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Residents and urban green spaces: A case study in Rasht (North of Iran)

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One of the most important and effective factors of human life is urban forests and green spaces. These urban green infrastructures may have different effects, at different levels: Some physiological and others socio - economical. Sometimes it may be hard to see by which mechanisms the urban green spaces affect people's health. However, we will focus on the "health effects" of green spaces on the urban residents. This study investigates vitality and health effects of green space use in light of physical and mental aspects regarding effective factors (including different social sex and age groups with different levels of education, income and access) in quantity and way of Rasht residents use of these spaces by the method of the questionnaire. The clean and healthy spaces encourage people to walk and spend much leisure time in green spaces and therefore they have mental and physical benefits. A detailed analysis shows how people's attitudes and socio- demographic characteristics affect the ways and amount in which green spaces and forests are used.

Key words: Health effects, human life, leisure time, urban forest and green spaces, urban residents.

INTRODUCTION

Environmental quality has long been a concern of citizens and policy makers (Hynen et al., 2006; Mierzejewska, 2004) in their attempts to adjust the city's spatial structure, on the one hand, to its physiographic conditions and on the other, to the changing population number and the economic changes of the recent years (Mierzejewska, 2004). One of the most important and effective factors of human life and environmental quality is urban forests and green spaces. A great and growing environmental problem in urbanized areas is dramatic deteriorations in quality and quantity green infrastructures.

Green infrastructure comprises greenery and open spaces linked by streets, water ways and drainage ways around and between urban areas, at all spatial scales (Mazlina and Ismail, 2008). According to a Swedish dictionary (Malmström et al., 1991), a green area refers to an area in city plans with green surface, trees and other elements of vegetation. Green spaces provide a pleasant atmosphere to the citizen to escape momentarily from machines, noise and drudgery to work. Greenery attracts rains, absorbs the summer heat, adds oxygen to air, prevents pollution and save soil erosion (Riaz et al., 2002). Urban green spaces have both direct and indirect effects on health, in the sense that they are associated not only with good health status amongst local residents, but also with improved environment quality (Santana et al., 2009). Increasing empirical evidence indicates that nature provides restorative experiences that directly affect people's psychological well-being and health in a positive way (Hartig et al., 2003; Maller et al., 2005; Hillsdon et al., 2006; Gunnarsson and Öhrström,

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2007).

The relationship between urban green spaces and public health is a relatively new area of research (Santana et al., 2009). The key factors affecting health in cities can be considered within three broad themes: the physical environment, the social environment, and access to health and social services (Galea and Vlahov, 2004). Urban health as a framing paradigm is of recent vintage and offers a perspective on health and disease that integrates clinical medicine and public health and draws on the social and political sciences to seek understanding of the impact of cities on the health of populations and individuals (Fleischman and Barondess, 2004).

Researches have shown that access to green space has a positive impact on health (de Vries, 2001; de Vries et al., 2003; Hillsdon et al., 2006; Mitchell and Popham, 2007). Biological and medical researchers have examined the health benefits of activity outdoors (Florez et al., 2007) and suggested links to positive impacts on, for example, blood pressure and cholesterol levels (Maller et al., 2005; Hartig et al., 2003). Therefore, the current study suggests that natural environments are salutogenic and that promoting and facilitating their use could be an important component in the fight for enhanced public health and reduced health inequalities.

Rasht green spaces are of crucial importance for the city itself and its residents, because they not only determine the favorite conditions for living but also provide a basis for the city's spatial structure. Their provision affects the overall physical and built environment of the city, making cities attractive places not only to their own citizens, but also to external visitors and investment (Arvanitidis et al., 2009). Green areas not only influence human behavior and brush up human intelligence through the provision of beautiful landscape and healthy atmosphere but also add physiological, psychological, and economic benefits for both living and non-living things (Ali, 2000). Therefore, urban green space may have different effects, at different levels: some physiological and others socio- economical. This article draws on a questionnaire survey conducted in Rasht, in order to explore to health conditions and perceptions with regard to urban green space. Emphasis is given to issues related to the health aspects of urban green, including an evaluation of the demand for urban green and its importance for health of citizens. This study was conducted in Rasht, to ascertain the most important, the mental and physical health benefits associated with the green spaces and parks in urban areas, and it would be helpful for the future planning and development of the urban areas. The main objectives of the present study are, firstly, to explore whether green-area availability moderates resident's mental and physical disease and secondly, whether the potential effect of green-area availability varies depending on the proportion and modes of green spaces and forests use regarding age, sex, education and access factors of respondents.

