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Psychological Needs of Children, Caregivers, and Women in Urban Playground Design

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ADMINISTRATIVE INFORMATION

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Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 4 April 2026 and was last updated on 4 April 2026.

INTRODUCTION

Review question / Objective This systematic review aims to examine how psychological factors influence the use and perception of urban recreational spaces, particularly playgrounds and parks, and how these factors interact with spatial design elements.

Using a PICOS-informed framework:

Population: children, adolescents, and parents/caregivers (with particular attention to women and mothers) in urban environments

Intervention/Exposure: design characteristics of urban recreational spaces (e.g., layout, amenities, natural elements)

Comparator: differences across design features and/or user groups (e.g., gender, age)

Outcomes: psychological factors such as perceived safety, fear, autonomy, social connection, satisfaction, and frequency of use

Study design: qualitative, quantitative, and mixed-method studies

The review seeks to provide an integrated understanding of how psychological needs and perceptions shape the use of urban recreational spaces and to identify implications for urban design and planning. While previous reviews have examined aspects of park safety, children's play environments, or gendered space use separately, few studies have integrated these perspectives within a unified analytical framework. In particular, the interaction between psychological factors, caregiving roles, and spatial design remains underexplored. This review addresses this gap by providing an interdisciplinary synthesis that connects environmental psychology, urban design, and caregiving perspectives. By focusing on caregivers—especially mothers—and adopting an intersectional lens, the study offers a more comprehensive understanding of how urban recreational spaces are experienced and used. Furthermore, the review extends beyond descriptive synthesis by translating psychological insights into design-relevant implications, thereby contributing to more inclusive and health-oriented urban planning. The review focuses on children,

adolescents, and parents/caregivers living in urban environments. Particular attention is given to women, especially mothers, due to their central role in caregiving and facilitating children's outdoor activities.

Included populations may consist of: preschool and school-aged children, adolescents, parents and caregivers, community members involved in the use of recreational spaces
Studies focusing exclusively on non-urban populations were excluded. Although disability was not an exclusion criterion, no included studies specifically focused on individuals with disabilities.

The review also considers differences across demographic groups (e.g., gender, age, socioeconomic background) where reported.

Rationale Urban recreational spaces such as playgrounds and parks play a crucial role in children's development, family well-being, and community life. While a growing body of literature has examined physical accessibility, safety, and environmental quality, the psychological dimensions influencing space use—particularly from the perspective of caregivers—remain fragmented across disciplines.

Previous reviews have typically focused on specific aspects such as park safety, children's play environments, or gendered space use in isolation. However, few studies have integrated psychological factors (e.g., perceived safety, fear, autonomy), caregiving roles, and spatial design characteristics within a unified analytical framework.

Understanding these interactions is essential, as psychological perceptions strongly influence whether and how urban spaces are used. For example, parental fears or perceptions of safety can limit children's outdoor play opportunities, while design features can either support or hinder autonomy, social interaction, and well-being.

This review addresses this gap by providing an interdisciplinary synthesis that connects environmental psychology, urban planning, and caregiving perspectives. By adopting an intersectional lens and focusing particularly on women and caregivers, the study aims to contribute to more inclusive, health-oriented, and user-responsive urban design practices.

Condition being studied The review focuses on psychological experiences and behaviours related to the use of urban recreational spaces, particularly

playgrounds and parks. These environments are associated with multiple health-related outcomes, including physical activity, mental well-being, stress reduction, and social interaction.

The “condition” examined is not a disease in the clinical sense, but rather a set of psychological and behavioural phenomena linked to environmental exposure. These include perceived safety, fear, autonomy, social connectedness, satisfaction, and patterns of space use among children and caregivers.

Urban recreational spaces can either support or hinder these outcomes depending on their design and perceived quality. Poorly designed or unsafe environments may lead to avoidance behaviours, reduced physical activity, and increased stress, while well-designed spaces can promote mental well-being, social cohesion, and healthy development.

Special attention is given to gendered experiences and caregiving roles, particularly those of mothers, as well as to broader social determinants such as socioeconomic status and neighbourhood context.

METHODS

Search strategy A systematic search was conducted across multiple electronic databases, including EBSCO Discovery Service (with access to PsycINFO and related databases), Web of Science Core Collection, Scopus, and PubMed.

The search strategy combined terms related to recreational spaces, population groups, psychological factors, and design characteristics using Boolean operators. The core search string included:

(“playground” OR “playspace” OR “recreation space” OR “urban park”)
AND
 (“children” OR “parents” OR “mothers” OR “caregivers”)
AND
 (“psychological effects” OR “psychological factors” OR “perceived safety” OR “fear” OR “autonomy”)
AND
 (“design” OR “architectural design” OR “urban design”)

The search syntax was adapted to the requirements of each database. Searches were conducted between August 10 and August 31, 2025.

