

Received 23 Sep 2015; Accepted 11 Feb 2016

## Social and Psychological Dimensions of Urban Green Spaces and the Impact in Living Environment of Epidemiological Studies

Ali Asghar Voskah<sup>1</sup>- *M.sc of urban planning and management; Qazvin Branch, Islamic Azad University; Qazvin; Iran*

### Abstract

Many epidemiological studies have found that people living in environments with more green space report better physical and mental health than those with less green space. However, the association between visits to green space and mental health has seldom been studied. The environment surrounding residences and its recreational and commuting opportunities are believed to affect human health and well-being. Urban green spaces hold great potential for promoting an active life style that allows urban residents to achieve important health benefits. The type of urban green space that is most effective to reach the signals is still unclear. The objective was to systematically review the literature examining the relationship between quantity and quality of green spaces in the living environment and three health outcomes: perceived general health, perceived mental health, and (all-cause) mortality. This paper focuses on urban green space as one important type of urban open space and its relevance for human well-being. The result of research show further research should focus on exploring relationships between more detailed character-istics of green space and more specific health outcomes in different population sub-groups and in different countries. Quality of urban living and residents' way of life involves a complex interrelationship between a wide variety of physical environments and social opportunities. These, in turn, determine residents' physical and psychological needs. Due to unhealthy lifestyle, health promotion has become a prime concern in Malaysia because of the increase in life threatening illnesses. A proper green space planning is needed so that it facilitates urban residents with spaces for recreation, social and leisure activities. Unfortunately, Malaysia has not yet achieved a satisfactory degree of green space design and development to facilitate residents with a healthy environment. There are few restrictions on accessing and having contact with the urban green space due to planning and design issues.

**Keywords:** *urban green spaces, Social and Psychological dimensions, epidemiological studies; Guidelines and recommendations*

1. Corresponding Author, Tel: 09121149251, Email Address: aliovoskah@yahoo.com

## Introduction

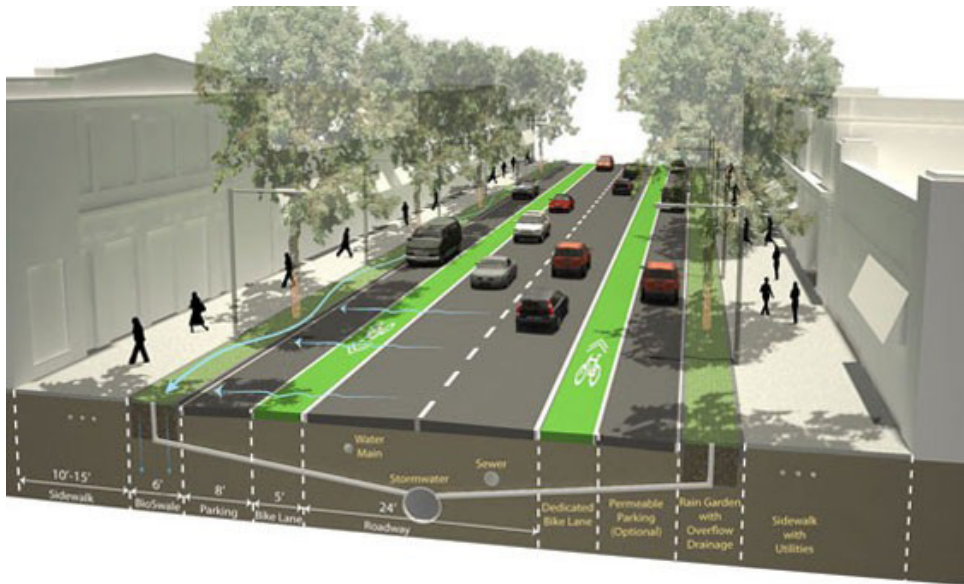
Urban green spaces are known as places where people can improve their health through engaging in physical activities since the time of ancient Greece (Ward Thompson, 2011). Recent studies provided evidence that supports this long-held view<sup>1</sup>. Inactive life style and the health consequences for urban residents are a global health issue. In the United States, urban sprawl was associated with increased obesity in urban youth due to decrease in their physical activities (Ewing et al., 2006). About half of the world population is currently living in cities and it is projected that by 2030 three of every five persons will live in urban areas (Martine and Marshall, 2007). As the world continues to urbanize, sustainable development and livability challenges in cities will increase (United Nations Department of Economic and Social Affairs, 2014). Certain environmental factors in urban settings, such as air pollution, noise and extremely high temperatures have been associated with increased mortality (Selander et al., 2009; Basagaña et al., 2011; Hoek et al., 2013). Some studies have suggested that natural outdoor environments might help reduce the levels of air pollution and noise, as well as extreme temperatures in cities, and therefore reduce the impact of these environmental factors on our health and life-expectancy (Shanahan et al., 2015; Wolf and Robbins, 2015). Acceleration of modern urban life and culture of “indifference to civil” urbanized, is leading to a decrease in communication and social interaction among residents<sup>2</sup>. And neglecting the

