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Health status of Gonabad city parks compared to standards and in people's opinion in terms of safety, hygiene and aesthetics

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Abstract

Given the importance of parks in urban habitats, health and safety is among important issues that ought to be considered in planning, implementation, management, and maintenance stage prior to occurrence of accidents, in order to meet citizen's needs. The study aims to assess status of Gonabad city parks in terms of safety, hygiene, and aesthetics. Study population consisted of people attending Gonabad city parks. A total of 384 questionnaires were distributed among people older than 15 years of age attending these parks on certain days. A checklist was prepared to assess how parameters matched standards. All parks in Gonabad city (8 parks) were studied. Data obtained from checklist and questionnaires. Mean standard of equipment and facilities in parks was found 43%. Ghori Park enjoyed the highest standard (67%), and Noghab park had the lowest (10%). The highest standard of equipment and facilities in Gonabad city parks was found in Ghori park (67%) and Melli park (60%), respectively, and the lowest standard in Noghab park (10%). Municipal managers should now take urgent measures to improve quality and safety of city parks.

Keywords: Aesthetics, Hygiene, Parks, Safety, Standards

Introduction

There is no doubt that coexistence with nature is essential to sustainable living. Whenever and wherever this coexistence is endangered, human life is faced with various disorders in different ways. Increasing urbanization development is directly associated with physical expansion of cities. Urban sprawl and remoteness from nature leads to loss of human touch with natural environment. People's lifestyles, amusements, and social needs have dramatically changed in recent years. As a part of the city landscape, urban parks have developed in various forms and positions. Among requirements for development of societies is to create the right

spatial and physical infrastructures for all social strata to use public services and facilities, for better mobility and easier access across the city [1].

Since parks are considered the obvious link between human and nature, these places may be regarded as a real phenomenon and the first problem that residents will always be touch with. Given the importance of parks in urban environment, health and safety is among important issues that ought to be considered in planning, implementation, management, and maintenance stage prior to occurrence of accidents, in order to meet citizen's needs [1]. Our view of human and his habitat and how social relations can be organized changes expectations of level and pattern of services provided [1].

It is an undeniable fact that every human needs to spend some time by the nature in his leisure time. What is available to urban population are parks and surrounding greenery [1].

Given the importance of the issue, amusement centers, especially parks, green spaces, and urban gardens should be so designed to be useable by physically disabled people. To this end, and given the criteria available in resources, and considering them in field observations of how humans relate to their environment and how their emotional and mental qualities are affected by the ecosystems has created a branch of humanities.

Le Corbusier is of the opinion that mankind should live in an environment with such conditions as clean air, quiet, peace of mind, fully dust-free, full protection against external noise, sunshine, natural lighting, fresh air, greenery and sky. Thus, a lack of direct contact with free space and monotonous work in closed environments predisposes people to psychological diseases. Hekmati: among requirements for development of societies is to create the right spatial and physical infrastructures for all social strata to use public services and facilities, for better mobility and easier access across the city. Like others, the physically disabled need access to and use of public facilities and services. However, some impediments, especially in design, architecture, and urban planning have made many urban spaces, especially streets, parks, and green spaces inaccessible to these people [1].

The growing dimensions of urbanization and formation of new scales of cities over the recent few decades have faced cities and city dwelling with modern challenges. Because of the widening dimensions and changes in nature of urban problems and their complexities, a holistic perspective on various aspects of urban problems to achieve sustainable development is inevitable [2]. Attention to and emphasis on planning and management of cities has moved, more than ever before, onto lower levels and tangible aspects of urban living. Over the past two decades, many studies have been conducted, and each has somehow begun investigation of urban policy-making, planning and management from smallest city units, which include parks and neighborhoods [3].

