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Tracing the Evolution of Research on Urban Mental Health: A Bibliometric Analysis (1957–2023)

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Abstract

Introduction: Rapid urbanization presents a considerable challenge for public mental health. This study aimed to map the intellectual structure and evolution of research linking mental health to urban environments across a 66-year longitudinal perspective (1957–2023).

Methods: A dual-stage analysis was conducted on 923 Scopus-retrieved documents. First, quantitative bibliometric mapping (using VOSviewer and Biblioshiny) evaluated thematic trends and collaborative networks. Second, a qualitative content analysis of the most-cited sources was performed to categorize environmental threats and controlling features.

Results: A definitive spatial turn was identified, illustrating a shift from broad psychiatric observations to targeted spatial interventions. While daily urban stressors (e.g., stress, depression) are prominent, urban green spaces emerged as the main controlling feature, heavily reliant on integrated physical activity, walkability, and social cohesion. Crucially, the literature reveals severe methodological (an 80% dominance of quantitative methods over qualitative) and geographical (critical underrepresentation of the Global South) gaps.

Conclusion: Moving beyond generic nature-based solutions, this study demonstrates that effective urban mental health requires restorative, cohesive spatial planning. The significance of this study lies in identifying these structural gaps, providing a clear mandate for mixed-methods research and localized Global South studies to develop equitable, globally applicable healthy-city frameworks.

Keywords: Mental health, Urbanization, Urban health, Built environment, Bibliometrics

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Introduction

As the world is dealing with rapid urbanization, the built environment is shaping human psychological and emotional states. This connection between cities and mental health has emerged as a major health challenge of the current era. To address this challenge, it is essential to understand that mental health is a complex concept that includes an individual's experiences and abilities, and it is far more than the absence of illness (1). According to the World Health Organization (WHO), mental health is a state of well-being in which individuals can recognize their potential and overcome daily life's challenges, encompassing components such as pleasure, happiness, and social well-being (2).

The connection between urban life and mental health creates a duality of both risk and potential. Furthermore, rapid unplanned urbanization can lead to risks such as chronic stress, poor mental health, social isolation, homelessness, and informal housing. On the other hand, this duality offers a positive opportunity for local lawmakers, business owners, architects, and engineers to be involved in urban planning. Recently, there has been increased emphasis on designing and planning cities to enhance people's physical and mental health. Urban settings and their layout impact people's behavior, mental health, and even the level of physical activity (3). While this relationship is now well-acknowledged, the effort to systematically measure this impact and synthesize existing knowledge has recently started to gain serious attention (4).

To address this ongoing need, exploring available resources regarding the mental health-urbanization link is essential. Bibliometric analysis serves as a valuable tool to evaluate this literature, highlighting hidden trends and the underlying structure of the scientific field (5,6). This approach allows academics to detect knowledge gaps, manage substantial scientific data, and discover emerging research patterns, collaborative models, and the conceptual framework of a particular area in the current literature (7).

Recent bibliometric evaluations have documented a significant rise in academic interest in this field. However, earlier reviews have mainly focused on specific environmental interventions or specific demographics. For instance, a significant number of recent studies have concentrated on Urban Blue-Green Spaces or nature-based

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solutions (8-11). Similarly, other important studies have evaluated environmental impacts on specific groups, such as children's well-being (12) or senior mental health (13). While these specialized reviews provide essential insights, they often address mental health as a secondary outcome of specific urban features. As Van Winkle et al. (14) noted, the literature presents highly diverse perspectives, highlighting a need for a comprehensive evaluation that approaches "urban mental health" as a primary, cohesive construct rather than a fragmented outcome.

In addition to thematic boundaries, existing bibliometric analyses generally restrict their temporal scope to recent decades (8,10-12,15). While these timeframes successfully capture the rapid developments of recent mental health concepts, they unintentionally omit the earlier foundational periods of the field. Consequently, the historical development (illustrating how early medical and sociological perspectives gradually integrated into recent urban planning frameworks) remains underexplored in the current bibliometric literature.

Therefore, the present research aimed to map the historical and conceptual development of studies linking urban environments and mental health. Through a detailed bibliometric analysis (utilizing VOSviewer and Biblioshiny), this study identifies prominent keywords, authors, journals, countries, and structural shifts over time. An analysis of the most-cited documents then complements this quantitative picture to identify essential terms and critical concepts and to review the progress of studies over time. Furthermore, to address the limitations of prior reviews, the specific contribution of this paper lies in its expanded 66-year longitudinal perspective (1957–2023) and its broad, encompassing focus on "Urban Mental Health" rather than isolated environmental interventions. Ultimately, rather than claiming absolute uniqueness, this study provides a comprehensive, updated roadmap that bridges the gap between early theoretical origins and modern frameworks, offering a cohesive overview of the field's intellectual trajectory for future inquiry.

Materials and Methods

This research employed a comprehensive four-stage methodology, as visually outlined in Figure 1, to map the intellectual structure and evolution of studies linking urban environments and mental health. The stages ensure a rigorous and transparent process and the reproducibility of the results (Table S1).

Data identification and search strategy

The dataset for this study was identified from the Scopus database, selected for its extensive multidisciplinary coverage and high-quality citation indexing. Scopus is a comprehensive database that ensures reliability and can collect adequate data across a variety of disciplines, and is a suitable choice for mapping the intersection of urban environments and mental health. To ensure that the search captures only the most relevant studies, a specific search query was designed. The query focused on the keywords "mental health" AND "urban" within document titles (TITLE-ABS-KEY was avoided to eliminate studies where these terms appeared only peripherally). This search strategy was intentionally narrow to identify core studies in the field.

Data collection and inclusion/exclusion criteria

The initial search strategy yielded 923 documents published between 1957 and 2023, including articles, reviews, and book chapters. To ensure the scientific rigor and relevance of the dataset, a set of explicit inclusion and exclusion criteria was applied during the screening process.

Studies were included if they met the following criteria: (i) publication in English; (ii) classification as peer-reviewed articles, reviews, or book chapters; and (iii) direct relevance to the intersection of urban environments and mental health. The selected time span was intentionally broad to capture both the early foundations and the recent developments of the field.

Studies were excluded if they consisted of editorials, notes, short surveys, or duplicate records. Additionally, documents that did not directly address the core focus of urbanization and mental health were removed, as were publications in languages other than English.

Following the screening process, the finalized bibliometric dataset was exported from Scopus and prepared for

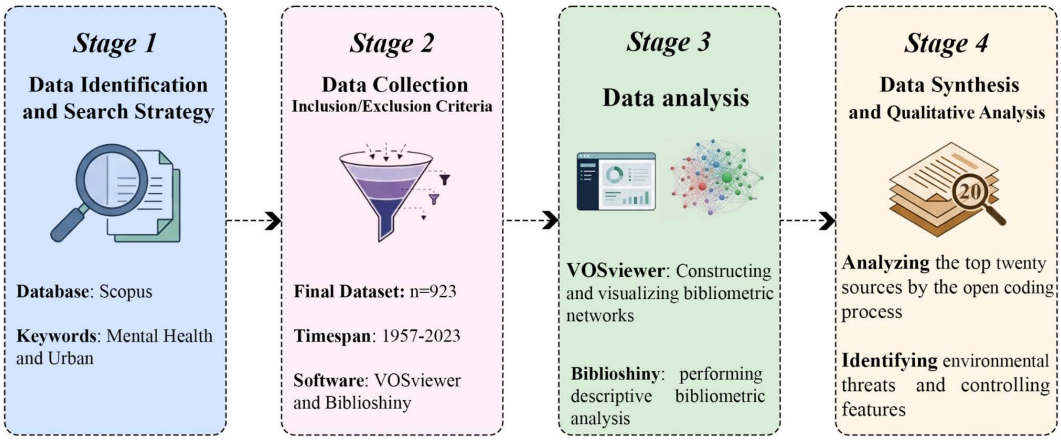


Figure 1. The four-stage methodological framework of the study

analysis. The bibliographic records were subsequently processed using VOSviewer and Biblioshiny to support the quantitative analyses described in the following sections.

Data analysis

The data analysis phase involved two main software tools, and all technical parameters and settings for these analyses are detailed in Table S1.

Biblioshiny (R package): This tool was used for performing descriptive bibliometric analysis, and it was chosen for its ability to handle large bibliometric datasets and provide detailed statistical insights, including annual growth rates, citation patterns, and source dynamics.

VOSviewer: This software was employed for constructing and visualizing bibliometric networks. VOSviewer was selected due to its advanced clustering algorithms and its capacity to represent complex relationships between keywords, authors, countries, and journals in a visual format, facilitating an understanding of the intellectual structure of the field.

Data synthesis and qualitative analysis

To deepen the interpretation of the bibliometric findings, a qualitative synthesis was conducted focusing on the most influential contributions within the literature. Bibliometric mapping identifies structural patterns and thematic clusters at an aggregate level; however, a closer examination of key publications is necessary to clarify how these themes are articulated within the core studies of the field.

