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# Assessing green spaces impact on people's happiness in Cairo

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## Abstract

Despite "Happiness" is among the most purist, valuable and priceless feelings that human-beings experience in their lives, its subjectivity makes it difficult to measure, this research drops the shed on the relation between Happiness and urban green spaces in the arid city of Cairo, a very dense, high rise great concrete jungle, with many slums and squatter areas, where people are suffering to gain their sustenance, green spaces is not only a very rare commodity, but even these scarce parks and gardens are enclosed tolled entry, that unfortunately excludes a huge junk of the community, the research argues that although their scarcity and difficulty to reach and enter, urban green spaces play a vital role in people's quality of life and have a positive influence on people's happiness, in the highly dense arid city of Cairo. Among the research's findings: 93% agreed on the positive happiness impact that green spaces have on visitors, 70% reported they felt other's happiness, which is an evidence that green spaces levels up one's feeling to higher ranks of consideration. The research draws important information for decision makers that ought to be taken in consideration if they are seeking their citizens' happiness and wellbeing.

**Keywords:** Urban Happiness; Arid Contexts' Green Spaces; Happiness In Urban Space; Cairo Green Spaces

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## 1. Introduction

Not only over 50% of the world's population now reside in urban areas, but also the world's urban areas will absorb all of the global population growth over the next four decades, therefore policy makers and urban planners are facing a significant challenge to design urban areas in such a way that accommodates this growth, while maintaining residents' well-being, needs and satisfaction (Ambrey and Fleming, 2012:2), Shanahan and others (2015) argue that within 30 years, cities will host 70% of the world's human population, no doubt that such transformation to more urbanized population will cause significant implications on health and wellbeing, as more people will be exposed to the enduring pressures and hectic conditions that are common in cities; such conditions have caused apparent increase in people suffering from high blood pressure, diabetes and obesity (Dye et al., 2008:768). Many researchers perceive urban nature as an inexpensive intervention tool to assist in partially addressing some of these health issues, based on the linkage between exposure to nature and physical, psychological, and social well-being (Passchier-Vermeer and Passchier 2000, Barton and Pretty 2010, Kafafy 2010; Krekel et al., 2015, Sebe 2015).

This research is trying to examine the relationship between happiness as a sociological, psychological and physiological need for human well-being and green spaces in areas that suffer rareness of such amenities due to several reasons such as aridity, urban encroachment over green lands, excludability by privatization of green spaces ...etc.

Urban Green spaces have always been contributing in enhancing People's wellbeing as it creates a significant refuge for nature seekers that contributes – even if marginally- to the ecological balance and environmental sustainability. Urban Green Spaces have been playing an enormous role in achieving the UN millennium goals (2000 to 2015), especially with improving maternal health and ensuring environmental sustainability goals, this role has been augmented in the bold and ambitious 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals elaborated in 169 targets, this research paper argues that Urban green Spaces is a vital tool in achieving SDGs ambitious, integrated and transformative vision for the next years, as it enhances people's wellbeing, mental and physical health, contributes to ecological balance and provides habitats for protecting ecosystems for all people and for coming generations, with proper management green spaces provides a safe and peaceful place to promote socialization and citizenship which secures dignity among citizens, and enhance the belongingness to community, and achieving in the end the sought after prosperity, that accordingly will increase happiness and satisfaction (The Sustainable Development Goals Report, 2016).

Building on the importance of wellbeing and trying to achieve people happiness in cities, the research starts with trying to define happiness and understand what makes people happy, where are they happy and why, then methods of measuring and assessing happiness are discussed followed by the main principles to provide happiness in urban spaces, then the relationship between happiness and urban green spaces is investigated, with an empirical study on Cairo. The following sections will explore how happiness is measured, what are the influences of happiness.

## 2. Research framework, methodology and data collection methods

This research began with the observation of the impacts of urban green spaces in arid crowded cities on citizen's happiness and wellbeing; it comprises a literature followed by an empirical study. The research starts with defining happiness and reviewing the literature on methods of measuring and assessing it, and the correlation between happiness and green space, the literature findings is challenged through an empirical study that assess the influence of urban parks on people's feeling of happiness, where Cairo was the case study.

Various methods of data collection have been used in order to build the whole perception needed to understanding the impact UGS on people's happiness in Cairo, different levels of data collection at different stages have been adopted in conducting the research. For example, observation and secondary data analyses were useful in drawing a general understanding of the domain, while primary data analysis of questionnaire responses led to a more in-depth analysis. Thus, the research tries to blend a mixture of quantitative and qualitative research methods depending on both primary and secondary data.

## 3. What is happiness

Happiness is a totally subjective concept that differs from one person to another; each person has his own ideas and perceptions about what makes him/her happy, when, why, how, where, who and with whom, it is a lot of complicated feelings and emotions, however many researchers have agreed that urban space helps in developing this happiness by performing the theatre where people have the chance to socialize and link with others or merely link with nature or engage passively by observation.