Today, such a crisis has turned into an urban management challenge. To prevent such a crisis, actions such as providing appropriate contexts for development and reinforcement of neighborhood community based organizations's should be considered, so that residents can strengthen their social interactions free of their mundane city living problems in major cities. Strategies such as citizenship education parks, neighborhood assembly, neighborhood-based microfinance fund services, community health centers, etc. can increase level of residents' interactions (with reliance on capabilities, and if required, social empowerment of neighborhood) and can recreate mechanisms aimed at strengthening solidarity and social capital of citizens [3].

Individuals of any age should be able to easily access leisure centers and wander around without anyone's help. This equally applies to the blind and the disabled. Unfortunately, like other community facilities (urban uses) urban parks are unable to host or benefit the disabled [6].

In practice, incorrect designs that are far from minimum of standards have deprived the people of easy access to public places. This acts as a reminder for greater attention to correct design, based on standards, especially in public places that are used by various social groups.

However, failure to implement these directives is clear and undeniable, and the current state of streets and spaces that has made their access and use practically impossible is a witness to this claim [5].

Parks comprise a significant part of the urban green space. Citizens resort to the green spaces to relieve from problems of city-living and find peace. Aesthetically designed spaces can create the peace needed by people and enhance collective spirit, as well [6]. Research indicates that acceptable standard of urban green space in Iranian cities is between 7 and 12 square meters per capita, which is much less than that indicated by the UN Environment Programs of 20 to 25 square meters per person [7]. In a green space, boundaries should be safe and appropriately structured; properly cleaned, and measures for notification or unavailability of irrigation valves should be in place. Attention to pedestrian routes in design of parks is vitally important. Pedestrian routes should be even, without bumps, and with appropriate slopes. They should be properly tidied, level, and with the right wearing course that is not a danger to citizens. Sideways should be of standard width (minimum 125 cm), with appropriate drains to direct surface waters in parks [6]. The importance of urban green space in the life and stability of the city and its physical, natural, and social impact on the urban system is undeniable [8]. Appropriate lighting is among other effects in parks. In addition to reducing accidents and injuries, proper and pleasant lighting can also offer people mental relaxation [13].

In many countries, parks offer a soft and flexible cover in play areas, with people's safety as the principle aim. These surfaces should have the least unevenness, and should be compatible with the regional climate and not slippery in rain [10]. Some 70 Isfahan residents being locked in a merry-go-round in April 2007 due to technical problems and derailing of several diesel train coaches in a playground in July 2007 are among examples of accidents that mainly happened due to lack of safety standards in electrical or mechanical equipment, which were able to turn people's joy and happiness into sadness and horror. Unfortunately, there are no standards in playground complexes of the country, and Standard Institute does not monitor these places, and standards compatible with those of the world have not been defined for play equipments. Other welfare facilities in parks include furnishings such as tables and benches, which should be made from resistant materials, appropriate for the climate [9], so that in northern parts of the country, concrete and polyester benches are used, and in desert towns, concrete and wooden benches. In design of parks, the pleasure people gain from equipment appears to be more important than their durability and rigidity [10]. Benches should have the right height, with no rough surfaces, and should be intact and washable, with appropriate colors. They should be clean and tidy and appropriately placed so as not to cause obstruction. Trash bins are absolutely essential in all parks and recreational places.

Trash bins should have tops to avoid outflow of liquids inside. Color is hugely important for trash bins. It would be better to use cool colors such as blue in desert town and warm colors such as yellow and orange in northern towns in Iran. The standard height for trash bins is 120 cm, so that it is within reach of individuals of any age [6].

Another important issue in parks is drinking taps, which should be appropriately placed, and with safe structure, without cutting edges, and should not cause accidents. They should have proper and hygienic waste water drains, and should be installed at the right height, so that they can be equally used by children, adults and the disabled. A safety sign should be posted at the location of drinking taps [10]. It is essential to use warning signs in parks. Providing hygienic drinking water is considered an essential element in maintaining health and economic progress of societies. Many of the health problems in developing countries are mainly due to lack of healthy drinking water, without which community health and welfare is put at risk [11]. Signs that sometimes indicate a health or safety point, and ignoring them may lead to irreparable damage or a health problem,

especially those that distinguish drinking from non-drinking water taps to preserve public health appear to be compulsory [12].