MATERIALS AND METHODS

The study area was the city of Rasht (population over 550.000), in northern Iran (37°27′ N, 49°50′ E). Rasht is the capital of Guilan with an average elevation of 5 m and the largest city along the Caspian coast of Iran. Despite being the administrative, cultural, and emblematic capital of Guilan, the city is not a major industrial and artisanal hub. The city includes a large number of public services (hospitals, sports centers, etc.) and cultural institutions (museums, etc.) with public parks, green spaces and the road side green belts that enhance the beauty of the urban landscape, absorbs carbon dioxide, enhances freshness, provides aesthetic gratification, attracts birds, traps dust, and absorbs noise. The city has more than 35 parks that the four main parks selected for this study.

Briefly, the study, conducted between June – August, 2008, involved citizens aged 15 to 60 years, who resided in Rasht. The study was based on primary data, collected through questionnaire technique. The respondents were selected among the people visiting four parks and different green spaces and the people living in close vicinity to these parks and living at larger distances. Simple random sampling (SRS) technique was employed to select the respondents in which all possible samples of the population are given an equal probability. Data was collected from 181 visitors in the morning and evening. The participants answered a questionnaire designed to assess adverse health effects of urban green space use. Other issues recorded included: personal characteristics and variables such as quantity and quality use of green areas, physical activity levels in these areas, perception regarding functions of urban green structures and attitude and willingness for common participation in conservation and development of urban green spaces and forests.

RESULTS AND DISCUSSION

Socio-economic characteristics

Socio-economic characteristics such as gender, age, education and occupation of the respondents play a vital role in framing the human attitude towards the realities of life (Riaz et al., 2002). The socio-demographic and individual characteristics of the respondents are shown in Table 1.

Based on the results, 42% of users were women and 58% are men. The findings revealed that gender influenced the residents' use of urban green spaces and parks, the attitude of people towards participation in administration and conservation of green area and users' willingness for participation in executive and managerial activities. The results show that the men had more willingness for participation in managerial activities than women had. Moreover, men and women had similar willingness in executive activities.

The age distribution was 23/8% between 15 and 30 years, 19/3% between 30 and 45 years, 45/9% between 45 and 60 years, and 11% over 60 years old. The studies revealed that majority (45/9%) of the respondents were in the age group of 45 to 60 years while 23/8% were in the age group of 15 to 30 years. Perceptions and opinions of young people are quite different from the people in other age groups and vice versa. Because most of this group are looking for education and work and have less

Table 1. Socio-economic characteristics of the respondents.

Characteristics/category	Number of respondents (%)
Gender	
Male	76 (42)
Female	105 (58)
Total	181 (100)
Age	
15 - 30 years of age	43 (23/8)
30 - 45 years of age	35 (19/3)
45 - 60 years of age	83 (45/9)
Over 60 years of age	20 (11)
Total	181 (100)
Education	
Illiterate and high school diploma	70 (38/7)
Under bachelor's degree	92 (50/8)
Over bachelor's degree	19 (10/5)
Total	181 (100)
Occupation	
Unemployed	27 (14/92)
Government employee	39 (21/55)
Business	42 (23/2)
Labor	31 (17/1)
House wife	26 (14/4)
Student	16 (8/83)
Total	181 (100)
Total	181 (100)
Education	
Illiterate and high school diploma	70 (38/7)
Under bachelor's degree	92 (50/8)
Over bachelor's degree	19 (10/5)
Total	181 (100)

opportunity to visit the parks and green spaces. Also, their youthful energy and spirit played an important role in their view of the green spaces and choosing the type of activity. Similarly, the role of education and occupation is well accepted in all the spheres of life. As regards educational attainments, 38/7% were illiterate or had a high school diploma, 50/8% had an under bachelor's degree and 10/5% had an over bachelor's degree. Regarding occupation, 14/92% was unemployed, 21/55% was government employee, 23/2% was business man, 14/4% was house wife, and 8/83% were students.