According to Webster dictionary, happiness is "*a state of well-being and contentment*". That emotional state the dictionary refers to is arguably different for everyone. Sepe in her paper about principles of urban happiness (2015) argues that the definition of urban happiness is strongly interwoven with social, environmental, economical, psychological and philosophical studies and the rapid transforming lifestyles needs and habits.

As this research paper focuses on urban contexts, therefore it will concentrate on urban happiness in cities, which Sepe describes as "*character*" that gives a place a positive perception for people who live it, and that induces them to spend longer times in these places and to repeat the same experience again and again.

Conger (2018), introduces a different medical approach as she argues that the physical effects of happiness are known; as human's sign of glee is a smile and laugh, this happens due to certain physiological reactions, as Conger states "*such as increased activity in the brain's left prefrontal lobe and decreased amounts of cortisol (a stress hormone) coursing through the bloodstream, happen when we're happy*".

Several scholars have agreed that our choices of values, purpose, support, health and wellbeing, gratitude and balance are the main factors that influence the resultant happiness, which will never come to those who do not appreciate what they already have. Happiness pillars are physical, mental, emotional, moral and spiritual, and as a subjective concept it still difficult to define.

#### 4. Methods of measuring and assessing happiness

All the researchers have agreed that measuring happiness is a complex thing, researchers wishing to measure happiness face difficulties of the differences and fluctuations of human beings and their altering emotions, many researchers such as Chekola (2007), argue that in order to measure or assess an individual's happiness, it is a concept strongly related to "life satisfaction" and to achievement of a "good life" for this particular individual, on the other hand researchers such as Bravo (2012) argue that Happiness is more complicated to be linked to Life satisfaction or quality of life, which diminishes happiness meaning as it is larger than these measuring methods.

Scientists are trying to tackle the issue of measuring happiness in a number of ways, from asking people about their moment-to-moment moods to surveys on overall life satisfaction, health and other big-picture factors. Researchers' attempts to investigate happiness are getting more creative, where most of them refer to life satisfaction as the principle measure of happiness, where several reports have appeared trying to measure happiness using the life satisfaction quantifying methods such as World Happiness index report, World Database of Happiness and World Values Survey. Quantifying happiness most commonly relies on self-reporting. The recent quantifying methods started by Psychologist Ed Deiner -in 1985- who developed the "Satisfaction with Life Scale" that asks people to rate the five statements on a 1-to-7 scale, from not true to absolutely true, the questions are: 1) *In most ways my life is close to my ideal*; 2) *The conditions of my life are excellent*; 3) *I am satisfied with my life*; 4) *So far I have gotten the important things I want in life*; 5) *If I could live my life over, I would change almost nothing*. Where the higher the overall score, the greater the amount of satisfaction – supposedly - one has with life. Where it is important to emphasize that life satisfaction measures how people evaluate their life as a whole rather than their current feelings.

In 2002 Michael Argyle and Peter Hills developed an improved instrument, of the Oxford Happiness Questionnaire (OHQ), that has been derived from the Oxford Happiness Inventory, (OHI) that have started in 1989, the OHI includes 29 scale items, which are thought to be a comprehensive set of questions that measure "subjective wellbeing".

Among the most famous applications for using the life satisfaction to measure happiness is the World Happiness Reports that firstly started in 2012, which is an annual publication of the United Nations Sustainable Development Solutions Network that contains national happiness rankings and various perspectives data analysis, the 2018 report has been concentrating on migration and migrants' happiness. In the 2018 World Happiness Report, Finland scored the top country closely followed by Norway, Denmark, Iceland, Switzerland and the Netherlands consecutively, where as usual Nordic countries took four out of the five top places, since the first report has been published in 2012, as they are well known for their stability, safety, socially progression, minimal corruption and trusted government and politicians. The report is based on international surveys in which thousands of respondents were asked to imagine a ladder with steps numbered 0 to 10 and says where they felt they stood, and as happiness or well-being is subjective and extremely difficult to quantify; six significant factors that contribute to happiness were developed, which are; levels of GDP, life expectancy, generosity, social support, freedom, and corruption, then answers are weighted (Helliwell, Layard and Sachs, World Happiness Report, 2018).

Another example for using the life satisfaction to measure happiness is the OECD (The Organisation for Economic Co-operation and Development) better life index study of "Life Satisfaction" conducted in 2015, the OECD study asked people across the 35 OECD countries to rate people's general satisfaction – similarly to the World Happiness report scale ladder - with life on a scale from 0 to 10, however the 10 indicators that OECD adopted are thought to be more detailed, where the indicators were: 1) *Income* (household income – household financial wealth); 2) *Jobs* (employment rate – personal earnings – job security – long term unemployment rate); 3) *Housing* (rooms per person – housing expenditure – welling with basic facilities); 4) *Work-life balance* (employees working very long hours – time devoted to leisure and personal care); 5) *Health* (life expectancy in years – self-reported health); 6) *Education* (educational attainment – years in education – student's skills); 7) *Community* (social network); 8) *Civic engagement* (consultation on rule-making index – voter turn-out); 9) *Environment* (water quality – air pollution) and 10) *Safety* (homicide rate – assault rate).

