Research Article

Fear Factors in Open Spaces – Children's Perception of Public Open Spaces

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The world is undergoing rapid urbanization, where it is presumed that by 2050, almost 66% of the children's population will be found in cities. The well-being of children is associated with their day-to-day surrounding environment, which includes their home, school, and recreational spaces. Children's active participation in open spaces is critically necessary for their physical, social, emotional, and cognitive well-being. Urbanization is putting pressure on the quality and quantity of open spaces, where crowding, maintenance, and stranger-danger are persistent concerns of the parents for their children's outdoor play experience. A survey was conducted in the city of Pune with 105 children, studying their perception and use of open space. Children were asked to prepare cognitive maps indicating fearing factors and/or elements found in the open spaces which they visit regularly. Children indicated various fearing factors like strangers, unclean surroundings, diagrams related to the upkeep of various elements in open spaces. The coding of the diagrams indicated concerns related to safety from crime, injury from harmful elements, wayfinding, etc. The perception of children was analyzed using qualitative methods. Further, the paper discusses the fear factors associated with open space aspects like design, aesthetics, density, accessibility, traffic, etc., which contribute to children's perception of open spaces, thus affecting children's independent mobility, the choice of the space of play, and the amount of time spent during outdoor play. Getting parental license to go outdoors was related to the Natural surveillance available, and the fear factors were found to be related to the space management aspects like fencing, maintenance, and also security in case of strangers present in the spaces.

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Introduction

Urban open spaces in current times are challenged by the rapid growth of the city's infrastructure, housing, and various facilities. Open spaces are crucial for the well-being of humankind, especially in an urban context. Moreover, open spaces are important for children. Almost 60% of the world's children's population is projected to be living in cities by 2030 (Christensen & O'Brien, 2003; Lestan, Eržen, & Golobič, 2014; Punch, 2002). The physical, mental, and social development of a child is associated with their surrounding environment. Children's daily environment includes home, outdoor play spaces, and child-friendly recreational facilities. Children's day-to-day outdoor play spaces are usually in the range where they are unaccompanied by adults (Bronfenbrenner, 1979; Chaudhury, Oliver, Badland, & Mavoa, 2015; Van Vliet, 1983). Among the population, children are considered the most vulnerable social group. Developmental theories suggest that children's development and their behavior are influenced by their surrounding environment (Christensen & O'Brien, 2003; Ginsburg & Opper, 1988).

The physical environment of the neighborhood is an important motivational factor in children's participation in activities. Children can be more independently active with good quality vegetation, streets, reduced congestion, better safety, varied amenities, accessibility, sociability, attractiveness, and walkability (Zhang & Li, 2012). The function, form, and variability of urban open spaces have an effect on children's physical, social, and psychological behavior and well-being, especially for children (Woolley, 2003). Being able to engage in physical activity while playing games helps children to be physically healthy. Social benefits include making friends during outdoor play and learning from peers, which are key takeaways from engaging in open spaces. Applying and developing creative abilities enhances self-esteem, adding to the psychological well-being of the children. Having feared to visit open spaces deprives children of the benefits they gain from visitation. During play, children explore and discover their abilities. The achievements during this process build their confidence, which is necessary for their continuous mental and physical development. It is established that children respond more readily to an enriched environment (Bhan, 2006).

The physical features of the child's environment are considered to be around their home range, and the motives for a child's outdoor play are influenced by perceptions of risks and benefits. This paper intends to understand factors like the quality of the environment around children, the physical characteristics of the environment and its quality, the factors affecting the perception of the space

that may influence a child's outdoor play, and how the above two are associated. This paper discusses the effects of the spatial characteristics of open spaces on the motivation of children's participation in outdoor activities and further examines the findings in light of the Crime Prevention through Environmental Design theory and principles of natural surveillance, access control, territorial reinforcement, and space management. This paper limits itself to public open spaces in residential developments. In the exploratory phase of the study, a recognizance was carried out to find out the play areas of children in residential developments. This brought forth various spaces such as community open spaces, internal streets, parking lots, etc. where children visited on day-to-day basis.

