and Institute of Medicine (US) Committee on Sleep Medicine and Research (2006) *Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem*. Washington, DC: Institute of Medicine, National Academies Press.



- Daniels, N., Kennedy, B. and Kawachi, I. (1999) Why justice is good for our health: The social determinants of health inequalities. *Daedalus* 128(4): 215–251.
- Daniels, N., Kennedy, B. and Kawachi, I. (2000) Justice is good for our health. *Boston Review* 25(1): 4–19.
- Kakidou, E., Frenk, J. and Murray, C. (2000) A health agenda. *Boston Review* 25(1): 4–19.
- Gellis, L.A., et al (2005) Socioeconomic status and insomnia. *Journal of Abnormal Psychology* 114(1): 111–118.
- Hale, B. and Hale, L. (2009) Choosing to sleep. In: A. Dawson (ed.) *The Philosophy of Public Health*. A publication of the Society of Applied Philosophy, Surrey, England: Ashgate.
- Hale, L. (2005) Who has time to sleep? *Journal of Public Health (Oxford, England)* 27(2): 205–211.
- Hale, L. and Do, D.P. (2007) Racial differences in self-report of sleep duration in a population-based study. *Sleep* 30(9): 1092–1099.
- Hale, L., Peppard, P.E. and Young, T. (2007) Does the demography of sleep contribute to health disparities? In: D. Leger and S. R. Pandi-Perumal (eds.) *Sleep Disorders: Their Impact on Public Health*, 1st edn., Abingdon, Oxon: Informa Healthcare.
- Jefferson, C.D., et al (2005) Sleep hygiene practices in a population-based sample of insomniacs. *Sleep* 28(5): 611–615.
- Kawachi, I. and Kennedy, B.P. (1999) Income inequality and health: Pathways and mechanisms. *Health Services Research* 34(1: Part 2): 215–227.
- Kripke, D.F., Garfinkel, L., Wingard, D.L., Klauber, M.R. and Marler, M.R. (2002) Mortality associated with sleep duration and insomnia. *Archives of General Psychiatry* 59(2): 131–136.
- Kripke, D.F., Simons, R.N., Garfinkel, L. and Hammond, E.C. (1979) Short and long sleep and sleeping pills. Is increased mortality associated? *Archives of General Psychiatry* 36(1): 103–116.
- Lauderdale, D.S., et al (2006) Objectively measured sleep characteristics among early-middle-aged adults: The CARDIA study. *American Journal of Epidemiology* 164(1): 5–16.
- Macdonald, M. (1953) Sleeping and waking. *Mind* 62(246): 202–215.
- Malcolm, N. (1956) Dreaming and skepticism. *The Philosophical Review* 65(1): 14–37.
- Marmot, M. and Feeney, A. (1997) General explanations for social inequalities in health. *IARC Scientific Publications* 138: 207–228.
- Marmot, M.G. (2003) Understanding social inequalities in health. *Perspectives in Biology and Medicine* 46(3): S9–S23.
- Marmot, M.G., et al (1991) Health inequalities among British civil servants: The Whitehall II study. *Lancet* 337(8754): 1387–1393.
- Moore, P.J., Adler, N.E., Williams, D.R. and Jackson, J.S. (2002) Socioeconomic status and health: The role of sleep. *Psychosomatic Medicine* 64(2): 337–344.
- Patel, S.R., Palmer, L.J., Larkin, E.K., Jenny, N.S., White, D.P. and Redline, S. (2004) Relationship between obstructive sleep apnea and diurnal leptin rhythms. *Sleep* 27(2): 235–239.
- Qureshi, A.I., Giles, W.H., Croft, J.B. and Bliwise, D.L. (1997) Habitual sleep patterns and risk for stroke and coronary heart disease: A 10-year follow-up from NHANES I. *Neurology* 48(4): 904–911.
- Smilansky, S. (2003) Choice-egalitarianism and the paradox of the baseline. *Analysis* 63: 146–151.
- Tamakoshi, A. and Ohno, Y. (2004) Self-reported sleep duration as a predictor of all-cause mortality: Results from the JACC study, Japan. *Sleep* 27(1): 51–54.
- Wilkinson, R.G. (1992) National mortality rates: The impact of inequality? *American Journal of Public Health* 82(8): 1082–1084.
- Wilkinson, R.G. (1996) *Unhealthy Societies: The Afflictions of Inequality*. London, New York: Routledge.
- Wilkinson, R.G. and Pickett, K.E. (2008) Income inequality and socioeconomic gradients in mortality. *American Journal of Public Health* 98(4): 699–704.
- Williams, B. (1981) *Moral Luck*. Cambridge: Cambridge University Press.



- Williams, S.J. (2008) The sociological significance of sleep: Progress, problems, and prospects. *Sociological Compass* 2(2): 639–653.
- Wingard, D.L. and Berkman, L.F. (1983) Mortality risk associated with sleeping patterns among adults. *Sleep* 6(2): 102–107.
- Young, T., Peppard, P.E. and Gottlieb, D.J. (2002) Epidemiology of obstructive sleep apnea: A population health perspective. *American Journal of Respiratory and Critical Care Medicine* 165(9): 1217–1239.