Review Paper: Health, Safety, and Environmental Status of the Urban Parks in Iran: A Systematic Review

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ABSTRACT

Background: Health, safety, and environmental status of the parks are essential issues that must be addressed before accidents and the resulted complications. Given the importance of safety for people, especially children in parks and, on the other hand, regarding the traditional approach for managing urban parks in Iran, which focuses on the problems after a crisis and the associated significant physical and financial losses, this study attempted to systematically review the health, safety, and environmental (HSE) status of the urban parks in Iran.

Materials and Methods: A systematic search for the studies published in Persian until 2018 was conducted in Google Scholar, SID, and MagIran databases. Health and safety status was assessed using the factors, including a sense of safety, legible design, physical safety, lighting, physical accessibility, environment, special facilities, and health safety. Other information was collected using a questionnaire.

Results: Twelve studies were included in the review. The results showed that the HSE status of the urban parks in Tehran City and other major cities of Iran was poor to moderate. In other cities, the poor HSE status was also observed.

Conclusion: Considering the poor HSE conditions of the urban parks in Iran, the implementation of a comprehensive HSE management program is recommended.

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1. Introduction

The environmental quality values, green areas, and open spaces in urban and suburban areas have recently received considerable attention due to the development of urban life and the physical development of urban environments tailored to the needs of today's life. Given the importance of green areas and open spaces in the daily lives of people and their functions within the physical and socio-cultural structure of the city, the efforts to preserve, revive and expand these spaces are on the agenda of urban planning and policies [1].

The importance of parks is undeniable since they include a significant portion of the urban green areas. Parks play an important role in reducing the bio-problems of cities, and besides the aesthetic values, from the perspective of urban planning, they are among the most suitable places for spending the leisure time of the citizens and their cultural, social, and recreational activities. They can be mentioned as a fundamental strategy to improve the quality of social life [2].

Parks are one of the most critical land uses affecting the spatial quality of urban areas, which their importance has increased with the expansion of the cities and their population density. Urban parks also have social, economic and ecological effects with benefits, such as treating mental and physical illnesses, providing a favorable environment for child-rearing, social cohesion, maintaining comfort, etc. They are also indicators of living space improvement and community development. Hence, the urban parks are always needed and are considered as potential places with opportunities, such as improving cities, providing green infrastructure, and beginning ecological improvement in towns [3]. Unfortunately, these spaces and their roles have been neglected, especially by politicians and planners, and there are also several problems for their establishing [4].

Safety is one of the most critical factors that is seriously addressed in design, implementation, management, and maintenance before an accident. Nowadays, safety in public spaces, especially urban parks, is of particular importance, and the analysis of existing conditions as well as the solutions to prevent accidents and increase safety in these areas have been focused on it [2]. Since the importance of urban green spaces in urban life and its sustainability and also their physical, natural, and social impacts on the urban system are undeniable [2], safety in such areas, especially urban parks, should be considered. In these areas, most problems are caused by the lack of proper floor covering in children's playgrounds, the existence of sharp and dangerous game equipment, using old boats, the use of lamps or power cords without safety considerations in fountains, lack of first-aid facilities in parks, and so on [5]. In this regard, this study was done to review the Health, Safety, And Environment (HSE) status of the urban parks in Iran with an emphasis on environmental factors.

2. Materials and Methods

A systematic search for studies conducted in Iran from 2007 to 2018 was performed in databases of Google Scholar, SID, and MagIran using considered keywords. A list of key study references was scanned to find additional studies that could not be obtained by the systematic search. HSE implications were assessed with the indicators reported in the studies, including safety sense, legible design, physical safety, lighting, physical accessibility, environment, special facilities, and health safety. Other information was collected using a questionnaire. The keywords included "urban park", "playground", and "safety".