Accordingly, the 20 most-cited articles were selected for qualitative review as representative and influential works. An open coding process was first employed to extract recurring concepts and urban-related mechanisms associated with mental health outcomes. These initial codes were then examined through qualitative content analysis, enabling their consolidation into higher-order thematic categories.

The synthesis resulted in the organization of findings into environmental threats and controlling features. This thematic structure aligns closely with the conceptual clusters identified in the bibliometric analysis and provides substantive insight into the dominant research concerns addressed by the most highly cited studies.

Overall, the qualitative synthesis complements the quantitative mapping by linking bibliometric clusters to their underlying conceptual content, thereby offering a more nuanced understanding of how urban environments influence mental health outcomes across the literature.

Addressing the validity and reliability of results

To ensure the validity and reliability of the research findings, this study employed methodological triangulation by integrating both quantitative and qualitative analytical approaches. Specifically, the quantitative bibliometric mapping of the 923 extracted documents (conducted via VOSviewer and Biblioshiny in Phase 1) was cross-verified through an in-depth qualitative content analysis of the 20 most-cited articles (Phase 2). This dual-stage design minimizes single-method bias, allowing the statistical trends identified in the network analysis to be contextualized and validated by the substantive qualitative findings. Furthermore, to maintain reliability during the qualitative phase, the open-coding process was conducted independently by two researchers, and any discrepancies were resolved through discussion to minimize subjective bias. This rigorous cross-validation ensures that the identified themes and factors are deeply grounded in empirical data.

Results

This section provides an overview of the documents and an analysis of the selected publications' keywords, countries, journals, affiliations, and authors.

Overview

The bibliometric overview reveals an academic interest in urban mental health over 66 years (1957–2023). As detailed in Table S2 by the Biblioshiny software, the dataset demonstrates robust scientific progress with an annual growth rate of 6.53% and a significant academic impact (averaging 19.71 citations per document). The collection of 923 documents highlights a highly collaborative and multidisciplinary field, evidenced by an average of 4.33 co-authors per document and an international collaboration rate of 18.31%. From an analytical perspective, these metrics illustrate that urban mental health has transitioned into a major, globally interconnected research domain, requiring multidisciplinary approaches.

Keywords analysis

This section focuses on the analysis of the keywords. While general keyword frequencies (According to Biblioshiny and Figure S1) identify fundamental terms like *depression, urbanization, anxiety,* and *COVID-19*, exploring their co-occurrence via VOSviewer provides a deeper thematic context.

Co-occurrence analysis

This analysis focuses on the actual content of the resources and depends on the terms occurring together that have a subject-related relationship. The usage of words as a unit offers limited insight into the thematic context. Therefore, analyzing how specific words appear together is essential to reveal their underlying conceptual relationships. Co-occurrence allows researchers to describe what is inside each cluster. This method can also assist in predicting future research (7).

Co-occurrence analysis in the network and overlay visualization

This section analyzes the subject area of the research, looking for keywords that the authors focused on in addition to the core topic of their study (mental health and urban), as well as how the keywords relate. Overall, VOSviewer identified 70 keywords mentioned by the authors, and 55 were selected after removing repeated and

generic content. The software output divided the keywords into eight clusters. Each node symbolizes a keyword, and its size reflects its importance. The thickness of the connecting lines represents the strength of the linkage between the two terms. Additionally, the keywords clustered together were strongly related and found in similar documents. Figure 2 illustrates the co-occurrence graphs, as explained.

Based on the overlay visualization (which tracks publication years), a clear evolution is evident. Emerging keywords (yellow nodes) such as *"COVID-19", "urban design", "physical activity",* and *"public health"* have been utilized in recent years. This indicates a shift in the literature: modern research is changing from passively diagnosing urban psychological problems toward proactive spatial interventions and post-pandemic urban planning.

Based on the network visualization (Table S3), core nodes with the highest total link strength (TLS) include *mental health (highest TLS 282 and occurrences 311), depression (TLS 86), urbanization (TLS 51), anxiety (TLS 49), urban (TLS 41), and stress (TLS 32)*. Rather than appearing as isolated medical issues, these terms are deeply connected with spatial keywords like *"built environment"* and *"quality of life."* The presence of topics such as *resilience, poverty, air pollution, green space,* and *social support* confirms that the mental health discourse in urban studies is also influenced by socio-environmental determinants.

The analysis of keywords based on the network visualization (Figure 2) reveals clusters ranked by their TLS. Moving beyond descriptive frequencies, the conceptual connections within these clusters offer critical inferences:

- **Cluster 2 (Green - 1st in TLS):** This highly significant cluster includes *"mental health*", "*adolescent", "built environment", "green spaces", "public health", "suicide", "urban design", and "violence*". Mental health and the built environment are closely linked here. This indicates that urban physical factors) Green spaces and intentional urban design) are directly researched as a tool for psychological well-being and violence reduction, positioning spatial planning as a strategy for preventive health care.
- **Cluster 5 (Purple - 2nd in TLS):** Featuring *"anxiety", "COVID-19", "depression", "migrant children", "resilience", and "urban planning"*. Keywords such as *depression, anxiety, and COVID-19* are strongly associated. This cluster indicates the intense psychological impacts of contemporary urban crises, suggesting that future urban planning must prioritize adaptable environments, particularly for vulnerable populations.
- **Cluster 1 (Red - 3rd in TLS):** Featuring "*urban", "poverty", "children", "mental health literacy", "community", "help-seeking", and "stigma"*. Here, urban poverty and mental health literacy are strongly related. Emphasizing the socio-economic obstacles to mental health, this implies that an urban environment should be accompanied by community-based social planning to effectively reduce stigma and improve health outcomes.
- **Cluster 4 (Yellow - 4th in TLS):** Including "*migration", "gender", "developing countries", and "urbanization"*. This demonstrates that rapid demographic changes and urbanization in developing contexts are key drivers of spatial and psychological challenges, requiring large-scale policy interventions.
- **Cluster 7 (Orange - 5th in TLS):** Grouping *"air pollution", "physical activity", "social cohesion", and "stress"*. Stress is strongly linked to keywords outside the cluster, such as mental health, urbanization, and public health. This reveals how environmental decline (like air pollution) functions as a significant urban stressor, highlighting the necessity for active transportation and socially inclusive urban areas.
- **Cluster 3 (Blue - 6th in TLS):** Featuring *"trauma", "epidemiology", "health disparities", and "primary care"*. The word trauma strongly links to "urban" outside the cluster. This indicates an increasing

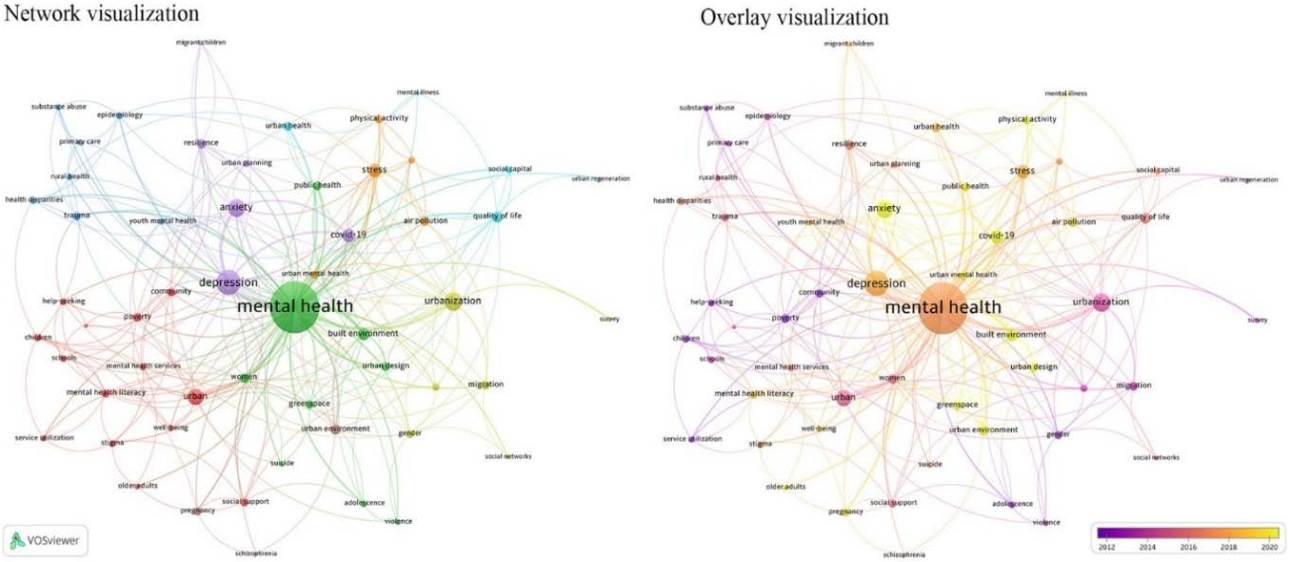


Figure 2. Co-occurrence analysis by keyword in the Network and Overlay visualization. Source: VOSviewer

epidemiological understanding that urban areas may be locations of systemic trauma, necessitating spatially focused health equity policies.