context of the public sphere is an instrument for social interactions. However, not all urban green spaces are equally effective in promoting physical activities. A thorough understanding of the key characteristics that encourage urban residents to use urban green space is important for planning and managing these spaces. Surveys of people who use urban green spaces revealed a wide range of influencing factors, including the quality of vegetation (Zhanget al., 2013), adequacy of facilities (Sugiyama and Ward Thompson, 2008), accessibility of green spaces (Cohen et al., 2007), safety concerns (Jansson et al., 2013), and maintenance and management (Tzoulas and James, 2010). So that today the urban settlements, especially in megalopolises or direct contact with the natural environment are minimal or nonexistent. Urban green spaces have important amenity values that include provision of leisure opportunities and aesthetic enjoyment. However, most of these values lack a market price. Consequently, they are usually ignored or underestimated by urban planning policy-makers, with the result that remnant urban green spaces are being gradually encroached upon by urban sprawl. With the establishment of the welfare and rights of citizenship and recognition of modern life, people need to spend their leisure time and increase the demand for expansion of green space and parks in the cities for is the cities, so if you care and the cradle of modern humans.

Accordingly, it can be said that urban green space, urban open space is part of the natu-

1. Approximately 75% of the people in Europe live in urban areas (World Bank, 2013). One important element for their well-being and quality of life is the availability of urban green space. There are different ways in which urban green space can positively influence well-being and health (see Tzoulas et al. (2007) for an overview). Benefits can accrue from increased activity levels as a result of being in contact with nature (see Bowler et al. (2010) for a review). Further benefits are brought about by the moderation of adverse environmental conditions such as air pollution, high temperatures, and noise (e.g. Gidlöf- Gunnarsson and Öhrström, 2007). However, in most urban areas, and particularly in inner-city areas, green spaces are in insufficient supply (Kabisch and Haase, 2011).

2. City development, however, always has to address trade-offs and conflicting interests between inner developments, e.g., for housing, and the development or preservation of urban green space and other types of open space (Schetke et al., 2012). Information on the benefits and costs of alternative land uses can, therefore, be valuable in supporting decision-making and ensuring that land is used sustainably, meeting the needs of the residents.<sup>3</sup> Information on the monetary benefits of urban green space, however, is often not available. Despite the relevance of urban green space for city residents, environmental valuation studies have so far focused on the benefits of natural areas in rural contexts. Existing studies on the economic valuation of urban green space have mostly used traditional valuation techniques such as stated or revealed preference approaches (see Brander and Koetse (2011) and Perino et al. (2014) for topical meta-analyses).



▲ Fig 1. The standard dimension of green space in edge of street; sources: authors.

ral or artificial, it is often covered by trees, shrubs, bushes, flowers, grass and other plants. Under the supervision of the management with regard to standards, regulations and relevant expertise, to improve living conditions, habitat and welfare of citizens and non-rural population centers, maintenance or construction. The idea that citizens can influence the behavior of urban green space and can be applied to regulate behavior and it is acceptable in principle, it is possible that by the design of urban landscape planning green space and the combination of such plans, ethical and social development of the community provided. The concern over decreasing levels of total physical activity, leading to public health issues such as obesity, type 2 diabetes, metabolic syndrome and mortality, as well as mental health problems such as depression is now a global one (Nielsen & Hansen, 2007; World Health Organization, 2010).

Therefore it is important to enhance participation in physical activity, since an active lifestyle is known to have positive health effects (Kaczynski & Henderson, 2007; De Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003; World Health Organization, 2010). The need to improve residents' health status has led to discussion about the potential of green