The inclusion criteria were studies published in Persian or English on urban parks, reporting HSE indicators as a study outcome, and field or observational studies. Studies with irrelevant reported results and those with no adequate information for analysis or conducted in parks outside the city were excluded from the review. After removing duplicates, the two authors independently reviewed the retrieved titles and abstracts based on the inclusion and exclusion criteria. A researcher-made form was used for extracting data from papers which assessed: 1. Characteristics of the study (author, year, and design); 2. Place of study (city and number of parks); 3. Methods of data collection (library, survey, and observation); and 4. Outcome of the study (safety, health, and environmental indicators). In case of disagreement between the two authors, it was resolved through dialogue. Then, the extracted data were analyzed using qualitative data analysis.

3. Results

Figure 1 contains the flowchart of the process of identifying and retrieving studies. Of 468 remained papers after removing duplicates (the total number of studies was 756 studies), the full-text of 28 articles was evaluated. In the end, 12 articles in Persian were selected for final evaluation based on the inclusion and exclusion criteria. All of them were included due to the low number of sample size. Table 1 presents the characteristics of the selected studies.

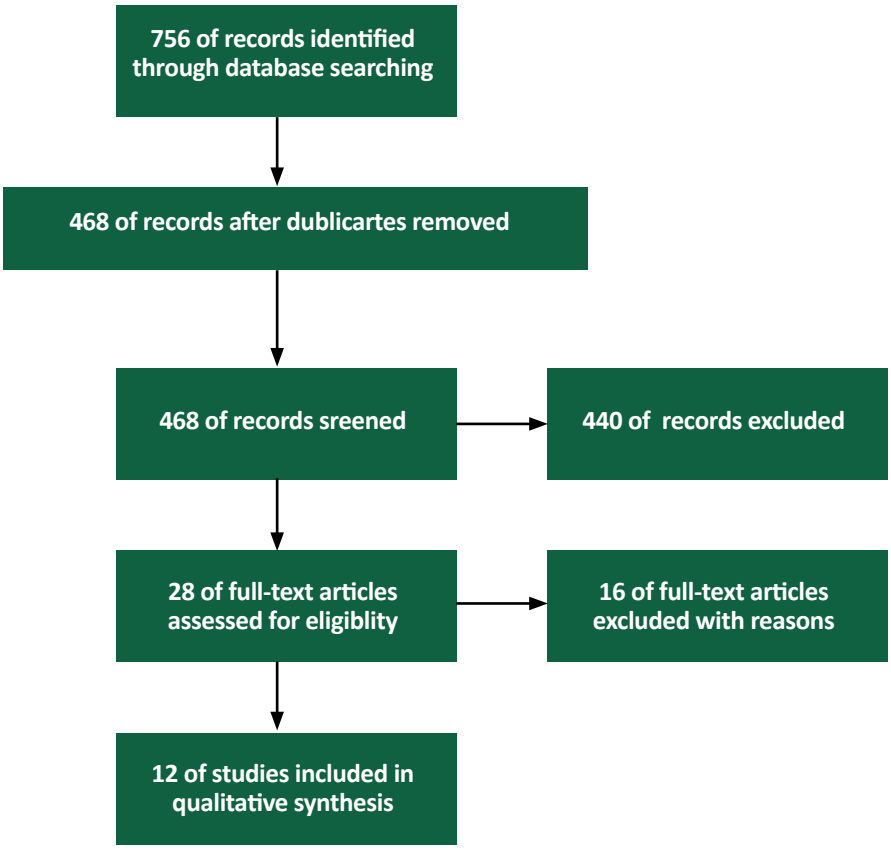

Figure 1. Flowchart of the process of identifying and retrieving studies

Health in Emergencies and Disasters Quarterly

Safety, health, and environmental reports

Urban parks in Tehran

Dinarvandi et al. [3] showed that the satisfaction level of the health criteria of the studied parks (48.2%) was lower than that of the safety criteria (52.9%) and higher than that of the environmental standards (42.4%). Moreover, the status of trash bins in parks, signboards, warning boards, as well as surface water and sewage disposal in the three areas regarding health, safety and environmental factors with the scores of 32.8%, 36.2%, and 26.7%, respectively, was very poor.

