

# URBAN GREEN SPACE AND HEALTHY LIVING: AN EXPLORATORY STUDY AMONG APPIA ANTICA PARKS USERS (ROME- ITALY)

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## ABSTRACT

The green areas can produce social, environmental and economic benefits. In an urban and sub-urban environment, green areas can work as a buffer against the detrimental impacts of lifestyle stresses, mitigate the impact of air pollution and hot waves, as well as contribute to the conservation of biodiversity. Current studies have demonstrated that people living closer to green areas receive positive effects on mental and physical wellbeing. The aim of this study was to gain information on healthy living and wellbeing in relation with green space, among urban park goers in the city of Rome. The research was performed, by administering a questionnaire. Questionnaire-based interviews include 20 questions designed to collect information on physical and recreational activities performed and their frequencies, personal feelings about the benefit and protection of the green area. Moreover, park user characteristics (sex and age) were also recorded and how much green spaces influence their life choices. A total of 102 park goers were interviewed during summer 2015: most park users were adults (18-30 years old) males (55%). The results of this study indicate that the green area has healthy results on park users in terms of daily stress reduction and well-being perception, as well as awareness of the positive effects on air quality and mitigation of events related to climate change as the heat waves. The resulting interviews provided us useful information on perception and awareness of the positive effects of green area on mental and physical health of park users.

## KEYWORDS:

Questionnaire, green area, park users, human well-being

## INTRODUCTION

The global environmental change can affect natural ecosystem as well as human well-being, as there is a strong link between human-nature relationship [1-3]. In the last decades, research has addressed to understand how ecosystem balance alteration can

affect human health [4]. Urban areas are one of the best-known anthropogenic pressure which can influence environmental change. These are very complex ecosystems where their own specific natural and semi-natural matrices interchange functionally [5]. Living in urban areas is often unhealthy due to heavy traffic, pollution, noise, violence and social isolation especially for vulnerable categories, such as elderly people and children [6]. Studies showed that there is a relationship between increasing urbanization, decreasing greenness and resulting health effects [7 - 9]. Indeed the exposure to natural environments has direct, positive effects on human health and wellbeing [10-15].

The green and blue infrastructures, as well Network of multi-functional green and blue space, urban and rural, are capable of delivering a wide range of benefits for local communities [16, 17]. In an urban or sub-urban environment, the green area is able to: work as buffer against the negative effects of the stresses owed to lifestyle as well as to noise; mitigate the impact of the atmospheric pollution and the climatic change; contribute to the maintenance of the biodiversity; produce positive physico-physical effect on the its frequenters [18, 19].

Current studies have demonstrated that people living close to green areas receive positive effects on mental and physical wellbeing, because they spend more leisure-time in park-based physical or recreational activities [12, 20-22]. The use and enjoyment of green spaces seem to influence the three component of human health: physical, mental, and social [23, 24].

Following the main benefits of Park goers are listed.

Physical: to do physical activities outdoor can reduce blood glucose, can improve immune and cardiovascular system, can mitigate noise pollution, or the effect of hot waves in summertime etc.

Psychological: green areas provide a positive contribution to mental health in relieving stress, reducing anxiety and recharging mental energy [13, 25]. Smells, sounds, bright colors have a strong restorative effects on mental and physical stresses [26].

Social: green spaces encourage social interaction and promotes healthier lifestyles for residents and visitors [27].

In this context, WHO Regional Office for Europe published a report that summarizes the available evidence of urban green spaces beneficial effects on human well-being [28]. Also the WHO Action Plan for the implementation of the European Strategy for the Prevention and Control of Noncommunicable Diseases in 2012–2016 included a call dedicated to create health-supporting urban environments [29].

The aim of this exploratory study was to gain information on the relationship between urban green space and healthy living, by administering a questionnaire among National Appia Antica Regional Park users.

## MATERIALS AND METHODS

Data collection was performed by administering a questionnaire among Appia Antica Park goers, during summer 2015. Appia Antica Regional Park lies in the southern-eastern area of Rome between via Appia Nuova and via Ardeatina up to Ciampino and Marino. The axis of the Park is represented by the lay-out of via Appia Antica, the *Regina Viarum* among the ancient Consular Roads. Appia Antica Park is a regional protected area gazetted by regional law n° 66 of November 10<sup>th</sup> 1988 “Institution of the Appia Antica regional suburban Park”. The Park’s aims are the conservation and enhancement of its territory to allow people to enjoy the extraordinary scenic beauty, to learn about and study this fundamental historic, artistic and natural heritage.

The questionnaire was delivered face-to-face in situ by our graduate students, using an ID code to privacy-protection. Before starting the interview, participants were made aware of the framework in which this study was developed. Questionnaire was design to gather information about opinions and behaviors, in particular on how the proximity to the park could affected the choice of dwelling, on which physical and recreational activities were performed and their frequencies, on personal feelings on health benefits and protection of the green area.

The questionnaire consist of 20 questions, that can be grouped in various sections.

