

EXPLORING THE IMPACT OF LARGE ORGANIZED GREEN AREAS ON THE QUALITY OF LIFE. A QUESTIONNAIRE SURVEY REGARDING THE 'ANTONIS TRITSIS' PARK IN ATHENS, GREECE

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ABSTRACT

The aim of this paper is to explore the impact of large urban green areas on the quality of life. The research was based on data collection via structured questionnaires, distributed to the residents of the greater area of 'Antonis Tritsis' Park in Athens, in order to identify the factors influencing the quality of life, as well as its overall contribution on environmental, economic, social and individual level. The results of the survey were statistically processed. It was confirmed that urban green areas in Greece are inadequate and that there is particularly low satisfaction of residents for such sites in Athens. Access to the 'Antonis Tritsis' Park is mainly achieved with private vehicles and secondarily by public transport, thus demonstrating the satisfactory infrastructure offered by the road network to reach the park. Regarding the environmental benefits of the Park, the participants in the survey reported that it improves the microclimate and reduces air pollution. The economic benefits concern mainly the increase in the value of nearby properties and health improvement through reducing health costs. The social benefits relate to the recreational opportunities and the feeling of 'tranquility', while on an individual level the park offers contact with nature, mental well-being and opportunities for physical activity. The overall impact of urban green on both the urban environment and the quality of life was indicated as high. Altogether, the research highlighted the significant contribution of 'Antonis Tritsis' Park to the improvement of the residents' quality of life. The physical and mental health, the balance between work and personal life as well as the family context and relations were found to be the most crucial factors affecting the quality of life.

KEYWORDS

Quality of Life; Urban green areas; Questionnaire survey; Athens; 'Antonis Tritsis' Park

1. INTRODUCTION

Unplanned urban development and construction activity in contemporary cities have greatly reduced and altered the character of open spaces and green areas, resulting in lack of opportunities for recreation, relaxation, and physical exercise for the inhabitants. In Greek large cities, in particular, the limited quantity -in relation to the population needs-

of urban green spaces combined with the inability to meet their conservation requirements, lead to negative effects on the quality of life.

The 'quality of life' (QoL) is a multi-faceted notion that incorporates various dimensions: social, economic, political, health-related, environmental, and psychological. It has been studied either as a set of 'objective' social life conditions conceived by individuals or entire

societies ^[1, 2], or as a set of 'subjective' cognitive traits of individuals regarding their life satisfaction^[3]. Although easily understood, the concept 'quality of life' remains essentially theoretical, as it contains a high degree of subjectivity, leading to difficulties in its measurement ^[4].

QoL is associated with nature, which in turn is one of its fundamental determinants. The breakdown of the relationship between human and nature has implications for the quality of the environment, the quality of work life and consequently the QoL ^[5].

In latest years, QoL's relation with the urban environment has been increasingly brought into discussion. The study of QoL in cities is a field of interest for researchers in various scientific disciplines, while it is gradually transformed into an essential tool for the evaluation of urban planning policy and practices. There is also a growing interest within decision makers and policy developers in considering geographical factors that affect the individual happiness ^[6]. In this context, urban parks are considered to play a positive role in increasing the happiness of the locals^[7].

The aim of this paper is to delve into the field of green areas in cities especially in relation to the quality of life and to explore the views of the inhabitants of the greater area of 'Antonis Tritsis' Park in Athens, one of the largest parks in Greece, in order to identify the factors influencing the quality of life, as well as its overall contribution on environmental, economic, social and individual level. The research results could assist the local and regional authorities in setting certain objectives, formulating strategies, and promoting actions within the urban planning processes to meet the goal of improving the inhabitants' quality of life.

2. METHODOLOGY

Based on data collection via structured questionnaires, the empirical research explores the views of residents of the greater area of

the 'Antonis Tritsis' metropolitan park in Athens (i.e. municipalities of Ilion and Agioi Anargyroi & Kamatero), regarding its impact on their quality of life.

The respondents were randomly selected and were aged 18 and older. The sample mirrors the gender and educational level of the permanent population of the respective municipalities, as recorded in the last national census in 2011. The distribution and completion of the questionnaires took place in various parts of the study area, at different hours of the day and on different days of the week, during the period March - April 2019. 274 valid questionnaires were used for the statistical analysis performed using SPSS 21 and Excel 12 software. The sample size (n=274) corresponds to a standard error of 6% and is in the confidence interval 95% and significance level 5%.