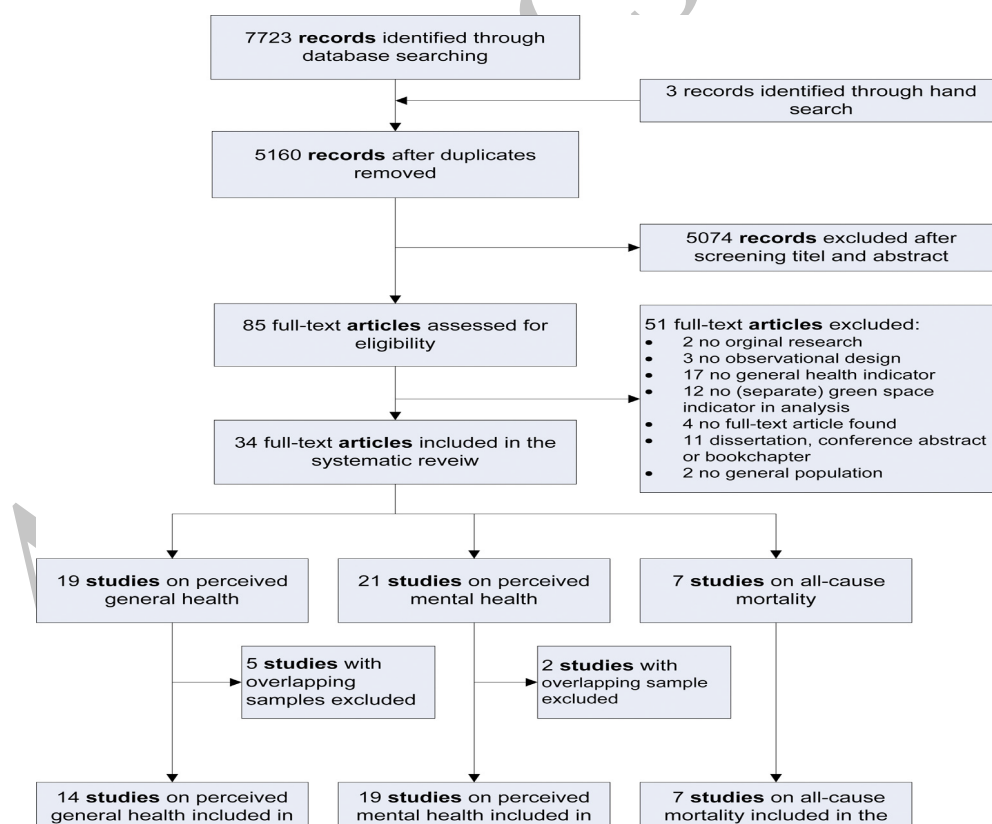
spaces to increase levels of physical activity among residents in communities (De Vries et al., 2011; Kaczynski & Henderson, 2007), as green spaces in close proximity to residents' homes provide low-cost opportunities for increasing physical activity of nearby residents. So that contact with nature is able to compensate for damage to identity. On the other hand, one of the criteria for assessing the environmental quality of the city's green spaces are public spaces in which citizens are able to interact with and talking to engage the safety and comfort. This is important so that today the urban landscape and the politics of urban problems such despair that people redeem them and make contact with green spaces and the environment, Is one of the most important civic duties. Therefore, it can be said that urban green spaces can plan and plan and the location could be the human virtues. This paper presents the results of the first systematic review of epidemiological studies that have examined relationships between green spaces in the living environment and health. It contributes to a more robust evidence base for public health professionals and urban planners, and identifies knowledge gaps.

#### Materials and methods

Descriptive and analytical research methods



▲ Fig 2. Dimensions of impact of green space in cities; sources: authors archives.



▲ Diag 1. Flow diagram of the literature search

for meta-analysis concluded that the theoretical approach and global experience in this field has been used. Hence, in this paper, it is desirable and undesirable effects of urban green

spaces from three perspectives of sociology, cultural and psychological evaluation on citizens. In this regard, a number of case studies in Iran and other countries are mentioned.



## Fundamental discussion

Natural environments appear to be important for Finns, as even the most urban dwellers still find their favorite places in nature (Korpela, Ylén, Tyrväinen, & Silvennoinen, 2010)<sup>1</sup>. At the same time, people's preferences for residential areas seem to vary in terms of their supply of natural spaces as well as their type of constructed areas and their services (Tyrväinen, Silvennoinen, Korpela, & Ylen, 2007). Residents who value a full suite of urban services and densely-built areas inhabit mostly city centers and sub-centers, while suburbs and other less urban areas are often home to "nature lovers" who value easy access to natural spaces, such as forested areas. Nevertheless, continuing urbanization and compact city policies have led to high land-use pressures on urban green areas in growth centers in Finland, and can result in limiting access to favorable green spaces. There is a broad body of literature in psychology and medicine that analyzes the effects of nature in general and urban green space in particular on people's health and well-being (see Tzoulas et al. (2007) for an overview). General findings underline that contact with nature and urban green space can have various positive impacts on human health and well-being. Firstly, contact with nature has psychological benefits. For example, it can reduce stress and increase positive self-reported emotions (Ulrich, 1983; Ulrich et al., 1991), restore attention (Kaplan and Kaplan, 1989), and affect self-regulation and restorative experiences positively (Hartig et al., 2003; Van den Berg et al., 2010).

