

COLLABORATORY EXPLORES LONELINESS

In 2017, former U.S. surgeon general Dr. Vivek Murthy equated loneliness to a public health crisis in a Harvard Business Review essay. He cited a study that equated loneliness to smoking fifteen cigarettes a day in regards to its impact on life span. A year later, the UK appointed its first Minister for Loneliness. This national awakening led the Collaboratory Science in Society leaders to choose “Loneliness” as the topic for their second ever event held in February at Sanford Burnham. In the packed Roth Auditorium, three scientists talked about their varied research on how isolation is instantiated in the brain, what causes loneliness and what we can do to combat it.



Dr. Kay Tye, a new addition to the Salk Institute, thinks of loneliness as a way to reach social homeostasis that has been evolutionarily programmed into many species. Being social can confer advantages like safety in numbers, and so there is likely a physiological readout of a lack of social contact, just like the readout we have for lack of food - hunger. For instance, the common fruit fly when isolated, become hyper social – courting females more vigorously and fighting males more often. Obviously, it’s hard to say whether other species feel “loneliness” per se, as it is a subjective emotion. However, we can at least study how isolation can affect the brains of other mammals in the hopes that it will help us understand what happens in human brains in similar situations.

By isolating mice and using genetic, optical, and electrophysiological tools, Tye’s research group was able to find a set of brain cells that seem to encode a negative state associated with loneliness that then motivates mice to be prosocial. It’s

unclear how this will relate to human loneliness and if this information can or should be used for treating feelings of isolation. Perhaps it is best to nip loneliness in the bud by finding its underlying causes, which is the focus of invited speaker Dr. Candice Odgers’ research conducted at Duke University and UC Irvine.

Odgers studies how smartphones are affecting our sense of social connectedness, especially in adolescents. It makes sense logically, that being on a device prevents real-life human to human interaction, but is there data to back it up? Odgers’ research team digs through survey data, meta-analyses, and runs experiments to test the association between digital device use and negative emotions.

One recent surprising, and much publicized finding is that there is very little association between the smartphone use and feelings of loneliness. The way she thinks about technology like smartphones is as a mirror of an adolescent’s outside life – if they are struggling online, they are likely struggling offline. She even acknowledges the many ways that the internet and social media can assuage loneliness in cases where adolescents have trouble finding commonalities in their immediate communities. So, if digital devices aren’t the cause, we have to look to other reasons why teenagers are experiencing higher rates of isolation,



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anxiety, and depression than ever. Dr. Odgers thinks that blaming our phones or iPads may be distracting from other sources negatively affecting mental health. The jury is still out on why we feel loneliness, but even without this understanding, we may still be able to mitigate it.

The third speaker, UCSD Psychology professor Dr. Karen Dobkins, primarily studied early brain development until about ten years ago, when she shifted her research inquiry to mental well-being. As she put it, we get an education in history, math, science, language, but we don't get an education on how to be

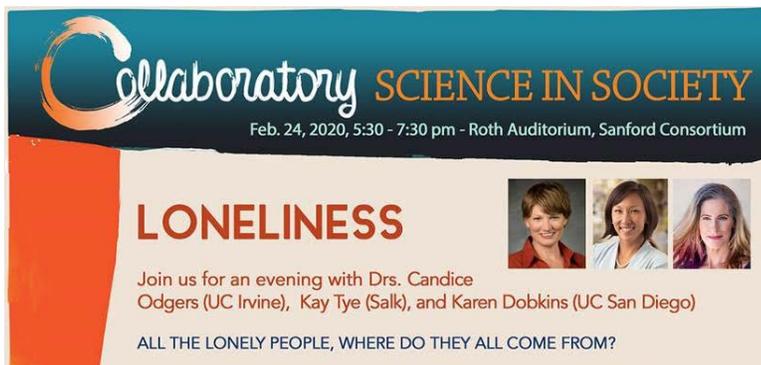
human, how to be connected to oneself and to others. Moreover, she posited that connection to self and others might be connected – that the ability to sense one's own body, also known as interoception, might track with feeling socially connected.

To test this theory, Dobkins compared peoples' scores on surveys that measured both. She found that having a heightened awareness of one's body was correlated with feeling socially connected. One way to increase interoception is through mindfulness practices like meditation. Dobkins is studying various mindfulness methods to see if they are a tonic for loneliness.

After Dobkins' presentation, the evening evolved into a lively conversation among presenters and the audience, in which many participants shared their feelings of loneliness, and shared their attempts at combatting it. Peter Ellsworth, President of the Legler Benbough Foundation, brought up the importance of community engagement and service for creating a stronger sense of belonging.

We still have a lot to learn about isolation and its counterpart, loneliness. Roger Bingham, Director of the Collaboratory, notes, "How ironic that we [had an event] on loneliness which was then followed by this unprecedented era of social distancing."

Many studies will likely arise from this unintended experiment in isolation. The hope is that we can all maintain a sense of connection whether through social media or mindfulness exercises and continue to learn more about ourselves, our human emotions, and how they affect and are affected by the brain and the body.



TOP: Collaboratory invitation to "Loneliness" event.
 MIDDLE: (left to right) Odgers, Tye, and Dobkins answer questions from attendees.
 BOTTOM: Dobkins presents to a rapt audience.
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