



KEY POINT SUMMARY

OBJECTIVES

This critical review identified themes around the impact of the environment on mental health outcomes.

Mental health outcome measures in environmental design research: A critical review

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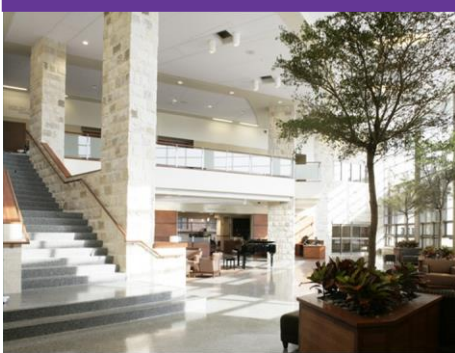
Key Concepts/Context

While recent studies show a relationship between well-being and the built environment, few focus specifically on mental health. This study found that access to nature and other design elements of the built environment can improve positive affect (pleasurable feelings), vitality (energy or aliveness), executive functioning (memory, concentration), mood, and general well-being—while also decreasing cortisol (stress). The findings highlight the beneficial relationship between environment and mental health outcomes and identify inconsistencies in the built environment research methodology.

Methods

Researchers completed a critical review of articles published between 2008 and 2019 that explored the impact of environmental variables on mental health. Because a meta-analysis was not possible with the reported results, researchers conducted a thematic analysis.

Articles were pulled from seven long-standing journals that scholars and practitioners widely use in environmental psychology. Researchers reviewed 841 articles related to the impact of built and natural environment variables – such as nature exposure – on health and well-being outcomes. Articles were further narrowed down according to inclusion criteria by reviewing the abstract and full text. The reviewers then entered key components of each study that met the selection criteria into a database, including: (1) research design, (2) sample size, (3) type of environment, (4) type of environmental exposure for participants, and (5) independent and dependent variables. Only articles on mental health outcomes with consistent and reliable mental health rating scales were included. In total, researchers selected 65 papers containing 69 studies. The top three study designs consisted of cross-relational (54%), experimental (29%), and quasi-experimental studies (12%).



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After the analysis, the researchers identified challenges and trends in research to describe and measure the built environment and six themes of mental health outcomes:

- Positive affect (feeling alert, energetic, and social) and negative affect (subjective distress, anger, fear)
- Mood and mood disorders (a sustained emotional state)
- Vitality (feeling of energy, aliveness)
- Executive functioning (access to working memory and concentration)
- Physiological biomarkers for mental health (heart rate, blood pressure, cortisol)
- General mental well-being.

Findings

Impact on Mental Health

- Nature exposure had a significant relationship with positive affect and mood, with a particularly strong impact on nature exposure for vulnerable populations, such as “children with autism spectrum disorder, low-income households, and high-stress groups.”
- Outdoor nature exposure had a positive impact on feelings of energy and aliveness (vitality)
- Indoor and outdoor nature exposure and quality and quantity of light significantly impacted task performance (executive functioning) and vitality.
- Indoor and outdoor nature exposure reduced stress and increased well-being.

Challenges and limitations in research on environment and mental health outcomes:

Research studies in this review focused on a variety of independent variables, including vegetation density, nature exposure, and design elements such as light and sound. There is a lack of consensus among researchers regarding how to measure, describe, and categorize green space. Methods included site visits, photo-elicitation, Geographic Information Systems (GIS) analysis, and self-reported environmental descriptors. There was a lack of specificity of types of green space (e.g., a lawn was in the same category as a forest). Studies on indoor environments only looked at isolated variables, such as lighting or noise, and excluded key factors and context, such as location, enclosure, and size. The authors found that studies looking at mental well-being often use abbreviated subsets of larger scales and don't report on internal consistency. Additionally, measures of short-term emotions are used as mental health outcomes rather than longer-term metrics, such as mood or behavior. Physiological markers showed much less sensitivity and significance than self-reported measures.



Limitations

The study only used articles from a few widely reputable environmental psychology research journals; this might have excluded relevant studies. Keywords used to find studies were broad (e.g., “well-being”), and could have missed studies on other mental health conditions.

Design Implications

1. Integrating green space into treatment centers, healthcare facilities, and other healthcare sites can help improve patient and staff short-term and long-term moods, life satisfaction, general well-being, and mental health.
2. Green spaces should be open and offer extensive visibility (to avoid negative affect from obstructed views).
3. Healthcare organizations should prioritize green spaces for environments where services are provided to vulnerable populations.

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