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Master of Science in

ARCHITECTURE FOR THE SUSTAINABLE PROJECT

THE EFFECT OF SUBJECTIVE APPROACH TO EVALUATE QUALITY OF URBAN LIFE:

A COMPARATIVE ASSESSMENT IN ITALY

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Summary

The study investigates the effects of subjective approach to evaluate quality of urban life. In this regard, the importance of urbanization as one of the most concerns of today's human life and the fundamental concept of life satisfaction were surveyed. The research explains how quality of life can be separated into objective and subjective approaches. Objective methods are usually based on the assessment of social and economic quantifiable factors while subjective practices focus on more directly related features of cities such as satisfaction with basic human needs and personal evaluation of quality of life. This research concentrates on clarifying the effect of utilizing subjective procedures to investigate quality of urban life on a personal level. More specific, the study intends to explain the relationship between proposed urban-related dimensions and subjective wellbeing in six cities of Italy based on various comparative analyses on individuals' evaluation data.

Respectively, the research suggests a set of actions to promote quality of urban life and sustainability in urban environments in particular for addressing existing gaps in quality-of-life.

The results indicated the significance status of all the independent variables of the study, the type of their relationship (positive or negative) with the response variable and their ranking determined by the magnitude of impact on the urban life satisfaction in six cities including Bologna, Naples, Palermo, Roma, Turin and Verona.

The study outcomes regarding various life domains in Italy indicate that response variables have the following order in terms of the importance and magnitude of the effect on the overall urban life satisfaction are (1) satisfaction with the 'natural and environmental characteristics', (2) satisfaction with 'built environment', (3) feeling safe in the city, (4) satisfaction with 'leisure and social interaction', (5) satisfaction with 'economic features', (6) satisfaction with 'healthcare services', (7) satisfaction with ' educational facilities in the city' and (8) 'overall experience of life' and only insignificant variable is satisfaction with the 'governance and political administration'.

Keywords

Quality of Urban life - Life satisfaction - Subjective well-being - Urbanization - Urban Design - Sustainable Development - Urban Dimension

Acknowledgment

The most important reason that inspired me to select this subject is a personal interest in urban studies and concern for the quality of life. as a student of design and architecture, I believe it is an infinite responsibility to enhance my knowledge in regard to human quality of life.

I am sincerely grateful to my thesis supervisor Dr. Luca D'Acci for his constant support and guidance throughout the thesis.

I would like to dedicate my research to my parents for their unconditional love and support, particularly my mother as a lecturer who always encouraged me to gain knowledge. as well as all people who always inspired me to constantly pursue my dreams.

Abbreviations

QOL	Quality of Life
QOUL	Quality of Urban Life
SWB	Subjective Wellbeing
OECD	Organization for Economic Co-operation and Development
WHO	World Health Organization
SDGs	Sustainable Development Goals

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Chapter 1

Chapter 1: Introduction

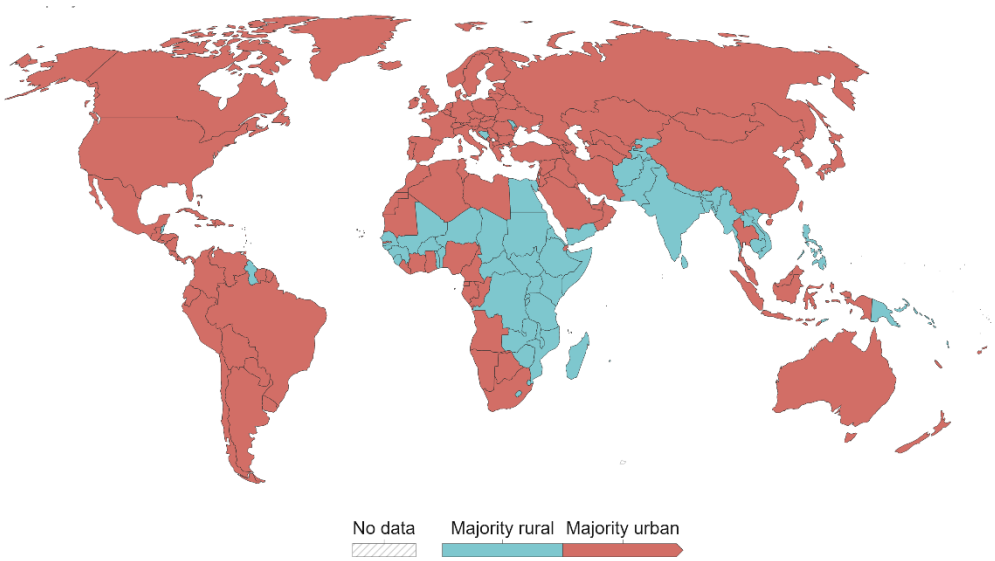
The Effect of Subjective Approach to Evaluate Quality of Urban Life: A Comparative Assessment in Italy

Introduction

1.1 Background

Urbanization is one of the most important issues that humanity is facing in our time. Today over four billion people around the world—more than half of the global population—are living in cities. It is estimated that by the end of the year 2050, this rate will enhance to almost seventy percent and more than 50 percent of the urban population live in cities with over 500 000 inhabitants (Gruebner et al., 2017; Krzywicka & Byrka, 2017; Newbury el at., 2016; Alves et al., 2015; Sørensen, 2014; Galea el at., 2011). As a major obstacle to achieving 'Sustainable Development in city contexts, urbanization is closely related to the industrialization and the modernization of societies (Sørensen, 2014; Mori & Christodoulou, 2012). Modern economic growth transforms rural areas into urban environments. This redistribution of the population is generated mostly by better income and employment opportunities in urban areas (Easterlin el at., 2011). The rapid expansion of cities with drastic transformations led to emerging of a wide range of concerns that focused not only on advantages of the urbanization but also on urban problems and discomfort.

Figure 1. *The population live in urban versus rural areas*



Source: OWID based on UN World Urbanization Prospects, 2018

Cities provide better access to healthcare services, advanced infrastructures, employment, education and economic opportunities (Gruebner et al., 2017; Alves et al., 2015; Glaeser, 2011). On the other hand, fast-track and inappropriate growth in urban areas can generate serious consequences. Unplanned urbanization and improper spatial arrangement could lead to environmental degradation, crime and detachment (Alves et al., 2015; Bettencourt et al., 2010). it might threaten the entire society and directly affect individuals' 'Quality of Life due to a high density of inhabitants, traffic congestion, housing insufficiency and pollution (Ran el at., 2020; Gries el at., 2018). Furthermore, with expanding urbanization, inhabitants become more vulnerable to risk factors such as poverty, excessive noise and heat that can cause health issues (Gruebner et al., 2017). Although general health is better in urban areas, living in a city might have unfavorable outcomes on residents' mental health (Cyril et al., 2013). Depression, anxiety disorders, autism, schizophrenia and other behavioral issues are remarkably more widespread in cities (Peen et al., 2010).

Urban areas as the main location of human activities can make difference in inhabitants' quality of life. Cities are capable to become primary sources to reach better standards of living and sustainable development as the ultimate goal of society (Costanza et al., 2016; Giles-Corti et al., 2016; Martin & Sunley, 2015; Montgomery, 2013), but disadvantages might outweigh the potential benefits of living in cities (Sørensen, 2014) and consequently impair the 'Quality of Urban Life. Therefore, it is critical to consider an appropriate framework of relevant policies for the development and management of cities based on a comprehensive assessment of various aspects of the urban environment.

Fostered by this need and accessibility to an outstanding amount of information at the city level, a significant number of researchers have recently engaged with what has been called the Science of Cities' (Louf, Roth & Barthelemy, 2014). As a result, assessing the development processes of the urban environment and analyzing city performance in terms of related dimensions of quality of life has become a spotlight for corresponding literature (Nakamura, 2019).

These new data allow researchers to evaluate cities to a degree that was not possible before. Gross domestic product (e.g. Pradyot el at., 2021; He, el at., 2020; Liang el at., 2020; Teoh el at., 2020), carbon emission and energy-related issues (e.g. Ambrey & Daniels, 2017; Albino et al., 2015; Rybski el at., 2015; Oliveira el at., 2014), crime (e.g. Hanely el at., 2014; Alves el at., 2013; Gomez-Lievano el at., 2012; Branas el at., 2011), indicators of education (e.g. Ignazzi, 2014), suicides (e.g. Melo el at.,

2014), health (e.g. D'Acci, 2020; Kushlev et al., 2020; Diener el at., 2018; Evans et al., 2018; Hartig el at., 2014; Beyer et al., 2014; Alcock et al., 2013), green space (e.g. Mouratidis, 2019; Kondo et al., 2018; Markevych et al., 2017; Margaritis & Kang, 2017; Lee et al., 2016; Gascon et al., 2015), transportation (e.g. Feng et al., 2017; Dong et al., 2016; Louf el at., 2014), community resources (e.g. Letellier el at., 2018), public spaces (e.g. Mouratidis, 2021; Seresinhe et al., 2019; Wu el at., 2017; Clarke el at., 2015), natural environments (e.g. De Keijzer el at., 2018), air quality (e.g. Chiarini el at., 2021; Barrington-Leigh & Behzadnejad, 2017; Ferreira et al., 2013; Levinson, 2012) and social cohesion (e.g. Zhang el at., 2019; de Vries el at., 2013; Francis el at., 2012) are just a few examples of countless aspects of the urban environment that have been studied.

Considering urban areas as a catalyst to improve and refine inhabitants' quality of life can be a useful idea to shaping the present and future of urban development (Mouratidis, 2021). Improving the quality of life in urban area could affect a high percentage of people through environmental adjustments. Moreover, the implementation of related policies might be less challenging, cheaper and more politically acceptable than interfering in the lives of inhabitants (Nakamura & Managi, 2020; Olsen et al., 2019).

A large amount of literature has tackled the challenging task of elucidating the meaning of quality of life (e.g. Patil & Sharma, 2019; Kaklauskas el at., 2018; Skevington & Böhnke, 2018; Morais & Camanho, 2011), a complicated and ambiguous concept which is repeatedly integrated with the notions such as well-being, self-perceived satisfaction with life, urban sustainability and even happiness. It is a multidimensional concept, though for simplicity this study uses the quality of life on a personal level and subjective well-being interchangeably. Recent studies have identified quality of life and well-being as explicit words that dominate the urban studies context (Goerlich & Reig, 2020; Papachristou & Rosas-Casals, 2019). In general, the concept of quality of life is mainly regarding the standards of living conditions and individuals' perception of their position in life. it represents individual (physical and psychological health), interpersonal (social relationships) and contextual (environment) aspects, that includes both objective and subjective indicators. (Goerlich & Reig, 2020; Fassio el at., 2012; Marans, 2012).

Current literature about how urban environments affect quality of life can be separated into objective and subjective approaches. Objective approaches are based on the evaluation of social and environmental features which are speculated to either

reflect or determine quality of life (e.g. Sapena el at., 2021; Ahmadiani & Ferreira, 2019; Mouratidis, 2018; Zhang et al., 2017; Lee et al., 2017; Cao, 2016; Chen el at., 2016; Kent & Thompson, 2014; Fassio el at., 2012; Marans, 2012), while subjective researches have focused on self-perceived information of satisfaction on a personal level about different dimensions of urban life (e.g. Mouratidis, 2021; Chiarini el at., 2021; Ran el at., 2020; Olsen et al., 2019; Douglas et al., 2018; Kubiszewski el at., 2018; Faria et al., 2018; Węziak-Białowolska, 2016; Han el at., 2016; Sores & Peto, 2015; Ballas, 2013; Easterlin et al., 2012; Kahneman & Deaton, 2012). it is important to take not only objective city evaluation, but also subjective assessment in consideration for improving quality of life and achieving sustainable development in urban environment (Nakamura & Managi, 2020).

Likewise, several studies have been focused on quality of life and relevant urban features in Italy. Ugolini el at. (2021) explain the benefits of urban green spaces during the 'Covid-19' lockdown, Guida and Carpentieri (2021) investigate quality of life in the urban environment and health status of the elderly during the Covid-19 pandemic, Vigano el at. (2019) discuss about urban and rural dwellers' quality of life determinants when the city size matters, Calcagnini and Perugini (2019) focuses on social capital and well-being in the Italian provinces, Valente el at. (2020) clarifies the role of green infrastructures in Italian cities by linking natural and social capital and Petrosillo el at. (2013) evaluate the application of subjective indicators to assess how natural and social capital support residents' quality of life in Sicily.

Basically, cities exist for their residents, who play an active role in urban areas and are not just receptive beneficiaries of what the city offers; this makes self-perceived satisfaction with the environment and relevant local strategies as one of the most decisive societal indicators (Zenker et al., 2013). Subjective assessment of urban life is an influential factor in evaluating urban environments and improving city performance which is able to alter the level of contentment and comfort of inhabitants. it is an efficient way to appraise different aspects of urban life and make them more comparable and measurable (Zenker & Rütter, 2014). Subjective evaluation of quality of life at city level, determines the degree of inhabitants' satisfaction with various features of an urban environment. It provides an opportunity for planning to solve existing problems and improve quality of life through contributing to health (e.g. Kent & Thompson, 2014), neighborhood (e.g. Mouratidis, 2018; Pfeiffer & Cloutier, 2016), and evidence-based urban management (e.g. Tonne et al., 2021; Shekhar et al., 2019; Marans & Stimson, 2011).

Nowadays, it is widely acknowledged that people-oriented development should be noted as the optimum target of societal evolution rather than economy-oriented (Han el at., 2016). According to the close correlation between people-oriented development and subjective evaluation of cities, improvement of quality of urban life is considered more beneficial through this approach to accomplish sustainable development. This issue has become beneficial for policymakers in recent evaluating of development administrations because it enables them to measure and analyze the relationship between urban environments and quality of life more precisely. The new refined mechanism allows stakeholders such as urban planners, policymakers, architects, environmental psychologists, researchers and even citizens to visualize and interpret the spatial organization and temporal transformation of quality of life throughout the city, so that they can make appropriate adjustments toward achieving sustainability (Han el at., 2016).

Respectively, this study tries to investigate the influences of utilizing subjective method to assess quality of life in six cities of Italy by using multiple analyses on self-perceived data. Moreover, the research suggests a set of actions to promote quality of urban life through sustainable development and evidence-based policymaking, in particular for addressing existing gaps in quality of life levels.

1.2 Problem Statement

lack of reliable information and the ambiguity of determining the subjective well-being in urban environments have made it difficult to accurately assess the performance of cities on personal level. In addition, the rapid process of urbanization has hampered the improvement of quality of life and the possibility to reach sustainability development.

For addressing these problems, new approaches of city management no longer focus exclusively on developing the physical infrastructures and economical-based issues of urban areas. "These strategies pay attention to softer pillars of urban structure, such as cultural amenities, environmental values and a vaguely defined but broadly encompassing concept of quality of urban life" (Goerlich & Reig, 2020, p.1) which includes two types of indicators named objective and subjective as well as quality of life.

Objective methods are usually based on the assessment of social and economic quantifiable factors which normally are obtained from official databases (e.g. Sapena

el at., 2021; Marans & Stimson, 2011; Morais & Camanho, 2011), while subjective practices focus on more directly related features of cities such as satisfaction with basic human needs and personal evaluation of quality of urban life (e.g. Faria et al., 2018; Gilbert el at., 2016; Ballas, 2013;). Subjective well-being is often measured as individuals' ratings of quality of life in urban areas, either using single-item or multi-item self-report scales. This approach concentrates on conducive experience in different aspects of urban environment and standards of living (e.g. Moeinaddini el at., 2020; Olsen et al., 2019; Douglas et al., 2018; Seligman, 2011)

Assessing the Quality of urban life demands identifying all the responsible determinants in shaping life in urban areas. Researchers have discussed that well-being consists of various personal-based dimensions such as social relationships, levels of engagement, meaning and self-realization along with objective variables (Seligman, 2011). Although organizations and governments admit the significance of applying city evaluation to ameliorate inhabitants' living condition, existing city analyses have mostly been in accordance with objective performance data such as income, land use and physical variables (Nakamura & Managi, 2020) and little notice is given to subjective indicators.

Chen el at. (2016) believe that "objective measures based on quantitative or secondary data are not affected by personal feelings and more suitable for comparative assessment among different entities" (Chen el at., 2016, p.2), but exclusive reliance on this method has its own disadvantages. Without considering the most influential aspect in urban life—inhabitants—and the dearth of experience-based information, analysis of city performance will not be accurate. A single set of objective assessments doesn't reflect the real value of quality of life on the personal level. Moreover, satisfaction with urban living usually occurs at diverse geographical scales (e.g. home, neighborhood, community, city and even regions), but objective methods don't pay enough attention on how the connection of these variables to each other and to their surrounding determines their level of perception from inhabitants.

As one the most significant results of their work, Nakamura and Managi (2020) explain that subjective evaluation measures are more positively associated with the quality of life at the city level than objective assessments. Hence, in the field of quality of urban life evaluation and subjective well-being, there is a fundamental need to utilize people-oriented approaches for investigating urban areas precisely.

Each aspect of the built environment in urban areas can have an influence on subjective well-being through pathways that mostly corresponded to life domains. For example, green space in cities as a relevant physical environment to planning, design and policies can affect large number of residents. "Although green space has a broad variety of objective referents, it is also experienced subjectively and is effective as a social construction" (Hartig el at., 2014, p.3). The term 'Nature Experience' basically refers to the subjective perception of relevant environmental features. Urban nature can provide numerous life changing advantages. It is positively related to attention, mood, physical activity and mental health, while it is decreasing mortality and violence (Kondo et al., 2018; Gascon et al., 2015Urban green space also develops health benefits by reducing noise (Margaritis & Kang, 2017), local air pollution and mitigating human heat stress (Lee et al., 2016). During Covid-19, green spaces were considered to be particularly more essential to alleviate the negative outcomes of urban environment for health and well-being (Mouratidis, 2021; Ugolini et al., 2020; Xie et al., 2020; Douglas et al., 2020).

Today, due to findings like these, for local policymakers, urban planners and other stakeholders concerned about enhancing the quality of life in cities, it is vital as the first step to know individuals' assessment about different dimensions of urban life (Helliwell el at., 2018). In this regard, this study attempts to investigate the influences of urban area features on subjective well-being in Italy with referring to inhabitants' self-report ratings of quality of life indices. For this purpose, the research submits a conceptual framework of influential urban aspects which are strongly corresponded with life domains and objective indicators and then categorizes individuals' opinion in accordance with this model. literatures have shown that satisfaction varies considerably across districts and provinces within a country (e.g. Helliwell el at., 2018; Brezzi & Ramirez, 2016; Glaeser el at., 2016; Lu el at., 2015; Lucas, Cheung, & Lawless 2014; Aslam & Corrado, 2012), therefore, this study—after analyzing self-reported satisfaction data—compares the quality of life in six Italian cities with each other, in order to get better understanding of the effect of subjective evaluation in the context of urban areas.

1.3 Research Objective

Subjective quality of life depends directly on humans' priorities and needs. It is mostly about the satisfaction with standards of living and individuals' self-evaluation dependent on life experiences. Therefore, by using a well-organized

questionnaire method about correlated aspects of quality of urban life, reliable results can be achieved in this particular field.

The purpose of this study is to clarify the effect of utilizing subjective procedures to investigate quality of urban life on a personal level in Italy. More specific, the research intends to explain the relationship between nine proposed urban-related dimensions and subjective quality of life in six cities of Italy based on various comparative analyses on individuals' evaluation data. The collected information of several aspects of quality of life is characterized as distinct variables to stress disparities between cities which might be practical to political decision-making. Thereby, for the last step, the study attempts to recommend a set of actions and policies to achieve better quality of life and sustainability in urban environments.

1.4 Research Questions

Main question:

To what extent urban quality of life dimensions affect subjective wellbeing in Italy?

Sub-questions:

1. What effect do natural and environmental characteristics have on subjective well-being in urban area?

2. How does the quality of the built environment improve subjective well-being in cities?

3.How dose social interaction can alter subjective well-being in urban environment?

1.5 Significance and Utility of the Study

Self-perceived response to the standards of urban living and built environment is among the most vital indicators in the field of assessing quality of life. It is a significant factor in evaluating urban areas and a practical way to improve their performance. As mentioned earlier, subjective evaluation measures are more positively associated with the quality of life in the urban environment than the objective procedures and this point makes subjective approach critical and indispensable. In this respect, the research attempts to add knowledge to underlying determinants of subjective quality of life in urban context by identifying influential

attributes of built environment and policies. The outcomes of this study might contribute updates and refinement to existing literature and conceptual models in this particular matter across Italy. It can be used as theoretical and methodological guidelines for further empirical research. In addition, analytical facts and citations of the study can be accounted for other future research-based surveys.

The results of conducted surveys by various organizations and researchers introduce an imbalance level of subjective quality of life in different Italian cities. Furthermore, inaccurate urban management and short-term policies have created multiple challenges in the process of improving the overall urban quality of life in Italy that should be addressed and resolved. For example, urban infrastructures such as public places should be easily accessible for all residents and distributed equitably within a city. Also, urban management need to improve quality of life by providing economic security, personal safety, social cohesion and so on. Hence, due to the undeniable role of urban areas on quality of life, the importance of appropriate policies and well-planned urban context based on residents' self-evaluation becomes more significant to address all needs of modern urban life.

It is crucial to ensure that local authorities and decision-makers consider the decisive impact of subjective quality of life during the process of organizing and managing the urban environment. Besides its scientific contribution, the study provides propositions on urban planning measures that could conduct practitioners, policy makers, architects and other stakeholders who work on urban planning issues. It intends to submit several constructive solutions to enhance quality of life in cities by improving the most relevant life domains through built environment.

1.6 Scope and Limitations

As previously stated, the study aims to clarify the impact and benefits of using subjective method as the city evaluation approach in six cities of Italy. The research is limited exclusively to subjective and self-perceived assessment of inhabitants about standards of living, city environment and related policies. The performance of each city is analyzed in the form of a proposed framework with nine urban features which (are) determined by self-reported opinions of individuals. Finally, after performing several analyses on the available information, the study is able to ascertain and compare the quality of life in each city based on subjective evaluation measures.

Although the dimensions and conceptual model in this study are selected according to their generality and strong relationship with objective indicators of urban environment and life domains, but there is a possibility that the proposed framework does not completely capture the range of relevant pathways (Table1). Also, there are potential links from the built environment to some of the influential attributes of subjective well-being such as biodiversity, waste management, spatial distribution and so on which are not clear or not backed up by adequate empirical evidence and reliable self-perceived data; so they were excluded from the research.

The effect of subjective evaluation on the quality of life at the city level is greater than the objective assessment, nevertheless, some researchers claim that it has its own problems due to complexities and uncertainties. They believe subjective approaches can be influenced by individual's own conditioned expectations about life or 'Adaptive Preferences' (Gilbert el at., 2016) and other aspects such as personality traits and human values (Diener el at., 2018; Kahneman, 2011). While these are moderators of the links between the built environment and quality of life, and not mediating pathways (Mouratidis, 2021; Morrison & Weckroth, 2017; Jokela et al., 2015; Ballas & Tranmer, 2012), but they might limit the generalization of this study findings.

Another limitation is the validity of data derived from a secondary source (EU agencies). The authenticity of survey findings is subject to modifications such as balancing and raking of statistical information which can alter the consistency of results of this survey.

The study is also restricted by the scale of the investigation. Due to constraints on time, resources and Covid-19 pandemic related problems, the geographical scope of this research is conducted in six cities of Italy with a relatively sample size of 4200 inhabitants.

In addition, this research could not clarify the causality of relationships between proposed aspects of urban environment and satisfaction with living in a city. The nature of the information and methodology only permit correlation-based conclusions. Despite all these limitations, the survey attempts to fulfill all its objectives, However, it recommends future studies to utilize new methods and measures for evaluating quality of life in urban areas.

Table 1. *Descriptions of independent variables*

Variables	**Related urban life factors**
Public Transportation	Mobility
Health status	Health Care Services, Doctors, Hospitals
Leisure and Social Interaction	Sport and Cultural Facilities
Green Spaces	Parks and Garden
Public Spaces	Markets, Squares, Pedestrian areas
Economic Situation	Occupation Status and Financial Situation
Safety	Insecurity, Violence, Crime Rate
Air Quality, Noise Level, Cleanliness	Living Environment
Build Environment	Neighborhood, City
Governance and Basic Rights	Local administration and Policies
Socio-Demographic Characteristics	Age
	Gender
	Health
	Education level, …

Source: Author, 2021

Chapter 2

Chapter 2: Literature Review/Theory

2.1. Introduction:

As mentioned earlier, cities, as the main habitat of individuals, confront numerous problems due to population growth and rapid urbanization process (Winters & Li, 2016; Migheli, 2016; Valente & Berry, 2015; Petrosillo el at., 2013; Berry & Okulicz-Kozaryn, 2011). The issues underscore the necessity of concentrating on how urban areas should conform with current environmental and social conflicts. One of the most significant social challenges that the transformation and developments of cities face is to maintain and improve quality of life of their inhabitants (Conigliaro, 2020; Glaeser & Henderson, 2017).