- **Cluster 6 (Light Blue - 7th in TLS):** Including "*quality of life*", "*social capital*", "*urban health*", and "*urban regeneration*". Quality of life is closely associated with urban health, as well as built environments and green spaces outside the cluster. This connects clinical ideas with urban renewal, suggesting that urban regeneration and the development of social capital directly improve public health metrics.
- **Cluster 8 (Brown - 8th in TLS):** Containing "*urban environment*" and "*schizophrenia*", with urban environment linking to urbanization and mental health. These highlights specialized clinical concerns related to the urban environment, underscoring the necessity for targeted environmental health studies on specific physiological and psychological conditions.

By synthesizing these clusters, the network reveals that "Mental Health" (the central node) functions as a connection where physical environments, socio-economic disparities, and contemporary shocks intersect, requiring comprehensive rather than isolated research approaches.

Analysis of countries

This section focuses on the analysis of the countries. As detailed in the countries' collaboration map (Figure S2), the USA, China, the UK, and Canada dominate global scientific production. In terms of macro-level collaboration, the strongest cooperative links are between the USA and China, followed by the USA and the UK.

Co-authorship analysis

Co-authorship analysis examines the connections between researchers and their countries (16). Researchers working together can enhance the research field. Additionally, analysis can shed light on studies with specific topics and allow researchers to investigate intellectual development paths in collaborative networks across periods (7).

Co-authorship analysis in the network and overlay visualization

The co-authorship networks (Figure 3) demonstrate the intellectual interaction and spatial evolution of urban mental health research.

The overlay visualization reveals the temporal evolution of publications. Foundational frameworks largely originated from early contributors in the Global North (the USA and UK, represented by purple nodes). In contrast, countries such as China (yellow nodes) have recently emerged as central contributors, indicating a dynamic shift in the research field.

Based on the network visualization and Table S4, while the USA (*TLS 108*) and the UK (*TLS 101*) maintain the highest TLS globally, analyzing the co-authorship clusters reveals distinct geopolitical and developmental patterns. Moving beyond descriptive counts to address the spatial and developmental realities of these collaborations, the seven clusters can be analyzed through three core thematic inferences:

- **The Global North and Developed Countries (Clusters 3, 4, and 6):** The fourth cluster (yellow) is the most significant based on TLS. Within this cluster, nations such as England and Italy established strong connections, while the UK established valuable connections outside the cluster with China, Canada, and the USA. The sixth cluster (light blue) includes Ireland, Peru, and the USA, with the USA broadly collaborating outside the cluster with the UK, Canada, China, and the Netherlands. The third cluster (blue) features Spain and the Netherlands, with the Netherlands collaborating externally with the USA, Canada, and the UK.

Inference: The close connections between these three clusters reflect strong academic networks and a common research focus on urban challenges (e.g., aging infrastructure, urban regeneration) and their impacts on mental well-being. The USA and UK act as key intermediaries, connecting these European networks to

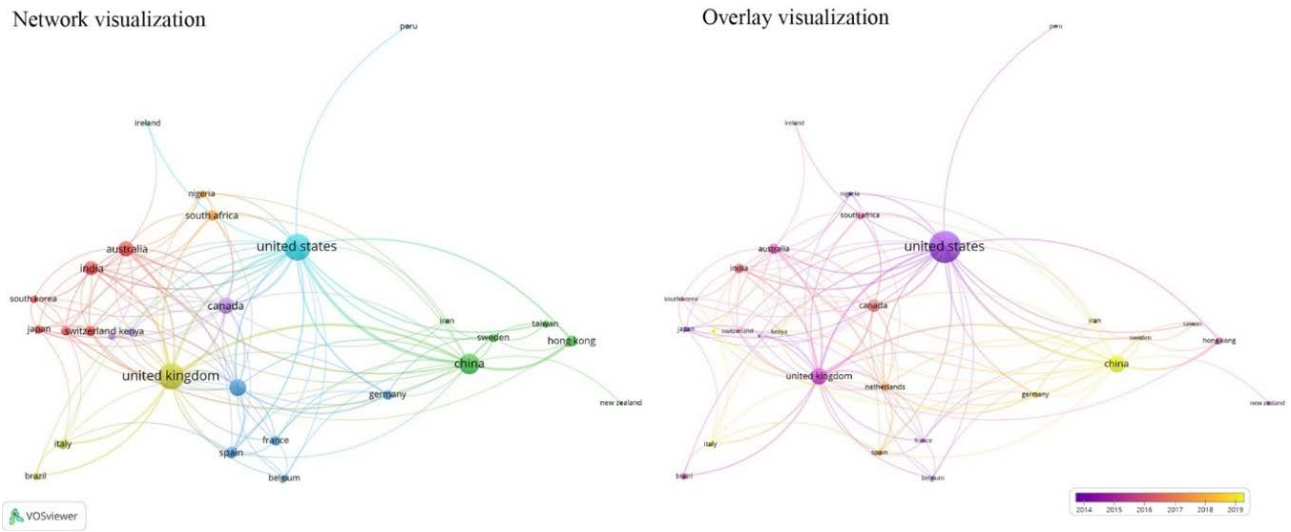


Figure 3. Co-authorship analysis by country in network and overlay visualization, Source: VOSviewer

the global community.

- **The Asian Rapid-Urbanization Countries (Cluster 2):** The second cluster (green) is the fourth-highest-ranked cluster and contains countries such as China, Japan, Iran, New Zealand, Sweden, and Taiwan. China, Japan, and Sweden are the most active here, with China also interacting considerably with Japan and the USA outside of the cluster.

Inference: This cluster illustrates a local reaction to extreme urban density, environmental pressures, and rapid socio-spatial changes. China's notable engagements beyond the cluster highlight its growing position as an essential link, incorporating Eastern city case studies into research frameworks primarily influenced by the West.

- **The Collaboration of Global North-South Countries (Clusters 1, 5, and 7):** The first cluster (red), the third most significant, includes Australia, India, and Switzerland, with Australia linking externally to China, the USA, the UK, and Canada. The fifth cluster includes Kenya, Pakistan, and Canada, with Canada showing broad external links. The seventh cluster (orange), while the least significant in TLS, includes South Africa and Nigeria, with South Africa collaborating externally with the USA, Canada, India, and the UK.

Inference: Despite the historical marginalization of certain nations in bibliometric performance, increasing engagement by developing countries (India, Kenya, Nigeria, South Africa) with central nations suggests growing academic acknowledgment of the mental health field. This highlights the need for cross-cultural studies that address mental health inequalities in informal settlements and fast-developing cities in the Global South.

Journals and affiliations analysis

The analysis of institutional affiliations (According to Biblioshiny and Figure 4) reveals a significant evolution in the geography of urban mental health research. The data illustrate a shift from early North American dominance toward a more globally distributed research field. While institutions such as the University of Illinois at Chicago (69 papers) and the University of Toronto (47 papers) have anchored the field, there is a rapid emergence of universities from regions experiencing massive urban transformations, such as Fudan University (China) and the University of the Witwatersrand (South Africa). This indicates that urban mental health research is expanding beyond Global North contexts.

Bibliographic coupling analysis

Bibliographic coupling is a scientific mapping method that assumes that two publications that share sources also share similar content (17,18). The main objective of this analysis is to categorize publications into thematic clusters based on shared resources (19). Additionally, bibliographic coupling can be helpful for academics seeking to investigate a wide range of themes and the most recent developments (7).

Bibliographic coupling analysis in the network and overlay visualization

The bibliographic coupling (Figure 5) demonstrates the thematic integration and paradigm shifts across journals in the field of urban mental health.

The overlay visualization (Figure 5) illustrates the evolution of publications. Most earlier studies appeared in psychiatric journals (e.g., *Social Psychiatry and Psychiatric Epidemiology*, *Journal of Child and Family Studies*). However, recent studies (shown in yellow nodes) are progressively appearing in journals that focus on environmental topics, such as *Urban Forestry and Urban Greening* and *Environmental Research*. This evolution indicates a crucial shift in the field. Urban mental health is increasingly recognized not as a clinical issue, but as a structural and interdisciplinary challenge strongly reliant on urban planning, green infrastructure, and urban design.