The analysis of the research data was done at two levels:

1. Descriptive statistics. Central trend and variability measures (frequency distribution tables, averages, standard deviations of observations) were used for query and variable analysis. Frequency and percentage analysis were also used in the demographic analysis (individual profile).
2. Inferential statistics. Statistical tests were used. The spearman rank-order correlation coefficient (correlation / correlation test) and the Pearson chi-squared test were used to test for the effect on demographic characteristics. All tests were performed at a level of statistical significance (s) of at least 0.05.

Finally, in each composite variable (see Table 1) the total score ^[1] is calculated empirically (synthetic average) ^[2].

^[1] Composite Variables where they include more than one question / statement in the Research Questionnaire, which can be summarized conceptually (synthetic average).

^[2] Use of total sum, resulting from the sum of all the answers to the questions and divided by the total number of questions that make up

the complex variable.

Table 1. Research Factors

Factor	Symbol	Formula
Accessibility	ΠΡΟΤΡΣΜΟ	$[\sum \text{item1}..\text{item3}]/3$
Environment	ΠΕΡΤΡΣΜΟ	$[\sum \text{item1}..\text{item5}]/5$
Economy	ΟΙΚΤΡΣΜΟ	$[\sum \text{item1}..\text{item5}]/5$
Society	ΚΟΙΤΡΣΜΟ	$[\sum \text{item1}..\text{item5}]/5$
Individual level	ΑΤΟΤΡΣΜΟ	$[\sum \text{item1}..\text{item8}]/8$

3. RESULTS AND DISCUSSION

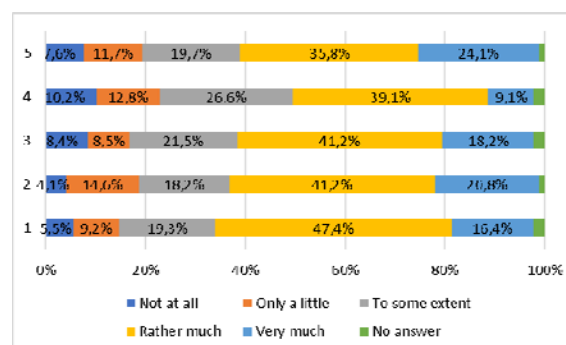
According to the research results, the vast majority (2 in 3 people) of the respondents stated that there are not enough urban green spaces in Greece. In addition, 2 in 3 people declared their dissatisfaction with the urban green spaces in Athens, compared to other major European cities (small percentage of forest coverage, few green spaces and parks, etc.).

The participants in the survey do not visit the 'Antonis Tritsis' Park often. This is mainly attributed to different choices of spending their free time as well as to the Park's inefficient equipment and facilities. Vilanou [8] argues that two of the main reasons for the degradation of urban green spaces are the lack of funding and the poor maintenance, which partly agrees with the previous findings.

Access to the park is mainly achieved via private vehicles and secondarily via public transport, highlighting the satisfactory infrastructure offered through the road network to approach the park. It is for this reason that private vehicles and two-wheelers are considered by the respondents the two most satisfactory modes to reach the park (aver. 3,56/max=5.0). The evaluation of accessibility (car, bicycle, bus, on foot) of

'Antonis Tritsis' Park was found to be influenced by demographic factors such as political preference (the further left in political preference, the higher the accessibility rating) and educational level (the lower the educational level, the higher the accessibility rating). Also, based on the existing literature (see for example [9]), traffic problems are a barrier, but in the present study it appears that the road network is satisfactory since, for the respondents, accessibility and parking need the least improvement compared to other factors (e.g. security and safety).

Regarding the environmental / ecological benefits of the 'Antonis Tritsis' Park, the respondents' views are in accordance with the existing literature (see for example [10]): improvement of the microclimate (regulation of temperature and humidity) (63.8% of the respondents - sum of 'rather much' and 'very much') and air pollution reduction (62% of the participants), followed by the aesthetic value (59.9% of the respondents) (see Figure 1). The perceptions on environmental benefit are affected by employment status (housewives and retirees have rated the park's environmental offer higher) and income (people who have high incomes have rated the park's environmental offer higher).