Arjmandi et al. [5] showed that the desirability of the health status (58.9%) of the studied parks was lower than that of their safety status (59.2%) and higher than that of their environmental condition (46.1%). Moreover, the health status of staff room, notification system status and installation of warning signs during spraying operations in the park, and the status of measures taken to reduce noise pollution in the park in terms of health, safety and environment were found very poor with the scores of 35%, 3.3%, and 28.3%, respectively.

In Leghaei et al. study [6], 89% of the subjects were dissatisfied with the safety and security conditions of the parks in Tehran, District 8 and demanded severe and immediate action.

Kakaei et al. [7] in a study reported that 71.43% of the parks in Ilam City were in a moderate condition, in terms of safety and health for the children's playground equipment and area. "Ferris wheel with swivel chair", "Swing", "Slides", "Swinging equipment", "axial seesaw", and "general conditions of children's play area" in 100%, 85.7%, 66.7%, 66.7%, 60%, and 57.1% of the cases had moderate safety and health status.

Sadeghi Naeini et al. [8] reported that over 68% of the playground equipment could put the children at risk. In 78% of the cases, safety problems raised the mothers' concerns about their children playing in the parks, and in more than 89% of the cases, the equipment structure (shape and design) could significantly increase the potential for injury.

Urban parks in other major cities

Khakpour et al. [9] found that the Shura (Q=0.947) and Madar (Q=0.936) parks in Kerman were in the best safe-

Table 1. Characteristics of selected studies for review

No.	Author(s)	Year	Area	Design	Method	Examined Factors	Main Findings
1	Leghaei et al. [6]	2011	Tehran	Descriptive-Comparative	Survey, interview, library	Safety	Poor safety status was reported.
2	Kakaei et al. [7]	2011	Ilam	Descriptive-cross sectional	Survey	Health and safety	Moderate safety and health status were reported.
3	Sadeghi Naeini et al. [8]	2010	Tehran	Descriptive-analytical	Interview-observations	Safety	Poor safety status was reported.
4	Dinarvandi et al. [3]	2013	Tehran	Descriptive	Survey	HSE	Moderate HSE status was reported.
5	Khakpour et al. [9]	2017	Kerman	Descriptive-analytical	Survey	Safety	Safety status was different between urban parks.
6	Hoseini et al. [4]	2015	Mashhad	Descriptive	Survey	Safety	The safety status of Kohsangi Park was above the average/ desirable, and in Basij Park, it was below the average level.
7	Changizi et al. [10]	2018	Ahvaz	Descriptive	Survey, interview, library	HSE	Moderate HSE status was reported.
8	Barahmand and Ghoddousi [11]	2016	Karaj	Descriptive	Survey, library	HSE	The HSE status of the Iran Zamin and Tandorousti parks was moderate, and for Ibn Sina Park, it was poor.
9	Arjmandi et al. [5]	2008	Tehran	Descriptive	Survey, library	HSE	Moderate safety and health status as well as the poor environmental status.
10	Ebrahimzadeh and Roosta [2]	2016	Jahrom	Descriptive-analytical	Survey	Safety	The mean total safety rate in the studied parks was 2.57%
11	Ebrahimzadeh [12]	2014	Izeh	Descriptive-analytical	Survey, library	Safety	In terms of safety, the condition of the studied parks was not normal.
12	Sobhani et al. [13]	2012	Sanandaj	Descriptive-analytical	Survey, library	Safety	Safety status ranged from unfavorable to favorable.

ty condition, whereas Neshat Park (Q=0) had the worst safety condition. Moreover, the studied parks were in the best condition in terms of health safety with the mean rank of 5.56 and the worst condition in terms of a lighting system with a mean rank of 1.37.

Based on the Changizi et al. [10] study in Ahvaz, the safety score of the studied parks (0.526) was lower than that of their environment score (0.656) and higher than that of their health score (0.403).

Barahmand and Ghoddousi [11] indicated that the status of water supply (0.138), playground safety (0.120), public park equipment safety (0.098), and park security controls (0.085) are the most essential manageable factors in HSE in the urban parks of Karaj, followed by the type of the used plants (0.079), lighting system (0.070), entrance and passage routes (0.062), toilets (0.054), the use of alternative pest control methods (0.047), and surface water and sewage disposal (0.040).