The network visualization (Figure 4 and Table S5) categorizes these journals into unique interdisciplinary clusters based on their TLS. Instead of functioning in separate silos, the high bibliographic coupling strength indicates strong interdisciplinary exchange between mental health and urban studies:

- **The Spatial-Environmental Health Core (Clusters 3 & 4):** This core drives the field's interdisciplinary discourse. Cluster 3 (Blue - 1st in TLS), anchored

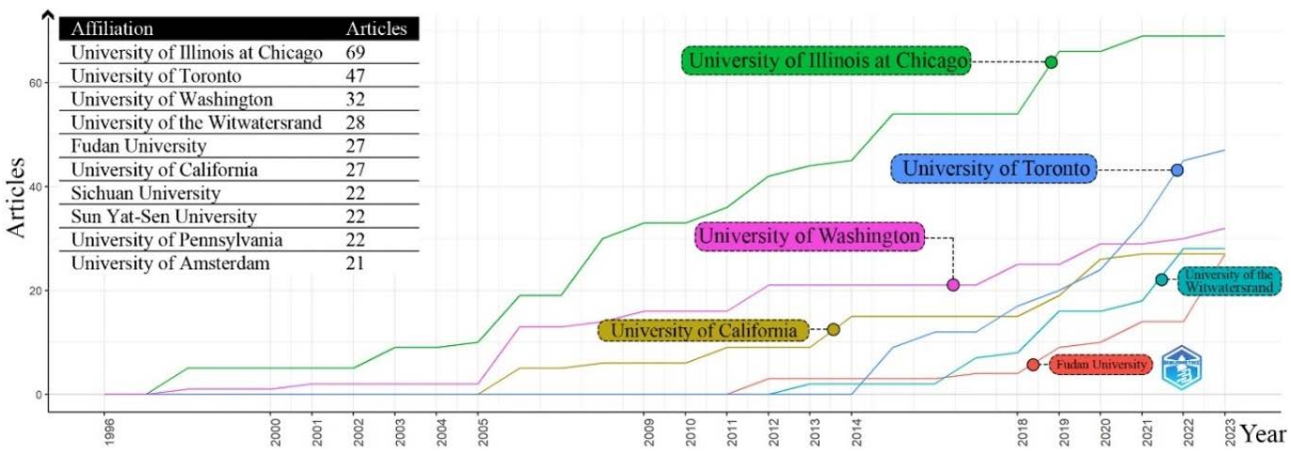


Figure 4. Source Dynamics based on affiliations, Source: Biblioshiny

by *the Environmental Research* (TLS 158) and the *International Journal of Environmental Research and Public Health* (TLS 124). Closely related is Cluster 4 (2nd in TLS), comprising *Health and Place* (TLS 139) and *Landscape and Urban Planning*. The strong coupling between these journals (alongside highly active sources like *Urban Forestry and Urban Greening* (TLS116)) indicates that Environmental Research is now the central backbone of mental health research.

- **The Clinical and Social Outcomes Group (Clusters 2 & 1):** These clusters provide context for the spatial data. Cluster 2 (Green - 3rd in TLS), linking spatial findings to demographic weaknesses through journals like the *Journal of Child and Family Studies* and *Social Science and Medicine* (TLS 76). Finally, Cluster 1 (Red), which includes journals such as the *International Journal of Social Psychiatry* and *Current Opinion in Psychiatry*, has the lowest TLS. However, it plays a vital role in establishing the psychiatric framework through which the health outcomes of the environmental interventions in the core clusters are measured and evaluated.

Author's analysis

This section reveals information about authors working in the field of mental health and urban areas.

Co-citation analysis

Co-citation is a scientific mapping method that occurs when a third, later publication cites two documents together (20). This analysis helps reveal the intellectual framework of a research field (21). Academics use this analysis as a benchmark to identify essential articles, researchers, and knowledge bases (7).

Co-citation analysis in the network visualization

The co-citation analysis by the author (Figure 6) reveals the fundamental theories that drive urban mental health studies. Among 53,187 referenced authors, a primary network of 68 researchers (each with a minimum of 50 sources) defines the intellectual structure of the field. The network visualization illustrates that research in this area is not solitary but organized around three unique, yet deeply interconnected, intellectual groups:

- **The Environmental and Spatial Health (**Green - 1st in TLS**):** Anchored by pioneers in environmental health and restorative environments such as Nieuwenhuijsen (TLS 6196, 133 citations) and Hartig (TLS 6133, 174 citations), alongside Dadvand and White, this cluster infers a major disciplinary focus. It emphasizes that spatial planning and access to natural urban features (such as green and blue areas) are currently the most significant factors for addressing urban mental health.

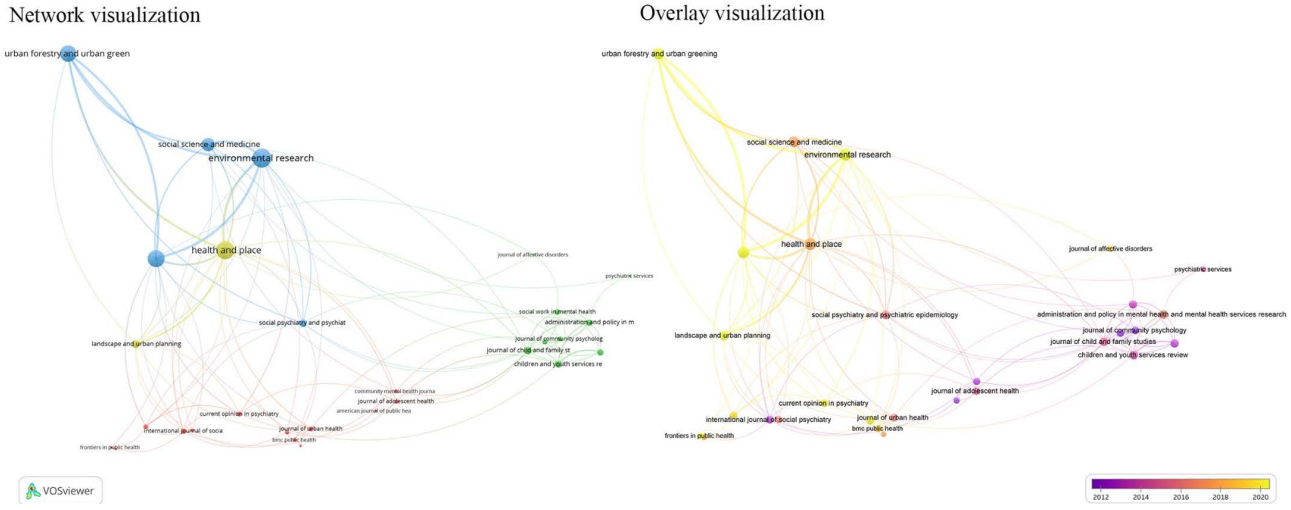


Figure 5. Bibliographic coupling analysis in network and overlay visualization. Source: VOSviewer

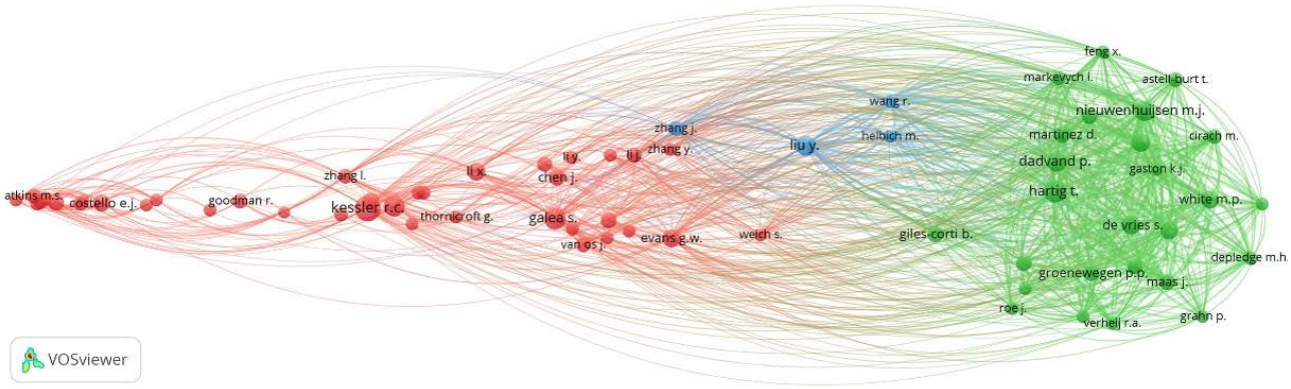


Figure 6. Co-citation analysis in network visualization. Source: VOSviewer

- **The Psychiatric and Social Health (Red):** This cluster forms the clinical and social foundation of the field. Led by notable authors such as Kessler and Galea, this cluster provides diagnostic metrics (e.g., psychiatric distress scales) and social determinants frameworks essential for assessing spatial interventions. The strong links between this cluster and the green cluster demonstrate a vital interdisciplinary connection. Spatial and urban planners are directly relying on established psychiatry to validate their built-environment models.
- **The Rapid Urbanization and High-Density Contexts (Blue):** A smaller but specialized cluster, led by researchers such as Liu and Zhang, acts as a connector within the network. This group indicates a growing intellectual emphasis on the specific socio-environmental mental health impacts characteristic of rapidly urbanizing contexts, particularly in Asia.

