

# Does the built environment shape loneliness?

## Background

As cities expand and technology reshapes how we connect to one another, it's increasingly clear that human social life has undergone a dramatic transformation over the past few centuries. Indeed, prior to the industrial revolution, human life was characterized by small tight-knit communities (Dunbar & Sosis, [2018](#); Cooley, [1922](#)) and while we've been building cities for thousands of years, the bustling metropolises in which most of us now live would be an astonishing sight to any of our ancestors (Davis, [1955](#); Ritchie et al., [2018](#)).

Yet, despite being more connected than ever (Zhu et al., [2018](#)), loneliness is commonplace in contemporary life (Surkalim et al., [2022](#))—raising questions about whether some aspect of our social world might be undermining our social wellbeing. Among the factors we should consider, is the role of the built environment and our social geography (Meehan et al., [2023](#)). Understanding how environmental factors might shape wellbeing can help us prioritize these in order to facilitate social connection and prevent experiences of loneliness and social isolation.

## Purpose

The purpose of this evidence review is to explore the effects of social geography and the built environment on social health.

## Evidence from Existing Studies

Researchers have hypothesized for decades that the environments in which people live shape their sociability and thus their vulnerability to loneliness and social isolation (Bower et al., [2023](#); Nasrallah & Pati, [2021](#); Sones et al., [2020](#); Janahi et al., [2018](#); Boessen et al., [2017](#); Corcoran & Marshall, [2017](#); Kearns et al., [2015](#); Arriaga et al., [2008](#)). Empirically, connection to one's neighbours and community has been identified as an important component of loneliness (Bergefurt et al., [2019](#); Stanley et al., [2010](#)) and people frequently identify environmental barriers to social connection as important determinants of their social wellbeing (Cohen-Mansfield et al., [2015](#); Wen & Wang, [2009](#)). Motivated by these findings, researchers have sought to identify "lonelygenic" environmental features that promote loneliness and discourage social cohesion and connection (Feng & Astell-Burt, [2022](#)).

**Urbanity and Social Geography.** Within this growing body of literature, researchers have highlighted heterogeneity in the spatial distribution of social health outcomes across cities and regions (Buecker et al., [2020](#); Scharf & de Jong Gierveld, [2008](#)). For example, studies have documented significant social and mental health impacts associated with living in large urban(izing) areas (Abshire et al., [2022](#); Chen & Gong, [2022](#); Repke & Ipsen, [2020](#); Henning-Smith et al., [2019](#); Bennett, [2018](#); Simmel, [1950](#)). In particular, socially deprived

neighbourhoods have been identified as at risk for poor social outcomes (Victor et al., [2020](#); Beere et al., [2019](#); Menec et al., [2019](#)).

**Housing Type and Design.** In addition to the quality of the built environment, housing type has been proposed as another important feature that may inhibit social connection. For example, several studies have examined whether people living in apartments or high rises are less socially connected than those living in houses (Carbone et al., [2022](#); Barros et al., [2019](#)). While one might assume that people who live closer together have more opportunities to interact (Shirazi et al., [2020](#); Mouratidis, [2018](#); Mitrany, [2005](#); Glaeser & Sacerdote, [2001](#)), crowded living conditions appear to lead to social withdrawal as people seek to escape unmeaningful, unwanted or unpleasant interactions and establish boundaries for privacy (Warner & Andrews, [2019](#); Evans et al., [1989](#)). As well, smaller living spaces, dilapidated housing, and other features may discourage individuals from socializing as they erode trust and community (Wee et al., [2019](#); Watson et al., [2018](#)). As such, the weight of evidence highlights challenges associated with vertical living. However, studies comparing different types of housing have sometimes produced conflicting results due to the difficulty of isolating the effect of housing type from other factors (e.g., household composition and characteristics, neighbourhood factors, and quality of amenities; Barros et al., [2019](#); Kearns et al., [2012](#); Appold & Yeun, [2007](#); Yuen et al., [2006](#); Evans et al., [2002](#), [2003](#); McCarthy et al., [1985](#)). Furthermore, because the effects of the built environment are moderated by other social features (e.g., perceptions, interests) of a community it can be difficult to identify specific features that innately contribute to positive outcomes (Ghosh, [2014](#)). That said, it is apparent that design elements which attract individuals (e.g., pleasant scenery), facilitate social encounters (e.g., intersecting paths), and provide space for interaction (e.g., seating), do shape social health outcomes at the building and neighbourhood-level (Kleeman et al., [2023](#); Nigam & Kumar, [2023](#); Stoiljkovic, [2022](#); Muhuri & Basu, [2021](#); Nguyen et al., [2020](#); Barros et al., [2019](#); Mousavinia et al., [2019](#); Mouratidis, [2018](#); Yau, [2018](#); Bee & Im, [2016](#); Danielski et al., [2016](#); Lee et al., [2010](#); Zhang et al., [2009](#); Huang, [2006](#)). As well, the living arrangements and shared living practices among individuals and families may also play an important role in facilitating social interactions (Carrere et al., [2020](#); Glass et al., [2019](#); Sanguinetti, [2014](#); Greenfield & Russell, [2010](#); Russell, [2009](#); Williams, [2006](#); Yeh & Lo, [2004](#)).