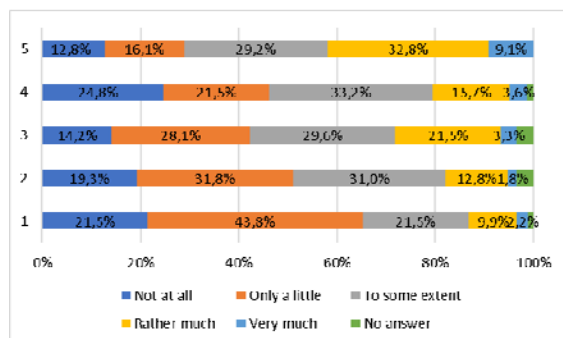


- 1 Improvement of the microclimate
- 2 Air pollution reduction
- 3 Reduction of noise pollution
- 4 Dust reduction
- 5 Aesthetic value

Figure 1. Environmental offer of the 'Antonis Tritsis' Park.

The economic benefits of the park concern mainly the increase in the value of nearby properties (41.9% of the respondents), as other

relevant studies have found ^[11]. Health improvement through reducing health costs is considered the second most important factor in the park's economic contribution (24.8% of the respondents). The World Health Organization (WHO) considers physical inactivity the cause of many diseases (heart disease, stroke, cancer, etc.) and points out that parks in cities can help reduce this inactivity ^[12]. The increase in employment positions is the least important factor of the park's economic offer (12.1% of the respondents) (see Figure 2). The economic benefits of the park are affected by several socio-demographic characteristics of the sample, such as income (people who have medium incomes have rated the park's economic offer higher) and political preference (people who have extreme political preferences have rated the park's economical offer higher).

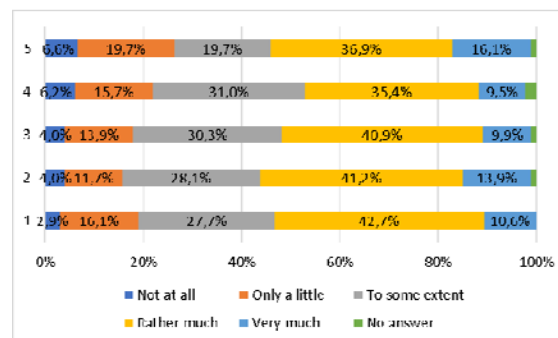


- 1 Increase in employment positions
- 2 Local entrepreneurship
- 3 Health improvement
- 4 Tourists attraction
- 5 Increase in the value of nearby properties

Figure 2. Economic offer of the 'Antonis Tritsis' Park.

According to the participants in the survey, the social benefits of 'Antonis Tritsis' Park relate mainly to the recreational opportunities (55.1% of the respondents) and the feeling of 'tranquility' (53.3% of the respondents), followed by social relations (50.8% of the respondents) (see Figure 3). Other relevant studies have also shown that residents of cities with urban parks acknowledge their contribution to social interaction ^[13]. This component (i.e. the social benefits offered by the park) is correlated only with two demographic characteristics: educational level

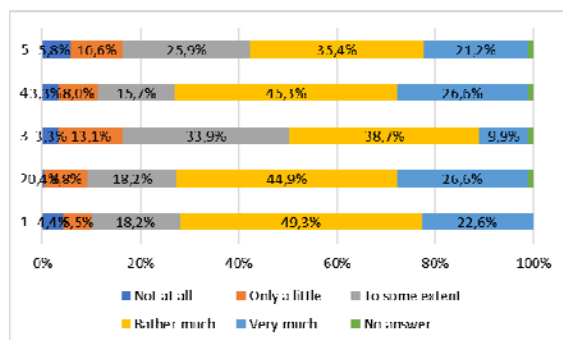
(the lower the educational level, the higher the park's social offer rating) and professional status (housewives and public servants have rated the park's social offer higher). Contrary to this result, other empirical research has shown that age and gender are factors influencing leisure preferences ^[14].



- 1 Feeling of 'tranquility'
- 2 Recreational opportunities
- 3 Strengthening of social relations
- 4 Environmental education
- 5 Citizens protection in cases of emergencies or natural disasters

Figure 3. Social offer of the 'Antonis Tritsis' Park.

On an individual level, the respondents marked the physical exercise (71.9% of the respondents), the mental well-being (71.9% of the respondents) and the closer contact with nature (71.5% of the respondents) as the most significant benefits of the park (Figure 4). Similar findings have been found in other empirical research on the impact of urban parks on both physical health ^[15] and mental health ^[16]. These researches reported the contribution of urban parks to psychological upgrade, social relationships, environmental education, and health improvement through physical exercise ^[8]. Gender (males have rated the park's individual level offer higher), education (the lower the educational level, the higher the park's individual level offer rating), income (people who have medium incomes have rated the park's individual level offer higher), and political preference (people who have extreme political preferences have rated the park's individual level offer higher) influence the respondents' views on the park's influence on an individual level, based on the results of our survey.



