

## Assessing the Safety of Children's Playgrounds from the Parents' Point of View: A Case of the Third District of Tehran

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### Abstract

Undoubtedly, playgrounds should be safe and secure environments for children so that children can play in them, enjoy the game and gain different experiences. Despite the above, the statistics regarding the playground environmental incidents in urban areas indicate a lack of proper attention to the safety of playgrounds. The purpose of this study is to evaluate the safety of children's playgrounds from the perspective of parents in district 3 of Tehran. The sample of the present study included 295 children from district 3 of Tehran, Iran. The data was collected by the use of standard questionnaires. Also, in order to organize, summarize and describe the data, descriptive statistics (frequency, percentage, mean and standard deviation) were implemented, and in order to test statistical assumptions and prioritization with the normally distributed data, T-Test and Friedman test were performed. It should be noted that in this study, SPSS software version 23 was used to analyze the data, also the level of reliability of the scale used in this study is 95%. The results of the t-test showed that the safety of design, the safety of the equipment and the safety of the environmental features in children's playgrounds were in good condition in Tehran's third district. The differences and priorities among these components are also identified.

**Key Words:** Children, Parents, Playground, Safety, Tehran.

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## 1- INTRODUCTION

Parents are always concerned about raising their children properly and cultivating and perpetuating good habits and behaviors in them. Therefore, they enroll their children in various classes to learn languages, painting, pottery, etc. and of course sport academies in order to enhance the child's mental and physical development and to help reveal their talents and interests (1). The playground is a place where the child is very eager to go, and it is there that he explores his surroundings and learns social skills and can do physical activities that have a great impact on his physical and mental health (2-3-4). But unfortunately, every year in the United States, about 200,000 children are taken to hospital emergencies due to injuries caused by falling from play equipment. The main reason for these injuries is the existence of hard and very hard grounds such as asphalt, concrete, etc. under or around the play equipment. Also, for taking children to the playground, some tips must be followed; for example, wearing comfortable shoes such as children's sneakers, shoes that do not slip on the wet surface or not using wet toys, and not allowing children to force themselves or part of their body into a small space. Care must be taken that children do not go behind or in front of the swings, and do not push or kill another child while playing. In either case, parental or coaching supervision is essential (5).

Cities' development is a manifestation of the life of the current societies, and behind this face of growth and development, many problems have affected the health and well-being of citizens. In fact, one of the current problems in cities is related to safety and social health issues (6). The issue of safety and security of the living environment and the protection of community members from dangers, pollution and anomalies in the living environment is one of the most important

factors in creating a good quality of life (7). Due to urbanization and the intense concentration of people in cities and the reduction of the area of residential houses and the strong need of citizens to have fun and graduation outside the home, the safety of outdoor spaces for citizen's fun is important for their optimal performance and facilitates the occurrence of appropriate behaviors during recreation, the existence of safety and physical and mental comfort and the tendency to use that environment, so that the environment with these conditions at different psychological levels provides specific behaviors in individuals and will provide the harmony of behavior and environment. Meanwhile, the safety of recreational and leisure environments of vulnerable groups is of special importance. Children, as the most vulnerable groups in society, are more at risk of environmental and social conditions than the other groups. Today, the dangers of urban environments have led people to return to their home and restrict children to be in the urban environment by their parents (8). In urban environments, among the most important spaces used by children are parks and playgrounds for children. Urban parks, from neighborhood and local green spaces to regional urban parks, are considered as a kind of work environment for children (9).

Studies have shown that parks and open urban environments have a significant impact on children's development. The role of parks is so important that it goes beyond a recreational environment, which means that urban parks have become an important factor in urban development, and thus the safety of these public environments is inevitable. In other words, play has an important role in the development of the child and, therefore, the safety of the play environment will be necessary (10). Undoubtedly, playgrounds should be safe and secure environments for children so that children can play in them,

enjoy the game and gain different experiences. Despite the above, the statistics regarding the playground environmental incidents in urban areas indicate a lack of proper attention to the safety of playgrounds. According to annual research reports, about 10 to 30 million children and adolescents are injured to different degrees (6). It should be noted that accidents and injuries have been reported to be the leading cause of death in children under 9 years of age. Urban environments such as the green spaces, parks and playgrounds, sports fields, and physical fitness gyms are among the environments in which children in particular and other people in general are in contact. The construction of playgrounds and sports fields in these environments is then related to urban sustainability (11).

