

Research Initiative Update

Sleep Research

CCSN Research Initiatives were created to organize Center members into interdisciplinary groups that address “big questions” in the areas of cognitive and social neuroscience. Members of each initiative strive to employ complementary methodologies and identify opportunities for new research programs. Lianne Kurina, Assistant Professor of Epidemiology in the Department of Health Studies, was interviewed about a new research initiative exploring sleep.

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hat led you to study sleep?

Therefore, the Hutterites are very appealing as a model study population for studying the effects of stress on health.

Carole Ober, Professor in the Department of Human Genetics, Diane Lauderdale, Professor in the Department of Health Studies, and I recently completed a study of stress, loneliness, and sleep in the Hutterite population. The Hutterites are an Anabaptist group similar to the Amish and to the Mennonites. The key difference between the Hutterites and other groups is the importance of living communally to their religious worldview. There are approximately 30,000 Hutterites living in western North America. They live on communal farms of roughly 150 people, in ten to fifteen families. Community is central to their existence: they work together, they eat together, and they practice their religion together. All resources are shared in common.

The Hutterites are a good population for an epidemiologic study, as there is similarity among population members with regard to socioeconomic status, diet, and schedule, and tobacco use is very rare. Lifestyle factors such as these must be controlled for in traditional epidemiological cohort studies, particularly when studying stress. Even so, the possibility of residual confounding nearly always remains.

SLEEP COULD BE ONE MEDIATOR IN THE RELATIONSHIP BETWEEN LONELINESS AND POOR HEALTH.

LIANNE KURINA

At the University of Chicago, Carole Ober has conducted a longstanding study of the Hutterites, focused on the genetic underpinnings of asthma and fertility. My own interest is in the relationship between stress and illness, and she suggested that I work with her on a study of stress in the Hutterite population.

In the winter of 2006 to 2007, I went to the Hutterite colonies. We developed a stress questionnaire for this group, and collected survey and cortisol data for approximately 130 individuals. We worked with Diane Lauderdale, and Kristen Knutson, Assistant Professor in the Department of Medicine, to collect sleep data using wrist actigraphy. An actigraph is an accelerometer worn on the wrist like a watch, and it measures movement. Researchers use a software program to estimate when a study participant is sleeping and the characteristics of an individual’s sleep (e.g., duration, fragmentation). Wrist actigraphy is a relatively recent technology that yields more reliable data than subjective reports of sleep.

When Kristen Knutson and I began analyzing the stress and sleep data, we discovered a robust relationship between loneliness and sleep fragmentation. This is interesting because in a communal population, we expected to find very little loneliness. While loneliness is indeed reasonably rare in the Hutterites we studied, variability in the loneliness measure was significantly associated with sleep fragmentation – that is, lonelier individuals had more fragmented sleep. Louise Hawkey, Associate Director of the Social Neuroscience Lab, and John Cacioppo, Director of the Center for Cognitive and Social Neuroscience, had found similar results within a college-age population. Replicating this finding in this very different population is an exciting finding for sleep research. Though our study was cross-sectional,



ABOVE: Lianne Kurina, Assistant Professor at the University of Chicago.

it does suggest that sleep could be one mediator in the relationship between loneliness and poor health.

What is the next phase for this kind of sleep research?

In the autumn, Diane Lauderdale submitted a grant proposal with Ron Thisted, Phil Schumm, Martha McClintock, Linda Waite, and me to study sleep among participants of the National Social Health and Aging Project (NSHAP). We hope to describe sleep properties among older adults as well as to test for associations among social factors, economic factors, sleep, and health. Interestingly, we have little data on what sleep looks like on a large scale in older adults.

How does studying loneliness, stress, and sleep in a population like the Hutterites inform understanding of the general population?

I believe that being born and growing up a Hutterite could possibly influence development of the hypothalamic-pituitary-adrenal (HPA) axis. Hutterite babies and children are never

alone. They remain connected with their families until they are adults and get married. They go to school on the colony with the same children they have known since birth. In the Hutterite population, disruption in one’s social network is relatively infrequent, and it is my supposition that this stability is associated with decreased loneliness and stress, and possibly with the lower cortisol levels that we observe in this population.

I have wondered about the effects of this lifestyle in relation to that of the general population, where social dynamism is so common. For children in the United States, each day may involve interaction with many different social groups, and those social groups change over time: family, school, day care, summer camp, etc. In effect, children are constantly presented with new sets of primates to whom they must adapt. In other apes, social networks are reasonably fixed over a long time period, relative to modern human experience. Is it possible that this social flux influences our biology? I think it would be exciting to find out. •

Upcoming Lectures and Events

Research in Progress Seminars

The Center faculty participate in workshops, brown bags, and research in progress seminars. To be added to the email list for announcements of talks and events, email Anna Gomberg, agomberg@uchicago.edu.

2010 CCSN Speaker Series

The Center for Cognitive and Social Neuroscience, in collaboration with other departments, centers, institutes, and programs, sponsors presentations by visiting scholars. Upcoming speakers include:

26 May 2011
Harper Memorial Library 130
4:00 pm

Morten Christiansen, Cornell University
Brains, Genes, and Language Evolution

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