- 1 Physical exercise
- 2 Contact with nature
- 3 Strengthening of social relations
- 4 Satisfaction of the need for human encounter
- 5 Mental well-being

Figure 4. Offer of the 'Antonis Tritsis' Park on an individual level.

When asked about the impact of the 'Antonis Tritsis' Park on the QoL of the inhabitants, more than 1 in 2 respondents said that impacts are significantly positive (sum of 'rather much' and 'very much'=56.7%). However, about 1 in 3 people reported that the improvement in their quality of life is moderate, while a smaller percentage experience no improvement (4.1%) or little improvement (10.4%) (Figure 5).

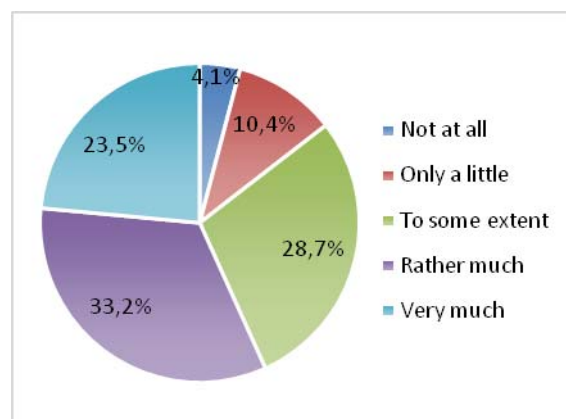


Figure 5. Improvement of the QoL by the presence of 'Antonis Tritsis' Park.

The most important factors, according to the respondents, that need to be improved in relation to 'Antonis Tritsis' Park are the maintenance of the park, the management of greenery and the security and safety. Accordingly, the Hellenic Society for the Protection of the Environment and the Cultural Heritage considers the poor maintenance, the lack of lighting and the lack of a comprehensive green area management plan as the main causes, among others [8], of urban green areas'

degradation in Greece.

Overall, the offer of the park on an individual level (ATOTP_{ΣMO}) is of most importance (aver. 3.67/max=5.0), while the offer on an economic level in the wider area (OIKTP_{ΣMO}) is of less importance (aver. 2.55/max=5.0). This can be explained by the fact that the economy is still underdeveloped and the effects of the recession have not yet been overcome, while contact with nature, mental well-being and physical exercise constitute key elements for upgrading urban residents' lives [15].

Regarding QoL, based on the results of this research, the factors that significantly affect it are the physical and mental health, the balance between work and personal life as well as the family context and relations. In terms of the impact of the urban green on cities and on QoL, the research highlighted the mental well-being, the upgrading of the environment of the wider area and the improvement of individual health as the most important factors (Figure 6). In particular, mental well-being and individual's health conditions are linked to other relevant research showing that increased physical activity improves health and reduces the effects of psychological problems or medical disorders (e.g. depression) [17].

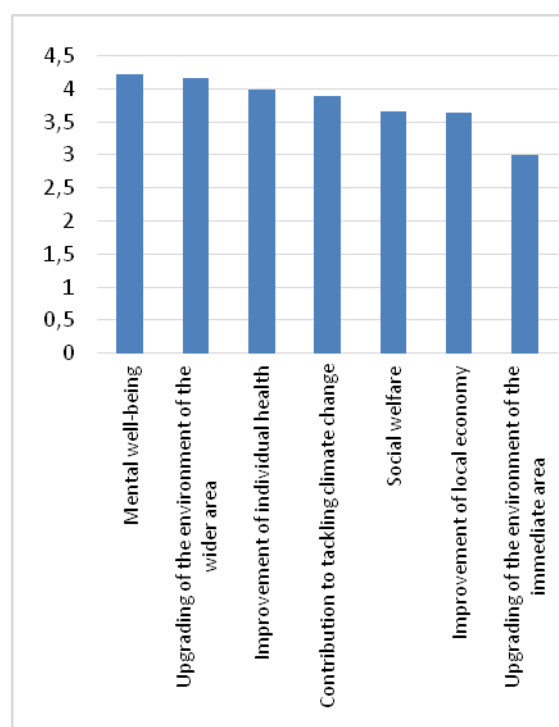


Figure 6. Impacts of the urban green on cities and

on QoL.