Life satisfaction scores apparently varied across the OECD countries, as while the average was 6.6, countries such as Estonia, Greece, Hungary, Portugal and Turkey have scored relatively low level of overall life satisfaction, with average scores of less than 5.6, while on the other end of the scale, Scandinavian countries have dominated scoring 7.5 in Denmark, Iceland and Switzerland. Among the finding of the study was that there is almost no difference in life satisfaction levels between men and women across OECD countries, and that there is a direct relationship between education levels and life satisfaction, where the higher the people's education the higher their life satisfaction scores are (OECD, 2015).

When it comes to the physical planning and city, Jonathen Edkins (2015) Takes the scope of measuring and assessing happiness to a different scale with a totally different approach for happiness as he introduces the terminology of "Happitecture" as the approach urban spaces design should follow to produce happiness in the city, he states that it is the *"result of carefully considered and people-centred design, which makes those exposed to it want to dance or sing joyously"*. Edkins claim that this approach proposes a more creative philosophical methodology for space design and city planning as it emerges from inclusive, mythological, people-centred, cultural, emotional and intuitive attitude for creating and shaping spaces which mainly make people happy, this process is opposing the generic master planning process, as it introduces a more vivid, higher quality people-centred spaces that evoke happiness in their users.

This research argues that the contemporary concept of happiness is declined through the different forms and expressions of "wellbeing", "quality of life" and "sustainability" that ought to reflect a widespread demand of satisfaction in the urban contexts, however among the research hypothesis is that people who are not satisfied with the quality of their life and living in unsustainable contexts that negatively affects their wellbeing are happy in urban green spaces, in fact this is very crucial challenge for urban planners, architects, designers and landscapers as they are responsible to create qualifying places for community life, especially for those who consider the urban green among the very rare sources of happiness.

## **5. Main principles to provide happiness in urban spaces**

In her research O'Brien (2007) raised the important issue of the different approaches to happiness, as currently, public happiness is an essential intention of many decision makers, politicians and planners, but it

is ambiguous, accordingly, the obvious question of whose happiness view is driving our cities vision yet unanswered. There is no doubt that happiness is the choice of all people, however this choice requires effort at times, O'Brien introduces an European study for the evoked feelings in natural urban areas, in which it was reported that; 83% felt relaxed, 65.6% felt more connected to their selves, 63% felt connected to nature, 61.6% felt energized, 58% felt safe, 55.7% felt at home and 50% felt connected with other people, which proves that engaging with natural areas provokes positive attitudes for users, as one woman of the interviewees reported *"I feel like a good mom, hopeful for my son's future."* (O'Brien, 2007:13). She introduced the *sustainable happiness* terminology in 2007, which is a sustainability linked concept believes that raising the profile of happiness and well-being has the potential to enhance urban planning policies.

Many researchers have discussed the issue of providing a checklist for happiness in urban spaces, however it is not that easy as it differs dramatically from one context to another, and it might be considered to hinder creativity, besides surely it needs to reflect users' needs, therefore it is not favourable to create a stereotype to follow and replicate, however there are some mandatory common issues that need to be fulfilled in any space to be able to provide happiness according to many scholars, in this section we are demonstrating some of the different approaches, thoughts of the main principles that create guidelines for space happiness development for different scholars and researchers, such as;

According to Edkins (2015) Jan Gehl compiled a list of twelve steps to creating a community commons that helps in socializing, Gehl has implemented the list in Denmark, the country that is famous to be one of the happiest nations on earth, the list included: *1. Protection from traffic, 2. Protection from crime, 3. Protection from the elements, 4. A place to walk, 5. A place to stop and stand, 6. A place to sit, 7. Things to see, 8. Opportunities for conversation, 9. Opportunities for play, 10. Human-scale size and sensibility, 11. Opportunities to enjoy good weather, 12. Aesthetic quality.*

It can be argued that Citizens needs for being happy in urban spaces might not differ dramatically according to gender, background, education or ethnicity, however it surely differ according to age, as the needs of adults are different than those of children, Salvador (2015) argues that for adults a space that stimulate ones' happiness could be defined as a safe, friendly beautiful space where they can experience peacefulness, where among the most important elements that helps reaching this satisfaction over space are urban furniture, vegetation, good management and outer space climate management by providing shelters from sun, wind and rain and creating a sense of choice among the space by having sun shine areas and other shaded ones which grants the space a pleasant touch. On the other hand as for children needs in space to be happy, it could be simplified in having a place to play, Salvador claims that the minimum area requirements for children to be happy should be enough to running, cycling and using their scooters, however the more activities and area dedicated for children the better the quality of space it will be, as children have their imagination to create games and ability to enjoy and become happy in spaces much more than adults. While Varna (quoted in Salvador, 2015) summarises the main features of spaces to be civil public spaces in three factors of being clean, friendly and inviting areas.