Children's play area is the most important place in parks. Play area should be suitably separated from other parts of the park, and should be even, with appropriate surface cover, and without uneven heights, which may cause accidents for children. It should not be exposed to intense sunlight or within proximity of a road. Drinking water should be installed according to relevant standards by children's playground. Suitable benches should be anticipated for parents outside the playground. It should have appropriate lighting. Play equipment should have the necessary safety standards, and should be regularly checked for safety. No unsafe electrical switches should exist in the vicinity of playgrounds. Play equipment should be appropriately painted and cleaned, and safety standard should be observed in play structures [10].

In addition to reducing accidents and injuries, proper and pleasant lighting can also offer people mental relaxation. According to international standards, light intensity in various parts of the park is 300 lux [14]. Lighting of the park is measured in lux, and minimum light intensity of 500 lux should be appropriate to the park atmosphere and produce proper lighting. Lighting should have a proper structure (posts, bulbs …). Switches and electricity cables should be safe and away from the public. Electricity boards should be appropriately located, with a safe structure, so as not to endanger park employees or visitors. It should be appropriately colored and cleaned [10].

The present study aims to assess state of parks in Gonabad city in terms of safety, health and aesthetics.

Method

This descriptive-analytical study was conducted in Gonabad city as the study setting, where parks and park visitors made the study population. Study population was so selected to assess parks compared to all parks with standard conditions in Gonabad city, including 8 parks in total that were assessed using a researcher-made checklist. For development of a questionnaire, initial questions were designed through review of various textbooks and consultation with experts. Next, inappropriate questions were identified, modified and finalized using views expressed by consulting professors and a number of experts, and their face validity was thus confirmed. To determine reliability of questions, a pilot study was conducted on 30 participants from among study population, and Cronbach's alpha and internal consistency method was used, which resulted in α=0.766. For further confirmation of reliability, test-retest method of the questionnaire was used on the above participants with a four-week interval, and correlation coefficient was confirmed. However, prior to conducting the pilot study, questions were read for a number of people, and some inappropriate and ambiguous questions and items were eliminated. The checklist contained 55 items (Table 4), and all items were measured and compared to relevant standards, and recorded. Census sampling was used, and all parks were investigated. To assess people's views, study population consisted of all people over 15 years of age in Gonabad city. Sampling was performed in convenient form, so that, on Thursday and Friday evenings when most people visit parks, 384 questionnaires were distributed among people over 15 years. The questionnaire contained 19 items (Table 3), of which 13 were multiple choice questions and the rest, open end questions, which were completed by visitors to each park. Data obtained were analyzed in SPSS software using Chi-square and t-test. This article was written to assess study parameters in Gonabad city parks.

Results

This study was conducted on all parks in Gonabad city (8 parks). According to checklist assessments, mean standard of equipment available in all parks was 43%. Ghori park had the highest standard (67%) and Noghab had the lowest (10%). Standard of Bagh-Melli park was 60%, Shahr park 56%, Basij park 52%, Resalat park 40%, Hafez park 38%, and Shirin park

28%. Participants' opinion survey, carried out through the questionnaire indicated that 70% of Participants considered Bagh-Melli park the best in terms of recreation, and 11% considered it the best in terms of play facilities. 95% of Participants considered the lack of facilities and greenery the biggest problem in Gonabad city parks. Assessment of accidents in parks showed that most accidents occurred in Hafez and Noghab parks (80%) and least in Ghori park (23%).

Table 1 *General features of parks in Gonabad city in terms of park area and its green spaces*

Park	Overall park area (m2)	Green space area (m2)
Ghori (children's park)	28000	5000
Resalat	13000	7000
Shahr	10600	2000
Shirin	13455	None
Melli	13800	7000
Basij	11000	3000
Hafez	4944	500
Noghab	1200	None

According to Table 1, with an area of 28000 square meters, Ghori is the biggest park in Gonabad, and with 1200 square meters, Noghab is the smallest. The green spaces were mostly in Resalat and Bagh-Melli parks with 7000 square meters.