Methodology

A survey was conducted in the city of Pune, Maharashtra, with 105 children. Pune is continually changing as a result of the redevelopment of older houses and the sharp increase in density. The instance of Pune is an example of how open spaces in Indian metropolises are changing due to pressures for development (Butsch et al., 2017). Pune, one of the top ten urbanized cities in India, has been rapidly expanding its limits as new industries, institutions, and other commercial facilities have been added. In terms of social and economic backgrounds, Pune's socioeconomic characteristics vary across the city (Narkhede, 2008). As a result, diverse housing styles, including bungalows and apartment buildings, can be found in societies with defined boundaries that are either conglomerated or stand-alone. Different types of open spaces like gardens, playgrounds, kids' play areas, sports areas, etc., can be observed across the city in residential areas. Parents were approached who had children aged 6 to 12 years across the city of Pune. Consent from parents was obtained to approach their children for the cognitive mapping exercise. Research suggests activities like drawing and observation provide a better understanding of children's perception (Merewether & Fleet, 2014). The children were provided with a pencil and an A4 paper on which they had to sketch the fear factors of open spaces within half an hour. Later, through an informal discussion, children explained their sketches.

Drawing is a valuable representational and meaning-making skill that youngsters can use to express their perspective and is intimately tied to thinking (Brooks & Sorin, 2011). Children's drawings can be subjective and ambiguous to analyze; therefore, Open and Axial Coding and categorization Method assisted in systematically analyzing the data (Norozi & Moen, 2016). The data being qualitative,

inductive categories were created using the open and axial codes. For summarizing, counts were generated for descriptive statistical presentation.

Analysis

The sample of 105 children included 44 boys and 61 girls between the age of 6 to 12 years. Parents and children from various residential developments across Pune city (to include old city core as well as the newer areas) were contacted to collect the data. While analyzing children's play spaces, it was observed that children used nearby open spaces for their day-to-day activities. About 53% of the children used open spaces around their residence, like parking lots and driveways, and about 21% of children used tended vegetation spaces (like gardens and similar areas), while the remaining 26% used ground spaces. This shows that fewer children had immediate access to designated open spaces for their activities. Approximately 86% of the children played within a range of 100 meters from their residence, with very few children venturing beyond 500 meters for day-to-day activities. This further underscores that more than 50% of the children traveled shorter, unsupervised distances for their regular outdoor activities. Natural surveillance in spaces close to home was possible, and children could obtain parental permission to go outdoors. Most of the children spent 1 to 2 hours in the open spaces during the evening. It was observed that the timing and location of children's play were limited due to various factors such as natural daylight time or well-lit spaces, crowding, the availability of friends, proximity, cleanliness, safety, and security. The visitation characteristics like distance travelled by children for their day-to-day activities, spaces that are easily accessible for children to perform various activities, etc. are also governed by the natural surveillance that children get by parents, care takers and neighbours, thus adding to sense of safety.

While explaining their sketches, children broadly spoke about elements that they feared hindered their participation in open space visits and activities. Using a coding system, six broad categories were identified as follows, and these are related to the space management, natural surveillance principles of CPTED:

Sr. No.	Elements described as fear factors by the children	Broad category of elements identified as fear factors	No. of responses	Percentage of total responses
1	Unclean surroundings, broken equipment and surfaces, etc.	**Maintenance**	72	39%
2	Stray animals, exposed wires, service elements, etc.	**Injurious elements**	36	19%
3	Parked vehicles, moving vehicles.	**Traffic**	31	17%
4	Strangers, bullying people, quarreling friends.	**Anti-social elements**	29	16%
5	Darkness, ghosts, inadequate lighting.	**Poor lighting**	12	6%
6	Crowding, limited space to play.	**Space inadequacy**	6	3%
Total			186	100%

Table 1. showing children's responses with respect to fear factors of elements in open spaces:

About 58% of the fears reported by the children were related to maintenance issues in open spaces and the fear of harm due to injurious elements. Children raised concerns about their play environment from different perspectives, encompassing physical injury, social, and psychological fears. Maintenance and injurious elements led to children fearing physical injury. Broken equipment, poor surfaces, exposed wires, thorny bushes, etc., discouraged children from using play spaces.

