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How mental health needs sleep – and vice versa

Sleep and mental health are intricately linked, so **Russell Foster** wants to use sleep for diagnosing and treating troubled brains and minds



Disturbed sleep?

Bertrand Meunier/Tendance Floue

By **Catherine de Lange**

How did you make the link between sleep and mental health?

When I was based at Charing Cross Hospital in London around 2003, I happened to be in a lift with a psychiatrist who said: “You always get sleep disruption in people with mental illness. That’s because they don’t have a job, so they go to bed late and get up late.” I felt that made no sense.

So a team of us started working with people with schizophrenia, 80 per cent of whom have reported sleep disturbances broadly termed “insomnia”. We monitored their sleep-wake cycles over six weeks and compared them to healthy people of the same age and gender who were also unemployed. For those with schizophrenia, regardless of their antipsychotic treatment, sleep patterns weren’t just disrupted; they were often totally smashed.

What other mental health conditions involve bad sleep?

Everything that's been looked at, including bipolar disorder and seasonal affective disorder. We've also known for a long time that depression and poor sleep occur together. It was always assumed that depression caused poor sleep, but actually sleep disruption precedes the depression. In addition, neurodegenerative disorders like dementia, Alzheimer's and Parkinson's disease are also always associated with sleep disruption.

So what might explain the link?

People ask, is it chicken or egg? But I don't think that's the right way to look at it. Research over the past decade shows that the sleep/wake cycle draws on all the brain's neurotransmitters and multiple structures. So if you have got a defect in a pathway that predisposes you to mental illness, it's going to have an effect on sleep. Clearly once sleep is affected, that may exacerbate the mental illness.

Should we view disturbed sleep as providing early warning of mental health issues?

That's one idea we have been looking at. My colleague Guy Goodwin has developed a screen to identify young people in their teens and early 20s at high risk of developing bipolar disorder. The results are extraordinary. All the high-risk kids we have looked at so far have a sleep abnormality, but no clinical diagnosis of bipolar. So we can use sleep disruption as a biomarker of potential problems. And that offers the possibility of early intervention.

Has anyone tried using sleep to treat mental illness?

Yes. Researchers here at Oxford have found that if you can partially stabilise sleep using cognitive behavioural therapy in people with schizophrenia, you can reduce levels of delusional paranoia by 50 per cent. Others have tried to improve sleep in people in nursing homes with mild dementia by introducing big lights during the day and real darkness in the bedrooms at night. This reduced their cognitive problems by 10 per cent.

Could sleep even be used to prevent mental illness?

We are working on this now. If we take those kids at higher risk of bipolar and try to improve their sleep as much as possible, can we delay onset of the condition? Will sleep stabilisation knock the brain into a different developmental trajectory? That's what we are trying to find out. We are also developing drugs to activate the light pathways that regulate the body clock. For example, we have discovered drugs that increase the clock's sensitivity to light and others that trigger the pathways instead of light. This is all very exciting as currently there are very few options to regulate the body clock.

Profile

Russell Foster is professor of circadian neuroscience, director of the Sleep and Circadian Neuroscience Institute, and the head of the Nuffield Laboratory of Ophthalmology at the University of Oxford