Respectively, the QoL is significantly restrained due to the degradation of the Quality of the Environment and therefore the upgrading of the natural environment is one of the main factors that affect the urban green in the cities and the QoL of their inhabitants [18]. In the same context, the answers provided by the respondents suggest that the improvement of the quality of urban green areas in their neighborhood or the closer proximity to such a site could be achieved through the voting and support of a local government which would orientate its actions towards this direction.

In this survey, 4 in 10 respondents are willing to pay a small amount (<1% of monthly income) for being closer to an urban green area, while 3 in 10 agree to pay a larger amount (2-3% of monthly income). Demographic characteristics do not affect the respondents' answers.

All in all, the results of the survey show 'moderate' degree of satisfaction with the quality of life (1 in 2 people said 'to some extent'), while almost 1 in 11 people declared 'dissatisfied' (Figure 7). Demographics do not affect the respondents' answers.

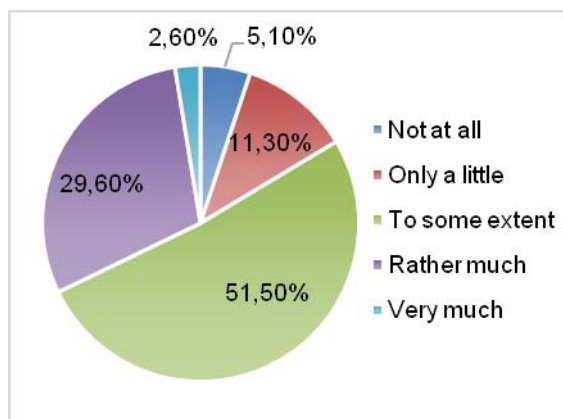


Figure 7. Satisfaction of residents by their QoL.

The next two figures show the correlations between the main research factors.

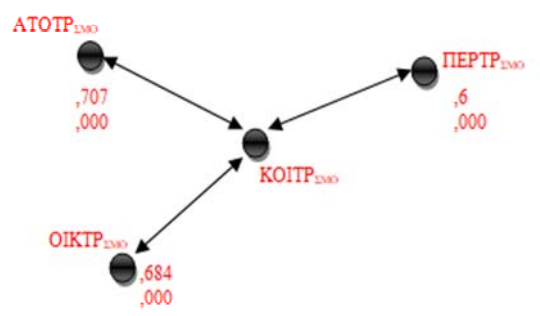


Figure 8. High Positive Correlations between research variables.

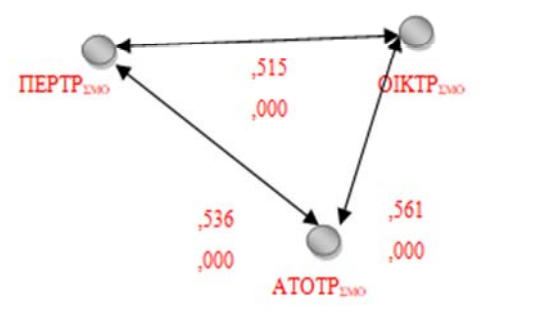


Figure 9. Medium Positive Correlations between research variables.

4. CONCLUSIONS

Overall, the research highlighted the significant contribution of 'Antonis Tritsis' Park to the improvement of the residents' QoL. Its impact is reflected mainly in the mental well-being, the upgrade of the environment of the wider area and the improvement of the health condition of the individuals.

The impact of the Park on both the local and the wider community concerns specific benefits on environmental, economic, social, and individual level. The social impact is significantly correlated with the economic and environmental impact (benefits) as well as the impact on an individual level. The benefits on an individual level are also significantly (but to a lesser degree) correlated with the social and economic offer of the park. The environmental impact is moderately related to the economic

impact. The improvement of the individual QoL is affected by all factors used in this research ($\Pi P O T P_{\Sigma M O}$, $\Pi E P T P_{\Sigma M O}$, $O I K T P_{\Sigma M O}$, $K O I T P_{\Sigma M O}$, $A T O T P_{\Sigma M O}$), reflecting the various benefits of the Park. Lastly, for the participants in the research there is a moderate interaction between satisfaction with the urban green spaces in Athens and the adequacy of the urban green spaces in Greece in general.

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