Caggino (2015), correlates urban happiness not only with urban spaces but with green urban spaces and she focuses on the distribution of these spaces rather than their features claiming that for each residential



block there need to be a circular garden, where people would be guided to socialize and connect with others more easily, she adds that urbanist and award-winning writer Charles Montgomery points out that the most important ingredient of human happiness is *social connections*; therefore a happy city for him is a social city above all.

## 6. Happiness and urban green space relationship: literature review

A substantial body of evidence demonstrates the positive effect of nature and greenery on wellbeing, lately links between wellbeing and urban natural environments and green spaces are of growing interest in psychology, health, conservation, economics, where there is growing evidence that green or natural environments are positive for physical and mental health and wellbeing and consequently for One's happiness.

Urban parks and green spaces always represented a significant resource in cities, and were always considered the best mean to promote health, longevity and comfort of inhabitants. Georgi et al. (2015) argue that the belief of the health benefits of green spaces and urban parks emerged from theory evolved by doctors in the late eighteenth century that was called "*miasma*", the theory evolves around the idea of all diseases were due to bad air, and it fostered the belief that access to fresh air reduces the incidents of diseases, thus open green spaces, accordingly were – literally - looked upon as the lungs of the city, providing physical and mental health, the theory impact has been far reaching succeeding in establishing a robust attention to the importance of design of urban green spaces as an essential restorative environment in cities, proving that the man/nature relationship is pivotal to human existence and wellbeing, and this perception has contributed in shaping cities with parks and green spaces network.

Mackerron and Mourato (2013) argue - from a health perspective - that experiences of natural environments are positively related to health, wellbeing and happiness for three main reasons; The *First* is, the stress reduction and restoration of attention that happens while being in natural green spaces because of the direct correlation between experiences and their effect on the nervous system. *Secondly*, natural environments may be lower in environmental 'bads', such as noise and air pollution, that have significant negative impacts on both physical and mental wellbeing, which consequently affect happiness. *Thirdly*, by facilitating and encouraging cultural and psychological reasons through behaviours that are physically and mentally beneficial, including physical exercise, recreation and social interaction, natural environments and green spaces increase happiness. This approach was supported by other studies, according to Ambrey and Fleming (2012) that have suggested that accessibility to green spaces plays a role in promoting physical activity, yielding objective physical health benefits, performing a preventative role in cardiovascular and musculo-skeletal diseases, and inhibiting stroke and cancer.

The European Commission initiative of the European green capital, in its claim that Urban Green Spaces Increase Happiness, reports two vigorous studies that address the correlation between health impacts of improved access to urban green spaces, the first is a University of Wisconsin study disclosing that the more green spaces in their neighbourhood; residents claim to be happier, the study drew its conclusions from a state wide public health survey of over 2,500 residents of 229 cities and towns around Europe, where the most

significant finding was that happiness was more strongly correlated to green space than socioeconomic status, where participants living on blocks with 10% fewer green areas than the average were more likely to report stress and depression.

The second study was carried out by Matthew White (2013) and his colleagues at the European Centre for Environment and Human Health, University of Exeter, using 18 years of survey data from over 10,000 participants across the UK. The study found a strong correlation between access to green space, self-reported well-being, and even physical health. Furthermore, it was found that the sensations associated with living close to green space yield positive feelings and levels of satisfaction similar to getting a new job or getting married. Another study, by Krekel and others (2015) in their research for the German Socio-Economic Panel at DIW Berlin, they reported that not only coverage of greenery but even more proximity to natural green spaces is significantly positively associated with life satisfaction, and vice versa.

Another evidence of the direct relationship between happiness and urban green spaces is reported by Ambrey and Fleming (2012) as in their research they examined the influence of public green space on the life satisfaction of residents of Australia's capital cities, they reported a positive relationship between the percentage of public green space in a resident's local area and their self-reported life satisfaction, as on average, it was found that a resident has an implicit willingness to pay of (USD 1,168) in annual household income for a one per cent (143m<sup>2</sup>) increase in public green space. They added that the positive relationship between greens pace and well-being is also made in the contingent valuation and hedonic property pricing literature, giving an example of Jim and Chen (2010) research, employing the hedonic property pricing approach, as they found that residents of Hong Kong are willing-to-pay a substantial premium (USD 76,274) for having a park nearby, and a further (USD 9,962) for having a view of a park. Interestingly they report that the relationship between green space and life satisfaction however, is non-linear, as their research results suggest that the value of green space increases with population density, another interesting finding of their research was that lone parents, less educated and those living in high rise dwellings benefit to a greater extent from the provision of urban public green space than the general population.