Quality of life is a decisive component in the ability to compete of cities, regions, and states, because it acts as a magnetic element for new working forces, enterprises, and migration patterns of residential relocation (Psatha, Deffner & Psycharis, 2011). Researches show, although individuals can acclimatize to different living environments by controlling their inclinations and adaptability, they express partiality toward places with higher level of quality of life (Nowok, Findlay & McCollum, 2018; Faggian, Olfert & Partridge, 2012). This trend leads to the settlement of larger populations in more desirable places, which in turn alter these locations to be more expensive and congested and consequently in association with a compromised level of the quality of life (Moeinaddini el at., 2020).

According to the 'World Health Organization' (WHO) and other institutional and academic surveys,[1] 'place' - the physical and spatial environment unique to different regions and where people live has a crucial impact on molding the character, feeling and residents' quality of life (Mouratidis, 2017; Marans & Kweon, 2011). Furthermore, a fundamental hypothesis underlying many approaches of planning and design urban environment is that cities can be organized and developed to elevate standards of living and well-being. Currently, most people are expected to live in cities and metropolitan areas and therefore, it seems critical to investigate the relationships between the characteristics of the living environments and inhabitants' self-perceived satisfaction level with urban life domains, in order to improve quality of life (Thin, 2012; Marans, 2012; Marans & Stimson, 2011).

[1] The importance of place has been emphasized by many scientists. Richard Florida (2008) for instance, in his book "Who's Your City" point outs place as the governing parameter for living aspects such as income, social interactions, and the difference in happiness experienced in various locations. The author states "People are not equally happy everywhere, and some places do a better job of providing a higher quality of life than others" (Florida, 2008, p.61).

2.2. Quality of Life:

For many years, scholars and authorities have been engaged in the evolving endeavor to conceptualize and address quality of life intentions. Quality of life is an ambiguous phenomenon which can indicate life priorities of individuals (Higgins & Campanera, 2011). The terminology of quality of life was raised after World War II, when there was increasing awareness and recognition of social inequalities and well-being during the public movements in 1970s. As the same way, the academic interest in the concept of quality of life[2] has been progressed along with rapid urbanization and provided a global incentive for research on this specific field (Chen el at., 2016).

"*There is no agreement on quality of life, in terminology nor in construction methods or the criteria that comprise quality of life*" (Morais & Camanho, 2011, p.2), but in general, quality of life characterizes people's satisfaction with different aspects of living condition which contains objective and subjective factors. It reflects the relationships between certain characteristics of individuals' life and their subjective evaluation (Goerlich & Reig, 2020; Sores & Peto, 2015; Marans, 2012).

Quality of life has numerous definitions.[3] As one the most acknowledged interpretations WHO defined quality of life as: "*An individual's perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns. It is a broad ranging concept, affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment*" (WHOQOL Group, 1995: p.1404). In other words, quality of life presumes people are capable to determine the quality of what is significant in the context of their own relative standards (Kubiszewski, Zakariyya & Costanza, 2018).

[2] Campbell, Converse, and Rodgers (1976) and Andrews and Withey (1976) are most likely responsible for the way the term, "quality of life," has been conceptualized, operationalized and measured. The conceptual and methodological underpinnings of their investigation are still the backbone of research into the quality of life.

[3] Dalkey (1972) defined quality of life as a person's sense of well-being, satisfaction or dissatisfaction with life, and happiness or unhappiness. Likewise, Costanza et al. (2007) present an integrative definition of quality of life that combines objective and subjective elements; specifically, they "relate quality of life to the opportunities that are provided to meet human needs in the forms of built, human, social and natural capital."

Over the years, the study of quality of life has absorbed scientists and researchers from a wide variety of academic fields as well as policy makers, organizations, planners and other practitioners in related fields (Marans, 2012). Research on quality of life exceeds the conventional discipline of any single domain and emphasizes on the complicated relationship between individuals and their surroundings. The quality of life evaluation cannot be founded on a distinct measure, because it includes social, economic, and quantitative elements, in addition to individuals' perception of living environment. Hence, since numerous features of human life taken in consideration by the quality of life, scientists from different fields have investigated it from varied angles and occasionally applied the word quality of life interchangeably with other terms, such as 'well-being', 'happiness', and 'life satisfaction' (Han el at., 2016; Easterlin et al., 2012; Veenhoven, 2012).

Quality of life can be experienced and perceived differently based on the various context and condition, because it originates from diverse social and individual elements such as age, gender, income, educational level and even culture. It is a multidimensional notion which comprise distinct requirements for a decent life including the availability of a secure and proper livelihood, physical and mental health; access to a safe environment and ecosystem services; social relationships between communities and finally the freedom to fulfil personal preferences and basic rights (Petrosillo el at., 2013). Therefore, in accordance with the complexity and extensive scope of this concept, it is essential to identify and analyze a wide range of related indicators to measure the quality of life precisely.

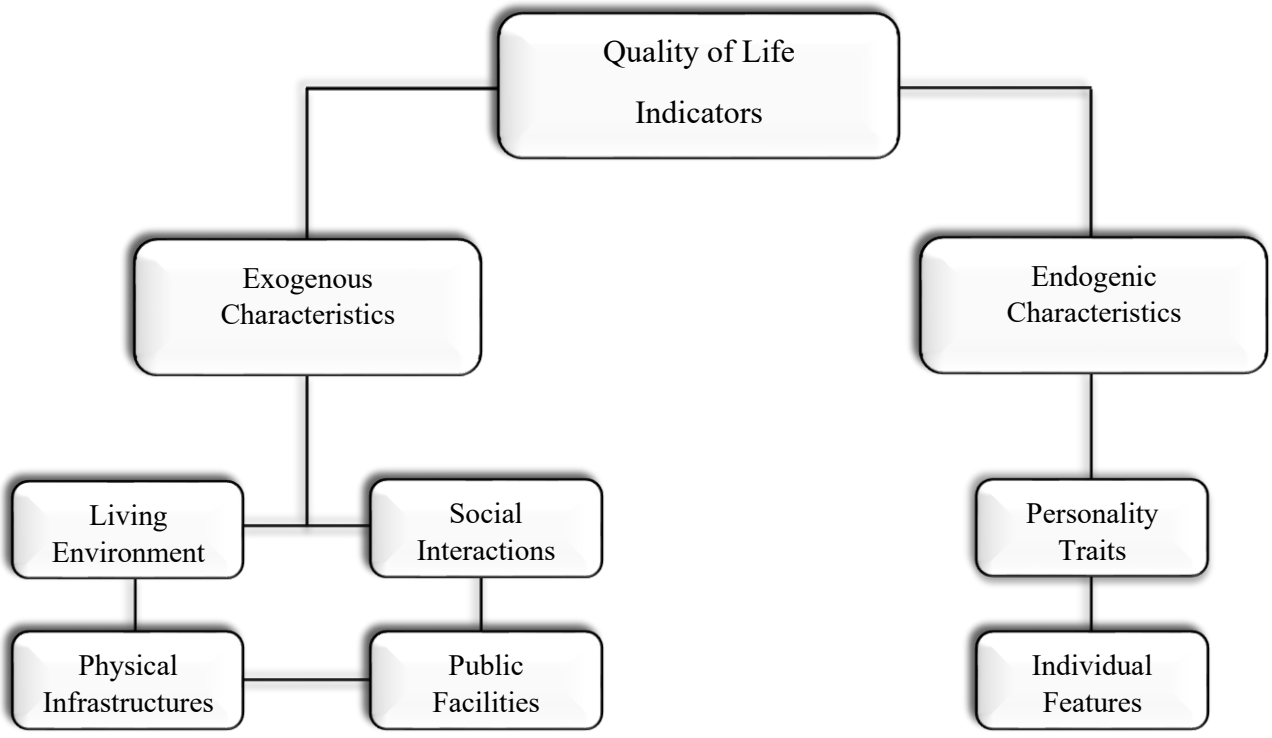
2.3. Quality of Life Indicators:

Regardless of evolving interest and effort on the field of quality of life, finding an appropriate method for measuring and improving individuals' quality of life has remained as a challenge. Respectively, utilizing a comprehensive and effective approach for investigating quality of life is an issue that needs to be addressed theoretically and empirically in the economic, urban environment and other related disciplines in academic literature and practices (Morais & Camanho, 2011).

The major obstacle in searching for a practical way to evaluate quality of life is the heterogeneity of its essence (Marans, 2012) and the dearth of an explicit and comprehensive definition in the literature. Additionally, two complementary issues, connected with the multidimensionality of quality of life measures, entangle any assessment of this matter. Quality of life mostly relies on a set of external and

exogenous characteristics such as the quality and quantity of public services, built and natural environments, and cultural facilities along with immaterial attributes like personal interactions and social cohesion. Furthermore, some researchers signify that quality of life consists of a philosophical aspect that includes an individual's belief system. It relates to the endogenic features of individuals, in particular their health status, gender, age, education, and ethnicity (Biagi, Ladu & Meleddu, 2018) (Figure 2). The complexity of the extent and how these two constituent groups of factors affect each other and a large element of unique subjective characteristics of each person make it difficult to accurately measure the quality of life.

Figure 2. *Quality of life constituent indicators*



Source: Author, 2021

Nevertheless, since the late 1970s, on account of a requirement for political and social knowledge, scientists progressively evolved quality of life measurement which is now widely endorsed (Conigliaro, 2020; Land & Michalos, 2017).

Quality of life is commonly used in various fields and perspectives as it comprises a concept which is intended to be the direct or indirect significant purpose of policies, researches and public investments (Psatha, Deffner & Psycharis, 2011). For this reason, in the course of last few decades, numerous indices have been proposed by local organizations, government agencies, and academic institutions to measure quality of life, even if the advantages and liabilities of each of them have not been meticulously reviewed and compared. The development of the meaning and assessment of quality of life has extended from an initial concern about income, towards a multidimensional constituents of quality of life that originating from the various notions about the individual, regional, national, and global levels. Respectively, due to this functional diversity, the quality of life has been measured by various studies in different disciplines such as psychology, economics, and sociology (Moeinaddini el at., 2020).

Historically, most quality of life researches have inclined to investigate objective indicators reflecting the people observable status (e.g. employment condition, income, morbidity cause, and crime rates) which contribute considerably to the analysis of spatially aggregated secondary data. Although, during the past half century, a handful of scholars from the environmental design professions along with social scientists have discussed that 'quality' of any entity has a subjective aspect that is perceivable as well as having an objective certainty. Those early studies indicated that quality of life has both objective and subjective constituents which requires proper consideration to determine the reciprocal relationship between them (Marans, 2012).

The literature of assessing quality of life can be characterized based on the measure used to investigate this concept, i.e. subjective and objective approaches (Ballas & Dorling, 2013). The subjective approach concentrate on individuals' self-perceived evaluation about different dimensions of life (e.g. Moeinaddini el at., 2020; Douglas, Russell, & Scott, 2019; Węziak-Białowolska, 2016; Leslie el at., 2010) and the objective approach focuses on measuring the social, financial and environmental features along with appraising the quantity of facilities (e.g. Sapena el at., 2021; Biagi, Ladu & Meleddu, 2018; Brambilla et al., 2013).

Subsequently, the most relevant disciplines of quality of life comprise social, economic and environmental characteristics can be measured by utilizing two broad categories of variables named objective and subjective indicators (Mouratidis, 2017; Chen el at., 2016; Okulicz-Kozaryn, 2013; Sirgy, 2012).

The objective indicators cover situations that can be achieved without direct involvement of individual characteristics, emotional preferences and self-evaluation. They tend to investigate the extent to which people's physical and economic needs are addressed. Objective variables are mostly founded on substantial and quantitative elements, including access to material goods, income, crime, proximity to green spaces, environmental pollution, and so on (Kaklauskas el at., 2018; Mercer, 2012; D'Acci, 2011).

As mentioned earlier, most of the attempts in the field of assessing quality of life utilize the objective approach and measure the environmental related factors that are easy to numeric analyze. However, quality of life is not only based on material and financial parameters. Many scientists assert quality of life as a primarily subjective concept even if it is often possible to apply objective measurable proxies for investigating it (Petrosillo el at., 2013; Morais & Camanho, 2011).

In general, subjective indicators are often defined as personal perception regarding certain aspects of life which can encompass objective elements. Most studies have, to date, investigated people's subjective quality of life by way of psychological standard self-reported questionnaires in which objective features are assessed by individuals based on a presumption of the conditions and standards of comparison. This method carries the benefits of high representativeness, proper life domains coverage, adequate population of respondents, and relatively objective and reliable data (Liu el at., 2020). The analyzed information obtained through this measure have been proven to possess predictive possibility for a large array of social, economic and decision-making processes.

After multiple revision over last decades on the 'subjective well-being' by 'Diener'[4] and other researchers the semantic content of this term approached to the concept of subjective quality of life.[5] In the way that, nowadays, "*subjective well-being and*

[4] Edward Francis Diener (1946-2021)

[5] Diener (1984) defined subjective well-being as central to a person's experience consisting of positive aspects, and a global assessment of a person's life. In 1995, negative affect, and cognitive evaluations were added to this definition of subjective well-being: "Subjective well-being also includes cognitive evaluations or appraisals of life satisfaction as a whole, and emotional reactions to life events" (Diener & Diener, 1995).
Second, another revision of subjective well-being replaced the 1995 version with a more abstract, generic statement: "An umbrella term for different valuations that people make regarding their lives, the events that happen to them, their bodies and minds, and the circumstances in which they live" (Diener et al., 2005). Increased similarity between this new subjective well-being definition and the earlier WHO definition (The WHOQOL Group, 1994), suggested that the subjective well-being concept could be converging towards quality of life (Skevington & Böhnke, 2018).

subjective quality of life are often used interchangeably in research, policy, and practice" (Skevington & Böhnke, 2018, p.3). Accordingly, subjective measurement of quality of life is regularly accomplished with using subjective well-being information. It signifies the extent to how individuals assess the quality of their experiences as regards to positive and negative emotions or satisfaction with life, considering both affective appraisal and cognitive evaluation[6] (Navarro, D'Agostino & Neri, 2020; Mouratidis, 2017).

The analysis of subjective well-being and its determinatives has acquired growing recognition and awareness during the last decades, mostly because it represents information on quality of life, a multidimensional phenomenon which all the policies and local authorities intend to improve. Moreover, in order to pursue the objective of long-term social intentions such as sustainability, subjective well-being could be considered as an efficient method for the revise and ameliorate of public policies, living environment and the quality of development within and across nations (Navarro, D'Agostino & Neri, 2020; Odermatt & Stutzer, 2017; Dolan & Metcalfe, 2012; Stiglitz, Sen & Fitoussi, 2011; Stutzer & Frey, 2010). In this respect, and due to the fact that a large portion of current global population live in the urban agglomerations, it is vital to investigate the reciprocal relation between quality of urban life and subjective well-being.

2.4. Quality of Urban Life:

Urban environments have the potential to be the context for social and political changes and implementing of collaborative decision-making and creative solutions. Cities, as the primary location of the prevailing urbanization dynamic, offer an appropriate platform for delivering the new objectives.

Improving individuals' quality of life is an underlying aim of various aspects of life including urban living. Thereby, policymakers, local authorities and diverse urban-related professions try to find influential factors that might affect the quality of life. Studies have shown that many domains of life contribute significantly to overall quality of life such as employment, health, personal relationships, income, as well as the living environments.

Living environment comprises the physical and natural surroundings along with social and institutional aspects that allows different population groups to spend their

[6] The cognitive feature relates to people's satisfaction in various aspects of life such as work, relationships and etc.

lives and fulfill their basic needs. It has been clearly stated that people's relation with living environment is a vital aspect for their perceived well-being (Fassio el at., 2012; Rollero & De Piccoli, 2010) and individuals' quality of life relies not only on their personal attributes but also on objective circumstances and the quality of where they live. (Navarro, D'Agostino & Neri, 2020; Ahumada, Iturra & Sarrias, 2019; Winters & Li, 2017; Lenzi & Perucca, 2016). In this respect, cities as the main habitats for individuals in last few decades, have a significant role for achieving better quality of life (Navarro, D'Agostino & Neri, 2020).

It should be noted that urban areas consist of various dimensions (e.g. social features, institutional features, economic features, etc.) which the quality of each of them is an essential constituent part in forming a multifaceted concept named 'quality of urban life'. It is an inherent element and also common concern of various disciplines related to urban life. Thus, it seems that one of the most effective ways for improving subjective well-being is to enrich different characteristics of quality of urban life. The significance of these issues makes quality of urban life as one the most considerable and vital topics in the urban-related fields (e.g. urban management, policies, urban planning, land use, etc.) and academic debates.

Local authorities, policy-makers and urban planners are incessantly faced with decisions regarding environmental, social and economic challenges, directly related to quality of life at the urban level (Morais & Camanho, 2011). Quality of urban life is one of the fundamental factors for city development which has broad effects on public investment, regional relocation and migration patterns, economic growth, and environmental sustainability. It is a concept that has the capability to solve the problems of cities, restrict environmental deterioration, revive existing areas and control the development of new communities. In addition, quality of urban life is considered a high priority for planners and designers (Moeinaddini, el at., 2020) and is recognized as a critical component in policies implemented by local administrations which is able to provide residential advantages for having better standard of life.

As aforesaid, cities have different dimensions that each of them has its own impact on the individuals' self-perceived quality of life. In this respect, only a comprehensive development at the city level with well-designed urban areas and practical policies to administer various parts of living environment can ensure satisfying subjective well-being for everyone. These findings highlight the necessity and importance of finding an effective method to investigate the performance of

urban environments and their quality of life. It is pivotal to assess which aspects of cities can be influencing in shaping individuals' perception of well-being (Bernini & Tampieri, 2017) and consequently develop a proper model to analyze data and test hypotheses in contributing to the residents' quality of life (Alves et al., 2015; Marans, 2012). The first step to organize and achieve such a method is to identify influential city features on inhabitants' well-being as well as formative elements of quality of urban life.

2.5. Quality of Urban Life Evaluation:

The conceptual and methodological studies on determining quality of life provide an appropriate base to find evaluation methods of quality of urban life. According to this point, the critical role of quality of life factors such as personal characteristics, health states, employment and income situation, social interactions and safety will remain indispensable and effective. in addition to these elements, there are certain features of city-related dimensions which contain influential significance in configuring the quality of urban life concept, since they have a considerable impact on the inhabitants' well-being (Psatha, Deffner & Psycharis, 2011).

Over the last two decades, institutions, communities and even governments have been gradually intrigued by adopting quality of urban life as an alternative solution or complement factor to more conventional and conservative measures of individual and social well-being in the context of urban areas. Consequently, today, the quality of urban life assessment is an issue with progressive importance in the scientific literature that numerous scientists, from different academic backgrounds such as sociology, geography, economy, public health, and urban planning, have tried to evaluate this concept as well as quality of life (Morais & Camanho, 2011).

Quality of urban life is the satisfaction that an individual receives from surroundings, human relationships and living conditions in the context of cities. The satisfaction level of individuals' experiences and subjective well-being in cities are derived from their interactions with different attributes of city life. Therefore, in order to improve residents' quality of life the influential aspects of urban living must be identified.

The first step to find how urban environments can affect people's quality of life is to identify their components. The urban life characteristics encompass elements and conditions that empower residents to fulfill their demands and experience better

subjective quality of life. These assets, which overlap and cooperate in complex ways, can be characterized into five main groups:

▪ Physical features: buildings, concrete facilities, transportation infrastructure, and all other human artifacts and constructions that address basic needs such as shelter, subsistence, mobility, and communications.

▪ Personal features: This category relates to human beings and their attributes, including health status, feeling safe and free, believes, socio-demographic characteristics and other interrelated factors that together form the unique personality of a human being.

▪ Social and cultural features: this classification includes a set of individual and social interactions in the context of cities that facilitate human connections and cooperation. It contributes to have a strong social cohesion, active communities, and efficient governance. Furthermore, social features facilitate to meet some of the basic human requirements such as participation, affection, and sense of belonging.

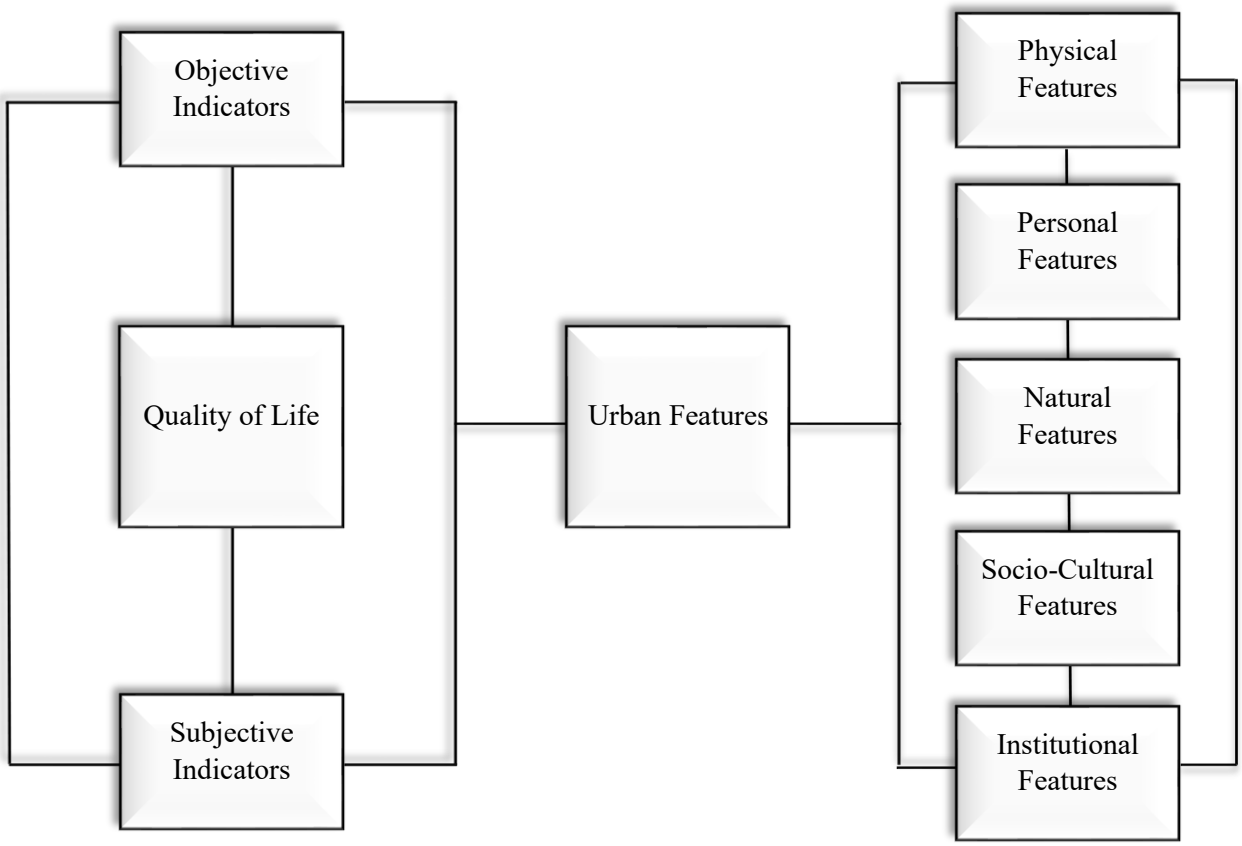
▪ Environmental and natural features: natural environment and its biodiversity along with quality of air, noise level and other environmental characteristics represent ecosystem assets and resources. These items are the fundamental parameters to answer essential needs including survival, climate adjustment, water supply, food, fuel, recreation, and the raw materials required for diverse economic productions (Kubiszewski, Zakariyya & Costanza, 2018).

▪ Institutional features: every community and human settlement contains institutions and organizations for management, surveillance, planning and legislation that have a momentous influencing on social norms, citizenship rights and quality of life.

The relationship between urban indicators and quality of life is complex (Nakamura & Managi, 2020), but it is expected that the level of satisfaction with these various life domains contributes significantly to the overall quality of life experience in urban environments (Marans, 2012). Thereby, the quality of urban life of any city depends on the efficiency of these components and the dynamic relationship between them (Figure 3).

In order to identify influential factors of the quality of life in a city, scholars utilize numerous research on inhabitants' self-perceived satisfaction level and objective statistical assessment regarding certain features of living environment, since both of these measures have been established directly related to quality of life (Marans, 2015).

Figure 3. *The influential urban life domains in the field of quality of life*



Source: Author, 2021

Accordingly, the approaches and different quality of urban life measurements might be varied on the basis of theoretical content, methodology and information analysis technique. For examples, geographers, economists and city planners frequently concentrate on the quality of living environment and physical elements of city (e.g. Sapena el at., 2020; Chen el at., 2016; Bardhan et al., 2015), ecologists emphasize on the relation between eco-system characteristics and human well-being (e.g. Navarro, D'Agostino & Neri, 2020; Kaklauskas el at., 2018; Andersson et al., 2015; Paul et al., 2013), while sociologists mostly study on the subjective perception of life satisfaction (e.g. D'Acci, 2021; Nakamura & Managi, 2020; Węziak-Białowolska, 2016; Easterlin et al., 2012; Kahneman & Deaton, 2012).

In general, however, all researchers in various fields have been adopted two main scientific approaches to investigate quality of urban life, as well as quality of life:

1.The first has involved monitoring quality of urban life dimensions through a set of indicators. This method is usually conducted in a specific period of time and based on aggregated spatial data obtained from official sources of municipal or governmental surveys. Objective measures at the city level mostly refer to observable urban-based parameters that are associated to quality of life such as household income, physical environment's quality, pollution levels, housing costs, and other general elements correlated to socio-demographic data.