- The purpose of first section was to explain the target of the interview.
- A set of questions was set up to gather information on Park user characteristics (sex, age).
- A set of questions was set up to gather data on housing choice’s influence by closeness to the Park and transport used to reach it.

- A set of questions was set up to gather data on personal feelings about the benefits and protection of the green area.
- A set of questions were set up to gather information on quality life satisfaction of the participants.

## RESULTS AND DISCUSSION

The participation to the survey was completely voluntary and fully anonymous. The questionnaire, developed to collect information on habits, needs and impressions on the importance of green area took a range of 10-15 minutes to be completed.

A total of 102 park users took part to the interview of which 55% were males and 45% and females (Fig. 1a) separated according to age group. As it is observed by the bar chart (Fig. 1b) the greatest frequenters for both genders falls within the age range of 18 to 30 years.

**Section one.** This section was focused on getting information on how far they live from the park, how they reach the Park and if house choosing was influenced by its proximity, three questions have been formulated (Fig. 2a, b, c).

Survey data showed that 74,4% park goers live between 1 km and 1-5 km far from the Park, (Fig. 2a) while 25,6% go to park even if they do not live close. In fact about 50% (Fig. 2b) go/and/ come back from the park by walking. A relevant result was that about 10% of interviewees had chosen their house because it was near the Park. (Fig. 2c).

**Section two.** This section sought to examine the reasons, the time spent and the main activities of park users. In particular three questions have been formulated (Fig. 3a, b, c) to understand healthy behaviors, in relation with green spaces.

The survey data showed that even if for different reasons all users derive psychological and physical benefits (fun 36,27%, relaxation 17,65%) (Fig.3a). Another 10% of the interviewees frequent the park having received medical advice (Fig. 3a). The occasional goers answered “others” (41,18%), they go to the park during summer holidays carrying out recreational activities, taking the children to play, reading books and/or studying.

From data on the attendance of the area, it emerged that spending time in a green area is part of their lifestyle: in fact data on frequency showed that 39,22% goes there daily and 41,18% goes there weekly (Fig. 3b), doing physical activities, such as running (21,57%) and walking (15,69%) (Fig. 3c). Those who replied to attend monthly (7,84%) or yearly (11,76%) (Fig. 3b). have answered to go to the park especially relax (30,39%) or otherwise (32,35%), basically the same reasons described by occasional goers (Fig. 3c).

**Section three.** The perception of satisfaction of personal life was also investigated by formulating three questions (Fig. 4a, b, c).

Data showed that most of interviewees are satisfied of their own life: 29,41% answered “much” and 55,88% “enough” (Fig. 4a).

About question on satisfaction of their leisure time the 34,31% responded “much”, and 28,43% “enough” (Fig. 4b) and also the 18,63% answered “much” and the 44,12% “enough” on the confidence in their future (Fig. 4c). The 32,35% who responded “a little” were boys in the range of age 18-30, probably because of the economic crisis affecting the world of work (Fig. 4c).

**Section four.** To explore the personal sensations related to health benefits and the protection of the green area six questions were formulated. The results showed that perception in terms of both environmental and human health of the green area effects is very high: in fact 57,84% responded “much” and 42,16% “somewhat” (Fig. 5a).

The 2.94% that answered to "little", can be attributed to those performed activities within low

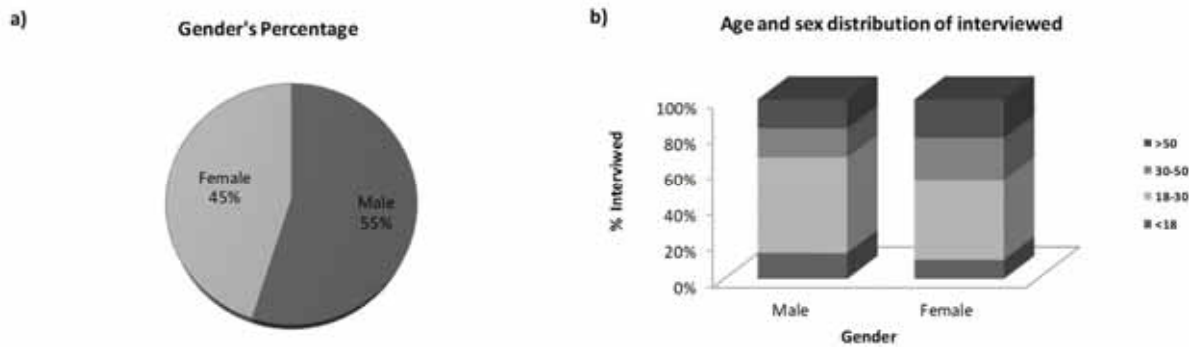
shaded areas and consequently they do not perceive climate mitigation effect.

Green areas play an important role in climate mitigation especially refer to hot waves, and air quality. These important functions have been also perceived from interviews in fact 34,31%, answered “much” and 40,20% “somewhat” to question about it (Fig. 5b).

