

Debate: Urban versus rural environments – which is better for mental health? *The one good thing about a small town. . .*

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Urban environments are related to higher prevalences of common mental disorders (addictions, anxieties and mood disorders) in adults. The mechanisms underlying this relationship are less clear. Cities function as a magnet, related to economic and educational opportunities, but are also related to urban stress and low well-being. Urban areas have larger inequalities, and people in deprived areas are at enhanced risk for mental health problems, which have been related both to environmental factors like pollution and to perceptions of the (social) environment, including perceived safety and social support. The interactions of vulnerability factors at different levels of description (e.g., within-person stress vulnerability vs. neighborhood stressors) can be considered a complex system. We here discuss what is known about growing up in an urban versus rural environment, with the aim to identify target points for mental health-related interventions in youth. We summarize this for three broad developmental periods: early life (first 1000 days), childhood, and adolescence into young adulthood, with implications for interventions.

Keywords: Development; psychopathology; urban; rural; mental health; addiction

The one good thing about a small town: you know that you want to get out. Lou Reed, Small town

There is increasing evidence that an urban context is associated with a higher frequency of mental health problems. For example, a robust relationship was found between the distance to the nearest city centre and reduced happiness as well as (likely) mental health problems in a large UK database (Finnemann, Huth, Borsboom, Epskamp, & Van Der Maas, 2024). We also found a positive, non-linear relationship between the level of urbanization in a country and the prevalence of common mental disorders (CMDs, anxiety, mood disorders and addiction, van der Wal et al., 2021). CMDs are among the most common and costly of all mental and brain disorders. Note that these relationships have primarily been reported in

adults, but the average age of onset for CMDs is in youth. In order to better target future interventions, it is crucial to study the mechanisms underlying this relationship.

First, there is evidence for selection: people with an enhanced risk to develop mental disorders are more likely to live in urban areas, including people living in poverty and people with migrant backgrounds (Patel et al., 2017; Weissman, Hatzenbuehler, Cikara, Barch, & McLaughlin, 2023). Second, growing up in an urban environment has been shown to sensitize stress reactions in the brain, independent of currently living in an urban context, which has different neural correlates (Lederbogen et al., 2011). Third, both physical urban stressors (e.g., air pollution, noise) and social threats related to discrimination and inequality cluster in deprived areas of cities (Collins et al., 2024). Indeed, growing up in deprived neighborhoods increases the chance of developing psychopathology, especially for externalizing problems (Visser et al., 2021). We briefly discuss growing up in an urban setting for three periods: The first 1000 days, childhood, and adolescence transitioning into young adulthood, with implications for interventions.

Claudi Bockting and Harm Krugers shared senior authors. The Debate format allows for 10 maximum references. The paper with all 20 references supporting the statements made, can be downloaded from the website: www.centreforurbanmentalhealth.com. See 1Appendix for Urban Mental Health Researchers.

The first 1000 days

The first 1000 days after fertilization are a crucial period in which most biological milestones are met, shaping the structure and function of the organs and tissues. Adverse environmental exposure has widespread and far-reaching consequences for mental and physical health throughout life. For example, CMDs during pregnancy are associated with unfavorable offspring outcomes for further somatic and mental development. This includes both detrimental effects of prenatal exposure to psychoactive substances and effects of maternal internalizing problems, where psychological interventions are the treatment of choice given that the safety of antidepressants as treatment during pregnancy is debated (Brouwer et al., 2018).

Animal models can provide more mechanistic insights into the effects of early life stressors on further development. An accelerated development and altered stress responsivity are among the most frequently found consequences of early life adversity. While accelerated maturation may be beneficial in the short run, it often incurs long-term costs, including increased stress sensitivity and a higher susceptibility to mental health problems as adults. Early-life adversities are often also transmitted across generations.

One of the key factors in early life development is parenting. Warm-supportive, and sensitive parenting is predictive of later healthy self-regulation in children. In contrast, harsh, cold, and punitive parenting behaviors are one of the root causes of the development of problem behaviors and CMDs later in life. Urban environments likely impact early child development through the family context. Poverty and related stressors have been related to harsh parenting, increasing the risk of the development of childhood problem behaviors, which occur more often in deprived areas (Visser et al., 2021). Problem behaviors are enhanced by environmental chaos—a summary term for micro-contexts like (un)predictability in the family, daycare centers, and schools characterized by high noise levels and many people coming and going.