In addition to psychological benefits, there are also direct health benefits such as increased longevity (Takano et al., 2002) and improved self-reported health (De Vries et al., 2003; Maas et al., 2006). Urban green spaces can also

be beneficial for social well-being as they may increase social cohesion and identity (Newton, 2007). In the past two decades, conviction has gained ground that in order to be effective in promoting health and healthy behavior, public health interventions have to address not only individual characteristics but also the physical and social environment (Bruget et al., 2006; Egger and Swinburn, 1997; Macintyre et al., 2002). The WHO has advocated this socio-ecological approach, recognizing the large worldwide increase of people living in urban environments, and stated that healthy cities offer "a physical and built environment that encourages, enables and supports health, recreation and well-being" (WHO Europe, 2009). The physical or built environment is often described in terms of a "man-made environment". Cities and urban areas are made up of buildings and "grey spaces" (e.g. open space between buildings such as hard infrastructure), and of "green spaces": open spaces with natural elements such as parks, playgrounds and recreation areas (Swanwick et al., 2003). Studies all articles which were identified through the search process were blinded and were screened for potential relevance based on the title and abstract by two independent reviewers (MB and JM). Disagreements were discussed and resolved. After this initial screening step, full text articles were assessed independently by two reviewers (MB and WW) and studies were excluded with specific reference to the eligibility criteria. Disagreements were resolved by consulting a third reviewer (JM). The PRISMA flow diagram was used to summarize the selection process (Liberati et al., 2009).

Due to the fact that sizes of most residential green spaces are small and there are few possibilities to add new green spaces in the most crowded city in the world, the emphasis should

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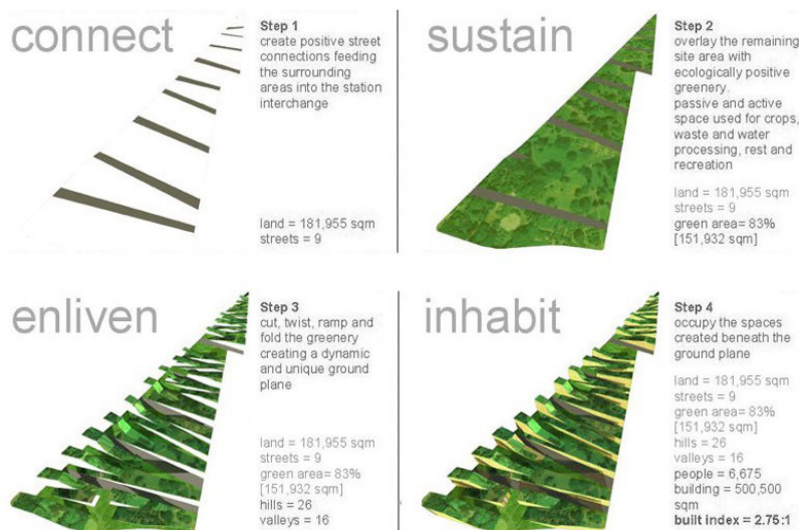
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1. Mental health is a public health priority in Europe: almost a third of the population is affected at some point in life by a mental disorder of which depression and anxiety are the most common (WHO, 2013). There is a growing body of evidence that the built environment can have a negative impact on mental health (Francis et al., 2012; Krabbendam and van Os, 2005; Lederbogen et al., 2011; Peen et al., 2010). Exposure to urban stressors such as noise, fear of crime and crowding, without possibilities for restoration from stress, may in the long term affect mental health and increase the risk of depression, anxiety and fatigue syndromes (Marin et al., 2011; Tafet and Bernardini, 2003).



▲ Fig 3. Samples of test list of impact of green space in architectural analysis; sources: authors archive.

be on increasing the linkage of existing urban green spaces. Green ways or green networks that can link various types of green spaces should be the priority of future urban greening program; Green ways are cost-effective methods for creating suitable environments allowing people to engage in activities such as walking, jogging, and sightseeing. Second, good maintenance of residential green spaces should be emphasized. Poor maintenance was cited as a main reason for not using residential green spaces by residents. Public green spaces and parks are managed by the municipal government but residential green spaces are managed by property management companies. Residents do not have much say on how residential green spaces are managed because there is no private ownership of lands. This situation is similar to the tragedy of the commons in western countries (Colding et al., 2013). Of health seeking behavior through green space that is accessible to urban residents is becoming critical in light of the increasing levels of the pandemics. Mitigating and adapting to these human-induced activities by promoting greener public infrastructure may benefit citizens, government and the environment in efforts to reduce morbidity and mortality linked to the sedentary lifestyle. It