2. The second approach, instead, is interested in investigating relationships between urban living and inhabitants' subjective assessments of quality of urban life, including their satisfaction level with objective attributes of cities and standard of living condition. The subjective approach usually comprises information collected by way of surveys that provide self-reported perceptions and emotional considerations of individuals regarding interrelated features of the urban environments (Marans, 2012).

Evaluating city performance and residents' quality of life are intertwined, and both the objective capital of a city and individuals' subjective perceptions regarding their living environment are essential. Although, while the policy relevance of the objective city evaluation is broadly acknowledged, subjective measures of well-being are still controversial as an authenticate source for decision-making process. (Gilbert el at., 2016). Consequently, existing city evaluations have been mostly based on objective performance information (Nakamura & Managi, 2020).

Objective quality of life is a comprehensive investigation of the living conditions that urban areas provide for individuals (Liu el at., 2020). It is referring to explicit criteria of cities which is taken by exterior observers. An objective measurement has been utilized generally in connection with the evaluation of spatial and physical elements, for example the influence of land use, urban density, commuting and infrastructures on residents' well-being (Viganó, Grossi & Blessi, 2019). In addition, a relatively large proportion of studies in the field of objective approaches concentrate on quantitative measures and economic-based assessment in which financial indicators outshine all other criteria for investigating well-being in cities.

Study on 'Gross Domestic Product' (GDP), for instance, is one the most common metrics for assessing progress and evaluating urban areas performance. Economic accomplishment—as measured by GDP—is often considered as a primary contributor to national well-being. The widespread practicing of income in many economists' studies about people's well-being probably originate from their reliance

on the basis of 'revealed preference' theory,[7] which assesses what makes an individual better off through they informed choices. However, since this method does not investigate individual priorities and perceptions, the decisions are indirectly appraised according to their impacts on GDP, which reveals significant limitations as an indicator of well-being[8] (Goerlich & Reig, 2020). GDP only assesses marketed economic activity within the country; it does not comprise any interpretation regarding how income is dispersed. it excludes the value of almost all activity that takes place outside the markets and leaves aside various crucial non-market contributors to wellbeing, including social and environmental aspects (Fioramonti, 2017; Costanza et al., 2014; Kubiszewski et al., 2013).

From this point of view, now, it is broadly acknowledged that social development and well-being of a country cannot be evaluated simply by measuring the GDP, since such indicators have been confirmed imperfect in reflecting the real needs, perceptions and priorities of citizens. "*As well-being is a multidimensional concept, its measures should be able to capture not only the economic component of progress, but also the social and the environmental ones*" (Ciommi el at., 2017, p.1). Moreover, researches have shown that beyond a certain point, further improvements in GDP do not lead to an increase in the overall well-being (Kubiszewski, Zakariyya & Costanza, 2018; Kubiszewski et al., 2013).

A distinct comprehension of these shortcomings in investigating quality of urban life and individual well-being from 'objective' indices like income, wealth, and material goods, led scientists to recommend subjective multidimensional measures like subjective well-being to the public community (Bache, 2019).

Inhabitants' satisfaction is a prominent metric in evaluating cities, as efforts to improve city performance eventually influence the quality of life of residents (Nakamura & Managi, 2020). Citizens are active participants in the urban areas who attribute a quality to particular places they live, work and visit for different reasons. Therefore, from the quality of urban life perspective could be significant to measure

[7] Revealed preference, a theory proposed by American economist Paul Anthony Samuelson in 1938, declares that consumer behavior, if their income and the item's price are held persistent, is the best indicator of their preferences.

[8] Classical 'revealed preference' methods presume that decisions and preferences are invariable and consistent, but many studies have found opposing demonstrations against these assumptions both in consumer data and experimental settings. Recent research effort expands far beyond "the axiomatic characterization of neoclassical choice models." New behavioural theories elucidate these variations in a theoretically founded way, considering data consistency and preference recoverability for a wide class of behavioural models (Tipoe, Adams & Ian Crawford, 2021).

not only the advantageous impacts attributed to the existence of objective features, but also the benefits perceived by inhabitants' subjective factors. In this way, it could be practicable to ascertain which type of objective indicators are better comprehended as effective in comparison to the other, from the individual and the social standpoint (Valente, Pasimeni & Petrosillo, 2020).

Furthermore, comprehensive measures of subjective well-being authorize individuals to assess their own outcomes. Hence, subjective measures of well-being might be more beneficial than objective measures, because they take into account personal aims and expectations. As a consequence, researches have shown that individuals with similar levels of well-being as assessed by objective measures may report different outcomes in terms of subjective well-being (Ambrosetti & Paparusso, 2020).

In addition, although, quality of urban life is determined by the circumstances of the urban areas, but it is also strongly related to personal characteristics. Pacione[9] identified quality as "*an attribute not inherent to the environment, but a behavior-related function of the interaction of environmental and personal characteristics*" (Pacione, 2003, p.20). Personal health status, family relationships, job condition and social interactions have a sizeable effect on the standard of living in urban environments (Bernini & Tampieri, 2019). Therefore, an accurate and precise evaluation of this concept will not be done without considering subjective characteristics of individuals.

Since self-perceptions related to the living environment are identified as a very pivotal element for quality of urban life in many studies (e.g. Douglas et al., 2019; Zenker et al., 2013; Insch & Florek, 2010), lately the subjective approach is acknowledged more frequently than the objective approach in this specific field (Moeinaddini, el at., 2020). In the last 20 years the subjective approach has achieved momentum, as this approach can represent appropriate solutions to solve urban problems and improve the subjective well-being of individuals, by evaluating and analyzing residents' opinions about the quality of different parts of a city (Viganó, Grossi & Blessi, 2019; Sørensen, 2014).

Researches have shown that it is possible to gather useful and trustworthy information of subjective measures, as well as objective well-being data. However, it should be noted that subjective well-being encircles various attributes that each of

[9] Michael Pacione

them should be measured separately, to conclude a comprehensive and accurate recognition of individuals' lives (Goerlich & Reig, 2020; Skevington & Böhnke, 2018; Benjamin et al., 2017). Subjective well-being indicators can express influential information about people's quality of life, opening up an extensive range of opportunities to inform theory and policy making. In this respect, it is important to improve our understanding of subjective well-being and shed light on some unresolved puzzles in the context of urban environments (Ahmadiani & Ferreira, 2019).

2.6. Similar Research:

As mentioned earlier, evaluation subjective well-being is a substantial metric in investigating urban environments, since initiatives and corrective measures to improve inhabitants' quality of life ultimately affect the city performance. Assessing subjective quality of life provides an opportunity to compare different cities and urban populations based on various indices of an established common variable (Western & Tomaszewski, 2016).

There are some studies that utilized individuals' subjective well-being indicators along with self-reported evaluation regarding certain features of urban life domains to compare their strengths and weaknesses while assessing the city performance according to analyzed information.

Węziak-Białowolska (2016), for example, investigated different dimensions of quality of urban life in European cities. To this end, self-reported data were gathered from the Flash Eurobarometer 366: Quality of life in European cities. The survey presents perceptions of inhabitants from 79 European cities, which enables study on correlation between resident characteristics, neighborhood and city contexts and satisfaction with life domains in an urban environment. The author considered social, environmental, economic, and institutional features, in addition to the physical elements to inquire satisfaction with the place and quality of urban life. The study examined the relationships between the level of satisfaction in a city and the assessments of citizens regarding the existing living conditions and amenities. The results showed that the level of satisfaction with cultural facilities, public transport, retail outlets, air quality, green space, trust people and public administration is directly associated with quality of urban life.

Likewise, in Moeinaddini el at. (2020) study numerous factors corresponding to quality of urban life were considered in various European cities, and to control multicollinearity, non-parametric analysis techniques were adopted. The data acquired from the Eurostat (2015), collecting information on quality of urban life for citizens in 112 urban areas. The results displayed that from a vast range of considered aspects, five main factors play a significant role in quality of urban life, i.e. satisfaction with healthcare services, feeling safe in the urban environment, satisfaction with the state of streets and buildings in the neighborhood, availability of retail shops, and satisfaction with public transport.

Olsen, Nicholls, and Mitchell (2019) explored the relationship between land cover and land use with quality of life at the urban level, utilizing subjective evaluations from inhabitants in 66 European cities. They discovered that residential land use, isolated structures, roads, pastures, and even herbal vegetation are closely related to life satisfaction. The researchers also found that a more equal distribution and allocation of land use leads to lower socio-economic inequality.

Nakamura and Managi (2020) assessed the effects of subjective and objective city evaluation on life satisfaction in Japan. In the study, the distribution patterns of subjective and objective city evaluation indicators with the average life satisfaction indicator (5-point scale) were compared at the municipality level in Japan. Results showed that while the subjective city evaluation indicator is more positively associated to the life satisfaction indicator at the city level than the objective indicator, the environmental aspect of objective indicators is negatively related to the subjective city evaluation indicator. Furthermore, economic aspects of objective indicators are negatively associated with life satisfaction indicators, with statistical significance. This reveals that objective city evaluation is not always positively linked to subjective city evaluation and life satisfaction.

Ahmadiani and Ferreira (2019) investigated on the relationship between environmental facilities and quality of life throughout the United States. The paper studied the spatial variation in subjective well-being across the United States. The authors matched individual-level survey data from the 'Behavioral Risk Factor Surveillance System' (BRFSS) that comprises a life satisfaction question, to county-level local facilities between 2005 and 2010. The findings of study indicated that life satisfaction varies widely across U.S. counties, which implies that housing price and wage differences are not completely compensating for disparities in amenities across locations. The results also exhibited that regional features including climate,

geography, environmental externalities, and other local public goods, illustrate a sizable proportion of this variation, stressing the value of environmental management across space.

A growing interest in quality of urban life fields now surpasses the academic world. Today, institutions, organization and even governments from all over the world concentrate on the concepts of well-being and quality of urban life, in order to assess the performance of cities.

The WHO, for instance, in view of acknowledging the urgent need to establish a quality of life measurement with intra-cultural validity, developed WHOQOL: a pilot project elaborated in 15 research centers worldwide, which led to the identification of 6 main dimensions and various features which determine an individual's quality of life. These items are summarized in WHOQOL-100 and provide a practical approach for the evaluation of quality of life (Table 1).

In addition, European Union puts quality of urban life policies at the center of attention of its strategies to improve economic, social cohesion and reduce the risk of social polarization and segregation (European Commission, 2011; Goerlich & Reig, 2020). The European Union established a statistical office named 'Eurostat' that is responsible for publishing high-quality Europe-wide statistics and indicators to enable comparisons between countries and regions in terms of various life domains including quality of life. This center develops harmonized definitions, classifications, standard questionnaires and methodologies to analysis aggregate data and represent the level of quality of life and subjective well-being within cities and countries.

A few other organizations and studies also assess and rank cities worldwide in reference to the level of quality of life. The values and standards of the quantitative and qualitative indicators describing an urban environment under sustainable development and its quality of life are usually calculated for appraising the city.

'The European Green City Index' methodology composed of three stages (Siemens, 2012): data gathering; indicator normalization; and index construction. A similar three-stage methodology also applies to the 'Monocle's Quality of Life Survey'[10] (Wien.at, 2016), 'Mercer's Quality of Living Ranking' (Mercer, 2016), the 'EIU's

[10] Monocle's Quality of Life Survey utilizes 11 indicators including safety/crime, medical care, climate, international connectivity, public transportation, quality of architecture, environmental issues and access to nature, urban design, business condition, pro-active policy development and tolerance (Monocle's quality of life surveys, Wien.at, 2016).

Global Livability Ranking' (Conger, 2015), and 'NUMBEO'[11] (Numbeo, 2015, 2016) which are systems for assessing the 'Quality of Life Index' (QLI)[12] (Conger, 2015).

Table 2. *Life domains which determine the quality of life according to the WHO*

Domain	Facets contributed to quality of life
1. Physical health	Energy and fatigue Health and social care: accessibility and quality
2. Psychological	Mental health Thinking, learning, memory and concentration
3. Level of Independence	Activities of daily living Dependence on medicinal substances and medical aids Work capacity
4. Social Relations	Personal relationships Social support
5. Environment	Financial resources Freedom, physical safety and security Home environment Opportunities for acquiring new information and skills/recreation/leisure Environmental characteristics (pollution/noise/traffic/climate) Physical infrastructures
6. Spirituality	Personal beliefs, Religion

Source: WHO, 2004 (own elaboration)

[11] NUMBEO survey benefits 8 indices to achieve its aims: Purchasing power index, Pollution, House price to income ratio, Safety, Health care, Traffic commute time and Climate index (Quality of life index, NUMBEO, 2015,2016).

[12] The Quality of Life Index (QLI) is an estimation of the overall quality of life by using an empirical formula that takes into account several different indexes.

The Economist Intelligence Unit (EIU) Global Livability Index has 30 livability variables classified into five categories: infrastructure, stability, education, culture and environment, and healthcare (EIU 2016). Similarly, Mercer Quality of Living Index is practiced to compare urban areas on the basis of livability or living standards using a city ranking survey. It is estimated utilizing 39 factors that are sorted in 10 various classifications. The importance of each factor is determined by including the scientists' ideas. The most important parameters are political and social environment, public services and transportation, economic environment, consumer goods, socio-cultural environment, health and sanitation, schools and education, recreation, housing, and natural environment.

'Civilizing Cities' and 'The International Living Magazine' also developed a comprehensive indicator framework consisting various variables to assess city development and compare urban environments with each other. In these investigating systems the efficiency of a city and the quality of urban life are evaluated in terms of an aggregate score combining various performance results of environmental, social, and economic components (Berardi, 2013; Scerri & James, 2010).

Such evaluations and surveys are the foundation of establishing city preferences, public investment and decision-making process for the urban development. The findings of researches like these constitute a beneficial source for steering economic, social and spatial development in cities, since they enable authorities to see areas of opportunity, anticipate scenarios, identify priority issues for the management and analyze how cities are facing their challenges.

2.7. Conceptual Framework:

Evaluation quality of urban life is a complex process of cause and effect, interconnected at various scales and intricate relationships that need to be considered through innovative techniques like conceptual framework.

Researchers and Scientists from diverse disciplines agree that a conceptual framework consisting of influential variables is a critically important component for this specific field. They believe that the complicated interdependence between the characteristics of urban environments at different scales and residents' subjective well-being is certainly difficult to investigate without a theoretical framework to guide the process (Marans, 2012). Nonetheless, there is a noticeable dearth of shared

understanding regarding the functions of a comprehensive conceptualization of reasonable pathways between the urban life domains and subjective well-being which impedes the ability to design effective conceptual frameworks.

Previous studies have recommended conceptualizations that do not thoroughly cover the variety of relevant pathways. Moreover, as new demonstrations regarding the relationship between the built environment and subjective well-being are constantly being produced, there is a need for the revised incorporation of empirical evidences and further exploration through designing a practical conceptual framework (Mouratidis, 2021; Glebova & Khabibrahmanova, 2014).

A conceptual framework is normally utilized to represent the main pillars of research, effective subset variables and the relationships between them that need to be studied. It links the key concepts and important domains that are critical for promoting and systemizing the knowledge gathered in the course of the study.

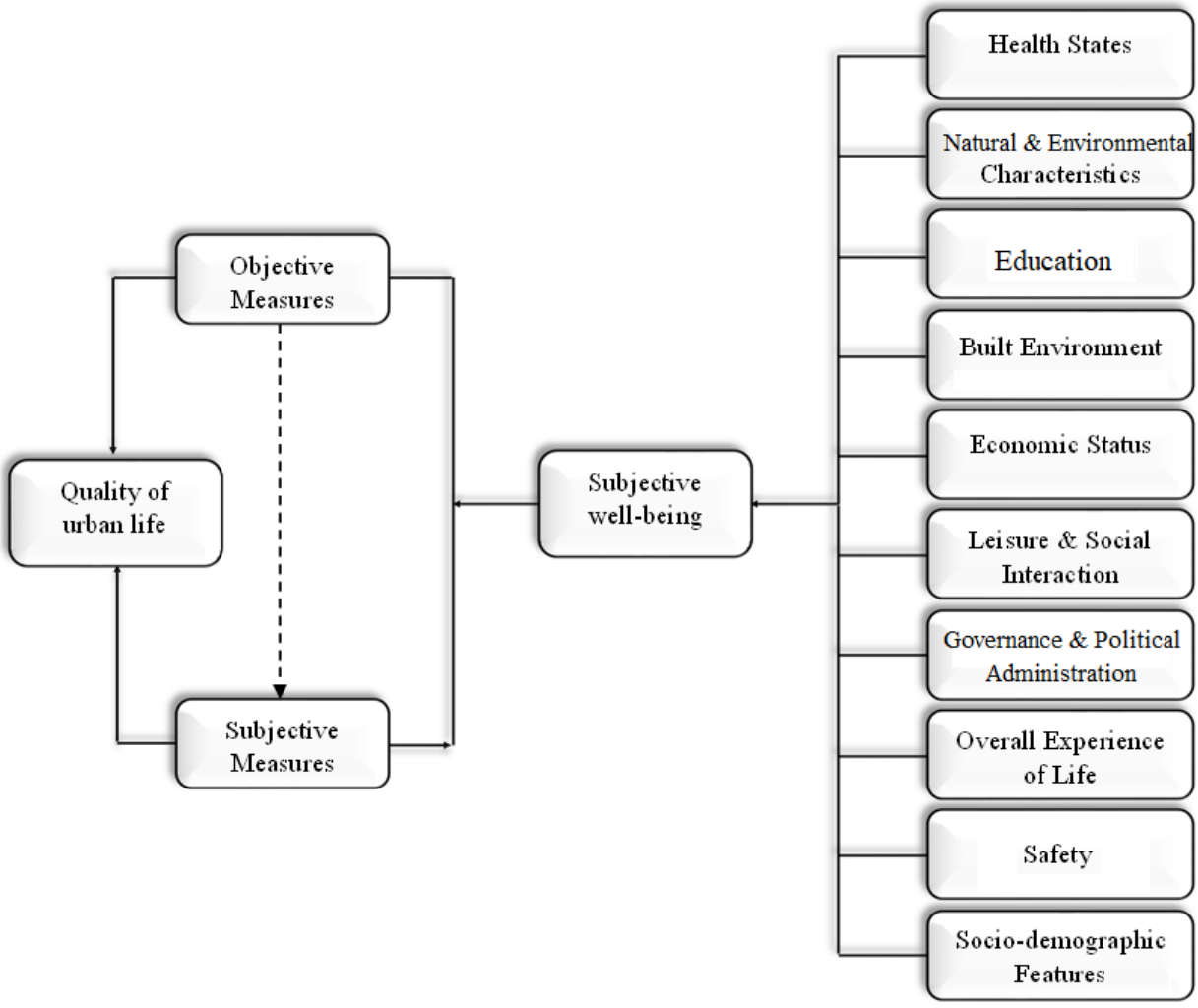
Zenker et al. (2013) for instance, established a conceptual framework of citizen satisfaction including four distinct dimensions: 1) urbanity and diversity, 2) nature and recreation, 3) job opportunities, and 4) cost-efficiency. These components are aggregated to construct the "Citizen Satisfaction Index (CSI)". Zenker et al. (2013), find that 'urbanity and diversity' which includes characteristics such as a broad range of opportunities for daily activities like cultural events and shopping, has the strongest impact on citizens' satisfaction. 'Nature and recreation', characterized by low environmental pollution and open green spaces, also has a positive effect on inhabitants' satisfaction. In contrast, 'job opportunities' and 'cost-efficiency' have no direct influence on citizens' satisfaction, though they affect the aforementioned factors that do have a direct impact. Additionally, Zenker et al. (2013) indicate that these four satisfaction factors are highly related to the decision-making process of where to live.

As mentioned earlier, quality of life is a multidimensional concept—includes objective and subjective components—that the study of which at the city level requires the investigating on the urban-based features. The features such as physical features, personal features, socio-cultural features, natural and environmental features, and institutional features that the quality of each of them is a vital part in forming overall quality of urban life (see Figure 2).

In the framework, quality of urban life features is distinguished into objective and subjective measures which have been elucidated in detail earlier. Although the study approach is exclusively based on subjective measures and self-perceived assessment

of inhabitants about standards of living, city environment and related policies, the proposed dimensions in the conceptual framework of this study are selected according to their generality and strong but indirect relationship with objective indicators. For this reason, in the framework the connection between subjective and objective measures is displayed in dotted line (Figure 4).

Figure 4. *Research Conceptual Framework*



Source: Author, 2021

Broad adopted classification in the framework helps to distinguish different life aspects based on the extent to which circumstances fulfil goals and needs of the individual or the quality of objective conditions that define the domain. In addition, the ten proposed influential dimensions of urban living environment in the conceptual framework—which have their own relative sub-dimension—have been basically taken from the information and standpoints of Eurostat although they have been slightly modified for the purposes of the study.

The framework, as a whole, indicates that inhabitants' self-perceived satisfaction level regarding certain features of urban area and living condition significantly contribute to their subjective well-being. It also states that subjective evaluation can be a practical and beneficial measure for assessing the performance of cities and investigating quality of urban life.

Chapter 3

3.1. Research Strategy and Approach

The main objective of the study is to enlighten the influence of certain significant dimensions and variables of urban life on inhabitants' subjective well-being, in particular for assessing and improving the quality of life across six cities of Italy. To achieve this purpose, an effective approach should be utilized to investigate quality of urban life.

Although the quality of urban life is a heterogeneous phenomenon, some general agreement through disciplines of its features can be discovered. One of the most significant characteristics of quality of urban life is its inherent duality, which outlines two fundamental approaches (i.e., subjective and objective measures) to study the performance of urban environments (Andráško, 2013). Therefore, quality of urban life is regularly evaluated based on subjective self-assessment or objective proxy indicators that cover the significant domains of urban living since it is not possible to directly measure and quantify this concept. (Macku el at., 2020)

As previously mentioned, objective and subjective city evaluations have coexisted in publications of different related categories, using both objective and subjective indicators, but the relationship and correlation between them is still a controversial issue. There is an integrated knowledge focusing on the distinction between objective and subjective indicators in empirical researches associated with quality of life domains. Some studies indicated that there is no substantial correlation between them, while others assert that social and economic circumstances measured by objective variables are affiliated with subjective quality of life indicators.

In a methodological contribution, Nakamura and Managi (2020), as well as Maggino and Ruviglioni (2008) pointed out two different perspectives that have reviewed the issue of integrating objective and subjective measurements in the context of quality of life evaluation. The first declares that subjective quality of life indices at the macro level depends on objective indicators of living conditions and certain factors such as economic status and social relationships play a vital role for residents' happiness or subjective well-being (Ikeda et al., 2017). Following this perspective, objective indicators can be interpreted in terms of contextual conditions that might determine the subjective indicators.

In contrast, the second standpoint states that objective and subjective indicators are independent and the correlations between objective characteristics of life and relevant self-perceived satisfaction level are often weak. According to this

perspective, even though objective indicators demonstrate considerable variation among individuals, self-perceived quality of life may not be different.[13]

The lack of correlation between subjective and objective evaluation of quality of life does not mean that one of these measures are less reliable, as is commonly presumed. However, it is more beneficial for these two approaches to operationalize as independent investigation strategies but in indirect relation to each other.

Experimental studies have demonstrated that in certain specific areas such as quality of urban life the subjective approach can provide more useful and accurate outcomes than other measures. In the studies on quality of life by Evans and Huxley (2002), in addition to, Nakamura and Managi (2020) the authors deduce that objective indicators do not greatly influence subjective quality of life and subjective measures are better predictors of overall life satisfaction at the city level that can be considered as the important component to improve the conditions of urban areas (Chiarini el at., 2021).

From this point of view, subjective approach is an inherently valuable perspective as it improves understanding of how individuals perceive and experience urban living, irrespective of their reasoning.

In this respect and according to the purposes of the study, the subjective approach has been utilized to evaluate the inhabitants' quality of life and compare the performance of urban areas in six cities of Italy.

3.2. Revised Research Questions

3.2.1. Main Question

To what extent urban quality of life dimensions affect subjective wellbeing in Italy?

[13] The loose connection between objective life characteristics and subjective quality of life is partially interpreted by several mediating processes of adaptation or 'response shift', positive cognitive bias, and homeostasis theories. Homeostasis theories clarify why a person's quality of life varies over time based on objective life events (e.g., moving house and divorce) but incline to recover an equilibrium level of satisfaction. An evolutionary perspective is adopted where homeostasis is considered adaptive because it permits normal functioning, except when significantly adverse circumstances happen and it is adaptive to feel discontented as a motivation to enact change (Cummins, 2000). In this respect, homeostasis theories assert low correlations between subjective quality of life and objective life events.

3.2.2. Sub-Questions

1. What effect do natural and environmental characteristics have on subjective well-being in urban area?

2. How does the quality of the built environment improve subjective well-being in cities?

3.How dose social interaction can alter subjective well-being in urban environment?

3.3. Operationalization: Variables and Indicators

The first step toward investigation subjective quality of urban life is to determine the indicators that will be used to assess city performance. Based on the conceptual framework of the study, research variables are categorized into three types named dependent variable, independent variables, and control variables.