Childhood

While research has emphasized the importance of early development and adolescence for later mental health outcomes, childhood should not be overlooked. Importantly, school age is an important period for socialization, and many school-based intervention programs have small to medium effects on mental health. In addition, interventions aimed at supporting parents have positive effects (e.g., Gardner et al., 2019). However, urbanicity is not well studied as a potential moderator of parenting support program effects. Related factors such as poverty and ethnic minority status were not found to moderate the outcomes (Gardner et al., 2019). Hence, parenting programs can help, but do not change socioeconomic inequalities in childhood mental health, which can be done with poverty-reducing interventions for families (e.g., Weissman et al., 2023).

Adolescence and young adulthood

The age of onset for most CMDs is during adolescence. The urban environment has most strongly been related to the development of externalizing problems (Visser et al., 2021). An important factor predicting (adolescent) substance use is availability, which is generally higher in urban areas, especially in deprived areas. For example, smoking prevalence increases with urbanization, which is influenced by factors directly related to smoking, such as other smokers as well as the availability of tobacco retail outlets.

In the Netherlands, two cohort studies assess mental health and development in urban areas: the ABCD study in Amsterdam and GenerationR in Rotterdam, with participants in both cohorts having reached young adulthood now. In line with Collins et al. (2024), preliminary findings from the Amsterdam-ABCD study emphasize the role of neighborhood safety perceptions and (drug-related) nuisance connecting with older adolescents' substance use and symptoms of depression and anxiety. These findings echo earlier findings in GenerationR in childhood.

While often negative aspects of urban living on mental health are highlighted, the other side should not be forgotten: the city is also attractive in late adolescence, for economic, educational, and recreational reasons (Collins et al., 2024). This attraction can be attributed to the way city environments align with the developmental tasks and aspirations (e.g., identity formation, social interactions). Interventions that make adolescents feel they can contribute and matter have been proposed as developmentally most appropriate (Dahl, Armstrong-Carter, & Van Den Bos, 2024).

Conclusions and ways forward

There is a well-established relationship between living in urban areas and the prevalence of mental health problems in adults, which can be related both to the composition of the population and to the effects of the urban environment on the developing mind and brain. It is also clear that in urban mental health, factors at different levels of description interact at different timescales (e.g., individual differences in stress-reactivity and neighborhood effects) and together form a complex system (van der Wal et al., 2021). From this brief review, a picture emerges in which optimal living conditions for mental health (especially in early development) are outside the city (including suburbs, Finnemann et al., 2024). However, from late adolescence, the city becomes more appealing, as eloquently summarized by Lou Reed in the quote above. While there is increasing attention for the mental health problems in students, this group should be distinguished from those who grew up in disadvantaged urban neighborhoods (Collins et al., 2024). Children and adolescents in deprived urban areas are high-risk groups for CMDs. They are an important target group for interventions, which can be school-based or parent-based. Healthy development can be further improved by financial aid to parents living in poverty (Weissman et al., 2023). In addition, there is an important role for urban planning, which could help to create “safe havens” for youth in cities to mitigate the negative

effects of growing up in urban deprived areas. Finally, given that approximately 90% of the 1.2 billion adolescents live in low-and middle-income countries (Collins et al., 2024), and in line with the WHO Mental Health Gap Action Program, we would call for scalable interventions, for example, training non-professionals to deliver mental health interventions, either in person or in helping to guide e-health interventions.

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Data availability statement

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Appendix

UMH researchers from the three different faculties involved (alphabetic order):

Hanan Bozhar, Hilgo Bruining, Jonas Dalege, Brechtje De Mooij, Adam Finnemann, René Freichel, Aniko Korosi, Helle Larsen, Michael Lees, Patty Leijten, Paul J. Lucassen, Patrick McKeary, Geertjan Overbeek, Susanne R. de Rooij, Tessa Roseboom, Eline Smit, Rixt Van der Veen, Ruth van Holst, Nadia Van der Spek, Ilya Veer, Rob Wichers.

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