Urban parks in small and medium-sized towns

In Ebrahimzadeh and Rousta [2] study in Jahrom City, the mean total safety rate of the studied parks was 2.57%. They analyzed six factors of safety, ie, legible design, health safety, physical accessibility, lighting, sense of safety, and physical safety. Their factor analysis results revealed that the first factor explained 30.96% of the variance; second factor, 17.12%; third factor, 16.08%; fourth factor, 15.73%; fifth factor, 3.52%; and the last factor, 2.71% of the variance.

Ebrahimzadeh [12] in Izeh County showed that of the 10 studied parks, Laleh, Shadi, Banoo, Soltan Dinavar, Shahr, Amusement Park, Rocky Park, Valiasr, Baharan, and Azadegan parks with the mean values of 2.04, 2.02, 1.85, 1.81, 1.80, 1.77, 1.75, 1.74, 1.58, and 1.56, respectively had no normal conditions (cutoff point=3).

Hoseini et al. [4] reported that the safety status of the parks in developed areas of Mashhad was better compared with the less developed regions.

Sobhani et al. [13] in a study in Sanandaj City reported that in terms of health safety, healthy drinking water had a more favorable condition and the status of services for people with disabilities and garbage collection at different times had the worst status compared with other indicators.

In terms of physical safety, using signage, when necessary and warning signs had better conditions than other indicators, whereas the safety of children's playground equipment was in poor condition. In terms of lighting and accessibility, the use of electricity hazard labels had favorable status, while the number of short and long illuminated pedestals was unfavorable.

4. Discussion

In urban areas, parks are one of the most critical places where different people spend their leisure time [9]. For this reason, in such places, safety is important, especially for children, the elderly, and the disabled people. The purpose of this study was to review the HSE status of urban parks in different cities in Iran. In this regard, 12 papers were included in the study, of which four studies had examined the HSE status of the parks in Tehran. Safety status was reported poor in two studies and moderate in the other two studies.

In two studies that examined health indicators, the status of parks was reported moderate, and regarding environmental indicators, one reported poor status and the other reported moderate status of the urban parks. Hence, the status of urban parks in Tehran was poor to moderate in terms of safety and environmental indicators, although health indicators were in better condition than in the other two factors. The unsafety of the parks is one of the reasons that reduce using parks and urban green spaces by people in Iran [14].

The status of safety in three major cities of Mashhad, Karaj, and Ahvaz was reported poor to moderate, poor to moderate, and moderate, respectively. Environmental and health factors were reported moderate in Ahvaz and poor to moderate in Karaj, which indicates no difference compared with Tehran.

Studies in small to medium-sized cities have reported the poor and unfavorable safety status of the parks, and the health status was assessed only in one of these studies (in Ilam), which was reported moderate.

According to the findings of our study, the implementation of comprehensive HSE management for urban parks in Iran is necessary. Comprehensive HSE management includes the administrative structure and detailed plans for improving the HSE status of the parks and urban green spaces by considering prerequisites and complementary measures [9].

5. Conclusion

The HSE status of the most urban parks in Iran is not appropriate and far from the standard levels. This situa-

tion is worse in small cities. Implementing comprehensive HSE management is essential for urban parks.

The following measures are recommended to take for improving the HSE status of the urban parks in Iran:

Providing adequate lightening and lighting systems in the parks;

Providing physical safety equipment, such as safety capsules, first aid kits, and shields for power cables;

Installation of the safety and warning equipment and facilities;

Increasing the number of toilets, drinking water faucets, and trash bins;

Designing and production of playground equipment for children based on national standards;

Planting different plant species according to the climatic conditions of the city;

Appropriate measures to reduce noise pollution;

Identifying health risk factors (chemical, physical, biological, and psychological) and minimizing their number.

Ethical Considerations

Compliance with ethical guidelines

The present study was conducted by paying special attention to the privacy of personal information and all the Ethical Codes (IR.USWRREC.1396.14) in this regard.

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Authors' contributions

All authors contributed in designing, running, and writing all parts of the research.

Conflict of interest

The authors declared no conflict of interest.

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