3.3.1. Dependent variable: Subjective well-being

Quality of life is a multi-dimensional concept which is inherently subjective even if it is often practical to find objective proxies for measure it. In this regard, there is a general conceptual agreement that subjective well-being is a significant ramification in the quality of life academic context (Marans, 2015, p. 50).

In this study, the dependent variable is inhabitants' overall subjective well-being regarding to standard of living, urban environment and related policies. High levels of subjective well-being are the results of the interplay of social, economic and environmental aspects that in cooperation provide satisfaction with life. The level of subjective well-being in a city is measured based on the percentage of residents' satisfaction rating as a response to various questions about 22 different urban-related indicators that were originally identified to represent nine domains of urban living (Table 3).

As the dependent variable of the study, subjective well-being is investigated by a question regarding to self-perceived satisfaction level with life in a city. Consequently, the terms 'satisfaction with life in a city' or 'resident subjective well-being' are utilized henceforward as counterparts of urban quality of life. Respondents expressed their agreement with the statement 'I am satisfied with life in [city name]' using the four-point scale arrangement named 'strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree' which is represented in the format of percentage points.

Table 3. *Study Variables and Indicators*

Variable	***Concept***	***Indicators***
Dependent Variable	*Subjective well-being*	
Independent Variables	*Health*	*a. Health care services, doctors and hospitals*
	Natural and Environmental Characteristics	*a. Quality of air* *b. Noise level* *c. Cleanliness* *d. Greenspaces such as parks and gardens*
	Built Environment	*a. Public transport* *b. Neighborhood* *c. Public spaces such as markets, squares and pedestrian areas*
	Economic Features	*a. Personal job situation* *b. Financial situation of household* *c. Possibility to find a good job*
	Leisure & Social Interaction	*a. Sport facilities such as sport fields* *b. Cultural facilities such as museum, theaters, concert halls and libraries*
	Overall Experience of Life	*a. The life you lead*
	Governance & Political Administration	*a. Amount of time to solve problems by local public administration* *b. The fees charged by local administration* *c. Online access of information and services of local public administration* *d. Corruption in local public administration*
	Education	*a. Schools and other educational facilities*
	Safety	*a. Most people can be trusted in the city* *b. Feeling safe walking alone in night in the city* *c. Feeling safe walking alone in night in the neighborhood*

Source: Author

3.3.2. Independent Variables

The subjective state of satisfaction in the urban areas depends on various environmental factors and objective city features associated with quality of urban life. Therefore, in order to measure the subjective quality of life it is important to have a set of suitable subjective social–environmental indicators that are highly corresponded with the complementary objective characteristics of life domains to capture all the well-being components as study independent variables. The independent variables quantified inhabitants' self-assessed opinion about all the significant features of urban life such as the availability and quality of services and facilities in a city, environmental features, along with social aspects of urban living and the condition of institutions. Although, in this study, due to data limitations, analysis of economic factors at the individual level are indirectly assessed based on its effects on subjective well-being.

Focusing on urban living features, participants are asked to give their point of view regarding to the following life domains in the study that each of them has its own subset variables as was presented in Table 3.

3.3.2.1. Health

The conception of health as "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*"[14] is bidirectionally associated with all dimensions of the individual life including subjective well-being. Poor physical and mental health state might affect the general progress of society and create detrimental consequences on individuals' overall well-being.

In addition to interacting genetic and social issues, health status is directly related to environmental and medical factors. Therefore, exclusively in urban environments and during the public health crisis time like current COVID-19 pandemic, the importance of the accessibility and quality of healthcare facilities play a vital role on good health condition and subsequently well-being of individuals.

[14] WHO

3.3.2.2. Natural and environmental characteristics

Properties and characteristics of the environment may inspire particular influences on human beings and other organisms. Natural and 'environmental characteristics' is a general term which can regard to various characteristics such as air quality, water pollution, noise level, urban green space, and the visual effects of local living environment. Environment-related indicators are indispensable features that need to be taken into consideration because any problem due to the self-assessment of environmental parameters can impair overall well-being, individuals' health condition and the economic prosperity of societies.

3.3.2.3. Built environment

Built environment relates to the physical human-made surroundings that provide the setting for human activity, ranging in scale from buildings, transportation networks, neighborhoods and cities that can often include their supporting infrastructure. (Roof & Oleru, 2008). The built environment can contribute to well-being through paths that mostly correspond to life domains such as work, social relationships, leisure, health, and affective experience. Therefore, it is crucial to investigate how the built environment influences quality of life as an important predictor of subjective measures of well-being and development factor of urban areas.

3.3.2.4. Economic features

Work condition is one of the main determinants of life domains since job satisfaction is directly related to both income and quality of life. The level of satisfaction with work is highly correlated to residents' overall sense of well-being which can be a conducive factor to a variety of positive individual, organizational, and societal advantages (Böckerman & Ilmakunnas, 2012). A steady, reliable income is fundamental to people's feeling of security and better economic status is associated with several desirable results, such as increased life expectancy, reduced malnutrition, and lower infant mortality. In addition, income and good financial status of household help individuals to respond certain basic needs regarding to material living condition like decent shelter, sufficient food, proper nutrition, clothing, education attainment, and sanitation which ultimately can associate positively with subjective well-being and welfare.

3.3.2.5. Leisure and social interaction

Social interactions and activities with others (frequency of social contacts and satisfaction with personal relationships) and for others (volunteering in informal contexts), the potential to receive social support and social cohesion (trust in others) conventionally rated greatly influential when subjective well-being is evaluated. Although this domain seems strictly private, it is influenced by the leisure and recreation facilities of the community, the efficiency of transportation (which involves leisure time), social infrastructures, and so on.

Leisure is gradually being acknowledged as a significant standard for the quality of life in modern societies. It is also viewed as a measure for personal freedom, participation in social life and the overall well-being of inhabitants. Leisure activities refer to all the actions performed for pleasure or personal growth such as physical exercise and sports, cultural activities, hobbies, nature visits, and short trips that could be influenced by the place where one lives. The availability, quality, and accessibility of options in close proximity can have a considerable impact on pursuing leisure activities and consequently subjective well-being.

3.3.2.6. Overall experience of life

Subjective experience of the life is related to a judgmental process in which individuals evaluate the quality of life by means of their own unique set of standards. It indicates the extent to how people assess the quality of their experiences in terms of positive and negative emotional reactions to life events, considering both affective appraisal and cognitive assessment. The quality of personal experiences of individuals in urban areas is one of the most effective factors on influencing their level of subjective well-being. The way residents experience or interact with the objective attributes and social opportunities of their surroundings affect personal behaviors and standpoints regarding to overall life they lead.

3.3.2.7. Governance and political administration

Another issue which relates to the association between urban living and subjective well-being of individuals is the role of political institutions and quality of governmental services. It has been proved that democratic municipal organizations and governmental institutions have beneficial impacts on the socio-political and

personal level. Local and national institutions provide guidelines and instructions in order to harmonize standard of living and improve quality of life.

Decision makers and local administration can contribute through their policies to achieve a higher level of subjective well-being. Although personal quality of life relates mostly to the elements which concern private life, policies can alter the context of daily life, formulating the circumstances in which overall well-being and satisfaction can develop in every level.

3.3.2.8. Education

Education has been a prominent relevant policy across governments all over the world. Providing education is not only one of the universal human rights, but also a systematic way in the economic development of a nation. The importance of education could be justified as an increase in human capital, that lead to the increase of productivity and There is a wide array of literature demonstrates that the investment in education could lead to the development of economic in macro level. Individually, the level of diversity of and accessibility to opportunities for educational attainment may in turn contribute to subjective well-being through the possibility to have better job opportunities, healthier lives, more accomplishment in social life, and increase earning (Glaeser, 2011; Oreopoulos & Salvanes, 2011).

3.3.2.9. Safety

Safety demands reflect order and predictability in the living environment and the human desire for security and protection. The feeling of being physically safe is a pre-requisite to well-being that intrinsically influence an individual's health and productivity. The perception of insecurity and lack of control to manage living circumstances has profound implications for residents, causing stress and social isolation, which produce dramatic negative impact on individuals' subjective well-being.

Residents' satisfaction level regarding to each independent variables and selected urban life domain is measured by the analyses on the data that is derived from various questions in four-point scale formation (Table 3).

3.3.3. Control Variables

Subjective well-being is shaped by societal characteristics, environmental factors and latent variables of personal features and socio-demographic characteristics. Individuals have a certain number of attributes that can alter their subjective well-being in the field of urban environments by different means (Vanhoutte et al., 2019). In this respect, the study utilizes age, gender, education status, health condition, household composition, and current work status as its control variables (Table 4).

Although personal characteristics are measurable, personal traits like agreeableness, conscientiousness, extraversion, and neuroticism so forth are not. In this respect, as mentioned before, the study does not consider individuals' personality since these values such as, are moderators of the link between the built environment and subjective well-being, and not mediating pathways.

Table 4. *Socio-demographic characteristics as study control variables*

Variable	***concept***	***indicators***
Control variables	Socio-demographic characteristics	a. Age b. Gender c. Education status d. Health condition e. Household composition f. Current work status

Source: Author

Table 5. *Independent variables: wording of questions, answer categories, range*

Independent variables	Categories/Range
Health 1. Health care services, doctors, and hospitals ***Natural and Environmental Characteristics*** 1. Green spaces such as parks and gardens 2. The quality of the air 3. The noise level *4.* Cleanliness ***Built Environment*** 1. Public spaces such as markets, squares, pedestrian areas 2. Public transport, for example the bus, tram or metro 3. The neighborhood where you live ***Leisure & Social Interaction*** 1. Sport facilities such as sport fields and indoor sports halls 2. Cultural facilities such as concert halls, theatres, museums, and libraries ***Education*** 1. Schools and other educational facilities	a. Very unsatisfied b. Rather unsatisfied c. Rather satisfied d. Very satisfied
Economic Features 1. It is easy to find a good job in my city 2. Your personal job situation 3. The financial situation of your household ***Overall Experience of Life*** 1. The life you lead	a. Not at all satisfied b. Not very satisfied c. Fairly satisfied d. Very satisfied
Governance & Political Administration *1.* The amount of time it takes to get a request solved by my local public administration *2.* The fees charged by my local public administration are reasonable *3.* Information and services of my local public administration can be easily accessed online *4.* There is corruption in my local public administration ***Safety*** 1. Feel safe walking alone at night in my city 2. Feel safe walking alone at night in my neighborhood 3. Most people in my city can be trusted	a. Strongly disagree b. Somewhat disagree c. Somewhat agree *d.* Strongly agree

Source: Author

3.4. Data Collection and Sample Size

The information in the study is based on secondary data of 2019 survey by the 'European Commission' named 'Perception Survey on the Quality of Life in European Cities'. The survey was conducted on behalf of the 'Directorate-General for Regional and Urban Policy' to explore the self-perceived opinion about different dimensions of urban environment.[15]

The survey covers all capital cities in the countries concerned, together with between one and six extra cities in the larger countries. It focuses on quality of life, showing how satisfied people are with various aspects of urban life, such as employment opportunities, public transport, and pollution in their cities. Questions and data are designed to be comparable with surveys conducted at national level.

The target sample size of the study is 700 complete phone-based interviews in six cities of Italy including Bologna, Naples, Palermo, Roma, Turin, and Verona. The interviews were gathered from 4200 respondents in total, comprises all people aged 15 and over who: [i] are a resident of the city surveyed; [ii] have sufficient command of (one of) the respective national/regional language(s) or English, which allows them to comfortably answer the questionnaire; [iii] live in a private household, which means that the target population excludes prisoners, residents of retirement homes, etc. who are difficult to reach via a telephone survey.

3.5. Data Analysis Method and Measures

As mentioned earlier, research on the relationship between subjective well-being and influential factors of urban living is a challenging task that requires a useful approach to study on the different disciplines of quality of urban life. Furthermore, the study needs an appropriate data analysis method to investigate the self-reported satisfaction level of individuals and determine the performance of the selected cities in terms of the quality of the urban life.

In this study subjective well-being is a dependent variable which has an ordered outcome on the scale of 1 to 4 ('strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree') as a satisfaction level regarding to various domains of urban living. Due to this fact that the dependent variable is categorical

[15] The survey was conducted by IPSOS between 12 June and 27 September 2019, with a pause between 15 July and 1 September.

and ordered, an 'Ordered Logistic Regression statistical model has been chosen to analyze the relationship between a dependent variable and independent variables by the STATA computer software.

3.5.1. Model for Logistic Regression Analysis Method

The logistic regression method is used to examine the relationship between dependent variable and the independent variables.

1. In the ordered logit model, there is an observed ordinal variable, Y.

2. Y, in turn, is a function of another variable, Y*, that is not measured.

a. In the ordered logit model, there is a continuous, unmeasured latent variable Y*, whose values determine what the observed ordinal variable Y equals.

b. The continuous latent variable Y* has various threshold points. (κ is the Greek small letter Kappa.) The value of observed variable Y depends on whether or not have crossed a particular threshold. For example, when M = 3

$Y_i = 1$ if Y^*_i is $\leq \kappa_1$

$Y_i = 2$ if $\kappa_1 \leq Y^*_i \leq \kappa_2$

$Y_i = 3$ id $Y^*_i \geq \kappa_2$

For example, it might be that if the score on the unobserved latent variable Y* was 37 or less, the score on Y would be 1; if the Y* score was between 37 and 53, Y would equal 2; and if the Y* score was above 53, Y would equal 3.

Put another way, you can think of Y as being a collapsed version of Y*, e.g. Y* can take on an infinite range of values which might then be collapsed into 5 categories of Y.

3. Y* estimates model:

a. In the population, the continuous latent variable Y* is equal to

$$Y*_i = \sum_{k=1}^{k} \beta_k X_{ki} + \varepsilon_i = Z_i + \varepsilon_i$$

that there is a random disturbance term, which, in this case, has a standard logistic distribution (mean of 0 and variance of 3.29; a N(0, 1) distribution is also often used). This reflects the fact that relevant variables may be left out of the equation, or variables may not be perfectly measured.

b. The Ordered Logit Model estimates part of the above:

$$Z_i = \sum_{k=1}^{k} \beta_k X_{ki} = E(Y * i)$$

c. Because of the random disturbance term, the unmeasured latent variable Y* can be either higher or lower than Z.

d. The K βs and the M-1 κs are parameters that need to be estimated. Follow by using the corresponding sample estimates for each case the compute

$$Z_i = \sum_{k=1}^{k} \beta_k X_k$$

There is no intercept term and could use the estimated M-1 cutoff terms to estimate the probability that Y will take on a particular value.

4. Hence, using the estimated value of Z and the assumed logistic distribution of the disturbance term, the ordered logit model can be used to estimate the probability that the unobserved variable Y* falls within the various threshold limits (Williams, 2021).

3.6. Reliability and Validity

The high level of accuracy and consistency of research data and measures is a precondition factor for presenting analytical findings in the case of explanatory studies. The current research is a deductive and theory driven research. It is relying

on the postulate that certain features of urban living are the major predictors of individuals' subjective well-being.

The study is based on individuals' self-perceived satisfaction level regrading to proposed domains of urban living which have been basically derived from the information and standpoints of 'Eurostat' organization although they have been slightly revised to be more coordinated with the purposes of the study. Each of these life domains has their own related sub-set that have been extracted from secondary data of 2019 'Perception Survey on the Quality of Life in European Cities' as the independent variables of the study. The independent variables are selected according to their generality and strong association with objective indicators of urban environment and residents' subjective quality of life. Well-established relationship between independent indicators and dependent variable (i.e. Subjective well-being) presents the cogency of the study and consequently enhances internal validity of the research.

Apart from dealing with the coherence of the research, validity also focuses on credibility of data collection instruments to analyze data and present proper outcomes with minimum errors. The questionnaire and surveillance measures taken by the 'IPSOS' agency as an authentic organization provide a reliable database that can easily be generalized and hence supportive of generalization of the research findings. Therefore, Since the research gathers data from reliable sources and questionnaire prepared for gathering subjective measures are taken reference from an eligible organization, there is increased chances of accuracy and consistency by which variables are measured and consequently it adds to reliability of the research.

Chapter 4

4.1. General Statistics of the Case Study: Italy

Italy is located in the middle of the Mediterranean Sea, in Southern Europe. The country is divided into three major regions: The north Italian Plain and the Italian Alps (continental); the peninsula south of the plain (peninsular); and Sardinia, Sicily, and numerous smaller islands (insular). There is a sharp division in temperament, traditions, and economic conditions between Italians living in developed northern and central regions which are dominated by private companies, and those living in the less developed, welfare-dependent, agricultural South. The city of Rome marks the boundaries between the two parts of the mainland.

According to population statistics, Italy is the third-most populous member state of the European Union with over 60 million inhabitants. In 2020, 71.04 percent of the total population lived in 46 cities of Italy and 28.96% of people lived in rural areas (O'Neill, 2022). This fact demonstrates that the condition and performance of cities in various regions of Italy are fundamental to achieve the high levels of overall quality of life in this country (Navarro, D'Agostino & Neri, 2020).

Based on the published statistics by the OECD[16] organization in 2022, Italy performs well across a number of quality of life dimensions relative to other countries in the 'Better Life Index' (OECD, 2022). This country outperforms the average in health, work-life balance and civic engagement. On the contrary, Italy underperforms average in income, employment, education, environmental quality, social connections and life satisfaction.

The average 'household net-adjusted disposable income[17]' per capita is 29 431 USD a year, slightly lower than the OECD average of 30 490 USD a year. In terms of employment, about 58% of people aged 15 to 64 in Italy have a paid job, below the OECD employment average of 66%. In addition, the percentage of the labour force that has been unemployed for a year or longer is currently at 4.8%, much higher than the OECD average of 1.3%(OECD,2020).

In Italy, 63% of adults aged 25-64 have completed upper secondary education, lower than the OECD average of 79%. In terms of health, life expectancy at birth in Italy is around 84 years (86 for women and 81 for men), three years higher than the OECD

[1] The organization for 'Economic Co-operation and Development' (OECD) is an international organization in which governments work together to find solutions to common challenges, develop global standards, share experiences and identify best practices to promote better policies for better life.

17 Household net adjusted disposable income is the amount of money that a household earns each year after taxes and transfers. It represents the money available to a household for spending on goods or services.

average of 81 years. Furthermore, almost 73% of people in Italy reported to be in good health, above the OECD average of 68%(OECD,2020).

The level of atmospheric PM2.5 – tiny air pollutant particles small enough to enter and cause damage to the lungs – is 15.9 micrograms per cubic meter, above the OECD average of 14 micrograms per cubic meter. In Italy, 77% of people say they are satisfied with the quality of their water, lower than the OECD average of 84%. Concerning the public domain, there is a moderate sense of community and high levels of civic participation in Italy, where 89% of people believe that they know someone they could rely on in time of need, less than the OECD average of 91%. In the context of the general satisfaction with life on a scale from 0 to 10, Italians gave it a 6.5 grade on average, lower than the OECD average of 6.7 (OECD,2020).

Along with the statistical evaluations of the OECD, 'Numbeo[18]' information regarding quality of life in Italy indicates that, this country is at the moderate level in terms of overall satisfaction with life.

Table 6. *The status of quality of life variables in Italy according to Numbeo (2022)*

Index	Category/Level
Purchasing Power	Low
Safety	Moderate
Health care	High
Climate	Very High
Cost of living	Low
Property Price to Income Ratio	Moderate
Traffic Commute Time	Low
Pollution	Moderate
Quality of Life (Overall)	Moderate

Source: Author, 2022

In addition to institutional assessments and organization reviews, many scientists and researchers have studied on the quality of life in Italy in the past years (e.g., Laureti, Costantiello & Leogrande, 2022; Ugolini et al., 2021; Bonanno, D'Orio b

[3] Numbeo is one of the world's largest cost of living database. It is also a crowd-sourced global database of quality of life data: housing indicators, perceived crime rates, healthcare quality, transport quality, and other statistics.

& Lombardo, 2020; Cocozza, 2020; Valente, Pasimeni & Petrosillo, 2020; Viganó, Grossi & Blessi, 2019; Calcagnini & Perugini, 2018; Bernini & Tampieri, 2017; Bertolini & Pagliacci, 2017; Ciommi el at., 2017).

A common finding in all the studies that have analyzed the quality of life is that self-reported satisfaction with life varies widely across space. This is the case for international comparisons and regional investigations of quality of life within the same country. In all the cases, the 'null hypothesis[19]' of equality of well-being across areas is rejected, casting doubt on the existence of an interurban spatial equilibrium of strict equality of utility (Glaeser et al., 2016; Goetzke & Islam, 2016; Oswald & Wu, 2011). Respectively, previous studies highlighted that some of the dimensions of life satisfaction, such as the environmental quality, education, safety conditions, the dynamism of the labor market, and the cohesion and civic engagement of communities, are strongly dependent on the context in which the individual lives (Ballas, 2013) and normally are not evenly distributed across space.

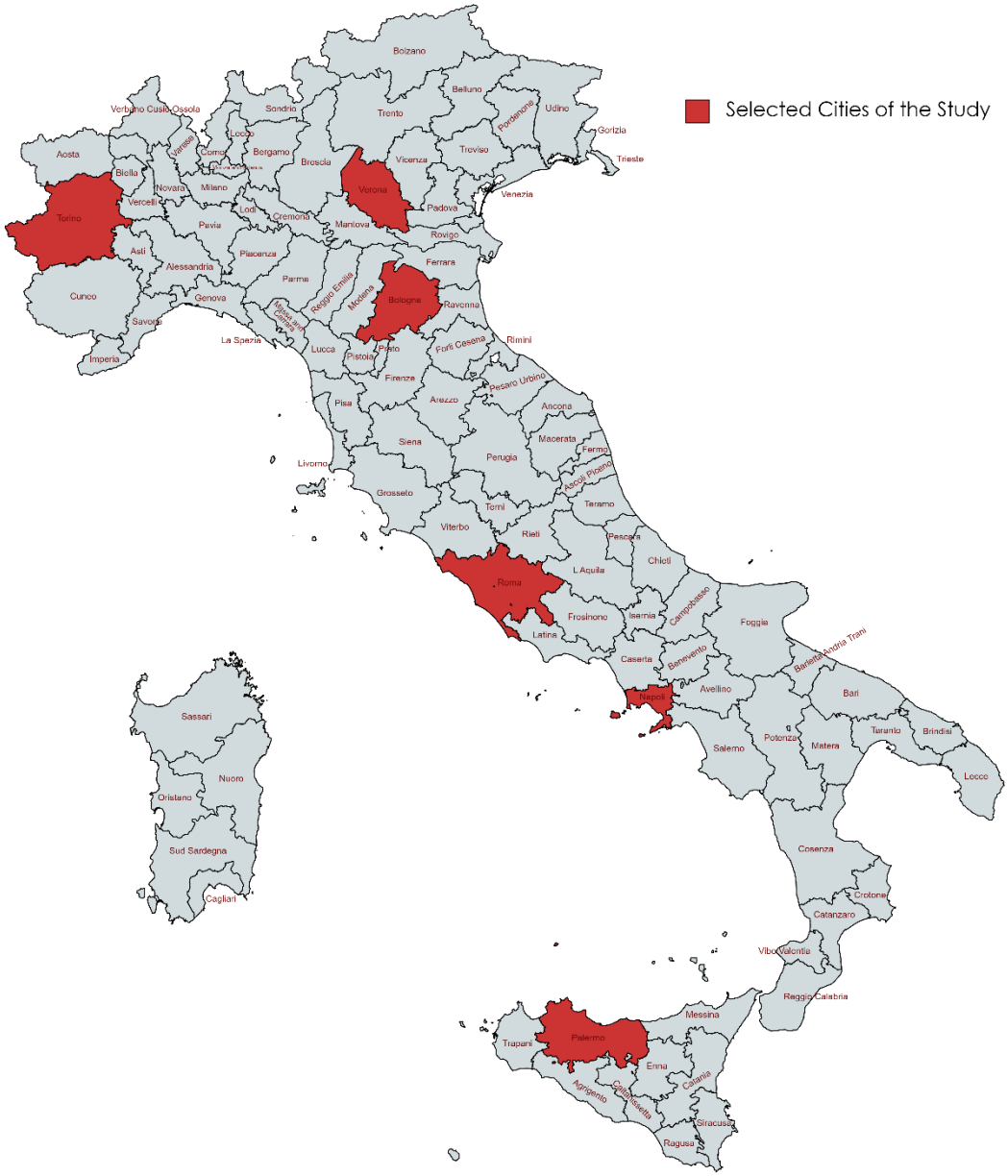
Therefore, in the case of Italy which is characterized by significant socio-economic differences between northern and southern regions this issue can cause considerable differences between these Italian provinces in terms of life satisfaction (Bonanno, D'Orio & Lombardo, 2020; Calcagnini & Perugini, 2018; Ciommi el at., 2017).

As noted in a research undertaken at Italian national level, individuals living in the northern and Center regions show a higher satisfaction level with life compared to urban dwellers of southern regions. This spatial gap it also reported by the Italian National Statistical Bureau – ISTAT, which explains the difference referring to the quality and quantity of public and welfare services provided at local level, the educational opportunities, the employment rate, and generally the weakness of the private sector in terms of investment and production in Central and Southern Italy (Valente, Pasimeni & Petrosillo, 2020; Viganó, Grossi & Blessi, 2019; Giovannini & Rondinella, 2012; Floridi et al., 2011; Segre et al., 2011;).