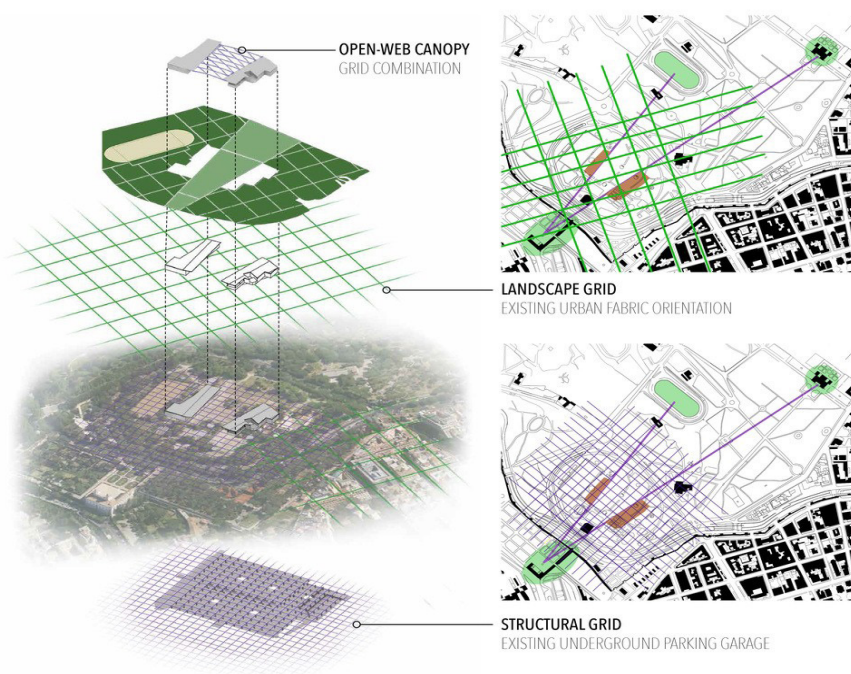
is said that exercising in an outdoor environment has a better impact on health compared to indoor environments. It is found that urban environments that lack public gathering places can encourage sedentary living habits while the provision of attractive parks and open spaces can facilitate opportunities for exercise (Jackson and Kochtitzky, 2001). Research shows that visual stimulation of an outdoor exercise encourages people to work out harder (Sugar, 2011). The outdoor exercise can boost mood and self-esteem. Research by Peninsula College of Medicine and Dentistry (2011) found that exercising outside melt away levels of tension, anger and depression. People simply enjoy exercising outdoors more than indoor, therefore there is more chance that they would continue doing it. This shows that exercising in urban green space has more benefits compared to exercising indoors. Natural and built features in the green space are found to influence healthy behaviors of urban residents. An association between levels of physical activity and proximity of green space in the neighborhood and buildings' compounds has also been provided in various studies (e.g. Humpel et al., 2004, Pretty et al., 2007). Various types of green space in proximity with urban residency such as parks, playing fields and tree-

link streets allow urban residents to experience the outdoor environment visually and kinetically. They encourage active living and conductive behaviors that promote health. The availability of spaces near home is believed to increase the chances of walking outside of the residence, which helps to maintain a high physical functional status (Pretty et al., 2007). Green space provides opportunities for low-intensity, long-duration activities, such as walking and cycling. It provides people with space and facilities for exercise such as jogging track, bicycle lane, outdoor gymnasium and court to facilitate an active environment. Home garden enables gardening activities that have been recommended to combat serious health problems. Thus, it is suggested in many studies that people who have access to natural areas have been found to be healthier than other individuals (e.g. studies by Groene wegen et al., 2006; Maas et al., 2006; Takano, 2007; Khotdee et al., 2011). Since urban green spaces have a positive impact on proximate property values, this represent a “capitalization” of park land into

increased property values of proximate land owners. Urban regeneration process which happened in all cities in Malaysia was aims for better and positive results but, it is not simple to carry out this process without understanding its impact on an area more importantly to the people who live there. It comprehensive and integrated vision and action which leads the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change (Robert and Sykes, 2000).

### Finding and results

There are different ways in which green spaces can influence wellbeing and health positively. Proximity to parks may increase physical activity levels (Kaczynski and Henderson, 2007). Physical activity in turn unequivocally increases human health, both in physical and psychological terms. Bowler et al. (2010) carried out a meta-analysis analyzing whether activities in natural environments increase health more than activities in more synthetic environments.