**Social Infrastructure and Community Assets.** In addition to specific design elements, the availability of community assets and social infrastructure are also observed to be important to the evolution of communal social life (Lyu et al., [2021](#); Bergefurt et al., [2019](#)). For example, better social health outcomes appear to be associated with greater green space, access to nature, canopy coverage, presence of open and recreational spaces, and the creation of community gardens (Silva et al., [2023](#); Charles-Rodriguez, [2023](#); Astell-Burt, [2021](#), [2022a](#), [2022b](#); Samsudin et al., [2022](#); Dyg et al., [2019](#); Cartwright et al., [2018](#); Frederiksen et al., [2018](#); Farida, [2013](#); Di Nardo et al., [2013](#); Maas et al., [2009](#)). Similarly, low-barrier access community meeting spaces (e.g., libraries) and other social and entertainment venues (e.g., clubs, pubs, and cafes) can also be important assets for social wellbeing (Aldrich et al., [2023](#); Lee et al., [2022](#); Abed & Al-Jokhadar, [2021](#); Schloffel et al., [2021](#); Martin et al., [2021](#); Philbin et al., [2019](#); Hutchinson & Gallant, [2019](#); Lee & Tan, [2019](#); Mouratidis, [2018](#); Basudeb et al., [2016](#); Thompson, [2016](#); Camp et al., [2015](#); Jeffres et al., [2009](#); du Toit et al., [2007](#); Engels et al., [1999](#)). Of course, in order to maximize the utility of these community assets, people need to be able to access them. As such, transportation and mobility are important factors that shape connectivity. Therefore, walkable, low-traffic neighbourhoods and affordable quality



transportation systems are also important community assets (Du et al., [2022](#); Dabelko-Schoeny et al., [2021](#); Domenech-Abella et al., [2019](#), [2020](#); Lamanna et al., [2019](#); Matusda et al., [2019](#); Pun et al., [2019](#); Yu et al., [2017](#); Reinhard et al., [2017](#); Brommelstroet et al., [2017](#); van den Berg et al., [2016](#); Rantakokko et al., [2014](#); Oishi et al., [2013](#), [2017](#)).

**Accessibility and Inclusion.** Of course, the mere presence of such community assets is not sufficient for the production and maintenance of neighbourhood social health (Thompson et al., [2022](#); Bower et al., [2023](#)). People have to be able to use them. This means reducing barriers for people living with disabilities and making communities age-friendly (Gomez-Zuniga et al., [2022](#); Park et al., [2019](#); Kim et al., [2017](#)).

**Community Programming and Events.** Additionally, use of community assets is contingent on whether individuals are *willing* to use them. Therefore, factors such as social trust, sense of collective efficacy, perceived restrictiveness, and perceptions of community safety are important to shaping the impact of the built environment on social health (Matthews et al., [2019](#); Kearns et al., [2015](#); Shiovitz-Ezra, [2015](#); Lee, [2010](#); Maas et al., [2009](#)). Promoting neighbourhood cohesion, contact between neighbours, and a sense of identification with one's community is therefore important to maximizing the benefits of community assets (Kang et al., [2022](#); Zhang et al., [2022](#); Fong et al., [2021](#); Dwijendra et al., [2021](#); Seifi et al., [2020](#); Johnson & Adeniji, [2019](#); Kemperman et al., [2019](#); Hand et al., [2018](#); Kearns et al., [2015](#)). Of course, factors that may influence these outcomes are diverse and include the availability of community assets, the ability for residents to become familiar with one another, and the tenure of residency (Nagata et al., [2023](#); Won & Lee, [2020](#); Leviten-Reid & Matthew, [2017](#); Karacor & Parlar, [2017](#); Szabo et al., [2017](#); Pajani & Buka, [2015](#); Gibson et al., [2011](#); Dempsey, [2008](#)). Notably, the promotion of social cohesion requires investments in community development, social programming, and event offerings (Glover et al., [2022](#); Stevenson, [2020](#); Khan & Bolina, [2020](#); Kotani & Yokomatsu, [2019](#); Quinn et al., [2010](#); Misner & Mason, [2007](#); Arcodia & Whitford, [2008](#)) – which have, arguably, been declining in prevalence for decades (Putnam, [2000](#); Oldenburg, [1999](#)). As well, it is important that communities be empowered to self-determine and that governance practices do not become a barrier to social connections and cohesion (Moore et al., [2023](#); van den Berg et al., [2021](#); Dury et al., [2017](#); Reid, [2015](#); Manton et al., [2013](#)).