Relationships among top keywords, journals, affiliations, authors, and countries

The relationships among the most significant bibliometric elements were visualized using a three-field plot analysis (Sankey diagrams), demonstrating how geographical, institutional, and individual strengths translate into specific thematic outputs (Figure 7). In this visualization, the height of the rectangles indicates their significance, and the thickness of the connecting lines reflects the strength of the association between the elements. The analysis is divided into three levels:

- **The Centrality of the Environmental Perspective (Top Panel):** The visualization demonstrates that the core knowledge flow does not come from clinical psychiatry, but instead from an environmental aspect. Leading environmental authors (e.g., Nieuwenhuijsen and Hartig) primarily focus their research in wide-ranging journals (e.g., *International Journal of Environmental Research and Public Health*, *Health and Place*). The significant agreement among authors and journals on the keywords "Mental Health" and "Urbanization" confirms that environmental factors are currently recognized as the main lenses for addressing urban mental health.
- **Institutional Interdisciplinarity (Middle Panel):** Major North American institutions (e.g., University of Illinois at Chicago, University of Toronto) serve as global knowledge centers. Instead of focusing on publishing in isolated disciplinary journals, these institutions direct a significant volume of diverse research topics into cross-disciplinary environmental health journals. This demonstrates a structural shift in academic priorities, where institutions are increasingly supporting interdisciplinary urban-health approaches over standalone clinical research.
- **Geographical Division of Research Focus (Bottom Panel):** The country-level data indicate a clear geographical concentration in research results. The USA manages the widest network, significantly focusing on clinical results like "Depression" and "Mental Health". On the other hand, China's growing network illustrates a distinct path linking essential mental health research with urgent urban crises and environmental changes (especially "COVID-19" and rapid urbanization). This suggests that Western studies focus on outcomes, while new Asian research is adaptable to rapid socio-spatial changes.

Evolution of research themes (1957–2023)

The timeline analysis (Figure 8) shows a fundamental "spatial turn" in the field of urban mental health over the past seven decades.

- **Evolution of Thematic Focus:** The keyword evolution illustrates a significant concept change. Early periods (1957–1980) framed mental health through large-scale socio-economic lenses (e.g., "Economics," "Urban renewal"). However, recent years (2011–2023) have highlighted a transition towards bio-spatial concepts, as illustrated by the introduction of terms such as "Oxidative stress". This suggests that the field has evolved from studying general urban issues to measuring precise physiological responses to specific urban environmental factors.
- **Evolution of publication:** The path of publishing demonstrates how urban mental health has evolved from a clinical field to a spatial and environmental one. The initial dominance of psychiatric journals (*e.g., the American Journal of Orthopsychiatry*) has been entirely replaced by spatial and environmental publications *(e.g., Health & Place*, *IJERPH*). The succession of authors (from classic psychiatrists to contemporary spatial epidemiologists) confirms that the current academic agreement sees urban mental health as an issue of spatial planning and environmental exposure, rather than strictly a psychiatric shortcoming.

Analysis of cited sources

A comprehensive review of the most cited documents identified by VOSviewer (Figure 9 and Table 1) moves beyond descriptive categorizations to determine the mental health-threatening factors, methods, and controlling urban features.

The methodological asymmetry

The overwhelming dependence on quantitative methods (80%) versus qualitative approaches (20%) reveals a critical epistemological gap in the field. While quantitative methods (e.g., GIS buffering, large-scale surveys) accurately map correlations, the lack of qualitative depth limits the understanding of social factors.

Prevalence of stress, depression, and anxiety

The analysis of mental health-threatening factors reveals a prominent focus on "Stress" (29%), "Depression" (27%), and "Anxiety" (22%), compared to a significantly lower focus on severe psychiatric disorders like Schizophrenia (8%). This distribution infers that the literature mainly

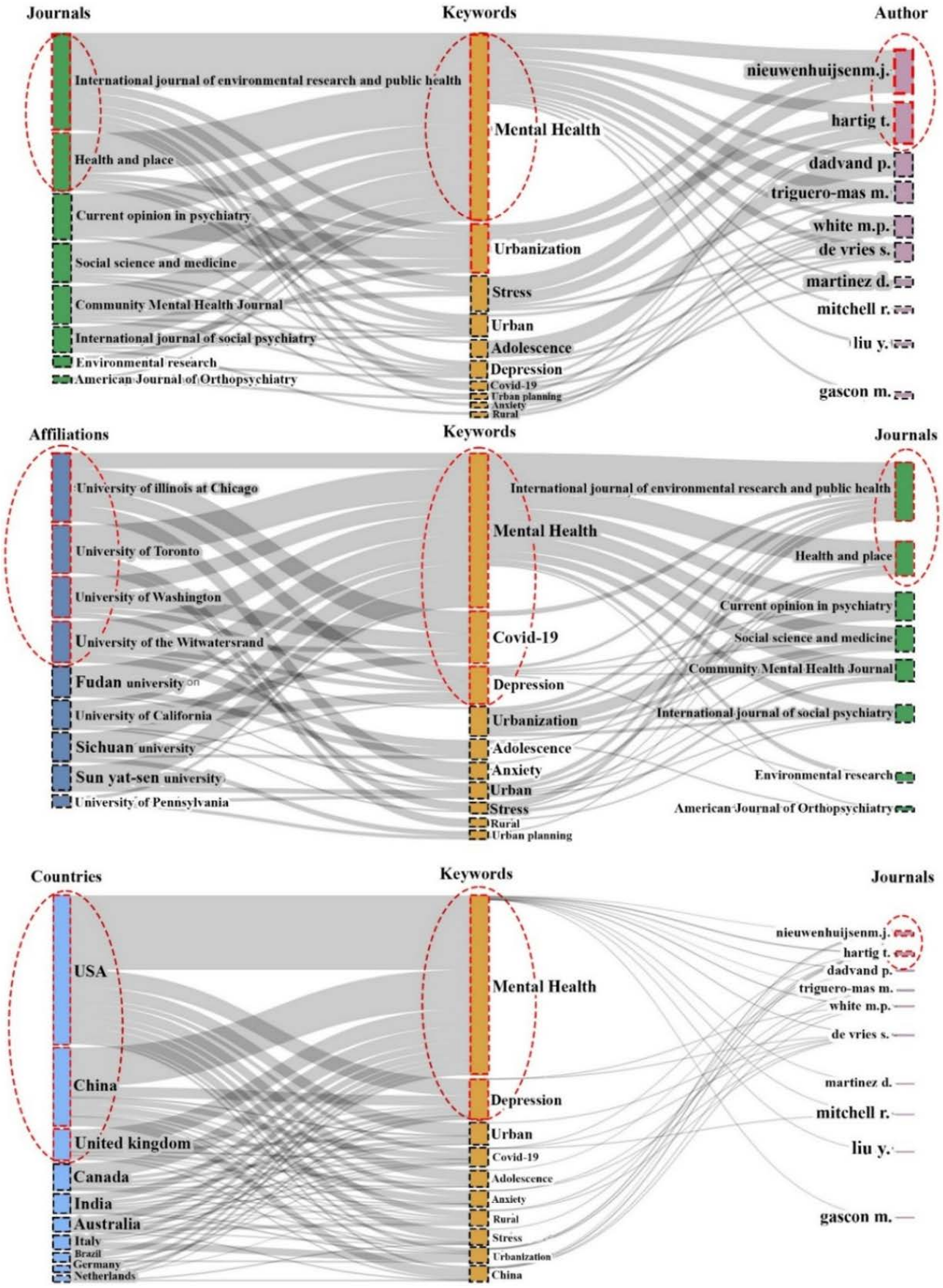


Figure 7. Keywords, Journals, Affiliations, Authors, and Countries Relations, Source: Biblioshiny

conceptualizes the recent urban environment as a source of continuous, daily stressors (such as noise, crowding, and visual pollution) rather than just a trigger for acute disorders. Consequently, these findings highlight that urban environments continuously affect residents' daily mental well-being, emphasizing the critical need for