In addition to database searches, backward snowballing was performed by screening the reference lists of included studies. Supplementary searches were conducted using OpenAlex to verify completeness. Relevant urban planning guidelines were also identified through Google Scholar and general web searches; however, these were used for contextual interpretation and were not included in the formal synthesis.

No date restrictions were applied.

Participant or population The review focuses on children, adolescents, and parents/caregivers living in urban environments. Particular attention is given to women, especially mothers, due to their central role in caregiving and facilitating children's outdoor activities.

Included populations may consist of:

- * preschool and school-aged children
- * adolescents
- * parents and caregivers
- * community members involved in the use of recreational spaces

Studies focusing exclusively on non-urban populations were excluded. Although disability was not an exclusion criterion, no included studies specifically focused on individuals with disabilities. The review also considers differences across demographic groups (e.g., gender, age, socioeconomic background) where reported.

Intervention The review focuses on environmental and design-related exposures.

These include design characteristics of urban recreational spaces, such as:

- * spatial layout and accessibility
- * presence of natural elements (e.g., vegetation, water)
- * safety-related features (e.g., lighting, visibility, maintenance)
- * availability of play equipment and multifunctional spaces

These features are considered as "interventions" in terms of their influence on psychological experiences and behaviours.

Comparator Comparators include differences between:

- * types of recreational space design (e.g., natural vs. conventional playgrounds)
- * levels of accessibility or quality
- * demographic groups (e.g., gender, age, caregivers vs. children)

In many qualitative studies, formal comparators are not explicitly defined; instead, comparisons are

based on thematic differences across groups or contexts.

Study designs to be included Quantitative (e.g., cross-sectional surveys), qualitative (e.g., interviews, focus groups, ethnographic studies), and mixed-method studies examining psychological aspects of urban recreational space use.

Eligibility criteria Studies were included if they:

- * examined urban recreational spaces (e.g., playgrounds, parks)
- * included children and/or caregivers as participants
- * addressed psychological or social aspects of space use
- * were peer-reviewed and published in English

Studies were excluded if they:

- * focused on non-urban environments
- * addressed only physical or injury-related outcomes without psychological context
- * were conference abstracts or non-peer-reviewed reports
- * were duplicates

No date restrictions were applied.

Information sources Electronic databases included EBSCO Discovery Service, Web of Science, Scopus, and PubMed.

Additional sources included:

- * backward snowballing from reference lists
 - * OpenAlex for supplementary searches
 - * urban planning guidelines identified via Google Scholar and web searches
- No contact with study authors was undertaken.

Main outcome(s) The main outcomes include psychological factors influencing the use of urban recreational spaces, such as:

- * perceived safety and fear
- * autonomy and freedom of play
- * social connection and community experience
- * satisfaction and frequency of use

These outcomes are interpreted qualitatively and descriptively, rather than through quantitative effect sizes.

Additional outcome(s) Additional outcomes include:

- * gender differences in perceptions and space use
- * caregiver-specific perspectives (especially maternal concerns)
- * preferences for natural versus built environments
- * implications for urban design and planning.

Data management Records were managed using reference management software. Duplicate records were removed prior to screening.

Screening was conducted in two stages (title/abstract and full text) by two independent reviewers. Extracted data included study characteristics, population, methodology, psychological variables, and key findings.

Data extraction was performed using a structured template to ensure consistency.

Quality assessment / Risk of bias analysis Risk of bias and methodological quality were assessed using the Joanna Briggs Institute (JBI) critical appraisal tools, with specific checklists applied according to study design.

Each item was rated as Yes, No, Unclear, or Not applicable. A compliance score was calculated as the proportion of “Yes” responses.

Studies were categorised as:

* high quality ($\geq 80\%$)

* moderate quality (60–79%)

* low quality ($< 60\%$)

Quality assessment informed interpretation but did not lead to exclusion.

Strategy of data synthesis A narrative synthesis approach was used due to heterogeneity in study design, populations, and outcomes.

Findings were grouped into thematic categories reflecting key psychological dimensions (e.g., safety, autonomy, social connection, nature-related experiences). Patterns and relationships across studies were identified and interpreted qualitatively. Meta-analysis was not conducted due to methodological diversity and limited comparability of outcomes.

Subgroup analysis Where data were available, findings were analysed across subgroups including gender (e.g., women vs. men), age (children vs. adolescents), and caregiving roles (caregivers vs. children).

Differences in perceptions and space use were explored narratively.

Sensitivity analysis Formal sensitivity analyses were not conducted due to the absence of quantitative synthesis. However, the robustness of findings was considered by comparing results across studies of varying methodological quality and design.

Language restriction English.

Country(ies) involved Hungary.

Keywords playgrounds; parks; recreation places; urban planning; psychological aspects.

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