The importance of securing children's playgrounds and the existence of new cases of accidents in playgrounds, despite the new technologies and standards available in information sites, reveal the need to investigate the cause of various accidents and even acute dangers on playgrounds. Considering the position of environmental planning in solving these issues related to urban open spaces that can be used by children, is another reason for conducting this study.

Shahrizadeh and Moayedfar (2017) conducted a study entitled "Strategic Planning of a Child-Friendly City with Emphasis on Children's Creativity (Case Study: Yazd City)" which showed that according to the HP model, among the criteria of a child-friendly city, Safety and security criteria in the first place and among the creativity criteria, the semantic creativity criterion has the first rank (12). Based on this prioritization and according to swot factors, the QSPM model has been used to extract strategies. It has the highest priority in the environment to use solutions such as using children's participation and

decision about their desired city, using signposts to orient children in the neighborhood, to use furniture on a child scale and to use cheerful colors in urban spaces. Shia and Sharafi (2017), in a study entitled "Evaluation of effective factors in the safety of recreational spaces for children (Case study: Niavaran neighborhood of Tehran) ", came to the conclusion that the type of design of play spaces has a great role in child safety. In this regard, the variables of hidden and unsafe angles, playground differentiation, playground equipment, lighting, playground surface were found to be more effective. In addition, the type of equipment in play areas and the safety of play equipment have an important role in child safety (13). Yoshida et al. (2016) also conducted a study entitled "Child safety in playgrounds in urban parks" indicating that Securing parks will not be possible without the implementation of integrated management of the three factors of HSE-MS model, as a successful solution. They suggest using the standards of the American Product Safety Commission (CPSC) or the European standards EN 1176 and EN1177 to improve the safety of playgrounds in parks. Anthropometric standards for children are also considered as important strategies (14).

The child acquires a variety of information from the environment while playing. Childhood play is considered as a powerful source for the development of perceptual-cognitive, psycho-social as well as sensory-motor skills, and therefore, providing a safe environment for children to play is inevitable (15). Playgrounds are environments that are equipped with appropriate equipment for children's play and activities. Playgrounds that are designed according to safety standards can play a role in the better social and physical development of children (16). However, despite the importance of the playground conditions in the development of children

and adolescents, in many cases, many incidents occur in children's playgrounds (17). In the United States, for example, about 211,000 children go to the emergency room each year because of playground accidents. It should also be noted that urban safety problems are not limited to the crowded cities of developing countries, and other cities around the world suffer more or less from disregarding urban safety standards. A study in Australia found that 88% of parents of children aged 5 to 6 years old and 81% of parents of children aged 10 to 12 years old expressed serious concerns about injuries to their children while walking or cycling in the neighborhood. Although playing on green or grassed playgrounds is less dangerous than playing on the street, it will also cause multiple injuries of varying degrees. Parents of children, as the most important person in their lives, undoubtedly have the most concerns and sensitivities about the children's play environment. And if the play environment of these children is not safe and healthy, they will undoubtedly prevent children from working in this place. The present case study, thus, wants to answer the question that how is playground safety in the case of district 3 of Tehran from the parents' point of view?

## 2- METHODOLOGY

This research follows a cross-sectional descriptive methodology with survey type, it is an applied study in terms of purpose and implements field type data

collection. The statistical population of the present study includes all parents of children in district 3 of Tehran. Due to the uncertainty of their number, Cochran's unknown population size formula was used and finally 295 people were selected as the sample, based on a convenience method. In this study, the safety assessment of children's playground from the parents' point of view was obtained through the questionnaire developed by the Shia and Sharafi (2017). It has three components including safety, playground, and environment, and its face and content validity have been confirmed by experts and its Cronbach's alpha coefficient has been reported as 0.87. Descriptive statistics (frequency, percentage, mean and standard deviation) were used to organize, summarize and describe the data. And the Friedman test was used for prioritization. It should be noted that in this study, SPSS software version 23 was used to analyze the data.