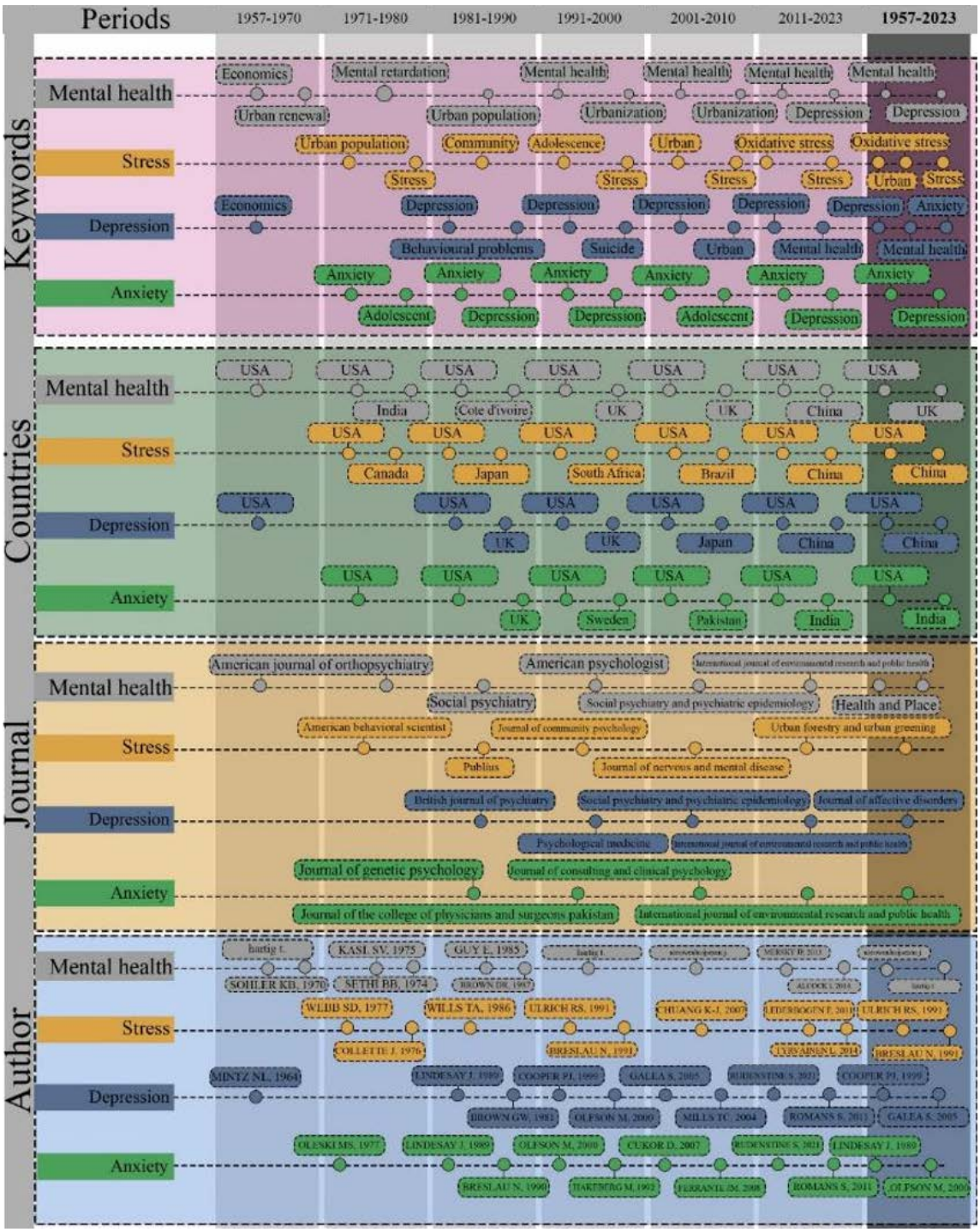


Figure 8. Timeline evolution of Keywords, Countries, Journals, and Authors across four mental health themes

restorative urban design strategies to mitigate everyday urban pressures.

Controlling features

The analysis of controlling features indicates that "Urban green spaces" is the main factor controlling mental health threats. However, the data also show a strong connection with functional and social factors, notably "Walking spaces", "Social cohesion", and "Physical activity". This indicates that green infrastructure in urban planning functions as much more than a spatial amenity. The literature suggests that physical urban environments are more successful in enhancing mental health when actively designed to facilitate physical activity and social encounters. Therefore, effective urban mental health interventions require a combined approach, where environmental improvements directly support community and active mobility.

Discussion

This study mapped the intellectual structure and evolution of urban mental health research over 66 years (1957–2023). While previous bibliometric reviews have focused on specific interventions, such as urban blue-green spaces (9,14), or specific demographics (12,13), this research situates these recent trends within a wider historical continuum. Integrating bibliometric mapping

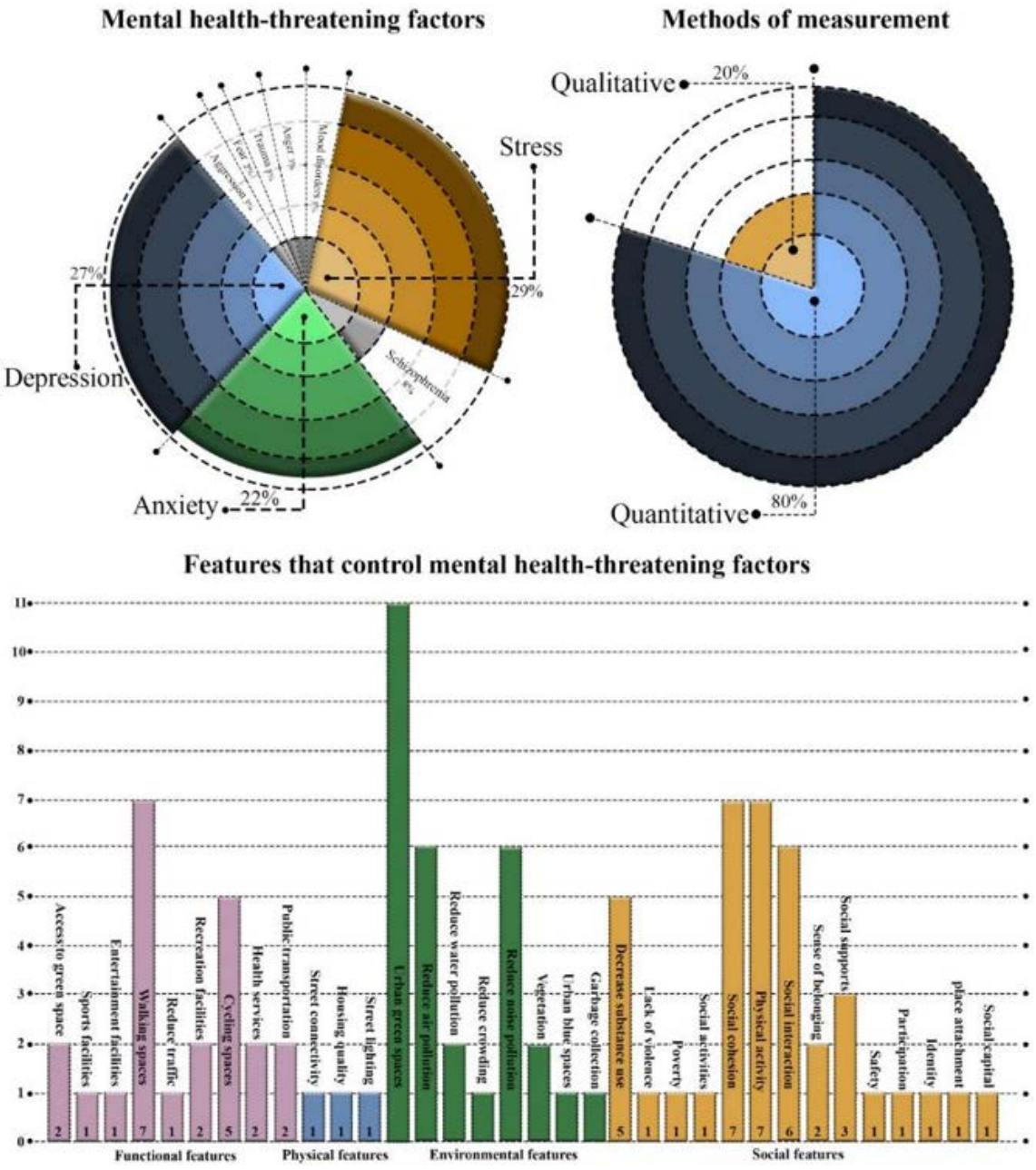


Figure 9. Analysis results of threatening factors, measurement methods, and controlling features

of 923 documents with qualitative content analysis of the most-cited papers reveals a clear "spatial turn" in the field, transitioning from broad socioeconomic observations to focused, environment-oriented studies.

Evolution of themes and the spatial turn

The timeline analysis reveals a fundamental "spatial turn" in the understanding of the relationship between the city and mental health, transitioning from general psychiatric and socio-economic observations to specific environmental factors. This development aligns with the findings of Jia et al. and Qu et al, who noted that healthy urban planning literature has shifted from basic theories to exploring specific health mechanisms.