Table 2 *Plant species (trees, and flowers) in Gonabad parks*

Park	Trees	Flowers
Ghori (children's park)	Japanese mulberry, pine, bitter olives, barrel pine, cupressus, weeping willow, hybrid acacia, willow	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Resalat	Acacia, Japanese Mulberry, pine, bitter olive, barrel pine, common pine, cedar, cupressus, willow, hybrid acacia	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Shahr	Tehran pine, barrel pine, cedar, hybrid acacia, common acacia, juniper, tree of heaven (ailanthus), bitter olive, cupressus, Japanese Mulberry, weeping willow	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Shirin	Tehran pine	None
Melli	Tehran pine, pinus ball, fig, hybrid acacia, tree of heaven (ailanthus) mulberry, cupressus, Japanese mulberry, willow	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Basij	Tehran pine, mulberry, tree of heaven, bareel pine	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Hafez	Tehran pine, weeping mulberry, tree of heaven (ash), barrel pine, cupressus	Gaillardia, petunia, majus, parsley, gynura auratiaca, viola, canna generalis, zinnia, gazania, cropsis, bellis perennis
Noghab	Tehran pine	None

Table 2 shows that plant species in Gonabad city parks are drought-resistant and appropriate for the regional climate. Noghab and Shirin parks have the least plant coverage and no lawn spaces.

Table 3 *Facilities in Gonabad parks, in people's view*

Park	Exercise equipment		Picnic places		Sign posts		Green space		Number of play equipment		Security		Accidents		Trash bins		Stairs		Toilets hygiene		Sidewalk covering		Playground cover		Environmental health and cleanliness	
	Favorable	Unfavorable	Adequate	Inadequate	Favorable	Unfavorable	Favorable	Unfavorable	Adequate	Inadequate	Favorable	Unfavorable	Occurred	Did not occur	Favorable	Unfavorable	Favorable	Unfavorable	Favorable	Unfavorable	Favorable	Unfavorable	Favorable	Unfavorable	Favorable	Unfavorable
Ghori	67	33	42	58	20	80	50	50	23	77	65	35	23	77	64	36	-	-	58	42	15	85	42	58	16	84
Resalat	63	37	42	58	30	70	59	41	24	76	55	45	44	56	85	15	62.5	37.5	56	44	12	88	51.5	48.5	29	71
Shahr	57	43	33	67	33	67	47	53	20	80	60	40	27	73	93	7	27	73	47	53	21	79	20	80	33	67
Shirin	0	100	20	80	0	100	20	80	0	100	0	100	56	44	80	20	44	56	40	60	10	90	20	80	0	100
Bagh Melli	281.25	18.75	28	72	28	72	47	53	44	56	37	63	33	67	74	26	37	63	47	53	12.5	87.5	42	58	47	53
Basij	100	0	10	90	0	100	10	90	40	60	70	30	50	50	100	0	70	30	90	10	10	90	20	80	0	100
Hafiz	0	100	0	100	0	100	0	100	0	100	20	80	80	20	50	50	71	29	80	20	10	90	20	80	0	100
Noghab	0	100	0	100	0	100	0	100	0	100	30	70	80	20	0	100	0	100	20	80	0	100	0	100	0	100

In Table 3, parameters were matched with standards of the world and Iran. A checklist was used for matching standards. Analysis of data showed the highest standard of equipment and facilities in Ghori (67%), Melli (60%), Shahr (56%), Basij (52%), Resalat (40%), and Hafez (38%) parks, respectively, and the lowest standard in Shirin (28%) and Noghab (10%) parks.