## 3- RESULTS

The results showed that 61.7% of the statistical sample were male and 38.3% of the statistical sample were female. Moreover, in terms of age, 15.6 percent of the statistical sample were less than 25 years old, 34.2 percent were 25 to 30 years old, 23.4 percent 31 to 35 years old, 13.9 percent 36 to 40 years old, 7.5 percent 41 to 45 years old and finally 5.4 percent were over 45 years old. The sample's level of education is shown in **Table 1**.

**Table-1:** Distribution of statistical sample of research by education

Education	Population (Number)	Percentage	Compression percentage
Diploma and Sub-Diploma	24	8.1	8.1
Fellowship	79	26.8	34.9
Bachelor	90	30.5	65.4
Master's degree	72	24.4	89.8
Ph.D.	30	10.2	100
Total	295	100	-

**Table-2:** Results of T-hotelling test

Variable	T-hoteling Square	F	DF1	DF2	Average	Significance level
Safety of playground design	37.396	4.563	8	287	3.74	0.001
Safety of Equipment type	185.274	25.991	7	288	3.85	0.001
Safety of environmental features	120.534	23.779	5	290	3.84	0.001

The results of the t-hotelling test in all three hypotheses showed that there is a significant difference between their theoretical averages; and the averages obtained in the components of safety of the

playground design, safety of equipment type and safety of environmental features showed that the items of these three components do not have the same priority.

**Table-3:** Prioritization in the design safety of children's playground from the perspective of parents in district 3 of Tehran

No.	Items (questions)	Average rating	Rating
1	How to design and mobilize playgrounds	5.10	Sixth
2	Lighting the playgrounds	5.14	Fourth
3	Restrictive elements for the entries of children's play spaces such as walls, trees, etc.	5.30	First
4	Hidden and unsafe angles in the space of the playgrounds	5.22	Second
5	Inadequate levels of playground such as obstacles or inappropriate slope	4.64	Eighth
6	Improper location of the playground, which causes lack of parental monitoring	4.80	Seventh
7	Lack of differentiation of children's playground from teenagers or even adults	5.19	Third
8	Lack of suitable materials in the floor of the park	5.11	Fifth
9	Inadequacy of traffic routes in terms of slope, the existence of ups and downs, safety of traffic separation from green space	4.50	Ninth

Considering that the significance level of Friedman analysis of variance test is smaller than the error rate, it can be said with 95% confidence that the six items constituting the safety of design in children's play spaces from the parents' point of view are significantly different in Tehran. Item 3 with an average of 5.30 is ranked first and the best and item 9 with an average of 4.50 is ranked ninth.

In the component related to the safety of equipment type, item 3 with an average of

5.53 is in first place and item 2 with an average of 3.38 is in eighth place.

Considering that the significance level of Friedman analysis of variance test is smaller than the error rate, it can be said with 95% confidence that the six items constituting the safety of environmental features of children's play spaces on children's playgrounds from the parents' point of view are different in district 3 of Tehran. Item 3 with an average of 3.85 has the first and the best rank and item 1 with an average of 2.80 is in the sixth rank.