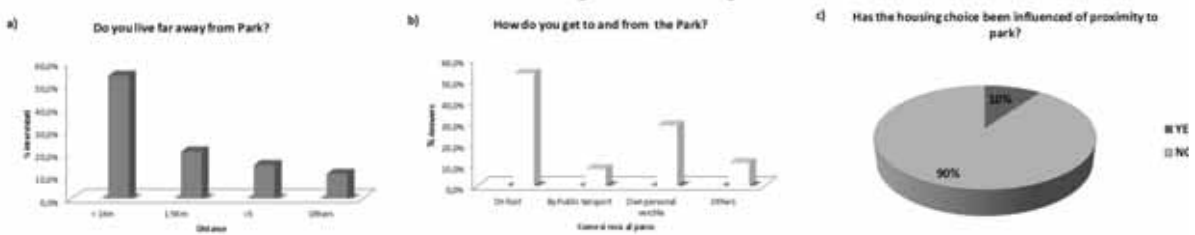
Furthermore, data results showed that (about 90% of interviewed think that leisure time spent within a green area restores from daily stress (Fig. 5c). About 64% of interviewed think that green areas providing suitable Esosystems service (Fig. 6a)

In the Results on cleaning and maintenance of Park question (Fig. 6b), there is a dichotomy because 55,89% thinks that it is suitable while the 44,11% not.

The cleaning should be improved as well surveillance in fact (Fig. 6b) about 69,61% said it is inadequate and 9,80% it is absent. Responses "much" (6,86%) and "enough" (13,73%) are related to security of park and not to the surveillance by personnel in situ (Fig. 6c).



**FIGURE 1**  
Interviewees' gender and age



**FIGURE 2**  
Diagram about results of distance from the Park, transports, house choosing influenced by Park nearness



**FIGURE 3**  
Bar charts of the result on healthy living of Park users



FIGURE 4

Bar charts on perception of satisfaction of personal life among Park users

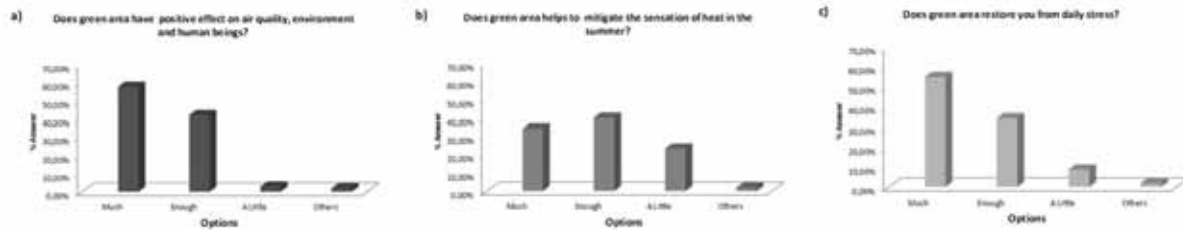


FIGURE 5

Bar charts of results of personal feelings on health and environment benefits

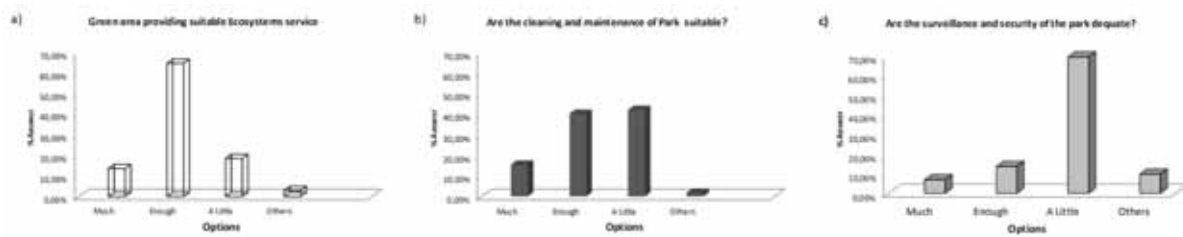


FIGURE 6

Bar charts of results of personal sensation of protection of the green area

## CONCLUSION

Questionnaires are used in a wide range of studies to gather information about opinions and behaviours of individuals.

From data results it seems that the design and method of administration of a questionnaire were suitable for the aim of this study in fact significant information on perception and awareness of positive effects of green area on mental and physical health of park users were acquired.

The results of this study show that the park has beneficial effects on park users in terms of daily stress reduction and well-being perception, as well as awareness of the positive effects on air quality and mitigation of events related to climate change as the heat waves.

In conclusion it is well known that green areas offer multiple green ecosystem services: carbon storage and sequestration, microclimate mitigation, habitat creation and biodiversity conservation, recreational, touristic and archaeological services. Further, they have a direct relationship with the healthy living

because these spaces allow health-promoting activities, such as physical activity or rest and relaxation, to take place.

However, the scientific studies on effects of environment on human health are limited because in many countries including Italy there isn't official data health registry system on this issue. That has been the reason why in this study was not possible to study the relationship between perception of the citizens and actual health status of the interviewed too. Nevertheless, still a lot of work must be done to better understand the link between green area and the direct and/or indirect benefits on human health. further work should be focused to improve with environmental data the national health registry system.

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