When searching for happy countries to explore their recipe for happiness, Denmark was nominated the happiest country on earth in the World Happiness country Index 2016, where it came third in the period from 2012-2015 and in 2018, and the first globally in the period from 2010-2012, which makes the Danish the happiest nation in the past decade (World Happiness Report,2018), further more Copenhagen, the Danish capital, was announced the 2014 European Green Capital, with the world's best urban environment is aiming to become an eco-metropolis, where 96% of Copenhageners live within 15 minutes' walk only of a large green or blue area, and further access to recreational areas improvements are underway (European green capital webpage, 2016). However, these figures inspires searching for what does the Danish do or possess that makes the highest life satisfaction?, by searching for how frequently does the Danish citizen are influenced by green spaces and whether it affects their feeling of happiness, the answer came in a Danish national representative survey based study, for 11,238 randomly selected adult Danes, that was published in 2010 addressing the factors influencing the use of green space, respondents were asked about the distance to different types of green spaces, their frequency of use of each, and the main reasons for visiting green spaces, multiple logistic



regression analysis was used to investigate the association between potential predictor factors and visits to green space, interestingly it was found that 66.9% of the respondents live within 300m of green space, while 93.8% live within 1km of green space, 43.0% visit green space every day and 91.5% visit green space at least once a week, while the most important reason for visiting green space for 87.2% of the respondents was "To enjoy the weather and get fresh air", which directly influences the happiness and satisfaction feeling of a person (Schipperijn et al., 2010).

Bell (2012, quoted in Georgi et al., 2015) argues that all over the world there is a growing desire of improving residents' quality of life through the collaboration of all involved disciplines to introduce a better quality urban spaces for people to engage with their environment and fulfil their intrinsic needs, in addressing such an attitude he claim that the relatively new approach of "biophilic" urbanism has arisen, which is based on the assumption that being in contact with nature is absolutely essential to modern urban life if people want to be happier, more bounded to each other and even more productive.

In conclusion, life satisfaction data supports existing evidence that urban green spaces enhances residents' life satisfaction, wellbeing and happiness, therefore adequate allowance should be made for its provision when planning urban areas, which have been adopted by many cities across Europe and the world who have realised the importance of providing residents with access to appropriate green public spaces and thereby creating healthy liveable cities. All the previously mentioned researches, studies and examples are essential for policymakers, who must decide to invest in the scarce public resources of urban green spaces that need protection and development; otherwise people's quality of life would be detracted.

## 7. Urban green spaces in Cairo

It is of no surprise that green space is scarce in Cairo: an arid and crowded city in an arid country. According to Kafafy (2010) the amount of green space per capita in Cairo is 1.7 m<sup>2</sup>, which is below other neighbouring more arid cities and way below cities of Europe. The city's greenery is under attack on two fronts: natural desertification and urbanisation. This is a challenge for the sustainability goals of Cairo's planners, politicians and managers. Like many middle-eastern cities, it performs relatively well in terms of other sustainability dimensions: compactness, mixed uses and levels of pedestrian and public transportation. The greater challenge for those seeking to make Cairo more sustainable is to make it greener.

Kafafy and Webster (2009) reported in their unpublished paper on the tendency for privatization of green space in Cairo, that they built their research idea on the observations of: (a) The amount of green space in Cairo, capital of Egypt, is diminishing through urban encroachment of agricultural land. (b) Recreational green space has historically been provided at a very low level compared to other cities globally and in the region. (c) Much of the green space that is provided - by municipal government or private entrepreneurs - is provided as a club good, enclosed and charged for either by membership fee or entry toll. (d) There are other instances of institutional innovations that attempt to secure a supply of sustainable green spaces in this densely populated arid city with its naturally limited stock of greenery. These observations provide both encouragement and challenge to policy makers aiming to make Cairo more sustainable. The various forms of enclosure of the

Cairo's 'urban commons' show that the city has a certain resilient ability to invent mechanisms of green space supply to cope with excessive demand. On the other hand, enclosure excludes. The aim of their paper was to demonstrate Cairo's institutional responses to extreme green space scarcity, by measuring (from satellite imagery) the amount of green space in -a previously classified- seven different types of neighbourhood in Cairo and relating this to underlying processes of provision and supply prevalent at the time of their development.

They conclude that both market and government failures have contributed to green space scarcity but that both markets and government have developed innovations to increase the quantity and quality of the city's scarce green space – of course more innovation and supply are still needed. The important conclusion was that enclosure of both municipal and privately supplied green spaces probably leads, as economic theory would predict, to an increase in quantity and quality, but undersupplies to certain sectors of the population, as there is always exclusion by price in Cairo's green spaces: with a poor and densely packed population and weak municipal finances, cost-recovering charging is apparently necessary for sustainable, good quality spaces.

It is important to mention that access to urban green space is among the citizens' right to the city, as among the main Lefebvre's conception of the Right to the City, according to Purcell (2003:13, quoted in Kafafy,2016) is the "*right to appropriate urban space*", that is, it should be developed in such a way as to enable the best use of urban space by inhabitants in their everyday lives, it therefore includes people's right to sit, play, socialize, relax and breath fresh air, Purcell adds that the conceptions of Lefebvre stand against urban space as private property, or as a commodity to be valorised (or used to valorise other commodities) by the capitalist production process (Kafafy,2016).