In this sense, instead of doing an unscrupulous investigation on the general statistics of the whole country, the study attempts to provide a more accurate evaluation regarding quality of urban life by utilizing a comparative assessment on six cities (i.e., Bologna, Turin and Verona in the north, Rome in the center and Naples and Palermo in the south) in different geographical parts of Italy (Figure 5).

[19] A null hypothesis is a type of statistical hypothesis that proposes that no statistical significance exists in a set of given observations. Hypothesis testing is used to assess the credibility of a hypothesis by using sample data.

Figure 5. *The location of selected cities of the study in Italy*



Source: Author, 2022

4.2. Data Preparation and Descriptive Statistics

The main objective of the study is to enlighten the influence of nine independent variables of urban living on inhabitants' self-perceived life satisfaction in six cities of Italy. The information in the study was derived from secondary data of 2019 survey by the 'European Commission' named 'Perception Survey on the Quality of Life in European Cities'. The current study focuses specifically on individual level. The target sample size of the study is 4200 complete phone-based interviews with over 15 years old citizens in six selected cities in Italy including Bologna, Naples, Palermo, Rome, Turin, and Verona.

4.2.1. Dependent Variable: Urban life Satisfaction

The study dependent variable, urban life satisfaction, is a measure of percentage of individuals who said that how much they are agreed with this specific statement, "*I'm satisfied to live in my city.*" over the period of 2019-2020. Respondents may answer on a four-point scale where the options are, 1= Strongly disagree, 2= Somewhat disagree, 3= Somewhat agree, and 4= Strongly agree.

4.2.2. Independent Variables

In order to achieve the main purpose of the study nine composite variables—which each of them has its own sub-indicators—are considered to investigate the performance of urban livings in the field of urban life satisfaction. Focusing on the quality of urban life features, participants were asked to give their opinions in form of agreement or disagreement with the following statements in the survey to express their self-perceived satisfaction level regarding either one of the suggested urban life domains as can be seen in Table 7.

Although, three different types of grading arrangement had been considered to classify the responses in the utilized questionnaire which is comprehensively pointed out in the appendix of the study along with the selection percentage of each of the answer options of the questions.

The results related to the descriptive statistics of the response variable and the independent variables of the study can be observed in Table 8.

Table 7. *Independent variables: wording of questions, answer categories and ranges*

Independent variables	Categories/Ranges
Health 1. Health care services, doctors, and hospitals ***Natural and Environmental Characteristics*** 1. Green spaces such as parks and gardens 2. The quality of the air 3. The noise level *4.* Cleanliness ***Built Environment*** 1. Public spaces such as markets, squares, pedestrian areas 2. Public transport, for example the bus, tram or metro 3. The neighborhood where you live ***Leisure & Social Interaction*** 1. Sport facilities such as sport fields and indoor sports halls 2. Cultural facilities such as concert halls, theatres, museums, and libraries ***Education*** 1. Schools and other educational facilities	a. Very unsatisfied b. Rather unsatisfied c. Rather satisfied d. Very satisfied
Economic Features 1. It is easy to find a good job in my city 2. Your personal job situation 3. The financial situation of your household ***Overall Experience of Life*** 1. The life you lead	a. Not at all satisfied b. Not very satisfied c. Fairly satisfied d. Very satisfied
Governance & Political Administration 1. The amount of time it takes to get a request solved by my local public administration 2. The fees charged by my local public administration are reasonable 3. Information and services of my local public administration can be easily accessed online *4.* There is corruption in my local public administration ***Safety*** 1. Feel safe walking alone at night in my city 2. Feel safe walking alone at night in my neighborhood 3. Most people in my city can be trusted	a. Strongly disagree b. Somewhat disagree c. Somewhat agree *d.* Strongly agree

Table 8. *Descriptive statistics for all variables in Italy*

Variable	Obs.	Mean	Std. Dev.	Min	Max
Urban life satisfaction (Dependent)	4184	3.062	0.822	1	4
Health	4200	2.652	0.912	1	4
Overall Experience of Life	4200	2.965	0.775	1	4
Education	4200	2.784	0.792	1	4
Environmental Characteristics	4200	2.346	0.577	1	4
Built Environment	4200	2.709	0.586	1	4
Economic Features	4200	2.398	0.550	1	4
Leisure and Social Interaction	4200	2.790	0.688	1	4
Political Administration	4200	2.413	0.459	1	4
Safety	4200	2.565	0.661	1	4

Source: Author, 2022

4.2.3. Control Variables

The control variables of the study are based on individual information extracted from the survey questionnaire regarding certain socio-demographic characteristics such as age, gender, education status, health condition, household composition, and current work status.

As indicated in table 4, according to the acquired results from the descriptive statistics of the control variables, the average age of the participants in this survey is 51.22, of which 52.45% are women and the rest of them are men.

In terms of education status of individuals who participated in the survey, the lowest percentage is related to primary education, which includes only 1.17% while the highest number is related to upper secondary education with approximately 38% of the people in this survey. Regarding the employment status, individuals with full-time jobs introduce almost 57% of the participants. In the context of the household composition, most of the individuals (29%) were married and have at least one child under 25 years of age. In addition, the descriptive statistics demonstrate that around 46% of the people in the survey have a good health status.

Table 9. *Descriptive statistics for control variables*

Variable	Category/Range	Mean/Percentage
Age	15-91	51.22 (18.11)
Gender n (%)	Male	1,997 (47.55)
	Female	2,203 (52.45)
Level Education n(%)	Primary education	49 (1.17)
	Lower secondary education	414 (9.87)
	Upper secondary education	1,585 (37.79)
	Post-secondary non-tertiary education	446 (10.63)
	Short-cycle tertiary education	595 (14.19)
	Bachelor or equivalent	861 (20.53)
	Master or equivalent	208 (4.96)
	Doctoral or equivalent	36 (0.86)
Working Status n(%)	At work	2,369 (56.73)
	Unemployed(not looking actively)	64 (1.53)
	Unemployed(looking actively)	223 (5.34)
	Retired	1,083 (25.93)
	Unable to work	16 (0.38)
	In full-time education	210 (5.03)
	Full-time homemaker	209 (5)
	Compulsory military or civilian service	2 (0.05)
Household composition n(%)	One-person household	671 (15.99)
	Lone parent with at least one child aged < 25	181 (4.31)
	Lone parent with at least one child aged > 25	153 (3.65)
	Couple without any child	1,076 (25.64)
	Couple with at least one child aged < 25	1,243 (29.62)
	Couple with at least one child aged > 25	589 (14.04)
	Other type of household	283 (6.74)
Health Status n(%)	Very bad	20 (0.52)
	Bad	182 (4.72)
	Fair	936 (24.28)
	Good	1,787 (46.36)
	Very good	930 (24.12)

Source: Author, 2022

4.3. Statistical Analyses

4.3.1. Ordered Logistic Regression Analysis for Italy

In order to achieve the suitable results, the study utilizes the 'Ordered Logistic Regression' analysis technique due to the fact that the dependent variable has a meaningful order and more than two categories. The method has the ability to accurately investigate the 'significance' and 'magnitude and direction' of the relationships between each independent variable and the response variable by utilizing two interpretable components named 'P-value' and 'Coefficient' which will be explained in detail later.

For the first step, the study investigates on the total questionnaire data of Italy (Table 9). Afterwards, the initial outputs of the analysis are gradually measured with control variables to determine the effect of socio-demographic characteristics on the crude results (Table 10).

Table 10. *Results of the crude model for independent variables in Italy (Model 1)*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2271526	.0376164	6.04	0.000	.1534257	.3008795
Overall_Experience_of_Life	.2015305	.0426524	4.72	0.000	.1179333	.2851278
Education	.1106977	.0420935	2.63	0.009	.028196	.1931995
Environmental_Characteristics	.703786	.0656233	10.72	0.000	.5751666	.8324053
Built_Environment	.6605716	.0662788	9.97	0.000	.5306674	.7904757
Economic_Features	.335964	.0621762	5.40	0.000	.2141008	.4578272
Leisure_Social_Interaction	.3527405	.0503143	7.01	0.000	.2541263	.4513547
Political_Administration	.0508217	.0724962	0.70	0.483	-.0912682	.1929116
Safety	.3338267	.05018	6.65	0.000	.2354758	.4321776
/cut1	4.258056	.2468256			3.774287	4.741826
/cut2	5.993586	.2506901			5.502243	6.48493
/cut3	8.74228	.2724292			8.208328	9.276231

Note: ***p < 0.001 indicates very high significance, **p < 0.01 high significance, *p < 0.05 moderate significance, and p < 0.1 weak significance or a trend.

Source: Author, 2022

Model 1 assesses the association between urban life satisfaction and proposed domains of urban living features in Italy without considering control variables.

The most important findings of the Table 1 are related to the values in columns two and five which represent coefficients results and p-value outcomes. P-values and coefficients in ordered logistic regression analysis work together. The coefficients describe the mathematical relationship between each independent variable and the dependent variable while the p-values for the coefficients indicate whether these relationships are statistically significant.

A p-value, or probability value, is often used to promote credibility for studies or reports by researchers and scientists. It can serve as an alternative to—or in addition to—preselected confidence levels for hypothesis testing. P-value is a statistical measurement used to validate a hypothesis against observed data. The lower the p-value, the greater the statistical significance of the observed difference.

To determine whether the association between the response and each term in the model is statistically significant, studies compare the p-value for the term to the significance level to assess the null hypothesis. The null hypothesis is that the term's coefficient is equal to zero, which implies that there is no association between the term and the response.

The level of statistical significance is often expressed as a p-value between 0 and 1. Usually, a p-value less than 0.05 (< 0.05) is statistically considered significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random). In that respect, a study can reject the null hypothesis and accept that the independent variable did affect the dependent variable which means that the results are significant in terms of supporting the theory being investigated (i.e. not due to chance).

In addition to p-values, scientists and researchers benefit the coefficients to examine how the probability of an outcome changes as the predictor variables change. The estimated coefficient for a predictor represents the change in the link function for each unit change in the predictor, on the assumption that the other predictors in the model are held constant. in other words, Standard interpretation of the ordered logit coefficient is that for a one-unit increase in a predictor, the response variable level is expected to change by its respective regression coefficient in the ordered log-odds scale while the values related to other variables of study remain unaltered.
The relationship between the coefficient and the probability of an outcome depends on several aspects of the analysis[20]. However, generally, positive coefficient result for a particular predictor means that an increase in that variable is associated with

[20] including the link function, the order of the response categories, and the reference levels for categorical predictors that are in the model.

increased odds[21] for a higher category in response variable while the other predictors in the model are held constant. On the other hand, When the coefficient of the independent variable is negative, implies that the independent variable has a negative effect on the dependent variable and when the independent variable is increased, the dependent variable will be decreased, and vice-versa. Respectively, an estimated coefficient near 0 implies that the effect of the predictor is small.

Based on the results of Table 10, with the exception of governance and political administration variable, which does not show a significant impact (*P*=.483) on the response variable, other predictors are found significant in the study and indicate relevance with urban life satisfaction. Among the 8 remaining relevant independent variables, seven of them with *P*<.001. represent a very high level of significance on the response variable while 'education' predictor with *P*=.009 indicates high significance in this case.

In reference to the obtained information of coefficient results, among relevant variables, the highest amount related to natural and environmental characteristics. From a statistical point of view, this value of coefficient ($\beta = 0.70$) will be used to calculate e^{β} ($e^{0.70} = 2.01$) which specifies the magnitude of the effect that an independent variable can have on the response variable if the values of other variables remain unchanging.

It means that going up from a level of natural and environmental characteristics to the next one multiplies the odds of the response variable to enhance one level as well by 2.01 times in case the other predictors in the model are held constant. Alternatively, it can express that increasing from a level of this particular variable to the next is associated with an increase of 101% in the odds of urban life satisfaction. It should be noted that this value is only 11% ($e^{0.11} = 1.11$) for the education which has the lowest amount of coefficient among other variables.

As presented in Table 11, full adjusted model with the addition of control variables does not show sizeable alterations on the initial output of p-values in Model 1. In this regard, the significance level of education is still at the high degree (*P*=.008), but rest of them disclose a very high relevance with the dependent variable of the

[5] including the link function, the order of the response categories, and the reference levels for categorical predictors that are in the model.

[6] The odds are defined as the probability that the event will occur divided by the probability that the event will not occur. If the probability of an event occurring is Y, then the probability of the event not occurring is 1-Y. Therefore, the odds of the event will be like this, Odds= Y / (1-Y).

study, except governance and political administration factor with *P*=.541 which is insignificant in empirical statistics of the study.

Table 11. *Results of the full adjusted model for independent variables in Italy (Model 7)*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2527897	.0398254	6.35	0.000	.1747334	.330846
Overall_Experience_of_Life	.1993007	.0453071	4.40	0.000	.1105005	.2881009
Education	.1176224	.0443845	2.65	0.008	.0306304	.2046145
Environmental_Characteristics	.674016	.0699808	9.63	0.000	.5368561	.8111759
Built_Environment	.6565757	.0708506	9.27	0.000	.5177111	.7954403
Economic_Features	.3079972	.0669204	4.60	0.000	.1768356	.4391587
Leisure_Social_Interaction	.3864657	.0535741	7.21	0.000	.2814624	.491469
Political_Administration	.0476622	.0778928	0.61	0.541	-.1050048	.2003293
Safety	.3980908	.0539833	7.37	0.000	.2922855	.5038961

Note: *p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

As explained earlier, control variables have been involved in this study in order to investigate the amount of difference that the socio-social characteristics of inhabitants (i.e. age, gender, health state, education level, working status and household composition) might have on the magnitude and size of influence on the relationship between the independent variables and the response variable of the study. These variables have been added to the model as moderators with the aim of enhancing the internal validity of a study and establishing a correlational or causal relationship between variables by limiting the impact of confounding and other extraneous variables.

Due to the special and categorical nature of the control variables, the regression model uses a different style of analysis for these variables. In this respect, for 'level of household composition' variable, the method of analyzing the controlled variables in the model, which is ordered or categorical, has been investigated. In this case, based on dummy coding method for the residence status variable, which has 7 categories, the " One-person household " category is considered as the reference category, and the rest of the variables are defined based on the reference and following list is achieved.

The analyzing technique for the different intervals of levels of household composition

Control Variable	**Dummy variables**					
Levels of household composition	X1	X2	X3	X4	X5	X6
Lone parent with at least one child aged < 25	1	0	0	0	0	0
Lone parent with at least one child aged > 25	0	1	0	0	0	0
Couples without any child	0	0	1	0	0	0
Couples with at least one child aged < 25	0	0	0	1	0	0
Couples with at least one child aged > 25	0	0	0	0	1	0
Other type of household	0	0	0	0	0	1
One-person household	0	0	0	0	0	0

Source: Author, 2022

Based on the above list, one-person household variable is considered as the base variable and the value of coefficient of each category is presented in the outcomes of the software compared to the base variable one-person household. For example, in the case of Lone parent with at least one child aged < 25, the corresponding coefficient is 0.119 (Table 12), which is interpreted in the same way as the explanations given about the coefficients of independent variables.

From a statistical point of view, this value of coefficient for this level ($\beta = 0.119$) will be used to calculate e^{β} ($e^{0.119} = 1.12$) which specifies the magnitude of the effect that an independent variable can have on the response variable if the values of other variables remain unchanging. This amount shows that the Lone parent with at least one child aged < 25 compared to one-person household shows a 12% increase in the satisfaction variable of citizens (life satisfaction).

Another variable is discussed which is working status, which has 8 levels. At work level is considered as a reference level in this research, and it has 7 dummy variables which the coding method is mentioned in the list below.

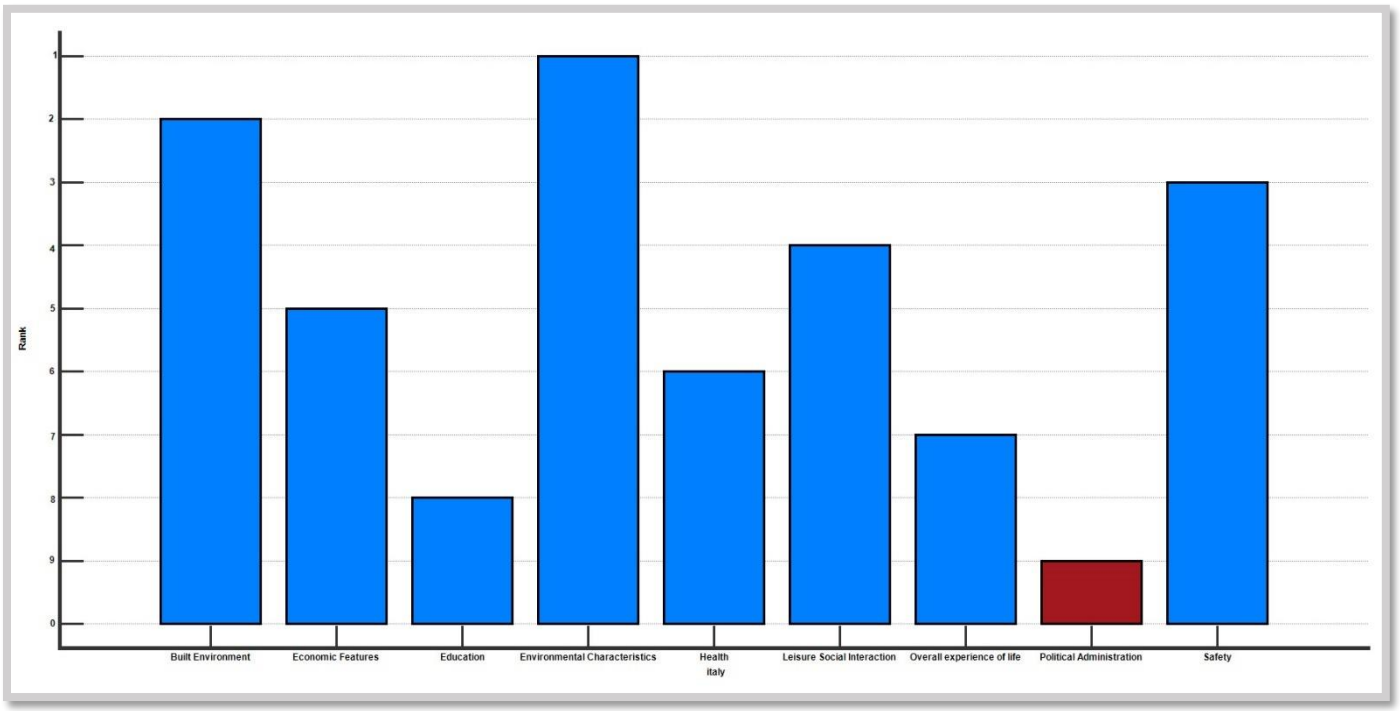
The analyzing technique for the different intervals of working status

Control Variable	**Dummy Variable**						
Working Status	X1	X2	X3	X4	X5	X6	X7
Unemployed (not looking actively)	1	0	0	0	0	0	0
Unemployed (looking actively)	0	1	0	0	0	0	0
Retired	0	0	1	0	0	0	0
Unable to work	0	0	0	1	0	0	0
In full-time education	0	0	0	0	1	0	0
Full-time homemaker	0	0	0	0	0	1	0
Compulsory military or civilian service	0	0	0	0	0	0	1
At work	0	0	0	0	0	0	0

Based on the above table, at work variable is considered as the base reference, and the coefficient of each category are presented in the output compared to at work software.

Respectively, in the Table 12, for the 'unemployed (not looking actively)' interval, the value of coefficient is $\beta = -0.10$ which shows that ($e^{0.119} = 0.9$) compared to "At work" level. This shows employed people in full satisfaction is 90% compared to other situations, which means that unemployed people are less satisfied compared to employed people. In the same way, the values of other classifications of control variables can be interpreted according to the obtained coefficients values for each of them in Table 12. Although, according to the p-values of control variables, as it is clear in the table , among these variables only age , gender and health condition of individuals from a significant relationship with the response variable of the study.

Figure 6. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Italy*



Blue: Significant variables

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

Table 12. *Results of the full adjusted model for all variables in Italy*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2527897	.0398254	6.35	0.000	.1747334	.330846
Overall_Experience_of_Life	.1993007	.0453071	4.40	0.000	.1105005	.2881009
Education	.1176224	.0443845	2.65	0.008	.0306304	.2046145
Environmental_Characteristics	.674016	.0699808	9.63	0.000	.5368561	.8111759
Built_Environment	.6565757	.0708506	9.27	0.000	.5177111	.7954403
Economic_Features	.3079972	.0669204	4.60	0.000	.1768356	.4391587
Leisure_Social_Interaction	.3864657	.0535741	7.21	0.000	.2814624	.491469
Political_Administration	.0476622	.0778928	0.61	0.541	-.1050048	.2003293
Safety	.3980908	.0539833	7.37	0.000	.2922855	.5038961
D1	.0094528	.0030775	3.07	0.002	.0034209	.0154846
D2						
Female	.2573226	.0665107	3.87	0.000	.1269641	.3876811
isced						
Lower secondary education (ISCED 2)	-.2922179	.3386611	-0.86	0.388	-.9559815	.3715457
Upper secondary education (ISCED 3)	-.2558253	.3280074	-0.78	0.435	-.8987081	.3870575
Post-secondary non-tertiary education (ISCED 4)	-.2980434	.3395062	-0.88	0.380	-.9634633	.3673766
Short-cycle tertiary education (ISCED 5)	-.194603	.3365368	-0.58	0.563	-.854203	.4649971
Bachelor or equivalent (ISCED 6)	-.3389487	.332234	-1.02	0.308	-.9901154	.312218
Master or equivalent (ISCED 7)	-.4960934	.3530401	-1.41	0.160	-1.188039	.1958526
Doctoral or equivalent (ISCED 8)	-.6388122	.481261	-1.33	0.184	-1.582066	.304442
d11						
Unemployed, not looking actively for a job	-.1050023	.2750501	-0.38	0.703	-.6440905	.4340859
Unemployed, looking actively for a job	-.0168475	.1466651	-0.11	0.909	-.3043059	.2706109
Retired	-.0727978	.1197254	-0.61	0.543	-.3074553	.1618596
Unable to work due to long-standing health problems	.192021	.5409555	0.35	0.723	-.8682323	1.252274
In full-time education (at school, university, etc...	.1278098	.1664908	0.77	0.443	-.1985063	.4541258
Full-time homemaker/responsible for ordinary shoppi..	.1667654	.1622686	1.03	0.304	-.1512751	.4848059
Compulsory military or civilian service	.8941199	1.365664	0.65	0.513	-1.782533	3.570773
d8						
Lone parent with at least one child aged less than 25	.1192731	.1806993	0.66	0.509	-.234891	.4734372
Lone parent with all children aged 25 or more	.0902794	.1883967	0.48	0.632	-.2789714	.4595301
Couple without any child(ren)	.1439244	.1036374	1.39	0.165	-.059201	.3470499
Couple with at least one child aged less than 25	.1197523	.1092586	1.10	0.273	-.0943906	.3338952
Couple with all children aged 25 or more	-.0140883	.1201059	-0.12	0.907	-.2494915	.2213149
Other type of household	.066635	.1491696	0.45	0.655	-.225732	.3590021
q15						
Bad	-.5677479	.4838332	-1.17	0.241	-1.516044	.3805478
Fair (neither good or bad)	-.7737829	.4656803	-1.66	0.097	-1.686499	.1389337
Good	-.9541354	.465061	-2.05	0.040	-1.865638	-.0426325
Very good	-.7819833	.4700477	-1.66	0.096	-1.70326	.1392933

Source: Author, 2022

In terms of the coefficient factor, in order to better investigate on the effects of each of the control variables, these characteristics are gradually attached in the analysis process until the results are obtained.

As can be seen in Table 13, in the model 7, which is fully adjusted, the final coefficient values (β) of the relevant independent variables and the magnitude of

their relationship with the response variable (e^{β})—if the values of other variables remain constant—are equal to β=0.67, $e^{0.67}$=1.95 for natural and environmental characteristics, β=0.65, $e^{0.65}$=1.91 for built environment, β=0.39, $e^{0.39}$=1.47 for safety, β=0.38, $e^{0.38}$=1.46 for leisure and social interaction, β=0.3, $e^{0.3}$=1.34 for economic features, β=0.25, $e^{0.25}$=1.28 for health, β=0.19, $e^{0.19}$=1.2 for overall experience of life and β=0.11, $e^{0.11}$=1.11 for education.

