Use of Small Public Urban Green Spaces (SPUGS)

Abstract
During recent years, the use of urban green space (UGS) has received increased attention within several research fields, as well as politically, especially in relation to the benefits it provides for human health. Much research on larger green areas has shown that they are beneficial to people's health, physically, socially and mentally. However, because of densification tendencies in cities in Western countries, large green areas are a limited resource and many people live in city areas where the distance to larger green areas reduces the possibility for frequent use. Small Public Urban Green Spaces (SPUGS) in dense city areas might contribute to satisfy the need for everyday experiences of outdoor areas, but research on SPUGS is limited. In this paper, we describe how nine SPUGS in Copenhagen are used by the citizens based on data from 686 respondents who completed on-site questionnaires during their visit. The results show that SPUGS are primarily used for 'socialising' and 'rest and restitution'. Furthermore, they are mainly used by well-educated people between the ages of 30 and 49. For 'socialising', SPUGS are primarily used on the way home. For 'rest and restitution', SPUGS are primarily used 'en route' or on the way home. More than half of the respondents reported living more than 1000 m from the SPUGS, and more than half of the respondents reported that they travel more than 500 m to get to the SPUGS. People aged 50–65 are more likely to visit the SPUGS for 'rest and restitution' than the younger age groups. Furthermore the older people are, the less likely they are to visit SPUGS to socialise. These results show that SPUGS are an important asset in citizen's everyday lives, and the results may provide inspiration for landscape architects, city planners and policy makers for the future planning of dense city areas.

Introduction

Cities in the Western world are growing and the world population is increasing. In 2011 the world population reached 7 billion people. Today one in two live in towns and cities and this number is expected to rise to two in three in only 35 years (UNFPA, 2011). This urbanisation causes a decrease in per capita space and thereby a loss of per capita urban green space (UGS) (James et al., 2009), which furthermore causes a decrease in daily exposure to more natural environments (Barton and Pretty, 2010). Lower exposure to natural environments is associated with a number of lifestyle diseases such as obesity, diabetes II, osteoporosis and stress-related illnesses such as depression, heart diseases and mental fatigue (Ulrich, 2006, Mitchell and Popham, 2008). Social contact is considered to be one possible mechanism behind the relationship between green space and health (Maas et al., 2009). Based on these findings, UGS is thought to contribute to health, as defined by the World Health Organisation (WHO) as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO, 1948). The WHO, therefore, encourages local administrators to increase the provision of UGS (WHO, 2006). However, providing more UGS is challenging in increasingly dense cities. Finding space for new UGS is often difficult and expensive, especially for larger areas. Because direct access to private gardens may be limited in dense city areas, smaller public UGS which are close to people's homes, or are otherwise integrated in their daily use of the city, may perhaps provide some of the desired green space. However, only limited research is available on small UGS and how they are used by people who potentially lack other green space in their daily surroundings (Chiesura, 2004, James et al., 2009).

Several studies report significant differences in the use of UGS for different population segments. In a recent Danish study (Schipperijn et al., 2010b), age, gender, education level and health status were found to be significantly associated with differences in use of UGS. Furthermore, the same study also found that size and distance from the home are associated with

differences in use of UGS; with larger areas closer to home being used more frequently.

This does not mean that a large park is necessarily preferred over a small park (Talbot and Kaplan, 1986), but it seems logical to assume that small UGS are different in use and appearance compared to large UGS. Small UGS might be areas that people pass on their way from one place to another, they may function as a small outdoor room where people can eat their lunch (Forsyth and Musacchio, 2005), or they may be locally available 'nature parks' where the natural setting can provide some peace and quiet away from the hustle and bustle of the city (Baur and Tynon, 2010). A recent study by Nordh (2010) documents that 'small urban parks' have the ability to stimulate mental restoration. Baur and Tynon (2010) suggest that 'small-scale urban nature parks' might be areas that contribute to health and wellbeing. Furthermore, 'small-scale green areas' with natural features may encourage the use of outdoor areas and thereby increase social integration and interaction among people (Whyte, 1980, Gehl, 2010). Based on these studies, it seems that small UGS have the potential to be areas for social interaction and mental restoration; however research on this specific use is limited. In this study, we are interested in investigating the use and experience of small UGS. We do not focus on small UGS specifically designed for physical activity due to the fact that such small UGS (e.g. a skateboard park) often seem to have limited possibilities for other activities due to their restricted size.

Denmark's larger cities are witnessing the same densification tendency as in other developed countries and the population is increasing each year (Danmarks Statistik, 2010). By 2015, the city of Copenhagen aims to increase the provision of urban green environments and plans to establish 14 new 'Pocket Parks'. In this paper, we describe the various small urban parks as 'Small Public Urban Green Spaces' (SPUGS). SPUGS are defined based on existing criteria from the City of Copenhagen in relation to their "Pocket Park' project (Københavns Kommune, 2009). They must not exceed 5000 m^2 in size, they must have at least some vegetation, their own entrance, and

distinguishable boundaries which separate them from surrounding public space.

The aim of this study is to describe the use of SPUGS and to obtain an understanding of the factors associated with this use; we therefore ask the following questions:

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  Who uses SPUGS and how are they used in Copenhagen?
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  What are the main motivations for using SPUGS?
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  Is distance to SPUGS related to frequency of use?
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  Which individual demographic factors are associated with the use of SPUGS?

Section snippets

Sampling

Based on the definition mentioned in 'Introduction' section, a 'population' of all potential SPUGS within the densest housing areas in Copenhagen was identified ($N = 79$). This was achieved using a Geographical Information System, ArcGIS 9.3, utilising aerial photos and a list of pocket parks provided by the City of Copenhagen. The list included both existing SPUGS and areas that today only exist as empty lots. The study area was delineated by the borders between areas with multi story buildings

Response and overall use of the nine case areas

In total, 10,654 people were observed in the study. Of these, 3572 people were potential respondents, not including people who were passing through, running or cycling. In all, 1157 potential respondents were approached and 686 people answered the questionnaire which resulted in response rate of 59.3%. Based on the registrations made during the data collection (data not shown) we found that, slightly more women (53.2%) than men (46.8%) used the areas. 47.3% used the SPUGS for stationary use

Main reasons for using SPUGS

In this study we found that the primary reasons for visiting the SPUGS were ‘socialising’ and ‘rest and restitution’, which seems to support prior research and assumptions (Maas et al., 2009, Nordh et al., 2009, Baur and Tynon, 2010). Although these results might not seem surprising according to the SPUGS studied, previous research on SPUGS is limited and thus the primary reasons for use of SPUGS were not a given. According to Gehl (2010), a well designed outdoor space should include access to

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