However, while recent bibliometric reviews have framed recent urban mental health almost exclusively through the lens of Urban Green and Blue Spaces and Nature-Based Solutions (8,9,12,13), the extended 66-year scope of the present study provides a broader context. It is demonstrated that the current reliance on green infrastructure is not an isolated trend, but rather a spatial response to deeply rooted historical urban stressors, such as high density and urban renewal policies. Furthermore, the recent prominence of biological and clinical indicators (e.g., depression) in the co-occurrence analysis directly supports the findings of the study by Shen et al. that the field is increasingly focused on the neurobiological pathways linking environmental exposure to mood disorders. As highlighted by Van Winkle et al, existing research is heavily focused on the natural environment's role in stress reduction, often neglecting the broader built environment. To address this, the current findings support the recommendations of Wang et al, emphasizing that future urban design must move beyond providing physical green spaces. It is critical to investigate

Table 1. Systematic analysis of the selected sources

Author, year	Citation	(Except mental health)	Methods of measurement	Mental health Threatening factors	Features that control mental health-threatening factors			
					Functional features	*Physical features*	*Environmental features*	*social features*
(22)	411	Adverse childhood experiences, Substance use	Quantitative, Chicago Longitudinal Study.	Depression, Anxiety				Decrease substance use
(23)	380	-	Quantitative, GHQ for five years.	Depression, stress			Urban green spaces	-
(24)	292	Green space, GIS, Urban planning, Accessibility	Quantitative, A cross-sectional examination	Anxiety, mood disorder	Standard distance to usable green space		Urban green spaces reduce air and water pollution.	-
(25)	249	-	Qualitative- Descriptive and analytical	Depression, stress, anxiety, Schizophrenia, Fear			Reduce pollution, crowding, and noise	Lack of violence, poverty
(26)	218	Restoration, Mood, Personal projects, Setting	Quantitative variables inserted by ANOVA	Depression, stress	Sports and Entertainment facilities, Walking spaces		Urban green spaces	-
(27)	184	-	Quantitative, Data from 9777 subjects in the Household Survey	Depression, stress, anxiety				Decrease substance use and social activities
(28)	171	Air pollution, green space, Mediation, Noise, Physical activity, Restoration, Social cohesion, Stress	Quantitative, cross-sectional survey data from 399 participants, GHQ	Stress, aggression, anxiety, depression	Reduce traffic and recreation facilities		Reduce pollution, noise, and Urban green spaces.	Social cohesion, Physical activity
(29)	162	-	Quantitative, 3mental health outcomes examined in 46786 participants	Depression, stress, anxiety			Urban green spaces, vegetation	-
(30)	150	Adolescent, Physical activity, Sedentary behavior, Life satisfaction	Quantitative, a school-based cross-sectional survey	Stress, aggression, anxiety, depression	Walking and cycling spaces			Physical activity
(31)	142	Spatial context, Exposure assessments, Dynamic exposures, Residential life course	Qualitative- Descriptive and analytical	Anxiety, depression, trauma, stress, mood disorders	Walking and cycling spaces		Urban green spaces	Social cohesion, Physical activity, social interaction, sense of belonging
(32)	140	Urbanization, psychiatry, social support, life events, depression, developing countries	Qualitative, Descriptive, and Analytical	Anxiety, depression, stress, Schizophrenia,	health services		Reduce noise	Decrease substance use, social cohesion
(33)	133	-	Quantitative, consisting of 173 participants	Stress, anxiety, depression				Decrease substance use
(34)	130	-	Quantitative, systematic observations, qualitative interviews, MHI-5	Stress, depression	Standard distance to usable green space, walking, and cycling spaces	street connectivity	Reduce pollution, noise, and Urban green spaces	Physical activity, social interaction
(35)	121	Air pollution, Annoyance, Greenness, Physical activity, Restoration, Social cohesion, Traffic, noise, Water	Quantitative, NDVI, GHQ	Stress	Walking and cycling spaces		Reduce pollution, noise, Urban green and blue spaces, vegetation	Social cohesion, Physical activity, and social interaction
(36)	121	Neighborhood violence, Women's health, Neighborhood effects on health	A quantitative, longitudinal study	Stress, anxiety, depression, trauma				Social supports
(37)	118	-	In a quantitative, longitudinal study, 503 persons were re-interviewed using the same questionnaire after 10 years.	Stress, anxiety, depression, Schizophrenia,				Social interaction, social supports
(38)	112	-	Qualitative, Systematic review	Stress, Schizophrenia, depression		Housing quality	Reduce pollution	Social interaction, social cohesion, safety, Participation, Identity, sense of belonging
(39)	111	Green space, Physical activity, public health, Active lifestyle	Quantitative, 308 questionnaires	Stress	Walking and cycling spaces, public transportation		Urban green spaces	Physical activity, social interaction, social cohesion, place attachment
(40)	111	Nature-based therapy	Quantitative, questionnaire, DASS21	Stress, Schizophrenia, depression, anxiety, anger	Walking spaces		Urban green spaces	Physical activity, social supports
(41)	110	Neighborhood; Urban; Mental health; Health disparities	Quantitative, GHQ, ANOVA	Stress, depression, anxiety, and anger	Public transportation, health services, recreation facilities,	Street lighting	Urban green spaces, garbage collection	Social capital, decreased substance use, and social cohesion

the interactive and mediating effects of human behavior, walkability, and social perception to fully understand how spatial interventions mitigate everyday urban psychological pressures.

Methodological shifts and multidisciplinary integration

The analysis of the most cited references shows a methodological asymmetry (an 80% reliance on quantitative methods versus 20% on qualitative). While quantitative tools effectively map physical urban environments (11,12), this imbalance limits understanding of vital social factors such as cohesion. As Wu et al. argue, quantitative metrics alone cannot capture these complex social dimensions (13). Therefore, future research must adopt mixed-methods approaches, integrating qualitative perspectives to understand subjective urban well-being and lived experiences fully.

Geographical disparities and contextual gaps

The spatial distribution of publications highlights a severe geographical imbalance. A vast majority of the most cited research originates from Western countries and, more recently, China. This reflects the findings of Silva et al. and Jia et al, who similarly identified a concentration of healthy city research in high-income regions. The present analysis further emphasizes that urban mental health challenges in the Global South, where rapid urbanization and informal settlements create unique psychological stressors, are critically underrepresented. As discussed in the context of global urban health (9), conclusions drawn from European or North American contexts about green space and mental well-being cannot be universally implemented without considering differing socio-economic structures, cultural behaviors, and climatic conditions. Therefore, a shift is required to encourage localized empirical studies in developing nations.

Limitations

While this study provides a comprehensive longitudinal perspective by spanning 66 years, certain limitations must be acknowledged. The literature search was restricted to specific databases and limited to documents published in English, which, as Silva et al. also noted, may exclude valuable research published in regional databases. Additionally, bibliometric mapping is inherently quantitative; therefore, while it effectively identifies thematic clusters and evolutionary trends, it cannot fully capture the qualitative nuances of studies.

Future research should enhance these broad bibliometric findings with systematic literature reviews focused on specific spatial interventions and their direct psychological outcomes.

In summary, over the past 66 years, urban mental health research has evolved from a broad socioeconomic inquiry into a highly specialized, interdisciplinary field focused on specific environmental factors. Advancing this field requires moving beyond isolated interventions toward equitable, inclusive, and globally representative urban planning strategies that address the complex psychological needs of diverse populations.

Conclusion

This study synthesized the 66-year history of urban mental health research, illustrating how the field has definitively shifted towards environment-centric studies. The overarching evidence confirms that while dense urbanization naturally brings about complex psychological stressors, targeted spatial interventions act as a key protective factor. These findings confirm that urban mental health has evolved from a purely psychiatric and socioeconomic issue into a crucial aspect of urban planning.

Implications for Policy and Practice

For urban policy and practice, this evolutionary change requires moving beyond simply offering disconnected green spaces. Effective healthy-city strategies must integrate nature-based solutions with active mobility, walkability, and design elements that foster social cohesion. Planners and policymakers should aim to design interactive, restorative urban environments that actively mitigate the everyday psychological pressures associated with high-density living.

Future Research and Dissemination

To advance the field, future research needs to address critical methodological and geographical gaps identified in this study. There is a need to balance the current dominance of quantitative spatial metrics with qualitative, mixed-methods approaches that capture the subjective, lived experiences of urban populations. Furthermore, academic attention must expand beyond Western contexts and China. Prioritizing localized empirical studies in the Global South is essential to understanding the unique psychological dynamics of rapid urbanization and informal settlements, thereby developing more equitable and globally applicable mental health frameworks.

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Competing Interests

The authors declare that there are no known financial or non-financial competing interests that could have appeared to influence the work reported in this paper.

Ethical Approval

There were no ethical issues in writing this article. All authors certify that all data collected during the study are as stated in the manuscript and no data from the study have been or will be published separately elsewhere.

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Supplementary Files

Supplementary File 1 contains Figures S1- S2 and Tables S1- S5.