**Table-4:** Prioritization of the safety of equipment in children's playground from the perspective of parents in district 3 of Tehran

No.	Items (questions)	Average rating	Rating
1	Active uses of children's play space that controls the entry of strangers	4.37	Sixth
2	Lighting the playgrounds	3.88	Eighth
3	Proximity of children's playground to the street, etc.	5.53	First
4	Existence of bumps or depressions in the playground	5.14	Second
5	Bare power lines in the park	5.01	Third
6	Lack of warning signs next to non-drinking water taps	4.94	Fourth
7	Existence of noise pollution around the park	4.79	Fifth
8	Entering motorcycles and bicycles into the park	4.32	Seventh

**Table-5:** Prioritization of safety of environmental features in children's playground from the perspective of parents in district 3 of Tehran

No.	Items (questions)	Average rating	Rating
1	Inadequate playground flooring	2.80	Sixth
2	Insecurity of play equipment in terms of stability at the installation site, and stability of play equipment connectors	3.84	Second
3	Failure to observe the distance between the game tools in any direction from each other	3.85	First
4	Inadequate access to equipment such as slopes, stairs, and ladders	3.83	Third
5	Lack of proper coverage of play equipment such as the metal rods	3.38	Fourth
6	No age guide signs next to the play equipment	3.30	Fifth

#### 4- DISCUSSION AND CONCLUSION

The results obtained regarding the first hypothesis showed that there is a difference between the hypothetical average score (score 3) and the mean score of the design safety in children's play spaces on the children's playground from the parents' point of view in district 3 of Tehran, showing that the items of these three components do not have the same priority, though they seem to be in a good condition from the parents' perspective. This finding is consistent with the results of previous research (12-13-18-19-14), among which we can refer to the results of a study (12), indicating that according to the AHP model, among the criteria of a child-friendly city, safety and security criteria are in the first place and among criteria of creativity, the criterion of

semantic creativity ranks first. The first aspect of designing children's play spaces on the children's playground is observing the principles of safety for the tools and equipment, and selecting them based on the existing standards. The playground is a place where children are very eager to go, and it is there that they explore their surroundings and learn social skills. If this environment is not safe enough, the parents would not allow their children to be present in these areas, and in this case, children will not be able to play their childhood games and they would turn into artificial and virtual space, which is psychologically damaging and will undoubtedly have negative effects on their upbringing and even the future of these children. Therefore, according to the results of the present study and the

research background, it should be said that the authorities have to observe the necessary standards in designing children's playgrounds; and considering the physical conditions and environmental characteristics of the geographical area can create the best possible conditions for children to be safe, and lead the parents to take their children to playgrounds without worries.

The results obtained regarding the second hypothesis showed that the safety scores of the type of equipment of children's play spaces on the children's playground are different from and higher than the hypothetical average score (score 3). This indicates that the safety of the type of equipment in children's play spaces on the children's playground in district 3 of Tehran is in a good condition from the parents' point of view. The priority suggested for this variable is, similarly, reported in the study by Shia and Sharafi who concluded that the variables of hidden and unsafe angles, playground differentiation, playground equipment, lighting, and playground surface are especially effective in providing children's safety (13). The type of equipment of play spaces and the safety of play equipment have a great role in the safety of children. As it has been emphasized so far, paying attention to the safety and health of children in play environments is an undeniable necessity. Children's play in parks states safety audits and upgrading the safety of play equipment as a necessity. The types of equipment to which children are physically connected are most important in their safety; and if not safe, they will undoubtedly harm children. Therefore, it should be noted that when building play centers for children, especially in urban environments such as parks, all aspects must be carefully considered with the lowest possible error rate. These devices and equipment should be made even if one percent and even less than one percent mistake in making

equipment can undoubtedly be harmful to children and cause many problems, the most important of which is children's physical injuries.

The results obtained regarding the third hypothesis showed that the mean scores of the environmental safety in children's play spaces on the children's playground from the parents' point of view are different and almost higher than the hypothetical average score (score 3). This indicates that the safety of the environmental characteristics of children's play spaces in district 3 of Tehran is almost satisfying from the parents' point of view. The obtained results in regard to this component are in congruence with the results of previous studies (12-13-18-19-14). The issue of safety and security of the living environment and the protection of community members from dangers, pollution and abnormalities in the living environment is one of the most important factors in creating a desirable quality of life. In urban environments, parks and playgrounds for children are among the most important spaces that include children and their activities. City parks on a small scale, from neighborhood and local green spaces to regional urban parks are considered as a kind of work environment for children's activities; and should have specific and defined features, the most important of them is the safety issue that must be approved by experts and specialists in this field. Because children tend to be active to enjoy games and fun and hate effortless fun, playing while creating happiness is considered as a serious work and activity for a child. With these conditions, the children's playground should have the necessary features and the necessary standards so that we do not witness the occurrence of bitter and irreparable problems and accidents. If parents of children have doubts about the safety and security of parks, this uncertainty can affect their visits to parks and playgrounds. Understanding safety

and feeling safe is just as important as the safety of environments and equipment.