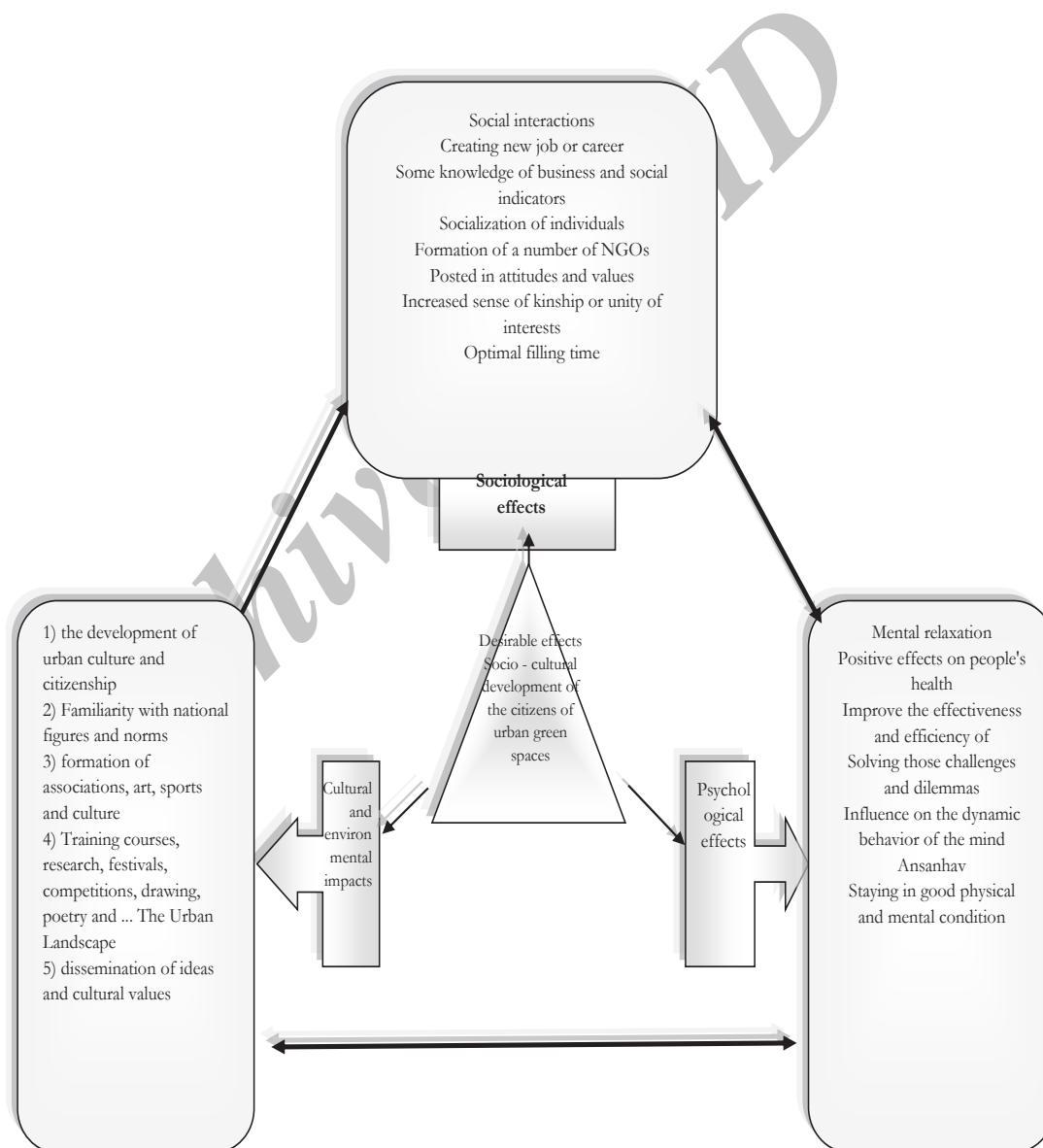


▲ Fig 4. Analytical process of green space in urban design; source: authors archive.

They find evidence that lower negative emotions, such as anger, mental fatigue, or sadness, are reported after exposure to a natural environment in comparison to a more synthetic environment. See Coon et al. (2011) for a similar meta-analysis. Parks and green spaces in urban areas and public spaces is one of the most modern cities, while all the rest of the environment is provided, a major role in addressing the needs of diverse social, cultural, psychological and citizens will have the some