Table 4 *Standard of equipments and facilities in Gonabad parks*

Criteria / Park	Sidewalk width		Sidewalk cover		Lamp posts		Table dimensions		Table material		Table status		Bench dimensions		Bench status		Bench material		Entrance and exit		Warning signs		Exercise equipment		Technical control over electrical equipment		Electronic equipment		Playground cover		Stairs	
	GHS	S	GHS	S	GHS	S	GHS	S	GHS	S	NOV	V	GHS	S	NOV	V	GHS	S	GHS	S	NOV	V	NOV	V	GHS	S	NOV****	V***	GHS	S	GHS**	S*
Gonabad parks	0	100 %	87 %	13 %	50 %	50 %	100 %	0	75 %	25 %	68 %	12 %	38 %	62 %	13 %	87 %	75 %	30 %	25 %	75 %	75 %	25 %	50 %	50 %	50 %	50 %	88%	12%	100 %	0	62 %	38 %

Continued Table 4

Supervision		Playground cover		Number of toilets			Toilet hygiene state		Drinking water distance from picnic area		Picnic place area			Picnic place			Life jacket		Guard around lake		Depth of lake		Artificial lake		Parking		Guard		Shops		Pay phone		Criteria / Park
NOV	V	GHS	S	NOV	GHS	S	NOV	V	GHS	S	NOV	GHS	S	NOV	GHS	S	NOV	V	NOV	V	GHS	S	NOV	V	NOV	V	NOV	V	NOV	V	NOV	V	
50 %	50 %	75 %	25 %	25 %	12.5 %	62.5 %	25 %	75 %	25 %	25 %	50 %	25 %	75 %	38 %	50 %	12 %	100 %	0	50 %	50 %	33 %	67 %	63 %	37 %	50 %	50 %	63 %	37 %	62.5 %	37.5 %	63 %	37 %	Gonabad parks

Continued Table 4

Fountain		Special effects		Color of trash bins			Height of trash bins		Location of trash bins		Material of trash bins			Number of trash bins			Drinking water signs		Toilet hygiene		Toilet size		Toilet quantity			Toilet status		Criteria / Parks
NOV	V	NOV	V	NOV	GHS	S	NOV	S	NOV	S	NOV	GHS	S	NOV	GHS	S	NOV	V	GHS	S	NOV	S	NOV	GHS	S	NOV	V	
12.5 %	87.5 %	37.5 %	62.5 %	12.5 %	25 %	62.5 %	12.5 %	87.5 %	12.5 %	87.5 %	12.5 %	12.5 %	75 %	12.5 %	12.5 %	75 %	12.5 %	87.5 %	75 %	25 %	12.5 %	87.5 %	12.5 %	62.5 %	25 %	25 %	75 %	Gonabad parks

Continued Table 4

Prayer's room		Green space area		Green space		Color of signs			Fountain height			Criteria / Parks
NOV	V	GHS	S	GHS	S	NOV	GHS	S	NOV	GHS	S	Gonabad parks
75 %	25 %	50 %	50 %	62.5 %	37.5 %	62.5 %	12.5 %	25 %	12.5 %	12.5 %	75 %	

*Standard
** Non-Standard
*** Exists
**** Does not exist

Table 4 shows that, standard of equipments and facilities in Gonabad parks

Discussion

According to the inspection of playgrounds and their equipment carried out by the Standard Institute inspector, 90% of equipment in these places do not meet the required standards. Hence, accidents are to be expected. Many of amusement park equipment including swings, slides, and seesaws do not comply with standards [4].

A study by Elmira Brahmand et al. on health, safety and environment of urban parks in Iran, placed these parks at intermediate level in terms of health indicators and poor in terms of safety and environment [15].

According to a study by Niri (Institute of Standards expert), only four parks out of 20 in Tehran scored more than 50% in terms of safety, and even parks that appeared fully equipped had poor safety. Niri adds that increased lack of safety is directly associated with urban district, and thus park equipment safety is poorer in more deprived areas [16].