References

1. Ryan RM, Deci EL. On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. Annu Rev Psychol 2001;52(1):141-66. doi:10.1146/annurev.psych.52.1.141
2. Roe J, McCay L. *Restorative Cities: Urban design for mental health and wellbeing*: Bloomsbury Publishing; 2021.
3. Okkels N, Kristiansen CB, Munk-Jørgensen P, Sartorius N. Urban mental health: challenges and perspectives. Curr Opin Psychiatry 2018;31(3):258-64. doi:10.1097/yco.0000000000000413
4. Sarkar A, Pujara T. Perceptions of urban environment indicators associated with mental well-being: a stakeholder investigation. Cities Health 2025;9(2):273-97. doi:10.1080/23748834.2025.2480480
5. Pritchard A. Statistical bibliography or bibliometrics. J Doc 1969;25:348.
6. Tahai A, Rigsby JT. Information processing using citations to investigate journal influence in accounting. Inf Process Manag 1998;34(2-3):341-59. doi:10.1016/s0306-4573(97)00082-4
7. Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM. How to conduct a bibliometric analysis: An overview and guidelines. J Bus Res 2021;133:285-96. doi:10.1016/j.jbusres.2021.04.070
8. de Sousa Silva C, Bell S, Lackóová L, Panagopoulos T. A Bibliometric Analysis on Designing Urban Green and Blue Spaces Related to Environmental and Public Health Benefits. Land (Basel) 2025;14(6):1230. doi:10.3390/land14061230
9. Wang K, Sun Z, Cai M, Liu L, Wu H, Peng Z. Impacts of Urban Blue-Green Space on Residents' Health: A Bibliometric Review. Int J Environ Res Public Health 2022;19(23):16192. doi:10.3390/ijerph192316192
10. Qu S, Li H, Wu J, Zhao B. Environmental and Health Benefits: A Bibliometric and Knowledge Mapping Analysis of Research Progress. Sustainability 2025;17(5):2269. doi:10.3390/su17052269
11. Shen YS, Wu X, Li PY, Xu L, Liu BQ. Bibliometric Insights into Green Spaces and Mental Illness: Trends, Challenges, and Emerging Frontiers. Urban Sci 2026;10(1):35. doi:10.3390/urbansci10010035
12. Kang Y, Guo Z. Connecting urban green and blue spaces with children' health: a bibliometric analysis in CiteSpace and VOSviewer. Front Psychol 2025;16:1560467. doi:10.3389/fpsyg.2025.1560467
13. Wu X, Shen YS, Cui S. Global Trends in Green Space and Senior Mental Health Studies: Bibliometric Review. Int J Environ Res Public Health 2023;20(2):1316. doi:10.3390/ijerph20021316
14. Van Winkle T, Kotval-K Z, Machemer P, Kotval Z. Health and the Urban Environment: A Bibliometric Mapping of Knowledge Structure and Trends. Sustainability 2022;14(19):12320. doi:10.3390/su141912320
15. Jia B, Chen Y, Wu J. Bibliometric Analysis and Research Trend Forecast of Healthy Urban Planning for 40 Years (1981-2020). Int J Environ Res Public Health 2021;18(18):9444. doi:10.3390/ijerph18189444
16. Acedo FJ, Barroso C, Casanueva C, Galán JL. Co-Authorship in Management and Organizational Studies: An Empirical and Network Analysis*. Journal of Management Studies 2006;43(5):957-83. doi:10.1111/j.1467-6486.2006.00625.x
17. Kessler MM. Bibliographic coupling between scientific papers. American Documentation 1963;14(1):10-25. doi:10.1002/asi.5090140103
18. Weinberg BH. Bibliographic coupling: A review. Information Storage and Retrieval 1974;10(5):189–96. doi:10.1016/0020-0271(74)90058-8
19. Zupic I, Čater T. Bibliometric Methods in Management and Organization. Organ Res Methods 2015;18(3):429-72. doi:10.1177/1094428114562629
20. Hjørland B. Facet analysis: The logical approach to knowledge organization. Inf Process Manag 2013;49(2):545-57. doi:10.1016/j.ipm.2012.10.001
21. Rossetto DE, Bernardes RC, Borini FM, Gattaz CC. Structure and evolution of innovation research in the last 60 years: review and future trends in the field of business through the citations and co-citations analysis. Scientometrics 2018;115(3):1329-63. doi:10.1007/s11192-018-2709-7
22. Mersky JP, Topitzes J, Reynolds AJ. Impacts of adverse childhood experiences on health, mental health, and substance use in early adulthood: a cohort study of an urban, minority sample in the U.S. Child Abuse Negl 2013;37(11):917-25. doi:10.1016/j.chiabu.2013.07.011
23. Alcock I, White MP, Wheeler BW, Fleming LE, Depledge MH. Longitudinal effects on mental health of moving to greener and less green urban areas. Environ Sci Technol 2014;48(2):1247-55. doi:10.1021/es403688w
24. Nutsford D, Pearson AL, Kingham S. An ecological study investigating the association between access to urban green space and mental health. Public Health 2013;127(11):1005-11. doi:10.1016/j.puhe.2013.08.016
25. Wandersman A, Nation M. Urban neighborhoods and mental health. Psychological contributions to understanding toxicity, resilience, and interventions. Am Psychol 1998;53(6):647-56.
26. Roe J, Aspinall P. The restorative benefits of walking in urban and rural settings in adults with good and poor mental health. Health Place 2011;17(1):103-13. doi:10.1016/j.healthplace.2010.09.003
27. Paykel ES, Abbott R, Jenkins R, Brugha TS, Meltzer H. Urban-rural mental health differences in great Britain: findings from the national morbidity survey. Psychol Med 2000;30(2):269-80. doi:10.1017/s003329179900183x
28. Dzhambov A, Hartig T, Markevych I, Tilov B, Dimitrova D. Urban residential greenspace and mental health in youth: Different approaches to testing multiple pathways yield different conclusions. Environ Res 2018;160:47-59. doi:10.1016/j.envres.2017.09.015
29. Astell-Burt T, Feng X. Association of Urban Green Space With Mental Health and General Health Among Adults in Australia. JAMA Netw Open 2019;2(7): e198209. doi:10.1001/jamanetworkopen.2019.8209
30. Cao H, Qian Q, Weng T, Yuan C, Sun Y, Wang H, et al. Screen time, physical activity and mental health among urban adolescents in China. Prev Med 2011;53(4-5):316-20. doi:10.1016/j.ypmed.2011.09.002
31. Helbich M. Toward dynamic urban environmental exposure assessments in mental health research. Environ Res 2018;161:129-35. doi:10.1016/j.envres.2017.11.006
32. Harpham T. Urbanization and mental health in developing countries: a research role for social scientists, public

health professionals and social psychiatrists. Soc Sci Med 1994;39(2):233-45. doi:10.1016/0277-9536(94)90332-8
33. Zimmerman MA, Ramirez-Valles J, Zapert KM, Maton KI. A longitudinal study of stress-buffering effects for urban African-American male adolescent problem behaviors and mental health. J Community Psychol 2000;28(1):17-33. doi:10.1002/(sici)1520-6629(200001)28:1%3C17::aid-jcop4%3E3.0.co;2-i
34. Sturm R, Cohen D. Proximity to urban parks and mental health. J Ment Health Policy Econ 2014;17(1):19-24.
35. Dzhambov AM, Markevych I, Hartig T, Tilov B, Arabadzhiev Z, Stoyanov D, et al. Multiple pathways link urban green- and bluespace to mental health in young adults. Environ Res 2018;166:223-33. doi:10.1016/j.envres.2018.06.004
36. Clark C, Ryan L, Kawachi I, Canner MJ, Berkman L, Wright RJ. Witnessing community violence in residential neighborhoods: a mental health hazard for urban women. J Urban Health 2008;85(1):22-38. doi:10.1007/s11524-007-9229-8
37. Dalgard OS, Tambs K. Urban environment and mental health: A longitudinal study. Br J Psychiatry 1997;171(6):530-6. doi:10.1192/bjp.171.6.530
38. Li J, Rose N. Urban social exclusion and mental health of China's rural-urban migrants - A review and call for research. Health Place 2017;48:20-30. doi:10.1016/j.healthplace.2017.08.009
39. Liu H, Li F, Li J, Zhang Y. The relationships between urban parks, residents' physical activity, and mental health benefits: A case study from Beijing, China. J Environ Manage 2017;190:223-30. doi:10.1016/j.jenvman.2016.12.058
40. Vujcic M, Tomicevic-Dubljevic J, Grbic M, Lecic-Tosevski D, Vukovic O, Toskovic O. Nature based solution for improving mental health and well-being in urban areas. Environ Res 2017;158:385-92. doi:10.1016/j.envres.2017.06.030
41. Gary TL, Stark SA, LaVeist TA. Neighborhood characteristics and mental health among African Americans and whites living in a racially integrated urban community. Health Place 2007;13(2):569-75. doi:10.1016/j.healthplace.2006.06.001