Urban open green areas promoting health effects

There is increasing evidence that closeness to the natural environment is healthy (Godbey, 2009). Living in a green environment is positively related to such health indicators as levels of stress and amount of physical activity (de Vries et al., 2003). Recent studies on citizens' perceptions and behavior toward urban green areas have shown the complexity and the multidimensional character of the man-nature relationship in the city; inhabitants' use of green spaces appears to be motivated by the need for psychological health with relevant social implications (Sanesi et al., 2006). The results illustrate that over 90% of the respondent reported that the natural areas life promoted health benefits and improvement in quality of (Table 2). Parks and other green areas provide easily accessible recreational opportunities for people and offer opportunities for healthy physical activity. Physical activity is one of the major lifestyle-related health determinants (WHO, 2006). Physical activity is usually defined as "any bodily movement associated with muscular contraction that increases energy expenditure above resting levels". Physical activity, health and quality of life are closely interconnected (EU Working Group, 2008). Natural areas often comprise several kinds of activity. Meeting place and leisure, listening to music, take a walk in parks and forests, bird watching and other activities that each of these has its wellness implications. Based on the results of this research regarding attitude of citizens toward different kind of activities, Walking reported as a common denominator for most form of physical activity in open and green spaces.

One of the positive factors associated with green space and natural landscapes is there restorative effect from stress and mental fatigue (Kaplan and Kaplan, 1989). Mental health is undoubtedly beneficial and essential for the wellbeing of individuals and communities. Mental health promotion focuses on enhancing the social, structural, spiritual and psychological resources that enable one to cope, experience positive quality of life, and contribute to the social, economic and environmental dimensions of society.

Of the 181 respondents who were asked to select from the activities listed on the questionnaire (such as, visiting a park, walking in the park or forest, sleeping (or 'relaxing' selected as an activity in which people are coping with stress), reading a book, listening to music and watching a film) that they would choose whenever suffering from stress. Figure 1 illustrates that majority of the respondents (75/69%) viewed that walking and visiting a park or forest is favorite way to reduce stress. Also other activities such as, sleeping (18/78%), listening to music (17/68%), reading a book (14/91%) and watching a film (7/73%) in this issue mentioned.

Perception and attitudes toward urban nature

The results of the study showed that the majority of the residents have the opinion that the most important beneficial functions of green spaces and parks is that of

Table 2. Opinion of respondents about the different aspects of urban green spaces.

Functions of urban green space	Number of respondents (%)
Environmental function	
Improvement of climate (cooling and cleaning of air)	157 (86/74)
Redress from heath island effects	117 (64/64)
Reduced energy consumption	114 (62/98)
Social function	
Increase in social interactions	161 (88/95)
Improvement the sense of community	57/46 (104)
Health function	
Increase in life span	151 (83/42)
Improvement in quality of life	170 (93/92)
Improved mental health	177 (97/79)
Promoting physical activity	137 (75/69)
Economical function	
Increase in property prices	132 (72/92)
Promoting investment or economic activity	120 (66/29)
Increase in tax revenue	114 (62/98)
Attracting more customers to the business	155 (85/63)