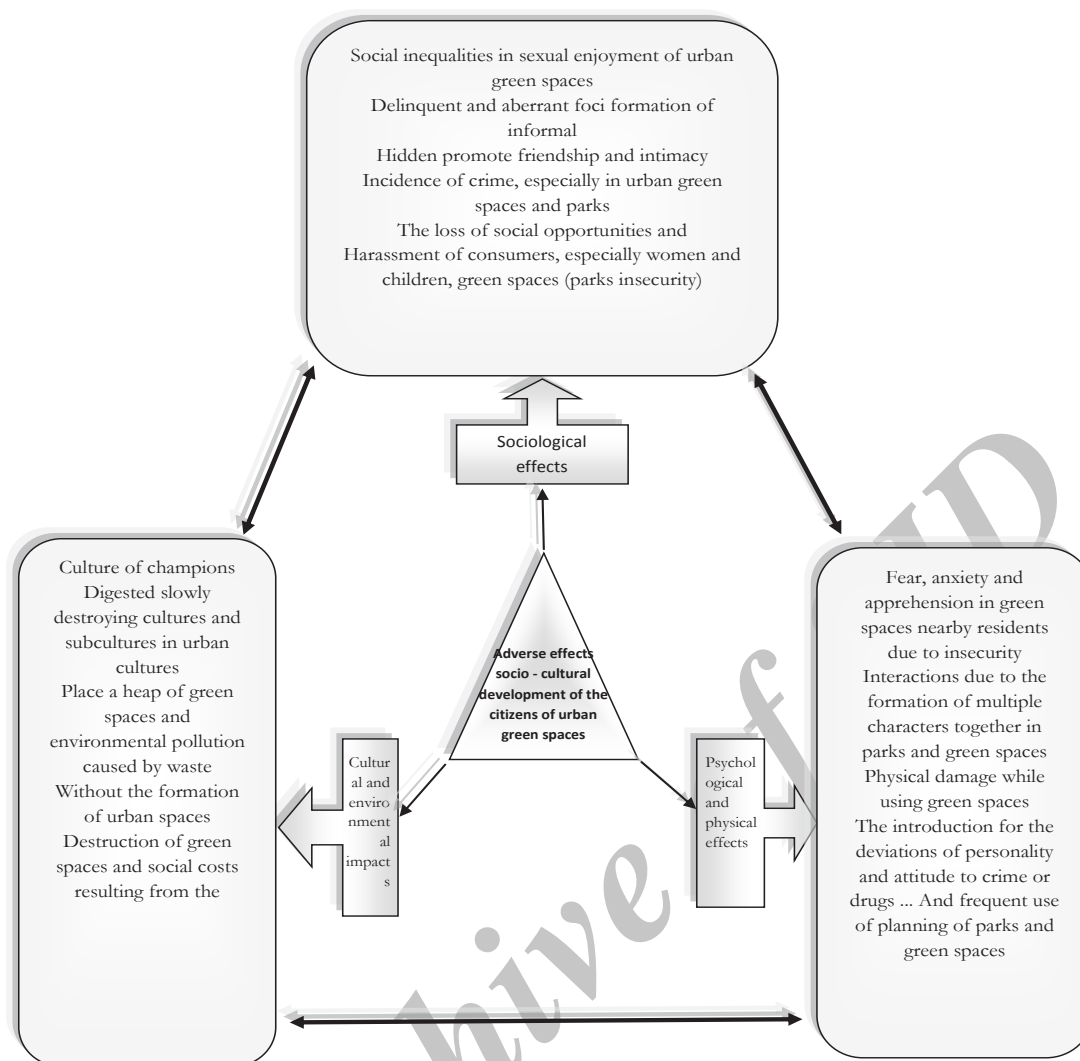
of the findings are noted.

However, urban green space may also negatively affect people's health and well-being. This may be due to the fact that the presence of certain animals may be perceived as scary, unpleasant, or disgusting or by the fact that illuminated green space is perceived as unsafe in night-time (Bixler and Floyd, 1997). In addition, negative effects might occur due to wind-pollinated plants causing allergic reactions (D'Amato, 2000), branches of trees



▲ Fig1. Favorable effects of green spaces in urban social structures, cultural and psychological





▲ Fig 2. The adverse effects of urban green spaces and social structures, cultural and psychological

falling onto roads (Lyytimäki et al., 2008), and the emission of volatile organic compounds by trees and bushes (Chaparro and Terradas, 2009). See Gómez-Baggethun and Barton (2013) for a short overview. Although the association of green spaces with general health is mediated by physical activity (e.g. De Jong, Albin, Skärbäck, Grahn, & Björk, 2012), some studies have responded more critically towards this mediating role of physical activity (e.g. de Vries, van Dillen, Groenewegen, & Spreeuwenberg, 2013; Fan, Das, & Chen, 2011; Richardson, Pearce, Mitchell, & Kingham, 2013). Different mechanisms mediate the effects of exposure to green spaces on our health. Many studies have researched the influence of natu-