For those who can afford the price for green spaces there are several mechanisms for charging such as; bundled into property rights in gated communities; recreational club membership fee; tolled entry fee for the masses; voluntarily organized assessments (a kind of community organized local tax) for pocket parks 'captured' by local residents and so on. However the dilemma is in those who cannot afford the urban green space price, while it is their constitutional right to have free access to green space and use them with no charges or fees, this issue to be tackled by decision makers, municipality, planners and designers, an issue to be investigated in a another research paper to come.

## **8. Empirical study: assessing happiness in Cairo's green spaces**

### **8.1. Empirical Study Methodology**

In order to assess the relationship between urban green spaces and happiness, it was decided to direct questions to park goers, the researchers started a pilot preliminary questionnaire using the 29 questions OHQ, to investigate people's satisfaction with their lives, and then asked open ended questions about their feelings in UGS and the influence of these spaces on their happiness, surprisingly the results were all respondents not satisfied with their lives however they feel happy in UGS, these results encouraged conducting a thorough questionnaire that composed of a variety of open ended and multiple choice questions asking about feelings,

problems, motives and preferences of Urban green spaces' visitors, have been conducted in the most famous three parks in Cairo.

## 8.2. Sampling of the empirical study questionnaire survey

The three chosen parks were geographically apart public parks despite the fact people have to pay of entry, thus it might argue that it is not a pure public commodity, they were; AlAzhar Park in ancient central Cairo, the International Garden in North east and the Japanese Garden in south Cairo.

In selecting the survey sample of respondents, and since there are spatial limitation to conduct the questionnaire survey, the convenience sampling method was used, however respondents were chosen randomly within the parks. It is worth mentioning that it was difficult to convince respondents to conduct the questionnaire after telling them what it was about, as many expressed their fear to report their frustration, disappointment and unhappiness in their lives, despite all the efforts to assure them that it is an anonymous questionnaire, with neither video nor voice recording, and it will be used only for research purposes, even the filled questionnaire sheet was given back to the interviewee to check and approve before leaving him/her, even though the rejections were enormous, however after huge efforts a 120 completed valid questionnaires in total were analysed.

## 8.3. Questionnaire design

The questionnaire's main goal was to assess the impact that green space has on people in Cairo. This guided the detailed shape and structure of the questionnaire and the phrasing of questions that were introduced in five sections and their subsidiary questions.

- 1- Respondent's Demographic information (that included questions about: gender- age- education, martial and employment statuses- number of residences- income- place of residence),
- 2- Feelings, sensations and motives evoked in the visited space,
- 3- Perceived problems that influences their satisfaction with the space,
- 4- Interviewee's preferences (that included questions about: type of preferred GS whether small pocket gardens, opened non-fenced parks or fenced and managed spaces) and
- 5- Willingness and means to contribute in enhancing happiness.

The survey questions were careful to address the research questions and research problem, and all questions referred to the study goal and directly addressed the study goals. Only relevant and crucial questions were asked. Different analytical methods and cross tabulations have been applied to reach a comprehensive understanding and perform a robust perception of the relationship between happiness and the scarce urban green space in Cairo,

## 8.4. Respondent's demographic main characteristics

The respondents were 62% males (74 respondent), and 38% females (46 respondent), due to cultural and religious believes that hinders females from going to public places unless combined with a male relative or

husband, to avoid harassments, which is unfortunately common in Cairo. The age varied according to categories, the most represented was from 20 to 35 years old (43%), followed by; from 36 to 50 (30%).

Most of the respondents were secondary school educated and above, where 57% Holding a university degree, while 32% finished secondary school, with only one illiterate respondent. 35% of the respondents were unemployed, where 57% were married and have children, while 32% were single.

## 8.5. Results and Key Findings

The most significant findings were:

- Surprisingly, 95% have to pay to enter their visited green space, which definitely excludes a huge sector of citizens that cannot afford the entry fees especially for families.
- An astonishing finding was the 93% agreement of respondents on the positive happiness impact that green spaces have on their visitors, a finding that rises the crucial question of why Cairo city is not well served with green spaces, and why the municipality is not catering for such a pivotal amenity?
- Another astonishing finding was the 78% agreement on the statement of "*The more green spaces in the city the happier the community will be*", while only 5% disagreed, it from which it could be concluded that there is high appreciation of the great happiness influence and satisfaction that green spaces brings to the city.
- An unexpected 70% of respondents reported their feeling of others' happiness in the green spaces, which shows the spread delight and joy in these spaces, only 14% disagreed feeling of others' happiness where most of them (75%) were single unemployed respondents.
- When analysing the problems that influences happiness in urban green spaces results, shows 83% of the respondents agreed that harassments to females is the main issue that negatively influence their feeling of happiness generally and in green spaces specifically, putting in mind the previous percentage of males and females respondents which proves that "*harassments*" is a real problem that threatens community, while it is important to highlight that a huge percentage of males interviewees do condemn harassments and define it as a top problem.
- Nearly half the respondents (47%) agrees that scarcity of shading, seating and public services besides drugs addiction are problems that negatively influence their happiness and enjoyment of green spaces.
- When analysing the results of the kinds of feelings evoked in green spaces, surprisingly it was found that three fourth (74%) of the respondents – regardless the age, gender, education level or marital status - agreed that green spaces evokes happiness in them, which supports the research hypothesis of the positive influence urban green spaces have on people's happiness, that was even more endorsed with the rest of the results, where nearly 60% agreed that urban green spaces evokes their peace of mind and nearly half the respondents stated that "*I feel enthusiastic and active being in green spaces*", which enhance their satisfaction with life, however, it is important to mention the striking low safety feeling of only 18%, knowing that all the survived parks were gated and fenced, most of the females and parents stated their unsafety feeling, which coincides with the very high percentage of the harassment problem (83%) – previously mentioned-, this is one of the crucial research findings, that needs to be addressed by the authorities, decision makers, community leaders and park managers

- In answering the question of *"To achieve happiness in UGSs we need .....?"*, a number of informative replies were recorded such as:
  - Significantly 81% stated shaded seats as the major factor, which is understandable in the hot arid city of Cairo, besides the fact that people want to maximize their stay, as they both travel long distances to reach the place and they have to pay for entry, therefore they tend to spend as longer as possible in their rare occasional visits.
  - A noticeable 64% of respondents agreed on having security members in the space will achieve happiness, which aligns with the high reported percentage of harassments and drugs addiction.
  - 52% of the respondents expressed the need for night lighting to give them a chance to use the spaces for longer periods, especially sunset in summer, where the weather becomes much better after sunset and to allow householders to join their families after finishing their day work.
  - More than half the respondents that spaces need both quantitative and qualitative improvement in children play yards, public facilities e.g. toilets, planation diversity in colours and canopies, proper signage and lawn areas.
  - 45% claimed they need better plantation schemes and denser vegetation, which is due to poor maintenance schemes that UGSs suffer from.
- When Crosstabulating age groups with the perception of harassment as a problem, putting in mind that it came first among the perceived problems in parks and green spaces as mentioned above, Interestingly, it was found that only 58% of the under 20 years of age category perceives the harassments as a problem, and surprisingly with no significant difference in perception according to gender. On the contrary, other age groups scored 84% for the category above 20 and less than 35 years old, 89% for the above 35 and less than 50 years old, and 100% for the elderly above 50 years old for the perception of harassment as a problem in UGS.
- In answering a question that measures the willingness to participate in enhancing Parks and Green Spaces that consequently increases happiness among the community, the responds were; 24% Willing to donate money, 38% Willing to pay effort, 22% Willing to give consultancy, 8% Willing to donate plants, and surprisingly 1% Willing to donate land, while on the other hand 36% Do not want to contribute.
- All the respondents who were willing to contribute to enhance green spaces in order to increase happiness among their fellow citizens by donating money were highly educated, where 2/3 of them hold a university degree or above, which shows the importance of education in nations and communities progress.
- Surprisingly more than 26% (10 respondents) of the unemployed were willing to donate money to enhance greenery and happiness, even with no assured income, which reflects the awareness they have of the essential role green spaces plays in enhancing communities and their wellbeing.
- When asking the respondents of their preference of three green space types of small gardens, large parks and managed gated green spaces, and which they feel more happy in, the responds were 32%, 77% and 79% respectively, where regarding the preference of large parks is due to the feeling of freedom and openness provided, while the preference of the gated managed parks is a logical consequence to the security and safety issues that have been raised as the main problem in the respondents answers before.

## 9. Recommendations

If cities are aiming for a happy, resilient, healthy and wealthy society they should care more about building social connections, which could easily be done through offering proper instruments for interaction, where green spaces are the best instrument cities can offer for inhabitants to keep fit, feel confident with themselves and the surrounding, create a safe place to children to experience their childhood, discover themselves and strengthen bonds with peers and their environment. Urban green spaces are pleasant areas, or places that one wants not only to visit but to return back several times to visit, these are the kind of places that people seek to go to in order to be happy or happier.

This research paper has shown the essential role urban green spaces play in peoples' lives, thus urban planners, urban designers, landscape architects and any other related profession need to work together to maintain the quality of urban space provided to citizens, as it affects their wellbeing and happiness, as it could be claimed that the higher the quality of urban green spaces the happier the users will be.