## Analyses from The Canadian Alliance for Social Connection and Health

Using data from the Canadian Social Connection Survey, we tested the association between various built and social environment factors and de Jong Loneliness Scale scores, controlling for age, gender, ethnicity, and household income.

In these analyses, we first examined the role of the built environment. These analyses showed that compared to those living in rural or suburban areas, those living in a large urban centres were more likely to report loneliness ( $\beta = 0.202$ ,  $SE = 0.082$ ,  $p = 0.135$ ). Next, we examined the effects of housing type and found that compared to those living in single detached homes, living in a low-rise multi-unit buildings ( $\beta = 0.339$ ,  $SE = 0.115$ ,  $p = 0.003$ ) or in mobile homes or movable dwellings ( $\beta = 0.814$ ,  $SE = 0.320$ ,  $p = 0.011$ ) had higher loneliness, but there was no difference for those living in high rise apartment buildings ( $\beta = 0.100$ ,  $SE = 0.137$ ,  $p = 0.462$ ), nor other types of housing (e.g., row houses, secondary suites, semi-detached homes). However, higher housing satisfaction scale scores were associated with less loneliness ( $\beta = -$



0.086, SE = 0.008,  $p < 0.001$ ). A model constructed with rurality, housing type, and housing satisfaction accounted for 6.6% of the variation in loneliness scores.

Next, we looked at the role of the social environment. In these models, lower loneliness was associated with interacting with a higher number of neighbours ( $\beta = -0.015$ , SE = 0.004,  $p < 0.001$ ), spending more time with neighbours ( $\beta = -0.019$ , SE = 0.004,  $p < 0.001$ ), and having higher neighbourhood cohesion scale scores ( $\beta = -0.051$ , SE = 0.005,  $p < 0.001$ ). A model constructed with all of these social environment factor accounted for 5.7% of the variation in loneliness scores.

In a model with both the built environment and social environment factors included, we explained 8.3% of the variation in loneliness scores. The effects of housing satisfaction, housing type, and neighbourhood cohesion were identified as independently predicting loneliness. This suggests that the built environment itself and the social benefits accrued in these environments are both associated with lower loneliness.

Finally, we examined the effects of neighbourhood tenure. These results showed that longer neighbourhood tenure was not associated with lower loneliness ( $\beta = 0.0002$ , SE = 0.007,  $p = 0.972$ ), but it was associated with higher neighbourhood cohesion scale scores ( $\beta = 0.077$ , SE = 0.035,  $p = 0.028$ ).

## Discussion

Our social health is clearly shaped by the environments in which we live, work, and play and our neighbourhoods can serve as protective factors against loneliness. By building environments that facilitate social interaction, we can promote social and community health and take full advantage of the built environment in promoting social health and wellbeing.

However, it is important to note the built and social environments that exist today are the result of long-run trends in policy and decision-making. For example, since the 1960's there's been an explosion in the prevalence of single-person households (Snell, [2017](#)) – putting millions at risk for social isolation. Similarly, economic demands have led families to move across vast distances – fracturing our innate social networks. The decline of churches and other social groups has also left the social fabric of many communities threadbare (Putnam, [2000](#)) and divestments from community life, driven by austerity policy, have robbed us of opportunities to connect (Oldenburg, [1999](#)) and allowed our communities to be gentrified and priced out of their geographic homes. Reversing these trends will undoubtedly be difficult and require substantial investments at all levels of society.

Efforts to reverse the above noted trends should be evidence-based. As such, we must acknowledge that existing evidence on the efficacy of environmental social health interventions is limited (Hsueh, [2022](#)). As well, continued research is needed to understand the mechanisms at work in order to develop realistic theories of change – particularly in context of research showing that environmental factors have relatively limited explanatory power in describing variations in personal levels of loneliness (2-10%; Marquez et al., [2023](#); MacDonald et al., [2020](#); Moorer & Suurmeijer, [2001](#)). It is also necessary to identify how different groups are benefited differently by potential changes to the built and social environment. For example, Howley et al., ([2015](#)) report that relationships with neighbours have different effects for individuals based on



relationship and employment status. These differences may be relevant in instances where risk factors for loneliness might not align with the solutions being proposed. As well, if we are to understand the true impact of the built environment on social health, more studies are needed integrating both objective and subjective measures of the built and social environment. Community-based designs can ensure that the right elements are appropriately captured and measured.

## Conclusion

Based on the available evidence, we recommend that policy-makers consider social health in the design of buildings, neighbourhoods, and communities. This includes increasing greenspace and other attractive community features, improving walkability and transportation networks, and offering venues and spaces for people to come together. As well, efforts are needed to improve social relations and perceptions, facilitate social programming, and build social cohesion across different scales of community. Where feasible, such actions should be evidence-based, community-informed, and properly evaluated so as to maximize their potential impact.

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