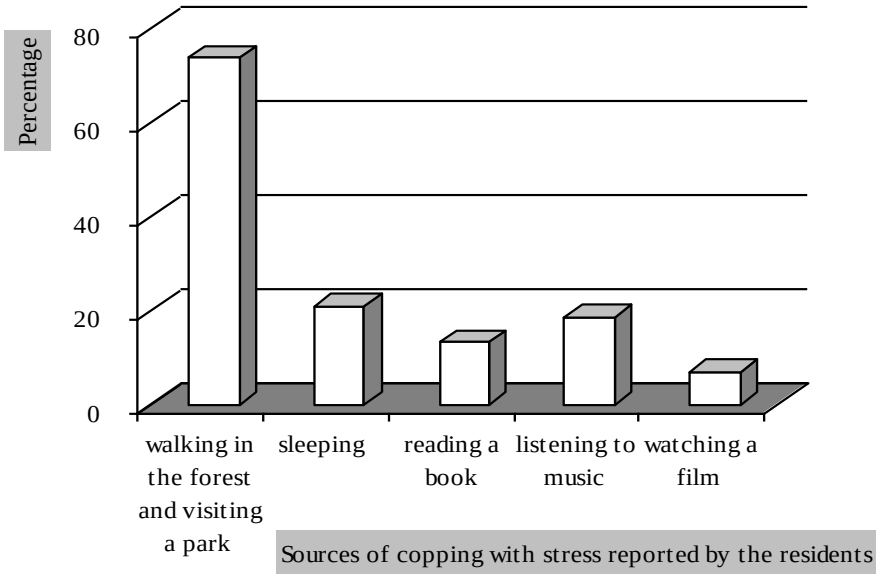

Figure 1. Respondent's priorities for ways to reduce stress.

improving climate conditions and urban environment, and promoting health (Table 2). The results indicated that over 90% of respondents reported that the green structures make an improvement in the quality of urban life. Moreover, Table 2 presents a similar type of respondents' opinion about the different beneficial functions of green spaces on urban environments.

Attitudes influence the behavior towards urban green spaces (Balram and Dragi evi, 2005). Attitudes towards the appropriate extent, configuration and function of the natural landscape differ over time, space and tradition (Berglund, 2005). Widespread trends in cities are recognizing the value of "natural" urban areas to offer residents spaces to be active in and interact with other members of their community without contributing to urban sprawl (Morgan et al., 2009). Results of Table 2

regarding attitude of citizens toward urban green spaces, recognize that they believe spending time in urban green spaces has the potential to reduce stress, alleviate headaches, and overall feeling of wellbeing. Also, these areas, encourages exercise, which increases health and lowers the risk of disease.

The results of this study showed that women had more satisfaction than men regarding access to nature and health services that might due to reason of more opportunity and time for visiting the green spaces and parks. Based on the results, in respect with attitude toward people participation in administering and conservation of forest parks, men had more favorable attitude that might be due to reason of more awareness about participation role and benefit for society.

Conclusion

Urbanization has been the dominant demographic trend, not only in the Asia-Pacific region, but also in the entire world, during the last half century (Ichimura, 2003). The transformation of natural, open or agricultural land into urban land is one of the major environmental impacts in most urbanized countries and regions (OECD, 1997). A systematic, scale-spanning and practically applicable approach to the integrative assessment of the impact of (urban) land use transition and management in urban environment is still missing (Nuissl et al., 2009). Moreover, residents participate is important in forestry and greening projects in urban environments. Participatory activities of people include trail building, tree planting, ecosystem restoration, habitat building and parks maintenance. Participate as volunteers, employees, or are assigned by counselors or court (Wolf, 2003). Green spaces are considered to provide diverse benefits for cities and their inhabitants (Venn and Niemelä, 2004). A number of questionnaire studies have indicated that urban residents appreciate urban green space as somewhere to recuperate from both physical and psychological illness, as well as overcoming stress (Korpela and Hartig, 1996; Takano et al., 2002).

Overall, the results in the present study indicate that the degree of perceived availability to nearby green areas affected the resident's responses to health effects of green space use. Although walking is popular, few people do enough walking to benefit their health. A large majority of the respondents mentioned that green areas yielded health benefits such as feeling of freshness, mental relaxation, and opportunity for jogging, early recovery from illness and reduced the risk of diseases respectively, minimizing pollution, moderating temperature and trapping smoke. It is concluded that green areas make the quality of human life better by improving health, through environmental, social and economic impacts. The conservation and development of such urban green spaces will forward Rasht toward a more livable city.

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