In order to achieve quality urban green spaces that evokes happiness and satisfaction among their users, decision makers, designers and planners should follow some guidelines which can be considered as a checklist for creating what Sepe (2015) claims to be "*a happy place*", which she defines as "*a space which can transmit feelings of happiness to everyone who use it*", among the most important principles and guidelines are:

- Emphasize place identity and intangible characteristics of the site and its surroundings.
- Encourage using the space by all people regardless of their age, gender, wealth ...etc.
- Do not have any barriers that discourage the entrance to the space or hinder disabled.
- Multi functionality of the space, to allow (playing – moving –social engagement –observation - exercising activities and equipment – jogging lane – cycling lane - ...etc).
- Balance between natural and man-made features in the space, a touch of nature is needed for tranquillity and serenity; thus always remember to provide different Colours and textures which create a bubble of happiness.
- It is desirable to have artistic elements, sculptures .. etc in the space as it enriches the general and artistic senses for the space users, .
- Space should be well equipped to welcome users all over the day, thus a night scheme should be carefully designed.
- Cleanliness and maintenance should be attained.
- Security and safety for all users in all times should be guaranteed.
- Car free spaces are safer and user friendly.
- Educational role of the space, adds an intrinsic value.
- Adaptability of the space to accommodate users in all seasons, weather conditions and climates all over the year is essential to sustain liveability of the space.
- A touch of technology will add to the assets of the space

Decision makers and planners need to revise quantity and quality of urban green spaces provided in the built urban environments if they aim to increase happiness, wellbeing and health among inhabitants.



Cities, meanwhile, are taking serious measurements for enhancing the built environment quality that consequently uplifts citizen's wellbeing by providing innovative ideas and practices, such as Rio de Janeiro's recently opening of the largest city park, and Mexico City availing public-private partnerships to rejuvenate its rich Chapultepec Park for public use and enjoyment, and last but not least the San Francisco born parklet concept which is now catching on in cities across the world. These cities share the desire to improve residents' quality of life, through the recognition of the positive vital impact that safe, green, public spaces have on people's wellbeing and happiness in cities that are growing at breakneck speeds. City leaders must embrace this approach if cities are to grow sustainably and become more liveable environments, putting in mind that parks do not have to be large areas to have an impact, as a pocket garden or parklet have a positive impact too.

## 10. Conclusion

Although Happiness is complex to measure and to understand it is mechanisms and how, where and why it happens, but the positive impact that green urban spaces cause on their users cannot be denied. An assumption of "direct correlation" between happiness and being in urban green spaces, even in arid contexts with rare greenery, has been tested in this research paper and has proven validity in Cairo, despite all the odds the people are suffering, and even with a severe scarcity of urban green spaces, still the presence in green makes a difference in their livelihood and quality of life. Although most of the surveyed people were generally unhappy in their lives because of the tough economic crises in Egypt, they have expressed their happiness in green spaces, even more they stated that it is among the rare refuges they head to searching for satisfaction, joy and relief.

Amazingly and during the time of unrest in the past few years and according to the researches observation, people tended to go to green spaces even with serious safety issues and a curfew which starts at the first hours of night, green spaces have been always the source of positive energy and happiness for Cariens, even most of the traditional songs in the Egyptian culture glorifies the relationship between green spaces, happiness, love and peace.

Most of the interviewed householders stated that they save no effort to take their families to public parks and green spaces because the happiness and satisfaction their children and families experience, householders await these moments eagerly despite the high expenses of such visits to urban parks in Cairo for them. As astonishingly 95% of the survived population have to pay to enter the green space, which definitely excludes a huge sector of citizens that cannot afford the entry fees especially for poor large families.

The empirical study discovered some important findings that need to be furtherly researched and taken in consideration by decision makers such as:

- 93% of respondents agreed on the positive happiness impact that green spaces have on their visitors.
- 78% of respondents agreed on the statement of *"The more green spaces in the city the happier the community will be!"*

- The recorded 70% of respondents feeling other's happiness while being in green spaces is an evidence that green spaces does not only enriches one's feeling of happiness but it levels up one's feeling to higher ranks of consideration, esteem and respecting others' feelings.
- The harassments problem in public spaces, which results in people's unsafety feeling in their own city spaces, which substantially violates their rights to the city.
- Nearly half the respondents agrees that poor space design and the scarcity of shading, seating and public services negatively influence their happiness and enjoyment of green spaces, despite the fact that 95% of them pay for entering these spaces.

All Families' members live on happy memories of their rare occasional visits that might take them hours to reach in some cases, inspite the fact that access to green spaces is among their fundamental rights to the city.

While it may seem to be common knowledge, it never harms to reinforce the positive role green spaces play in urban contexts; in fact, it is the main ingredient in building healthy, happy, liveable cities of wellbeing. It can be said that adequate, well distributed and proper quality green spaces will benefit both the city and citizens, green spaces are a school/theatre where people learn and exercise how to communicate and socialize, it is essential for expressing their wellbeing, emotions and strengthen belongingness bonds with their space, community and city.

This research paper is considered a documentation for the direct correlation between urban green spaces and citizens' happiness in cities with green spaces scarcity such as Cairo, a relation that most city residents believe in for years; however, it's relatively new and quite encouraging to have a research study backing up this belief. The research draws important information for decision makers that ought to be taken in consideration if they are seeking the happiness and wellbeing of their citizens.

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