Table 13. Coefficients results of the adjusted models for Italy

Variable	Model 1a	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.227***	0.217***	0.217***	0.250***	0.248***	0.249***	0.252***
Overall experience of life	0.201***	0.213***	0.213***	0.205***	0.202***	0.201***	0.199***
Education	0.110**	0.112**	0.117**	0.118**	0.117**	0.120**	0.117**
Environmental Characteristics	0.703***	0.712***	0.709***	0.682***	0.682**	0.682***	0.674***
Built Environment	0.660***	0.645***	0.641***	0.664***	0.658***	0.657***	0.656***
Economic Features	0.335***	0.298***	0.301***	0.300***	0.305***	0.305***	0.307***
Leisure and Social Interaction	0.352***	0.366***	0.360***	0.374***	0.374***	0.378***	0.386***
Political Administration	0.050	0.041	0.052	0.035	0.035	0.039	0.047
Safety	0.333***	0.365***	0.383***	0.384***	0.391***	0.394***	0.398***

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

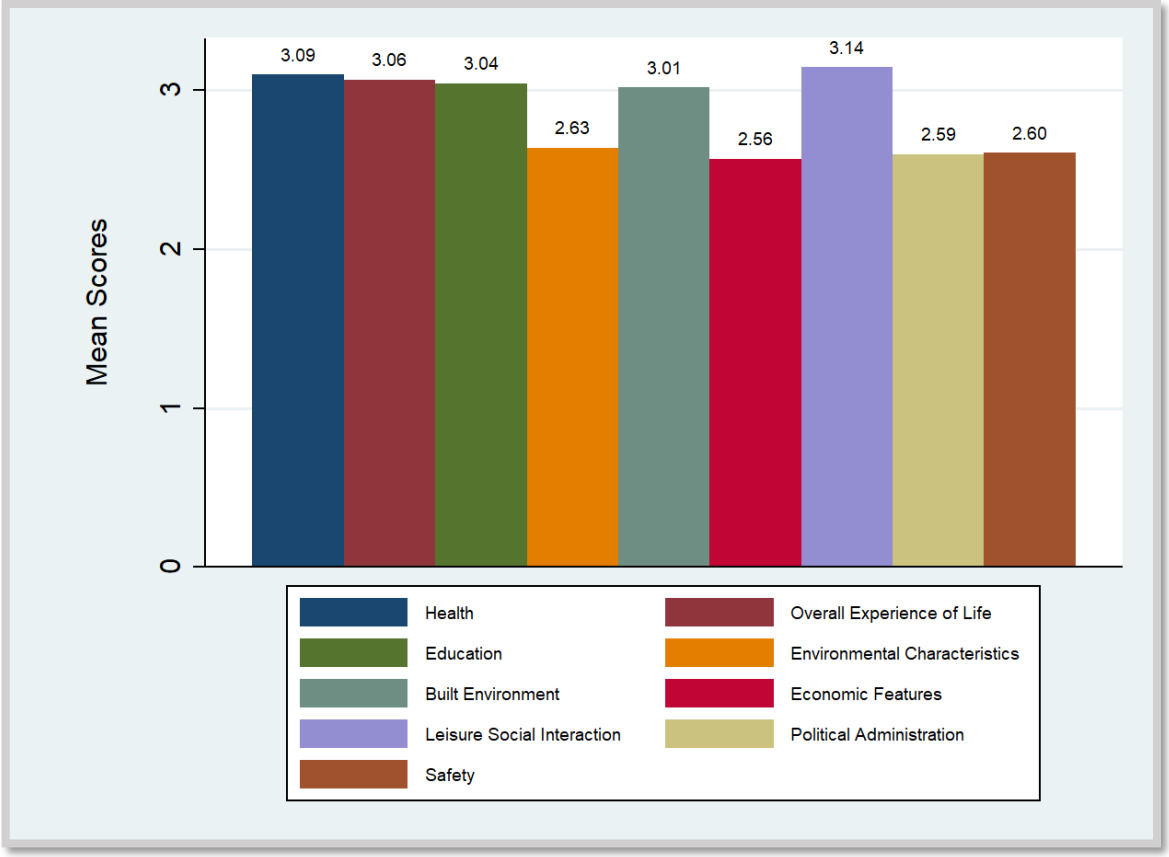
4.3.2. Statistical Analyses of Italian Cities

First, descriptive statistics related to independent variables and the response variable in each city are presented to illustrate the satisfaction rate of inhabitants with each domain of urban life. Then, with the intention of achieving the study objectives, the

derived data of six selected cities in Italy is analyzed by ordered logistic regression method, so that the condition of each city can be comprehensively determined in terms of the relationships between nine independent variables and urban life satisfaction. The acquired results in each city, as in the previous part, are controlled by socio-demographic characteristics of each person in order to acquire more accurate findings.

4.3.2.1 Statistical Analysis of Bologna

Figure 7. *The satisfaction rate of Bologna citizens with independent variables*



Source: Author, 2022

The results of the descriptive analysis for nine urban life satisfaction related variables in Bologna show that 'leisure and social interaction' has the highest rate of average satisfaction while 'economic features' has the lowest rate (Table 14).

According to the self-perceived satisfaction rate of inhabitants of Bologna, in addition to the economic features, the state of natural and environmental characteristics, safety, and governance and political administration in this city are qualitatively lower than other variables (Figure 5). At the same time, from the standpoint of the residents, the city has a promising condition in other related domains of urban life.

Table 14. *Descriptive statistics for all independent variables for Bologna*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction (Dependent)	697	3.39	0.625	1	4	-
Health	700	3.09	0.787	1	4	2
Overall Experience of Life	700	3.06	0.723	1	4	3
Education	700	3.04	0.705	1	4	4
Environmental Characteristics	700	2.63	0.475	1	4	6
Built Environment	700	3.01	0.470	1	4	5
Economic Features	700	2.56	0.547	1	4	9
Leisure and Social Interaction	700	3.14	0.544	1	4	1
Political Administration	700	2.59	0.428	1	4	8
Safety	700	2.60	0.677	1	4	7

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

As reported by the ordered logistics regression results of crude model for Bologna, built environment and economic features with the $P<.001$. have the highest level of significance on urban life satisfaction which shows a strong relationship with response variable. Natural and environmental characteristics and safety with the $P=.001$ represent high significance on response variable while health with $P=.024$ and governance and political administration with $P=.012$ only indicate moderate significance. (Table 15).

Table 15. *Results of the crude model for independent variables Bologna (Model 1)*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2306935	.1024575	2.25	0.024	.0298805	.4315065
Overall_Experience_of_Life	.1499751	.116113	1.29	0.196	-.0776021	.3775524
Education	.0730235	.1202772	0.61	0.544	-.1627155	.3087626
Environmental_Characteristics	.6381246	.1854083	3.44	0.001	.2747309	1.001518
Built_Environment	.76961	.1892576	4.07	0.000	.3986718	1.140548
Economic_Features	.6128068	.1548258	3.96	0.000	.3093538	.9162597
Leisure_Social_Interaction	.1826621	.152899	1.19	0.232	-.1170145	.4823387
Political_Administration	-.4948316	.1975936	-2.50	0.012	-.8821079	-.1075552
Safety	.4044191	.1266397	3.19	0.001	.1562098	.6526284

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

Furthermore, three other major predictors of response variable, overall experience of life (*P*=.196), Leisure and social interaction (*P*=.232) and education (*P*=.544) are found insignificant in empirical statistics of Bologna (Table 14). It should be noted that governance and political administration is the only relevant variable with a negative effect on urban life satisfaction. It means that these variables have an inverse relationship with each other in this city.

In terms of coefficient results of the crude model, among the relevant variables, built environment with $\beta=0.76(e^{0.76}=2.15$[22]$)$, natural and environmental characteristics with $\beta=0.63(e^{0.63}=1.89)$, economic features with $\beta=0.61(e^{0.61}=1.84)$, safety with $\beta=0.40(e^{0.4}=1.49)$ and health with $\beta=0.23(e^{0.23}=1.25)$ respectively have the highest degree of significant effect on the urban life satisfaction. In addition, governance and political administration with $\beta=-0.49(e^{0.49}=-1.63)$ has a negative coefficient value and consequently inverse impact on the response variable.

[22] the values in the parentheses multiply the odds of the response variable (e^{β}), if the values of other variables remain constant.

Table 16. *Results of the full adjusted for independent variables model in Bologna (Model 7)*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2876809	.111492	2.58	0.010	.0691607	.5062012
Overall_Experience_of_Life	.0600586	.1251332	0.48	0.631	-.185198	.3053152
Education	.0230669	.1285698	0.18	0.858	-.2289253	.2750592
Environmental_Characteristics	.518646	.1995639	2.60	0.009	.1275079	.9097841
Built_Environment	.7658874	.2054671	3.73	0.000	.3631793	1.168595
Economic_Features	.5218698	.1706489	3.06	0.002	.1874041	.8563354
Leisure_Social_Interaction	.1784785	.1648402	1.08	0.279	-.1446024	.5015594
Political_Administration	-.5078558	.2162561	-2.35	0.019	-.9317099	-.0840017
Safety	.4556551	.1402137	3.25	0.001	.1808413	.7304689

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

The p-value results of full adjusted model (Table 16) demonstrate that, adding control variables changed the significance level of economic features from very high to high level with *P*=.002. In addition, the magnitude of the relationships between independent variables and urban life satisfaction were slightly changed which is presented in the Table 17.

Final coefficient values (β) of the relevant independent and the magnitude of the relationship between each variable and the response variable (e^{β})– on the assumption that other values remain constant–are equal to β=0.76, $e^{0.76}$=2.13 for built environment, β=0.52, $e^{0.52}$=1.68 for economic features, β=0.51, $e^{0.51}$=1.66 for natural and environmental characteristics, β=-0.5, $e^{-0.5}$=-1.64, for political administration, β=0.45, $e^{0.45}$=1.56 for safety and β=0.28, $e^{0.28}$=1.32 for health.

Table 17. *Coefficients results of the adjusted models for Bologna*

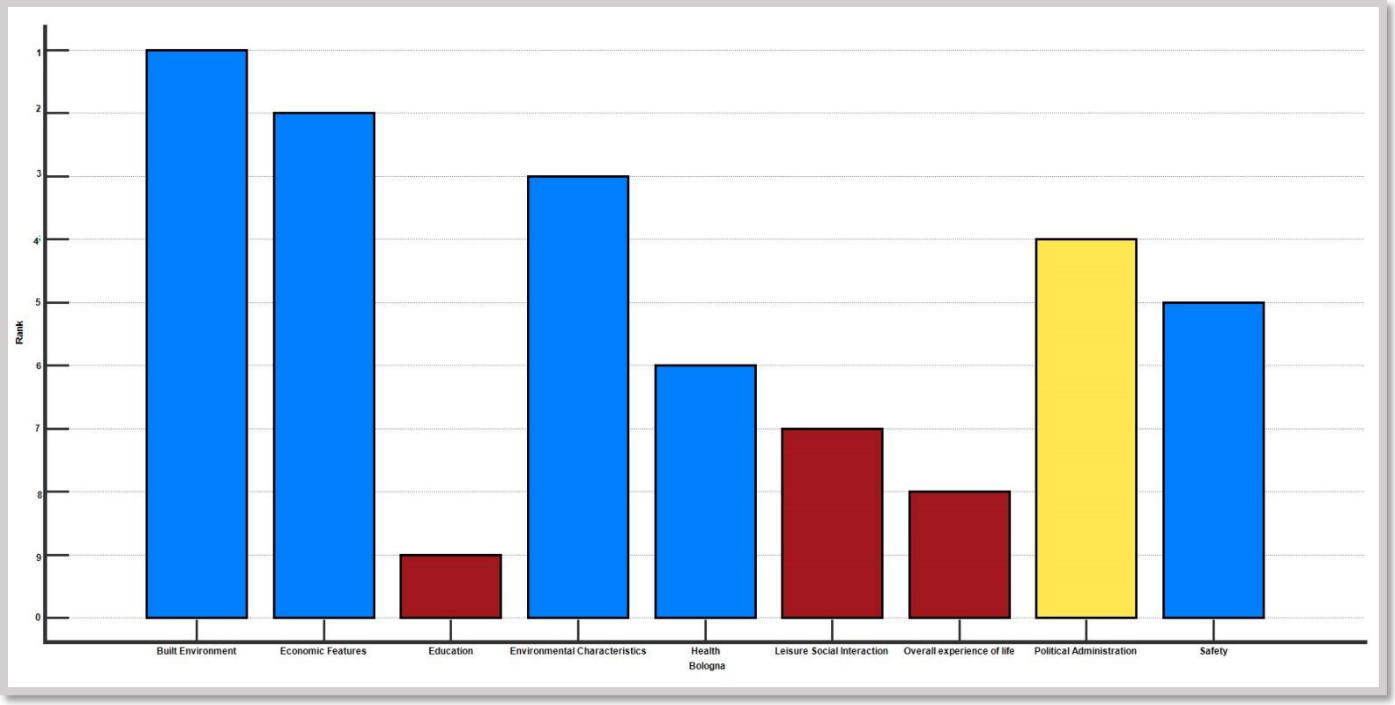
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.230*	0.221*	0.238*	0.222*	0.248*	0.265*	0.287*
Overall experience of life	0.149	0.139	0.125	0.089	0.091	0.084	0.060
Education	0.073	0.079	0.085	0.047	0.039	0.031	0.023
Environmental Characteristics	0.638**	0.643**	0.620**	0.580**	0.582**	0.545**	0.518**
Built Environment	0.769***	0.729***	0.729***	0.752***	0.767***	0.803***	0.765***
Economic Features	0.612***	0.566***	0.567***	0.580***	0.561**	0.554**	0.521**
Leisure and Social Interaction	0.182	0.203	0.206	0.170	0.152	0.155	0.178
Political Administration	-0.494*	-0.501*	-0.481*	-0.456*	-0.533*	-0.538*	-0.507*
Safety	0.404**	0.432**	0.459***	0.484***	0.468**	0.484***	0.455**

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

Figure 8. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Bologna*



Blue: Significant variable

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

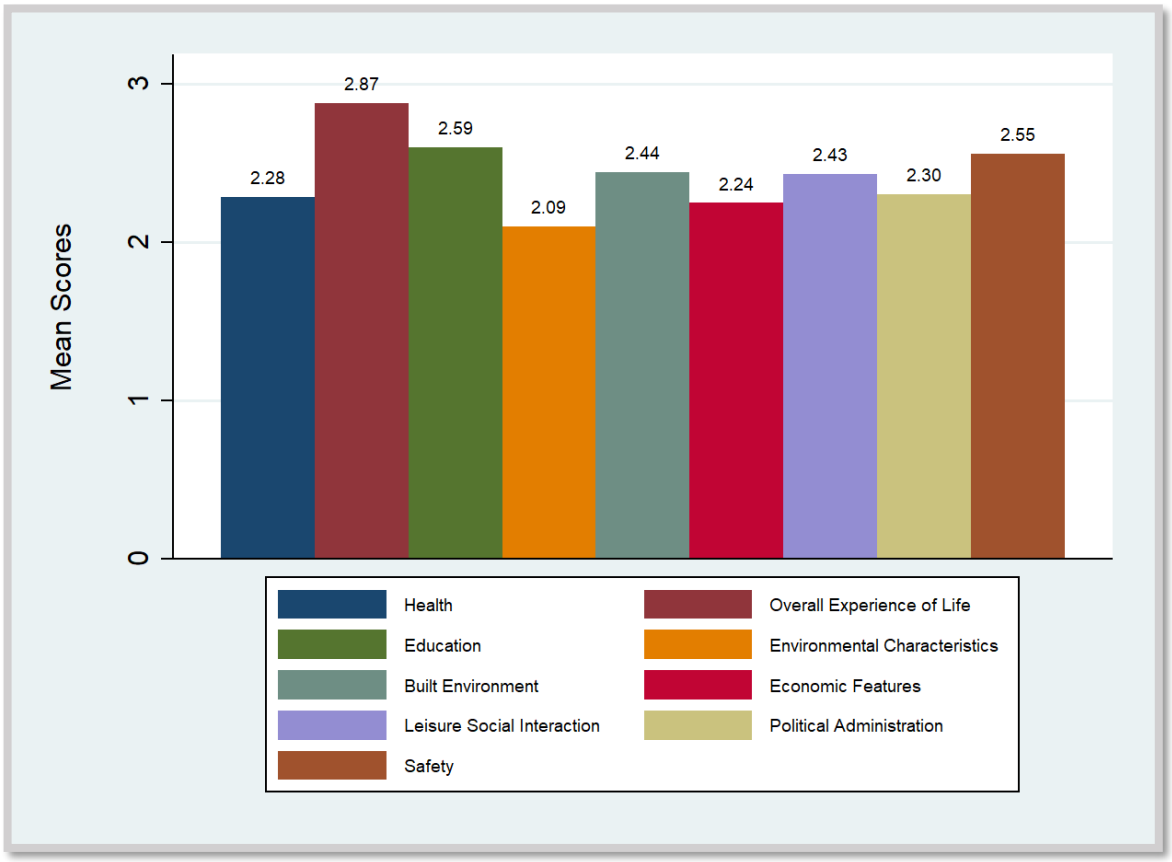
Table 18. *Results of the full adjusted model for all variables in Bologna*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2876809	.111492	2.58	0.010	.0691607	.5062012
Overall_Experience_of_Life	.0600586	.1251332	0.48	0.631	-.185198	.3053152
Education	.0230669	.1285698	0.18	0.858	-.2289253	.2750592
Environmental_Characteristics	.518646	.1995639	2.60	0.009	.1275079	.9097841
Built_Environment	.7658874	.2054671	3.73	0.000	.3631793	1.168595
Economic_Features	.5218698	.1706489	3.06	0.002	.1874041	.8563354
Leisure_Social_Interaction	.1784785	.1648402	1.08	0.279	-.1446024	.5015594
Political_Administration	-.5078558	.2162561	-2.35	0.019	-.9317099	-.0840017
Safety	.4556551	.1402137	3.25	0.001	.1808413	.7304689
D1	.0109644	.0081381	1.35	0.178	-.0049861	.0269148
D2						
Female	.5210725	.1746857	2.98	0.003	.1786948	.8634501
isced						
Lower secondary education (ISCED 2)	1.141358	.8589117	1.33	0.184	-.5420778	2.824794
Upper secondary education (ISCED 3)	1.626636	.8216251	1.98	0.048	.0162808	3.236992
Post-secondary non-tertiary education (ISCED 4)	2.091774	.8572257	2.44	0.015	.4116419	3.771905
Short-cycle tertiary education (ISCED 5)	1.783744	.8365035	2.13	0.033	.1442272	3.423261
Bachelor or equivalent (ISCED 6)	1.866669	.8356004	2.23	0.025	.2289222	3.504416
Master or equivalent (ISCED 7)	1.106446	.8927968	1.24	0.215	-.6434039	2.856295
Doctoral or equivalent (ISCED 8)	2.821551	1.430505	1.97	0.049	.0178115	5.62529
d11						
Unemployed, not looking actively for a job	.4397523	.8086688	0.54	0.587	-1.145209	2.024714
Unemployed, looking actively for a job	-.3411328	.4724913	-0.72	0.470	-1.267199	.5849332
Retired	.5203222	.3198986	1.63	0.104	-.1066675	1.147312
Unable to work due to long-standing health problems	-2.564763	1.953063	-1.31	0.189	-6.392696	1.263169
In full-time education (at school, university, etc...	.679204	.4772163	1.42	0.155	-.2561228	1.614531
Full-time homemaker/responsible for ordinary shoppi..	-.0804118	.4079495	-0.20	0.844	-.8799782	.7191547
Compulsory military or civilian service	13.07763	549.5435	0.02	0.981	-1064.008	1090.163
d8						
Lone parent with at least one child aged less than 25	-.0543136	.4953311	-0.11	0.913	-1.025145	.9165175
Lone parent with all children aged 25 or more	-.4170408	.4850463	-0.86	0.390	-1.367714	.5336324
Couple without any child(ren)	.3444677	.2582166	1.33	0.182	-.1616276	.850563
Couple with at least one child aged less than 25	.3383347	.2856432	1.18	0.236	-.2215156	.898185
Couple with all children aged 25 or more	.2119952	.324545	0.65	0.514	-.4241014	.8480918
Other type of household	.6482143	.3948749	1.64	0.101	-.1257263	1.422155
q15						
Bad	-.5457935	1.499009	-0.36	0.716	-3.483798	2.392211
Fair (neither good or bad)	-.774733	1.451226	-0.53	0.593	-3.619083	2.069617
Good	-.8243123	1.453424	-0.57	0.571	-3.672972	2.024347
Very good	-.1905481	1.462211	-0.13	0.896	-3.05643	2.675334

Source: Author, 2022

4.3.2.2. Statistical Analysis of Naples

Figure 9. *The satisfaction rate of Naples citizens with independent variables*



Source: Author, 2022

The results of the descriptive analysis for nine urban life satisfaction related variables demonstrate that 'overall experience of life' has the highest rate of average satisfaction in Naples while natural and environmental characteristics has the lowest value (Table 19).

The state of schools and other educational facilities, along with safety condition of the city and its built environment, from the point of view of residents, have a more favorable quality than other urban life domains in Naples. On the contrary, the performance of the city in terms of variables including economic features, health

care services and governance and political administration is unsuitable with regard to citizens' standpoint (Figure 6).

Table 19. *Descriptive statistics for all variables for Naples*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction	700	2.80	0.883	1	4	-
Health	700	2.28	0.855	1	4	7
Overall Experience of Life	700	2.87	0.796	1	4	1
Education	700	2.59	0.825	1	4	2
Environmental Characteristics	700	2.09	0.531	1	4	9
Built Environment	700	2.44	0.557	1	4	4
Economic Features	700	2.24	0.527	1	4	8
Leisure and Social Interaction	700	2.43	0.706	1	4	5
Political Administration	700	2.30	0.470	1	4	6
Safety	700	2.55	0.678	1	4	3

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

Table 20. *Results of the crude model for Naples*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.3288248	.0950024	3.46	0.001	.1426235	.5150262
Overall_Experience_of_Life	.3458127	.1054351	3.28	0.001	.1391636	.5524617
Education	.2856477	.0955058	2.99	0.003	.0984597	.4728357
Environmental_Characteristics	.752781	.1615861	4.66	0.000	.436078	1.069484
Built_Environment	.5414361	.1570219	3.45	0.001	.2336789	.8491933
Economic_Features	.0270035	.1566792	0.17	0.863	-.2800821	.334089
Leisure_Social_Interaction	.4879389	.112453	4.34	0.000	.2675351	.7083427
Political_Administration	-.1472465	.1668495	-0.88	0.378	-.4742655	.1797725
Safety	.7319553	.1282927	5.71	0.000	.4805062	.9834045

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

According to the ordered logistics regression results of crude model in Naples, apart from economic features (*P*=.863) and 'governance and political administration' (*P*=.378) variables, which do not show a significant relevance, the other predictors are found significant in the study and indicate relevance with urban life satisfaction (Table 20).

Among the 7 remaining relevant independent variables, health, overall experience of life and built environment with *P*=.001 along with education with *P*=.003 represent a high level of significance on the response variable while other remaining predictors including safety, natural and environmental characteristics and leisure and social interaction have a very high degree (P<.001.) of significant influence on the urban life satisfaction based on the p-values results in the Table 20.

In terms of coefficient results of the crude model in Naples, among the relevant variables, natural and environmental characteristics with β=0.75(2.12), safety with β=0.73(2.07), built environment with β=0.54(1.71), leisure and social interaction with β=0.48(1.62), overall experience of life with β=0.34(1.41), health with β=0.32(1.38) and education with β=0.28(1.32) respectively have the highest degrees of significant effect on the urban life satisfaction in regard to the size and direction of their relationship.

Table 21. *Results of the full adjusted model for Naples*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.3820937	.1051464	3.63	0.000	.1760105	.5881769
Overall_Experience_of_Life	.4041571	.1165118	3.47	0.001	.1757981	.6325161
Education	.337774	.1060099	3.19	0.001	.1299985	.5455496
Environmental_Characteristics	.6705958	.1778678	3.77	0.000	.3219814	1.01921
Built_Environment	.516229	.1796454	2.87	0.004	.1641305	.8683275
Economic_Features	.0598336	.1753958	0.34	0.733	-.2839359	.4036031
Leisure_Social_Interaction	.5432376	.1284359	4.23	0.000	.2915078	.7949673
Political_Administration	-.0548242	.1864838	-0.29	0.769	-.4203256	.3106773
Safety	.850004	.1463632	5.81	0.000	.5631374	1.136871

Source: Author, 2022

*p < 0.05, **p < 0.01, *** p < 0.001

As can be observed in the results of full adjusted model in the Table 21, with reference to final p-value results, adding control variables changed the significance grade of health from high to very high level (P<.001.).