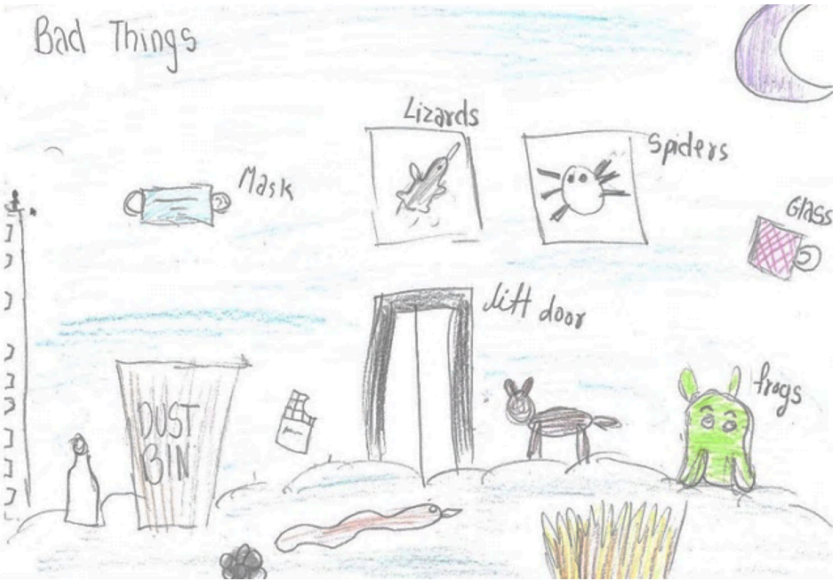

Image 1. Cognitive maps showing maintenance issues and injurious elements in open spaces as drawn by children.

About 17% of children's fear pertains to traffic issues hindering their activities in open spaces. Since most of the surveyed children reported using parking lots and driveways for their regular outdoor activities, they were at risk from traffic, which was a source of fear for them. Both the mobility of vehicles and parked vehicles created scenarios that hindered children's play. Additionally, the fear of children encountering accidents also concerned the parents.

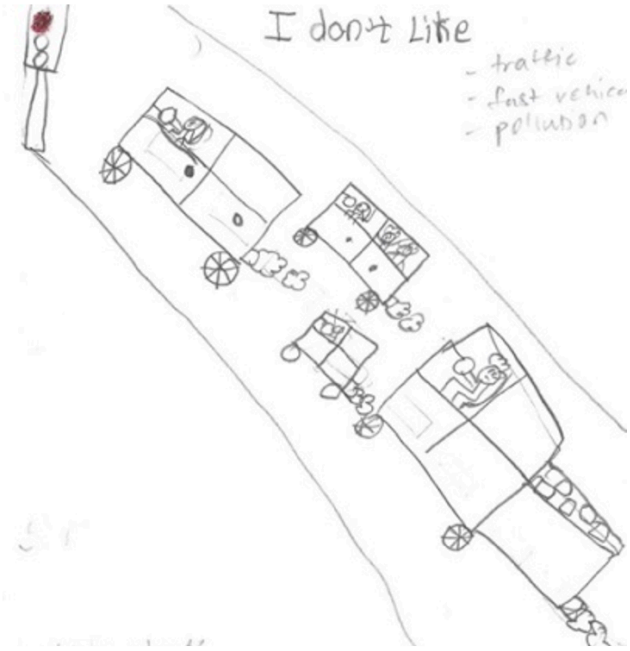

Image 2. Cognitive maps indicating traffic issues as perceived by children.

Anti-social elements comprised 16% of children's fears in open spaces. Children playing in open spaces unaccompanied by parents limited their range of mobility. Despite children being active close to their residences, the fear of encountering strangers, abduction, accidents, and bullying worried both parents and children. Incidents of bullying by older kids against children using play spaces for activities were frequently reported. Such incidents were particularly high among children playing in ground spaces.