In a study by Arjmandi et al. conducted on management of health, safety and environment of urban parks in district 5 of Tehran in spring 2008, quality of health index (58.9%) was found less than quality of safety index (59.2%), but more than quality of environment index (46.1%) [17].

In another study, Leghaee investigated management of safety in parks and green spaces in Tehran, and found that of the 4 main parks in district 3 of Tehran (Mellat, Shariati, Taleghani, and Seid Khandan), Taleghani woods and Seid Khandan came last in terms of safety. Of the total indicators in these 4 parks, equipment and playground safety and state of parks in terms of creating shades to prevent physical stress had the lowest safety levels, followed by state of parks in terms of fire percussions and functional interference to avoid misuse due to confused perceptions [18].

The results of an opinion survey using a questionnaire showed that people agreed 100% with location of Resalat, Shahr, Basij and Hafez parks. Compared to other parks, Basij had better state of sanitation and environmental health. People were dissatisfied with state of public toilet services mainly due to their unhygienic and unclean states. With the exception of Noghab park, other parks were adequately equipped with trash bins. People were dissatisfied with state of stairs in Shahr, Shirin and Melli parks. Broken stairs was the main reason for dissatisfaction in Shahr park (50%) and in Shirin (36.4%), and insufficient numbers of staircases in Melli park (36%). Except for Resalat park, mean 66% of participants were unhappy with surface covering of sidewalks in all other parks. Mean 79% of participants were dissatisfied with surface covering of playgrounds in all parks. In Hafez and Noghab parks, 100% of participants were unhappy with play equipment and facilities. 61% of participants

had a positive view of equipment and facilities in Melli park. The main reason for people's dissatisfaction with equipment in all parks was their inadequate numbers. But, in Basij park, 70% of participants cited unsafe equipment as the main reason. Many people were happy with exercise equipment in Ghori, Shahr, Melli, and Basij parks, and all (100%) wanted to see such equipment in Noghab, Harez, Resalat, and Shirin parks, as well. People believed number of picnic places was insufficient in all parks. Only Resalat and Ghori parks had the highest satisfaction rate (42%) in terms of picnic places. People believed parks were poorly sign posted across the city. Noghab, Shirin, Hafez, and Basij had the worst green spaces respectively, and Resalat (59%), Ghori (50%), Shahr and Melli (47) had the best. Participants felt secure and without much problem in Basij park by (70%), Ghori by (65%), Shahr by (60%), and REsalat by (55%). However, 64% and 56% of participants felt insecure because of intruders in Noghoab and Melli parks respectively, 56.25% because of absence of watchmen in Hafez park, and 60% because of both intruders and lack of watchmen in Shirin park. All the above issues require greater attention of the town's municipality to state of parks. Lack of security in parks and green spaces is mainly due to lack of development of management strategies or failure to observe them, of which, design is also an important part. General security problems, and in particular, security of parks makes adopting lasting policies and strategies imperative [19].

Conclusion

City sprawls and modern lifestyles have led to the demand for development of green spaces and parks in towns. Undoubtedly, important issues for municipalities of safety and aesthetic measures persist to preoccupy minds of urban planners and designers. Study of Gonabad city parks indicates that only four of eight parks in this city have more than 50% safety. The highest standard of equipment and facilities was found in Ghori (67%), Melli (60%), Shahr (56%), Basij (52%), Resalat (40%), and Hafez (38%) parks, respectively, and the lowest standard in Shirin (28%) and Noghab parks (10%). Study findings showed that even parks that appeared fully equipped had poor safety. In an opinion survey, mean 54% of participants were happy with cleanliness and environmental health of parks, and only 25% were happy with state of toilets hygiene. Municipal managers need to pay greater attention and adopt urgent measures to improve quality and safety of urban parks.

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Study design: SA, HK, AD
Data collection and analysis: SA, HK, AD
Manuscript preparation: SA, MP, HK

Conflict of Interest

"The author declares that they have no competing interests."

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