Table 22. *Coefficients results of the adjusted models for Naples*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.328**	0.309**	0.302**	0.366***	0.364***	0.369***	0.382***
Overall experience of life	0.345**	0.375***	0.389***	0.357**	0.374**	0.372***	0.404**
Education	0.285**	0.284**	0.300**	0.329**	0.346**	0.335**	0.337**
Environmental Characteristics	0.752***	0.783***	0.796***	0.679***	0.646***	0.647***	0.670***
Built Environment	0.541**	0.535**	0.527**	0.540**	0.549**	0.548**	0.516**
Economic Features	0.027	-0.003	-0.007	0.003	0.014	0.008	0.059
Leisure and Social Interaction	0.487***	0.528***	0.509***	0.480***	0.483***	0.508***	0.543***
Political Administration	-0.147	-0.146	-0.125	-0.087	-0.090	-0.056	-0.054
Safety	0.731***	0.769***	0.782***	0.824***	0.838***	0.846***	0.850***

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

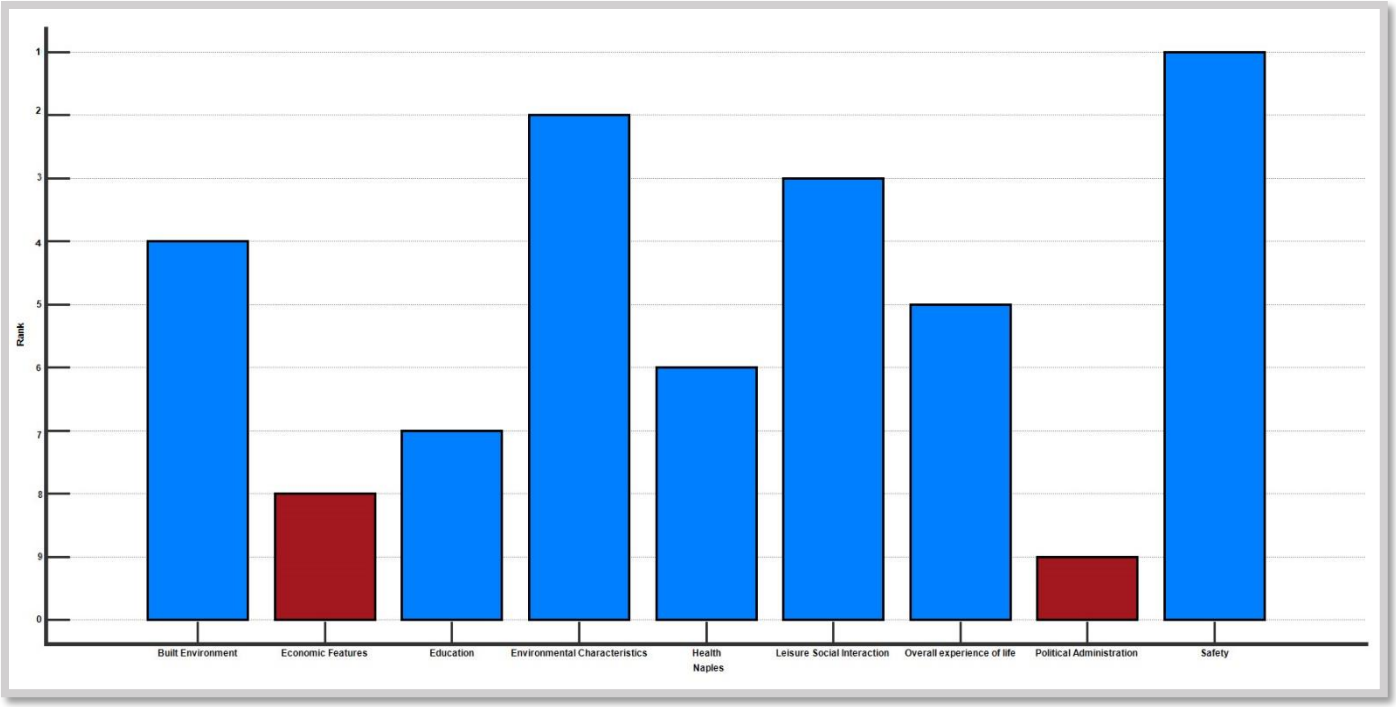
*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

In other respects, the magnitude of the relationship between independent variables and urban life satisfaction were marginally changed as illustrated in Table 22. Latest coefficient values (β) of the relevant independent and the magnitude of the relationship between each variable and the response variable (e^{β})—while other values remain constant—are equal to β=0.85, $e^{0.85}$=2.33 for safety, β=0.67, $e^{0.67}$=1.95 for

natural and environmental characteristics, β=0.54, $e^{0.54}$=1.71 for leisure and social interaction, β=0.51, $e^{0.51}$=1.66 for built environment, β=0.4, $e^{0.4}$=1.49 for overall experience of life, β=0.38, $e^{0.38}$=1.46 for health and β=0.33, $e^{0.33}$=1.39 for education.

Figure 10. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Naples*



Blue: Significant variable

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

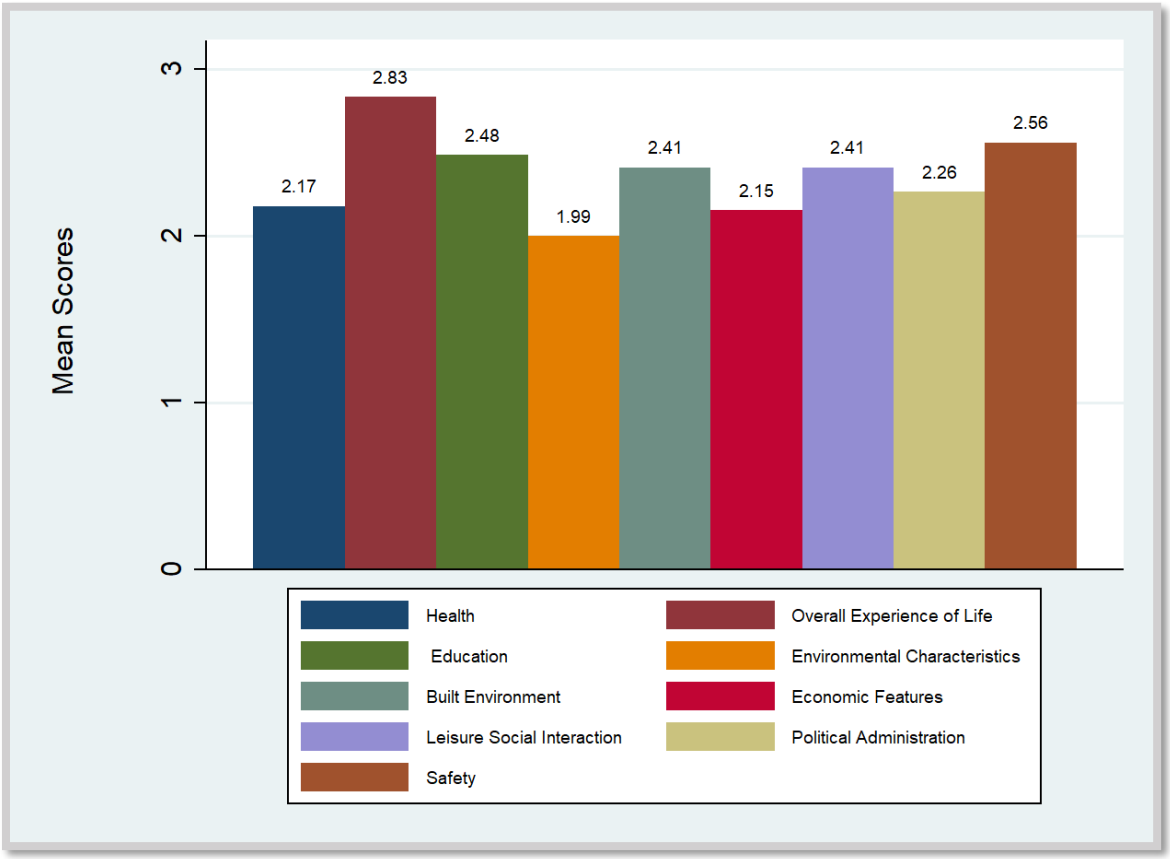
Table 23. *Results of the full adjusted model for all variables in* Naples

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.3820937	.1051464	3.63	0.000	.1760105	.5881769
Overall_Experience_of_Life	.4041571	.1165118	3.47	0.001	.1757981	.6325161
Education	.337774	.1060099	3.19	0.001	.1299985	.5455496
Environmental_Characteristics	.6705958	.1778678	3.77	0.000	.3219814	1.01921
Built_Environment	.516229	.1796454	2.87	0.004	.1641305	.8683275
Economic_Features	.0598336	.1753958	0.34	0.733	-.2839359	.4036031
Leisure_Social_Interaction	.5432376	.1284359	4.23	0.000	.2915078	.7949673
Political_Administration	-.0548242	.1864838	-0.29	0.769	-.4203256	.3106773
Safety	.850004	.1463632	5.81	0.000	.5631374	1.136871
D1	.0220247	.0075969	2.90	0.004	.0071351	.0369143
D2						
Female	.3229824	.1716888	1.88	0.060	-.0135215	.6594863
isced						
Lower secondary education (ISCED 2)	1.208896	.8984888	1.35	0.178	-.5521097	2.969902
Upper secondary education (ISCED 3)	.8170948	.8783611	0.93	0.352	-.9044614	2.538651
Post-secondary non-tertiary education (ISCED 4)	.8709322	.9094778	0.96	0.338	-.9116115	2.653476
Short-cycle tertiary education (ISCED 5)	.7431815	.9045178	0.82	0.411	-1.029641	2.516004
Bachelor or equivalent (ISCED 6)	.5872947	.8914289	0.66	0.510	-1.159874	2.334463
Master or equivalent (ISCED 7)	1.104772	.9564541	1.16	0.248	-.7698434	2.979388
Doctoral or equivalent (ISCED 8)	-.2894759	1.392134	-0.21	0.835	-3.018009	2.439057
d11						
Unemployed, not looking actively for a job	-1.372102	.4920383	-2.79	0.005	-2.336479	-.4077246
Unemployed, looking actively for a job	-.0532119	.3117343	-0.17	0.864	-.6641998	.557776
Retired	-.6300706	.3070125	-2.05	0.040	-1.231804	-.0283371
Unable to work due to long-standing health problems	.23573	1.104765	0.21	0.831	-1.929569	2.401029
In full-time education (at school, university, etc...	-.0965729	.3988963	-0.24	0.809	-.8783953	.6852496
Full-time homemaker/responsible for ordinary shoppi..	.363784	.3776762	0.96	0.335	-.3764478	1.104016
d8						
Lone parent with at least one child aged less than 25	.2040254	.4274299	0.48	0.633	-.6337218	1.041773
Lone parent with all children aged 25 or more	-.215574	.4784198	-0.45	0.652	-1.15326	.7221115
Couple without any child(ren)	-.4221312	.2969239	-1.42	0.155	-1.004091	.1598289
Couple with at least one child aged less than 25	-.398054	.2987027	-1.33	0.183	-.9835005	.1873925
Couple with all children aged 25 or more	-.5644958	.3465209	-1.63	0.103	-1.243664	.1146726
Other type of household	.132757	.3910068	0.34	0.734	-.6336023	.8991163
q15						
Bad	-1.641738	1.517994	-1.08	0.279	-4.616952	1.333475
Fair (neither good or bad)	-1.995488	1.469503	-1.36	0.174	-4.875662	.8846855
Good	-2.118921	1.474368	-1.44	0.151	-5.008629	.770788
Very good	-1.638552	1.488989	-1.10	0.271	-4.556918	1.279814

Source: Author, 2022

4.3.2.3. Statistical Analysis of Palermo

Figure 11. *The satisfaction rate of Palermo citizens with independent variables*



Source: Author, 2022

The outcomes of the descriptive analysis for nine urban life satisfaction related variables in Palermo represent that 'overall experience of life' has the highest rate of average satisfaction while natural and environmental characteristics has the lowest value (Table 24).

Likewise, from the standpoint of inhabitants of Palermo, the condition of safety, educational facilities, and leisure and social interaction, have a better quality rate than other independent variables. On the other hand, the state of the city in terms of domains such as economic features, health care services and governance and political administration was reported unfavourable according to the self-perceived satisfaction level of individuals in Palermo (Figure 7).

Table 24. *Descriptive statistics for all variables for Palermo*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction (Dependent)	691	2.68	0.863	1	4	-
Health	700	2.17	0.873	1	4	7
Overall Experience of Life	700	2.83	0.840	1	4	1
Education	700	2.48	0.854	1	4	3
Environmental Characteristics	700	1.99	0.514	1	4	9
Built Environment	700	2.41	0.516	1	4	5
Economic Features	700	2.15	0.527	1	4	8
Leisure and Social Interaction	700	2.41	0.650	1	4	4
Political Administration	700	2.26	0.419	1	4	6
Safety	700	2.56	0.649	1	4	2

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

Table 25. *Results of the crude model for Palermo*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.196019	.0870357	2.25	0.024	.0254322	.3666058
Overall_Experience_of_Life	.0676779	.0994683	0.68	0.496	-.1272763	.2626321
Education	.1366805	.0896873	1.52	0.128	-.0391034	.3124645
Environmental_Characteristics	.8188164	.1609979	5.09	0.000	.5032664	1.134366
Built_Environment	.5322356	.1556504	3.42	0.001	.2271664	.8373047
Economic_Features	.0270245	.1613685	0.17	0.867	-.2892519	.3433009
Leisure_Social_Interaction	.5828816	.121074	4.81	0.000	.3455809	.8201824
Political_Administration	.2606724	.1801183	1.45	0.148	-.092353	.6136978
Safety	.2895915	.1191693	2.43	0.015	.0560239	.5231591

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

In relation to the ordered logistics regression results of crude model for Palermo, natural and environmental characteristics and leisure and social interaction have the highest level of significance (P<.001) on urban life satisfaction. In addition, built environment with P=.001 has high significance effect on the dependent variable

while safety with *P*=.015 and health with *P*=.024 show moderate significance on it. However, four other major predictors of response variable, including economic features (*P*=.867), overall experience of life (*P*=.496), governance and political administration (*P*=.148) and education (*P*=.128) are found insignificant in research statistics in Palermo (Table 25).

Based on the obtained information of coefficient results, among significant variables, the highest amount related to natural and environmental characteristics with β=0.81($e^{0.81}$=2.24). It means that the size and direction of the relationship between this predictor and the response variable is more than other variables. Respectively, the weakest association between the relevant independent variables and urban life satisfaction is related to health with β=0.19($e^{0.19}$=1.7).

Table 26. *Results of the full adjusted model for Palermo*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.210224	.0937383	2.24	0.025	.0265004	.3939477
Overall_Experience_of_Life	.057295	.1082156	0.53	0.596	-.1548038	.2693937
Education	.1688967	.0964246	1.75	0.080	-.020092	.3578854
Environmental_Characteristics	.8960413	.1761263	5.09	0.000	.5508401	1.241242
Built_Environment	.6309518	.1674189	3.77	0.000	.3028168	.9590869
Economic_Features	-.124217	.1775172	-0.70	0.484	-.4721444	.2237104
Leisure_Social_Interaction	.7283603	.1313056	5.55	0.000	.471006	.9857145
Political_Administration	.2430793	.2007692	1.21	0.226	-.150421	.6365796
Safety	.2800406	.1300909	2.15	0.031	.0250671	.5350141

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

The p-value results of full adjusted model (Table 26) show that the significance level of built environment was enhanced from high to very high degree (*P*<.001.) by adding all the control variables to the crude outcomes. At the same time, the level of significance of education was upgraded from an insignificant level to a weakly significant (*P*=.08).

Additionally, the values related to the size and direction of the relationship between each predictor and urban life satisfaction were changed by the addition of control variables as demonstrated in Table 27.

Table 27. *Coefficients results of the adjusted models for Palermo*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.196*	0.202*	0.202*	0.213*	0.215*	* 0.203	0.210*
Overall experience of life	0.067	0.085	0.085	0.095	0.077	0.086	0.057
Education	0.136	0.129	0.129	0.144	0.158	0.176	0.168
Environmental Characteristics	0.818***	0.802***	0.802***	0.854***	0.862**	0.869***	0.896***
Built Environment	0.532**	0.514**	0.514**	0.569***	0.599***	0.628***	0.630***
Economic Features	0.027	-0.000	0.000	-0.074	-0.099	-0.109	-0.124
Leisure and Social Interaction	0.582***	0.599***	0.599***	0.645***	0.659***	0.682***	0.728***
Political Administration	0.260	0.253	0.254	0.264	0.258	0.228	0.243
Safety	0.289*	0.333**	0.334**	0.284*	0.301*	0.278*	0.280*

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

*p < 0.05, **p < 0.01, *** p < 0.001

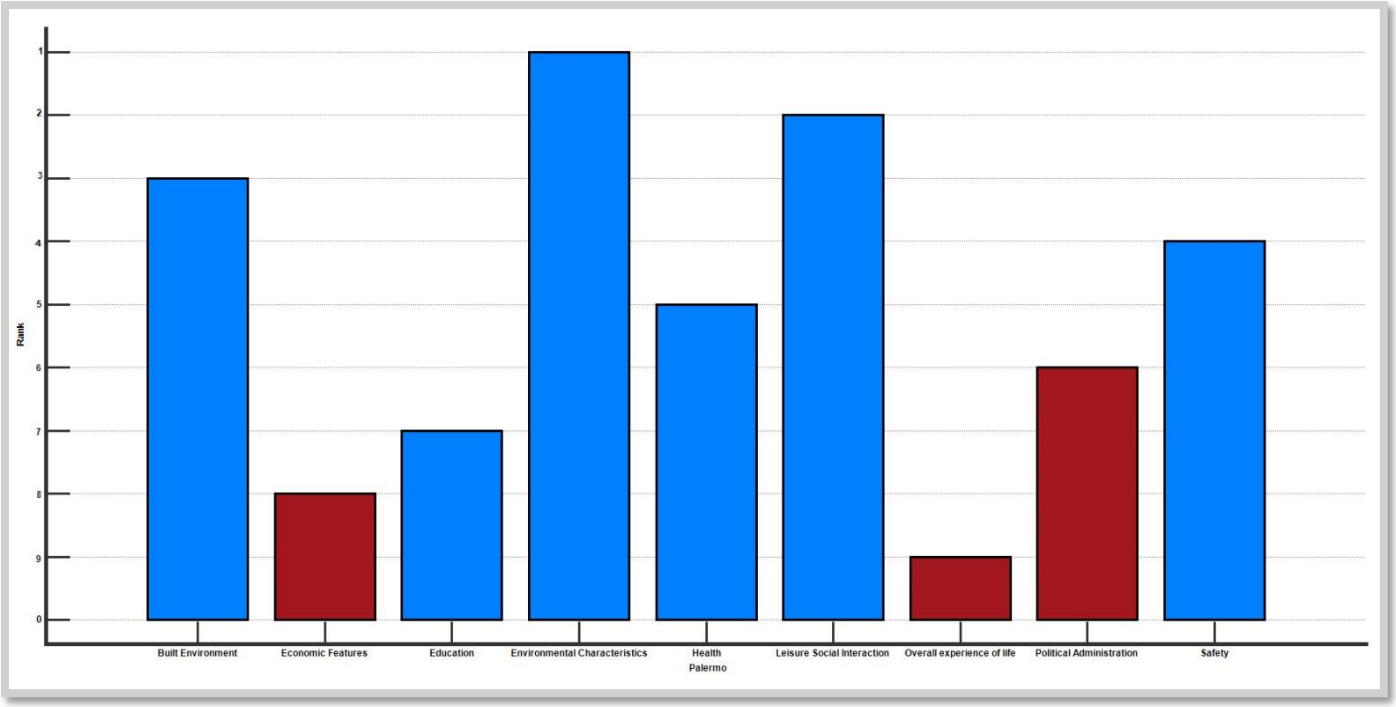
Source: Author, 2022

Final coefficient values (β) of the relevant independent and the magnitude of the relationship between each variable and the response variable (e^{β})– so long as other values remain constant–are equal to β=0.89, $e^{0.89}$=2.43 for natural and environmental characteristics, β=0.72, $e^{0.72}$=2.05 for leisure and social interaction, β=0.63, $e^{0.63}$=1.87 for built environment, β=0.28, $e^{0.28}$=1.32 for safety, β=0.21, $e^{0.21}$=1.23 for health and β=0.16, $e^{0.16}$=1.17 for education.

In addition, as it is presented in the full adjusted model of this variable, the numerical value of coefficient factor for economic features changed to a negative range (β=-0.124). Notwithstanding, because this variable does not have a significant

relationship with the response variable in Palermo, it cannot be concluded that these two variables have an inverse relationship with each other.

Figure 12. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Palermo*



Blue: Significant variable

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

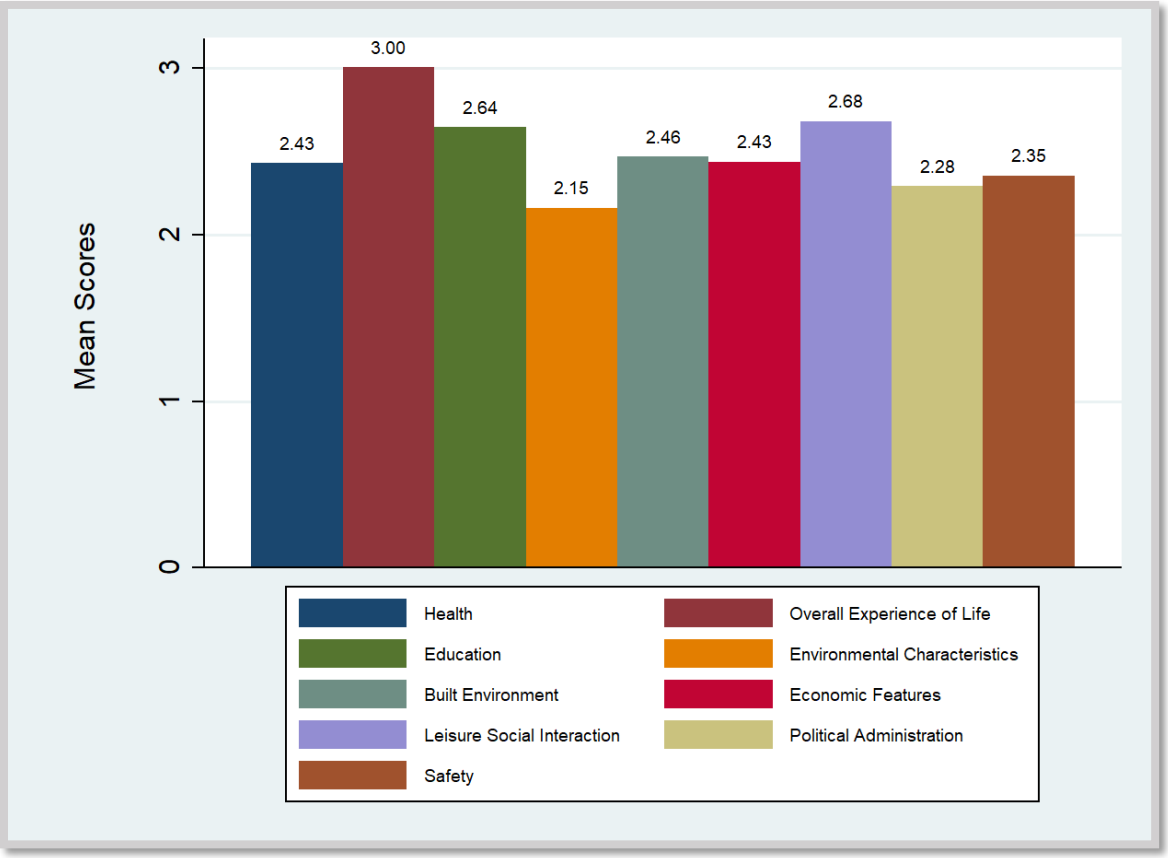
Table 28. *Results of the full adjusted model for all variables in Palermo*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.210224	.0937383	2.24	0.025	.0265004	.3939477
Overall_Experience_of_Life	.057295	.1082156	0.53	0.596	-.1548038	.2693937
Education	.1688967	.0964246	1.75	0.080	-.020092	.3578854
Environmental_Characteristics	.8960413	.1761263	5.09	0.000	.5508401	1.241242
Built_Environment	.6309518	.1674189	3.77	0.000	.3028168	.9590869
Economic_Features	-.124217	.1775172	-0.70	0.484	-.4721444	.2237104
Leisure_Social_Interaction	.7283603	.1313056	5.55	0.000	.471006	.9857145
Political_Administration	.2430793	.2007692	1.21	0.226	-.150421	.6365796
Safety	.2800406	.1300909	2.15	0.031	.0250671	.5350141
D1	.0081531	.007306	1.12	0.264	-.0061664	.0224726
D2						
Female	-.071848	.1609759	-0.45	0.655	-.3873549	.243659
isced						
Lower secondary education (ISCED 2)	-1.362289	1.001448	-1.36	0.174	-3.325092	.6005139
Upper secondary education (ISCED 3)	-.6457309	.9844925	-0.66	0.512	-2.575301	1.283839
Post-secondary non-tertiary education (ISCED 4)	-1.138268	1.003232	-1.13	0.257	-3.104566	.8280311
Short-cycle tertiary education (ISCED 5)	-.5239474	1.002603	-0.52	0.601	-2.489013	1.441118
Bachelor or equivalent (ISCED 6)	-.6464721	.998769	-0.65	0.517	-2.604023	1.311079
Master or equivalent (ISCED 7)	-1.238096	1.018609	-1.22	0.224	-3.234532	.7583408
Doctoral or equivalent (ISCED 8)	-.4971751	1.29646	-0.38	0.701	-3.03819	2.04384
d11						
Unemployed, not looking actively for a job	.8020776	.7746418	1.04	0.300	-.7161924	2.320348
Unemployed, looking actively for a job	.2503177	.3736269	0.67	0.503	-.4819776	.9826129
Retired	.4416297	.3070274	1.44	0.150	-.1601329	1.043392
Unable to work due to long-standing health problems	1.928202	1.587616	1.21	0.225	-1.183468	5.039872
In full-time education (at school, university, etc...	.076611	.4438253	0.17	0.863	-.7932705	.9464925
Full-time homemaker/responsible for ordinary shoppi..	.3143661	.4045723	0.78	0.437	-.478581	1.107313
d8						
Lone parent with at least one child aged less than 25	.9330107	.4488915	2.08	0.038	.0531996	1.812822
Lone parent with all children aged 25 or more	.6887388	.5637953	1.22	0.222	-.4162797	1.793757
Couple without any child(ren)	.3770181	.2620942	1.44	0.150	-.1366771	.8907132
Couple with at least one child aged less than 25	.8026694	.2650687	3.03	0.002	.2831442	1.322195
Couple with all children aged 25 or more	.4918375	.289871	1.70	0.090	-.0762993	1.059974
Other type of household	.1099309	.3570595	0.31	0.758	-.5898928	.8097546
q15						
Fair (neither good or bad)	.2136581	.4260233	0.50	0.616	-.6213322	1.048649
Good	-.1595253	.4206337	-0.38	0.705	-.9839522	.6649015
Very good	-.0366066	.4436982	-0.08	0.934	-.906239	.8330259

Source: Author, 2022

4.3.2.4. Statistical Analysis of Rome

Figure 13. *The satisfaction level of Rome citizens with independent variables*



Source: Author, 2022

The results of the descriptive analysis for nine urban life satisfaction related variables in Rome indicate that overall experience of life has the highest value of average satisfaction while natural and environmental characteristics has the lowest rate (Table 29). According to the self-perceived satisfaction rate of inhabitants of Rome, in addition to the natural and environmental characteristics, the condition of governance and political administration, safety and health care services in this city are qualitatively lower than other variables (Figure 8).