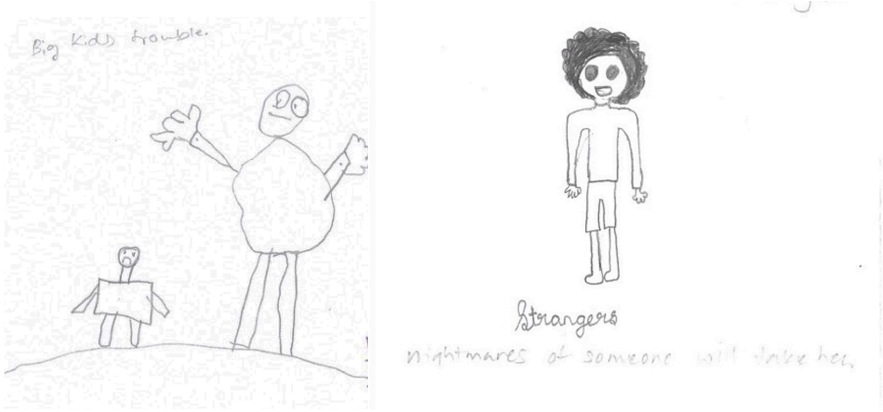

Image 3. Cognitive maps indicating bullying and strangers.

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Poor lighting and space inadequacy accounted for 9% of children's fear factors when participating in open spaces. Insufficient lighting made children suspect the presence of snakes, strangers, kidnappers, stray dogs, and cats in those dark areas. Children even expressed fears of encountering ghosts in poorly lit spaces. These perceptions about dangers in dark spaces limited children's play activities beyond sunset and led them to play in confined spaces that had light. The phrase "there could be someone hiding in the dark space" was commonly voiced by various children in the survey.

Image 4. Cognitive maps indicating fear of elements in dark spaces.

Space inadequacy was another issue children faced in pursuing their desired activities. Crowding became an obstacle to children's unrestricted use of space. The limited space to play due to factors like traffic, crowding, strangers, anti-social elements, etc., are major concerns for children's utilization of outdoor open spaces in urban scenarios.

Image 5. Cognitive maps showing traffic issues.

Conclusion

The availability of open spaces near children's residences and their ability to actively participate in them is a basic right of children. Any hindrance to their participation in these spaces can negatively affect children's development and well-being. The study highlights various issues that children perceive as fear factors in open spaces, which hinder their active engagement. Maliyok (Malıyok, 2015) defines risks as subjective and objective risks. This paper brought forth fear factors which could be objective or perceived risks by children contributing to knowledge of landscape behavioral studies, ensuring that through design and management these fear factors can be avoided and can improve open space utilization in dense Indian cities where open spaces are premium.

Fear factors related to physical obstacles like maintenance and injurious elements can be addressed through repairs and replacements. However, fear factors impacting social and psychological aspects are not easily addressed. Fears related to dark spaces, bullying, and strangers are considered psychological factors that undermine children's confidence, social skills, courage, and sense of safety. The characteristics and environment of the play space significantly influence children's perception of that space. The decisions made by children and parents regarding play spaces depend on factors such as safety, accessibility, upkeep and maintenance, security, amenities, and facilities.

It is imperative that policymakers, designers, and planners work toward the well-being of future generations by providing and planning open spaces at evenly distributed locations, especially in residential areas. These open spaces need to be well-designed to accommodate a variety of activities, allowing children to explore different uses of the same space. Designated open spaces for children will secure their areas for activities and keep vehicles away from their play areas. Municipal corporations must maintain open spaces adequately for ease of use. Well-lit spaces will enable children to participate in open spaces without worry. The openness of outdoor spaces is a crucial aspect for clear surveillance, contributing to a sense of safety and security, thereby reducing fears of abduction and fears associated with participating in open spaces in general. The ability to gain parental approval to go outdoors was related to the availability of natural surveillance, while fear factors were linked to space management aspects such as fencing, maintenance, and security in the presence of strangers.

The design of the open space environment is crucial for shaping children's perceptions of participation.

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Declarations

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