The results obtained in the fourth hypothesis showed that with 95% confidence it can be said that there is a significant difference between the six items constituting the safety of designing children's play spaces on the children's playground from the parents' point of view in district 3 of Tehran. Children's play spaces such as walls and trees, with an average of 5.30, are ranked first. The obtained results were in line with the results of previous studies (12-20). Urban development is a manifestation of the life of today's societies, and behind this face of growth and development, many problems have affected the health and well-being of citizens. In fact, one of the problems of cities today is related to safety and social health issues. With these interpretations, special attention should be paid to the design of children's play spaces, because most children's play environments in the city are built in green spaces such as parks, and most of it is surrounded by walls, and there are obstacles such as trees between these areas. Therefore, special attention should be paid to these obstacles, because children are usually not stationary while playing and are always active and moving, and it is more difficult to control them at this time than at other times, and there is a possibility of collision at any time. Special precautions should be taken to secure the said barriers, which can affect the ranking of this question.

The results obtained regarding the fifth hypothesis showed that, with 95% confidence, it can be said that there are significant differences between the six items constituting the safety of the type of equipment in children's play areas on the children's playground from the parents' point of view in Tehran's district 3. The item concerning the "Proximity of children's playground to the street, etc.", with an average of 5.53, is in the first and

best rank. The importance of safe playgrounds for children and the existence of new cases of accidents on playgrounds, despite the new technologies and standards available in information sites, reveals the need to investigate the cause of various accidents and even acute extreme risks on playgrounds. On the other hand, with the existence of machine life in cities and the lack of sufficient spaces for children to spend their leisure time and play, and the construction of these places next to buildings and older workplaces in the middle of cities, parents are concerned about providing security for children playgrounds because these places have also become a place for adults to travel with vehicles such as cars or motorcyclists. Therefore, one of the most important concerns of parents is that the open space for children is accessible to most people and people can explore the areas in any way they want and cause insecurity for their children. So, it is suggested that the authorities can design play areas in such a way that vehicles cannot easily enter these areas, so that the parents can safely take their children to play in these areas.

The results obtained regarding the sixth hypothesis showed that, with 95% confidence, we can say that there is a significant difference between the six items constituting the safety of environmental features of children's play spaces on the children's playground from the parents' point of view in district 3 of Tehran. The item concerning the "Failure to observe the distance between the game tools in any direction from each other", with an average of 3.85 has the first and the best rank. In this regard, Sarai et al. (21) in a study entitled "Assessment of playground safety and children's play equipment in parks (case study: one of the parks in District 1 in Yazd city)" concluded that park safety, Children's playgrounds and playground equipment in the parks of area one of Yazd city was



below average, which shows that more than half of the respondents are dissatisfied with the condition of children's playgrounds. Also, there was no play equipment for children in special conditions, the most important of which was that the equipment was not within the defined distances. Therefore, it was recommended that decision-makers prioritize the safety of parks, especially children's playgrounds; because if the parents of children have doubts about the safety and security of parks, this uncertainty can affect the rate of visits to parks and playgrounds.

According to the results, it is suggested that the authorities design play areas in such a way that vehicles could not easily enter, so that parents can safely take their children to play in these areas. According to the obtained results, it is suggested that when making and installing children's play equipment, attempts be made to have distinguished types of equipment; one for preschoolers or younger children, and the other for children of school age. Attempts should also be made to install the equipment based on the existing standards and the security criteria.

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