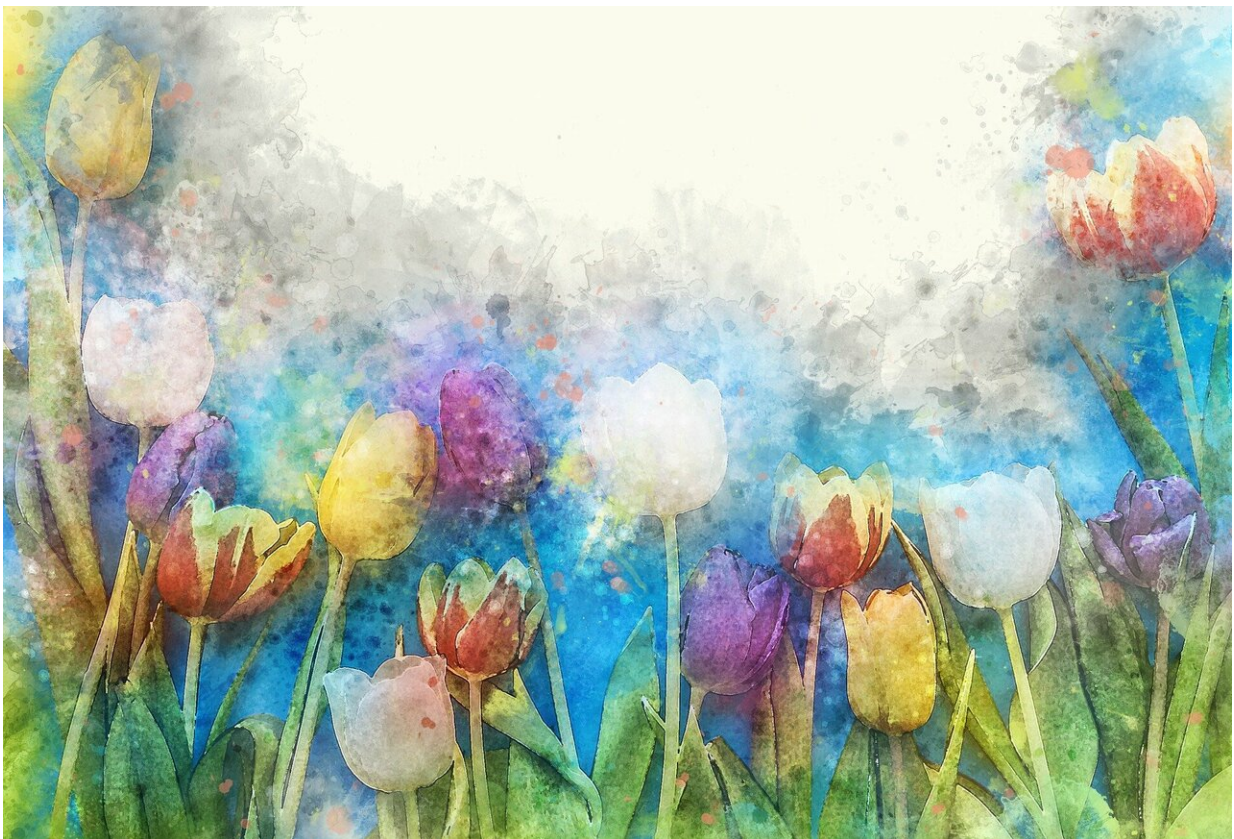


Being surrounded by green space in childhood may improve mental health of adults

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Children who grow up with greener surroundings have up to 55% less

risk of developing various mental disorders later in life. This is shown by a new study from Aarhus University, Denmark, emphasizing the need for designing green and healthy cities for the future.

A larger and larger share of the world's population now lives in cities and WHO estimates that more than 450 million of the global human population suffer from a mental disorder, a number that is expected to increase.

Now, based on [satellite data](#) from 1985 to 2013, researchers from Aarhus University have mapped the presence of green space around the childhood homes of almost one million Danes and compared this data with the risk of developing one of 16 different mental [disorders](#) later in life.

The study, which is published today in the prestigious American Journal *PNAS*, shows that children surrounded by the high amounts of green space in childhood have up to a 55% lower risk of developing a mental disorder—even after adjusting for other known risk factors such as socio-economic status, urbanization, and the family history of mental disorders.

The entire childhood must be green

Postdoc Kristine Engemann from Department of Bioscience and the National Centre for Register-based Research at Aarhus University, who spearheaded the study, says: "Our data is unique. We have had the opportunity to use a massive amount of data from Danish registers of, among other things, residential location and disease diagnoses and compare it with satellite images revealing the extent of green space surrounding each individual when growing up."

Researchers know that, for example, noise, air pollution, infections and

poor socio-economic conditions increase the risk of developing a mental disorder. Conversely, other studies have shown that more green space in the local area creates greater social cohesion and increases people's physical activity level and that it can improve children's cognitive development. These are all factors that may have an impact on people's mental health.

"With our dataset, we show that the risk of developing a mental disorder decreases incrementally the longer you have been surrounded by green space from birth and up to the age of 10. Green space throughout childhood is therefore extremely important," Kristine Engemann explains.

Green and healthy cities

As the researchers adjusted for other known [risk factors](#) of developing a [mental disorder](#), they see their findings as a robust indication of a close relationship between green [space](#), [urban](#) life, and mental disorders.

Kristine Engemann says: "There is increasing evidence that the natural environment plays a larger role for mental health than previously thought. Our study is important in giving us a better understanding of its importance across the broader population."

This knowledge has important implications for sustainable urban planning. Not least because a larger and larger proportion of the world's population lives in cities.

"The coupling between mental health and access to [green space](#) in your local area is something that should be considered even more in urban planning to ensure greener and healthier cities and improve mental health of urban residents in the future," adds co-author Professor Jens-Christian Svenning from the Department of Bioscience, Aarhus

University.

More information: Kristine Engemann et al., "Residential green space in childhood is associated with lower risk of psychiatric disorders from adolescence into adulthood," *PNAS* (2019).

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Provided by Aarhus University

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