ral environments on the level of physical activity, hypothesizing that an increase in physical activity increases well-being. Despite the inconsistencies in these studies, they have generally identified a positive association between exposure to green spaces and physical activity levels (e.g. Li, Fisher, Brownson, & Bosworth, 2005; Mytton, Townsend, Rutter, & Foster, 2012; Neuvonen, Sievänen, Tönnies, & Koskela, 2007). In addition, several reviews have concluded that environmental factors, such as the proximity and accessibility of recreation areas and parks, promote physical activity (e.g. Bauman et al., 2012; Humpel, Owen, & Leslie, 2002; Kaczynski & Henderson, 2007; Van Holle et al., 2012). Therefore, improvements

to green spaces in and near urban areas are considered beneficial in promoting physical activity of its residents (Coombes, Jones, & Hillsdon, 2010; Jongeneel-Grimen, Droomers, van Oers, Stronks, & Kunst, 2014).

### Conclusion

The evidence synthesis showed strong evidence for significant positive associations between the quantities of green space (objectively measured around the residence) and perceived mental health and all-cause mortality, and moderate evidence for an association with perceived general health. There were insufficient studies on the quality of green spaces to conduct an evidence synthesis. A few studies provided indications that associations depend on subgroups such as gender, age groups and groups with different social economic status, but the findings were mixed. Further research should focus on exploring relationships between more detailed characteristics of green space and more specific health outcomes in different population subgroups and in different countries. To strengthen the evidence-base, studies with more sophisticated designs, e.g. "natural experiments", are needed. If rocking the cradle of modern man is the cradle of the more lush, green is more prosperous and harmonious peace and security in most normal human growth and is more secure. Among these green spaces play an important role in the development of green cities, are joyful and memorable. Thus, in reality, this can mean that the green space development can be left with no landscaping, play equipment or it can be just bare open ground without greenery. Hence, the roles of landscape architects, urban planners and researchers are to expand the urban residents' opportunity for a better quality of life in an urban environment by improving the quality of green space to users. Thus, there is a dire need to explore the attributes of green space that can fulfill and satisfy urban residents' acquisition for a healthy environment. Identifying the significant physical and environmental attributes can facilitate and modify

the behavior of residents to be more conducive to health. Today, the social and psychological effects and the role of green spaces in urban areas are more important than ever before. Because these spaces are often the only areas that allow the urban leisure without leaving the comfort of the city can provide. Urban green spaces can play an important role in promoting an active life style for urban residents, thus reducing health risks such as overweight and obesity. Social effects of urban green spaces, a great psychological effect on urbanites who are the most important issues such as: cross-linking and social bonding enjoys the natural beauty of green spaces reduce stress and create peace and comfort of the citizens could be mentioned. Green spaces in big cities are not only a place of social and psychological publications. And the poor performance of urban management (at any stage of the design, construction and operation) may underlie some of the undesirable outputs like (multiple crimes in the park, the prevalence of illicit friendship, insecurity in users and etc.). Thus urban green spaces and urban management both affect each other so that we can say that without active management of urban green spaces and urban performance of the base would be Desirable. Guidelines and recommendations in order to improve urban spaces can be designed as follows:

1. According to the principles of public welfare, such as architecture and design, psychology and social the location and the location of urban green spaces.
2. Promoting the role of the police association Green (honorary and voluntary participation of citizens) in order to protect urban green space maintenance, and support of associations and communities to protect green space (especially in law, financial and administrative. ), the green Community school (at various levels of education, especially primary schools) and training people, supporting local organizations (NGO) and strengthening the local level and in urban areas.

3. In recent years, rapid population growth and urbanization, the lack of green space in urban areas. The municipal manager must also consider the qualitative aspects of green spaces in urban areas increased slightly in the direction of social and psychological space to act.

4. The open space design, space democratization, decentralization in designing parks and avoid creating a favorable environment for breaches of and etc, can be done to improve the performance of insecurity and lack of green spaces.

5. The relevance and quality of urban green space with size, physical and social needs of the ecological condition and trend of future development.

6. Increasing productivity in social and ecological urban green spaces through deep attention to the social and cultural aspects of urban green spaces and give exact plans and projects in the field of strategic projects with other organizations (such as the Organization of Islamic Guidance, Touring and tourism, Environment and etc.).

7. In the context of the cultural, social and green spaces, cultural and sociological experts in the use of large parks and green space, especially the building blocks to do their work better, consider the environmental conditions in the city, ruling transparency solve the problems of the laws, regulations and administrative rules and regulations, organizational, managerial and etc, macro and micro management of green spaces in urban areas, the standardization process optimization services, facilities and equipment, review the master plan and urban attitude in the projects aspects of qualitative analysis and quantitative analysis of the quality and desirability of green spaces and urban green spaces can be effective.

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