Table 29. *Descriptive statistics for all variables for Rome*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction	696	2.89	0.865	1	4	-
Health	700	2.43	0.885	1	4	6
Overall Experience of Life	700	3.00	0.725	1	4	1
Education	700	2.64	0.797	1	4	3
Environmental Characteristics	700	2.15	0.520	1	4	9
Built Environment	700	2.46	0.541	1	4	4
Economic Features	700	2.43	0.510	1	4	5
Leisure and Social Interaction	700	2.68	0.674	1	4	2
Political Administration	700	2.28	0.437	1	4	8
Safety	700	2.35	0.652	1	4	7

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

Table 30. *Results of the crude model for Rome*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.0606039	.0879296	0.69	0.491	-.111735	.2329428
Overall_Experience_of_Life	.4401781	.1069432	4.12	0.000	.2305732	.649783
Education	.0860707	.0989565	0.87	0.384	-.1078805	.2800219
Environmental_Characteristics	.7490082	.1676214	4.47	0.000	.4204763	1.07754
Built_Environment	.9260162	.1641131	5.64	0.000	.6043603	1.247672
Economic_Features	.1641155	.1533098	1.07	0.284	-.1363662	.4645971
Leisure_Social_Interaction	.0351818	.1153475	0.31	0.760	-.1908952	.2612588
Political_Administration	.2066445	.1799042	1.15	0.251	-.1459613	.5592504
Safety	.2083852	.1228624	1.70	0.090	-.0324208	.4491911

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

As reported by ordered logistics regression results of crude model in Rome, along with the overall experience of life, natural and environmental characteristics and built environment with the *P*<.001. show a very significant relevance with urban life satisfaction while safety with *P*=.09 has a weak significance on dependent variable. At the same time, the other predictors including leisure and social interaction, governance and political administration, health, education and economic features are

found insignificant based on statistical outcomes of Rome and indicate irrelevance association with response variable (Table 30).

In terms of coefficient results, among the relevant variables, built environment with $\beta=0.92(e^{0.92}=2.52)$, environmental characteristics with $\beta=0.74(e^{0.74}=2.11)$, overall experience of life with $\beta=0.44(e^{0.44}=1.55)$ and safety with $\beta=0.20(e^{0.2}=1.23)$ respectively have the highest degrees of significant effect on the urban life satisfaction in regard to the size and direction of their relationships.

As can be seen in the p-value results of Table 31, which is fully adjusted, the significance level of safety was increased from weak to the moderate degree (*P*=.046) by adding all the control variables to the crude outcomes. Likewise, the significance level of natural and environmental characteristics was declined from very high to high degree (*P*=.001).

Table 31. *Results of the full adjusted model for Rome*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.1056579	.0956125	1.11	0.269	-.0817392	.2930551
Overall_Experience_of_Life	.4651172	.1167704	3.98	0.000	.2362514	.6939829
Education	.114267	.1060934	1.08	0.281	-.0936722	.3222061
Environmental_Characteristics	.6178747	.1860143	3.32	0.001	.2532934	.9824561
Built_Environment	.9361282	.1758485	5.32	0.000	.5914715	1.280785
Economic_Features	.2530536	.1709198	1.48	0.139	-.0819432	.5880503
Leisure_Social_Interaction	.0724306	.1227566	0.59	0.555	-.1681679	.313029
Political_Administration	.1390743	.1961233	0.71	0.478	-.2453204	.5234689
Safety	.2674821	.1343328	1.99	0.046	.0041946	.5307695

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

Table 32. *Coefficients results of the adjusted models for Rome*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.060	0.059	0.061	0.094	0.099	0.104	0.105
Overall experience of life	0.440***	0.441***	0.442***	0.462***	0.461***	0.455***	0.465***
Education	0.086	0.086	0.087	0.128	0.143	0.140	0.114
Environmental Characteristics	0.749***	0.750***	0.742***	0.638***	0.604**	0.609**	0.617**
Built Environment	0.926***	0.925***	0.925***	0.945***	0.907***	0.907***	0.936***
Economic Features	0.164	0.162	0.163	0.247	0.268	0.268	0.253
Leisure and Social Interaction	0.035	0.037	0.032	0.056	0.083	0.080	0.072
Political Administration	0.206	0.206	0.211	0.131	0.159	0.160	0.139
Safety	0.208	0.212	0.218	0.217	0.251	0.244	0.267*

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

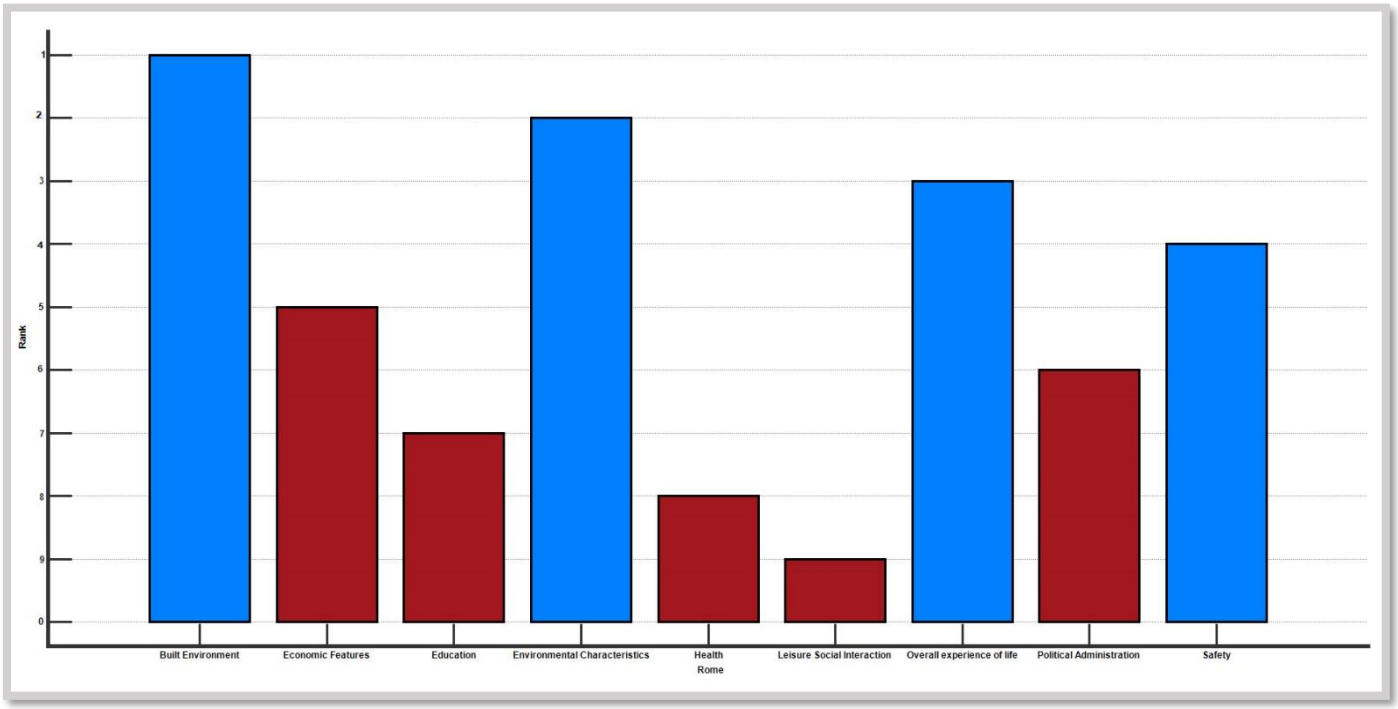
*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

Moreover, the magnitude of the relationship between independent variables and urban life satisfaction were slightly changed as presented in the Table 32.

Built environment with β=0.93, natural and environmental characteristics with β=0.61, overall experience of life with β=0.46 and safety with β=0.26 can establish a relationship with the size of 2.53, 1.84, 1.58 and 1.29 with the response variable in that order while the other predictors in the model are held constant.

Figure 14. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Rome*



Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

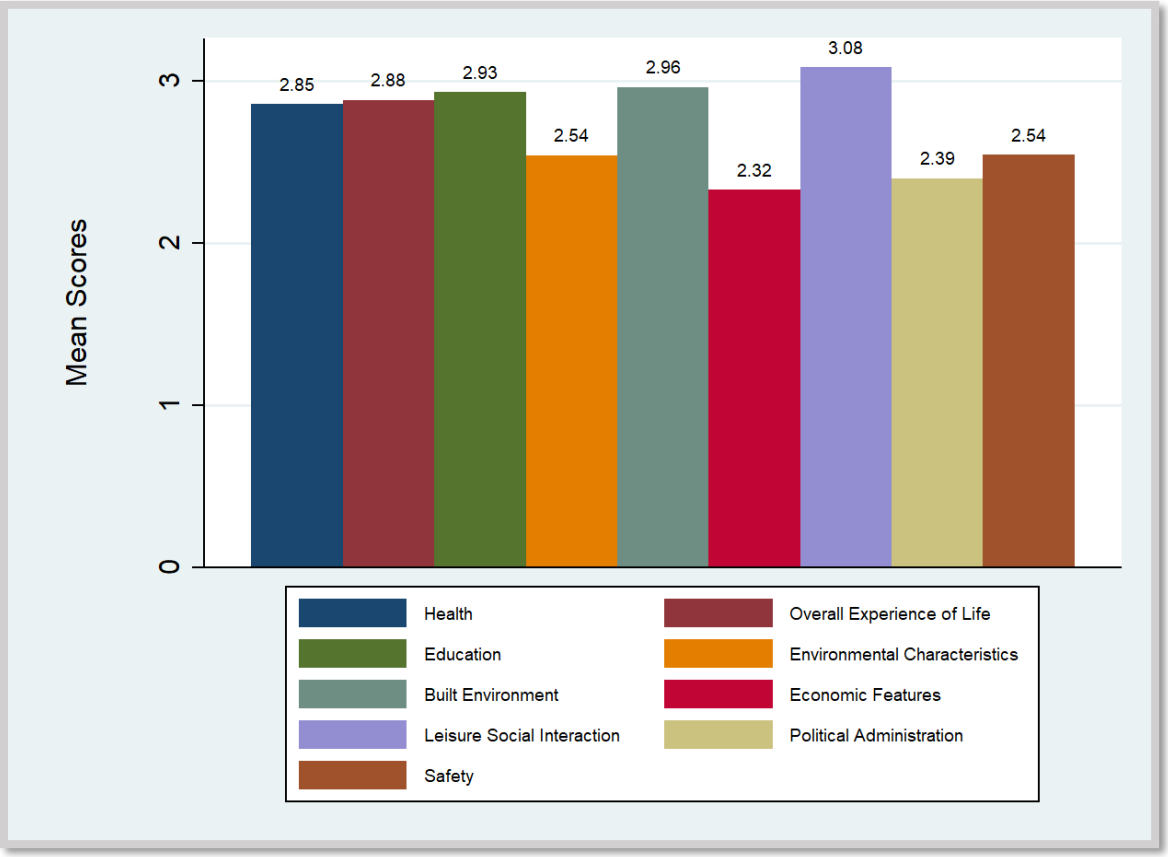
Table 33. *Results of the full adjusted model for all variables in Rome*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.1056579	.0956125	1.11	0.269	-.0817392	.2930551
Overall_Experience_of_Life	.4651172	.1167704	3.98	0.000	.2362514	.6939829
Education	.114267	.1060934	1.08	0.281	-.0936722	.3222061
Environmental_Characteristics	.6178747	.1860143	3.32	0.001	.2532934	.9824561
Built_Environment	.9361282	.1758485	5.32	0.000	.5914715	1.280785
Economic_Features	.2530536	.1709198	1.48	0.139	-.0819432	.5880503
Leisure_Social_Interaction	.0724306	.1227566	0.59	0.555	-.1681679	.313029
Political_Administration	.1390743	.1961233	0.71	0.478	-.2453204	.5234689
Safety	.2674821	.1343328	1.99	0.046	.0041946	.5307695
D1	-.0014182	.0080296	-0.18	0.860	-.0171559	.0143196
D2						
Female	.0837597	.1672511	0.50	0.617	-.2440465	.4115658
isced						
Lower secondary education (ISCED 2)	-2.678613	1.217128	-2.20	0.028	-5.064141	-.2930863
Upper secondary education (ISCED 3)	-2.9067	1.19965	-2.42	0.015	-5.257971	-.5554285
Post-secondary non-tertiary education (ISCED 4)	-3.256211	1.23092	-2.65	0.008	-5.66877	-.8436509
Short-cycle tertiary education (ISCED 5)	-2.899352	1.222386	-2.37	0.018	-5.295185	-.5035182
Bachelor or equivalent (ISCED 6)	-3.24306	1.20311	-2.70	0.007	-5.601113	-.8850079
Master or equivalent (ISCED 7)	-3.51154	1.2686	-2.77	0.006	-5.99795	-1.02513
Doctoral or equivalent (ISCED 8)	-4.032041	1.403502	-2.87	0.004	-6.782853	-1.281228
d11						
Unemployed, not looking actively for a job	.0917144	.7022362	0.13	0.896	-1.284643	1.468072
Unemployed, looking actively for a job	-.5941245	.3913258	-1.52	0.129	-1.361109	.1728599
Retired	-.1570396	.3003384	-0.52	0.601	-.7456919	.4316128
Unable to work due to long-standing health problems	14.32065	620.6198	0.02	0.982	-1202.072	1230.713
In full-time education (at school, university, etc...	.4532811	.4328252	1.05	0.295	-.3950407	1.301603
Full-time homemaker/responsible for ordinary shoppi..	-.120291	.3618745	-0.33	0.740	-.8295519	.5889699
Compulsory military or civilian service	-.4723523	1.827213	-0.26	0.796	-4.053624	3.10892
d8						
Lone parent with at least one child aged less than 25	-.3392941	.4104266	-0.83	0.408	-1.143715	.4651273
Lone parent with all children aged 25 or more	.2300913	.4347022	0.53	0.597	-.6219093	1.082092
Couple without any child(ren)	-.0705014	.2736002	-0.26	0.797	-.6067479	.4657451
Couple with at least one child aged less than 25	-.1511228	.2842306	-0.53	0.595	-.7082045	.405959
Couple with all children aged 25 or more	.0013138	.3062566	0.00	0.997	-.5989381	.6015656
Other type of household	-.1885536	.3846143	-0.49	0.624	-.9423839	.5652767
q15						
Bad	.6112176	1.206701	0.51	0.612	-1.753873	2.976309
Fair (neither good or bad)	.397955	1.171498	0.34	0.734	-1.898138	2.694048
Good	.2529384	1.166051	0.22	0.828	-2.03248	2.538357
Very good	.1808564	1.172815	0.15	0.877	-2.117818	2.479531

Source: Author, 2022

4.3.2.5. Statistical Analysis of Turin

Figure 15. *The satisfaction rate of Turin citizens with independent variables*



Source: Author, 2022

The results of the descriptive analysis for nine urban life satisfaction related variables show that 'leisure and social interaction' has the highest rate of average satisfaction in Turin while 'economic features' has the lowest value (Table 34).

The efficiency of the built environment, along with educational facilities condition of the city and self-reported overall experience of life, from the standpoint of residents, have higher quality than other urban life domains in Turin.

In contrast, the performance of the city in terms of variables such as governance and political administration, natural and environmental characteristics and safety is undesirable from the perspective of people of Turin (Figure 9).

Table 34. *Descriptive statistics for all variables in Turin*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction	700	3.21	0.699	1	4	-
Health	700	2.85	0.845	1	4	5
Overall Experience of Life	700	2.88	0.821	1	4	4
Education	700	2.93	0.715	1	4	3
Environmental Characteristics	700	2.54	0.524	1	4	7
Built Environment	700	2.96	0.506	1	4	2
Economic Features	700	2.32	0.556	1	4	9
Leisure and Social Interaction	700	3.08	0.525	1	4	1
Political Administration	700	2.39	0.444	1	4	8
Safety	700	2.54	0.672	1	4	6

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

Table 35. *Results of the crude model for Turin*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.225784	.095547	2.36	0.018	.0385153	.4130526
Overall_Experience_of_Life	.2165698	.1005602	2.15	0.031	.0194755	.4136641
Education	-.2176171	.1117446	-1.95	0.051	-.4366325	.0013983
Environmental_Characteristics	.3525748	.1656467	2.13	0.033	.0279132	.6772364
Built_Environment	.8562233	.1728367	4.95	0.000	.5174696	1.194977
Economic_Features	.4451455	.1491403	2.98	0.003	.152836	.737455
Leisure_Social_Interaction	.2586013	.1545909	1.67	0.094	-.0443914	.5615939
Political_Administration	.3039755	.1790445	1.70	0.090	-.0469453	.6548963
Safety	.2648952	.1263472	2.10	0.036	.0172593	.5125312

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.00

In respect to the ordered logistics regression results of crude model in Turin, built environment with *P*<.001. exhibits a very high significance on urban life satisfaction and economic features with *P*=.003 has high significance on dependent variable. Furthermore, safety with *P*=.036, natural and environmental characteristics with *P*=.033, overall experience of life with *P*=.031 and health with *P*=.018 demonstrate moderate relevance in relationship with urban life satisfaction.

At the same time, leisure and social interaction with *P*=.094, governance and political administration with *P*=.09 and education with *P*=.051 display a weak significance on the urban life satisfaction as the response variable of the study (Table 30).It should be noted that the type of weak relationship between education variable and urban life satisfaction is reversed due to the negative value of its coefficient factor (β= -0.217).

Based on the obtained information of coefficient results, among the significant variables, the highest value related to the built environment with β=0.85($e^{0.85}$=2.33). It means that the size and direction of the relationship between this predictor and the response variable is more than other variables. Respectively, the weakest association between the relevant independent variables and urban life satisfaction is related to the overall experience of life with β=0.21($e^{0.21}$=1.24) in Turin.

Table 36. *Results of the full adjusted model for Turin*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2906892	.1049285	2.77	0.006	.0850331	.4963453
Overall_Experience_of_Life	.2342129	.1107494	2.11	0.034	.0171481	.4512777
Education	-.2322505	.1216944	-1.91	0.056	-.4707671	.0062662
Environmental_Characteristics	.3041418	.1895779	1.60	0.109	-.0674241	.6757076
Built_Environment	.722996	.1911987	3.78	0.000	.3482534	1.097739
Economic_Features	.3248781	.1660266	1.96	0.050	-.0005281	.6502842
Leisure_Social_Interaction	.3910215	.1733903	2.26	0.024	.0511828	.7308601
Political_Administration	.3002632	.1999543	1.50	0.133	-.0916401	.6921664
Safety	.4292115	.1432856	3.00	0.003	.1483769	.7100461

Source: Author, 2022 *p < 0.05, **p < 0.01, *** p < 0.001

According to the p-value outcomes of full adjusted model in Turin, adding socio-demographic characteristics modified the significance level of natural and environmental characteristics (*P*=.109), health (*P*=.006), economic features (*P*=.05), leisure and social interaction (*P*=.024), governance and political administration (*P*=.133) and safety (*P*=.003) (Table 36). The significance levels of health and safety were enhanced from moderate level to high degree while significance classification of natural and environmental characteristics and governance and political administration were turned to the insignificance level. Likewise, the significance

level of economic features was decreased to weak level while leisure and social interaction was reached to the moderate level.

Table 37. *Coefficients results of the adjusted models for Turin*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.225*	0.224*	0.222*	0.282**	0.277**	0.296**	0.290**
Overall experience of life	0.216*	0.238*	0.242*	0.247*	0.223*	0.231*	0.234*
Education	-0.217	-0.223*	-0.228*	-0.208	-0.217	-0.214	-0.232
Environmental Characteristics	0.352*	0.373*	0.367*	0.414*	0.386*	0.348	0.304
Built Environment	0.856***	0.854***	0.850***	0.793***	0.724***	0.727***	0.722***
Economic Features	0.445**	0.340*	0.354*	0.290	0.339*	0.336*	0.324
Leisure and Social Interaction	0.258	0.301	0.301	0.344*	0.382*	0.394*	0.391*
Political Administration	0.303	0.303	0.324	0.305	0.286	0.287	0.300
Safety	0.264*	0.314*	0.356**	0.372**	0.420**	0.402**	0.429**

Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

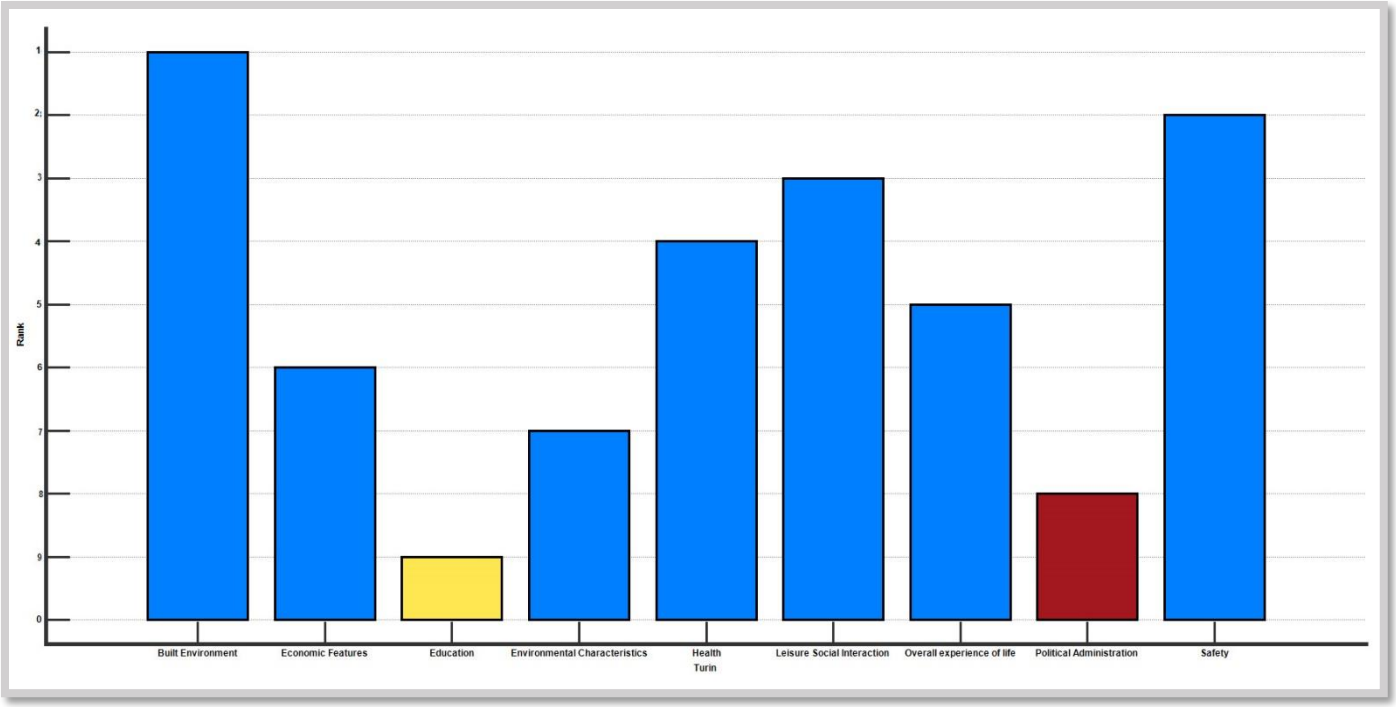
*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

In addition, the values of the coefficient result of independent variables were changed which can be noted in the Table 37. Latest coefficient values (β) of the relevant independent and the magnitude of the relationship between each variable and the response variable (e^{β})—as long as other values remain constant—are equal to β=0.72, $e^{0.72}$=2.05 for built environment, β=0.42, $e^{0.42}$=1.52 for safety, β=0.39, $e^{0.39}$=1.47 for leisure and social interaction, β=0.32, $e^{0.32}$=1.37 for economic features, β=0.29, $e^{0.29}$=1.33 for health and β=0.23, $e^{0.23}$=1.25 for overall experience of life.

Education is the only variable which has a negative coefficient value with final result β=-0.23($e^{-0.23}$=-1.25). It means that, this variable has an inverse relationship with the response variable in Turin (Table 37).

Figure 16. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Turin*



Blue: significant variables

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

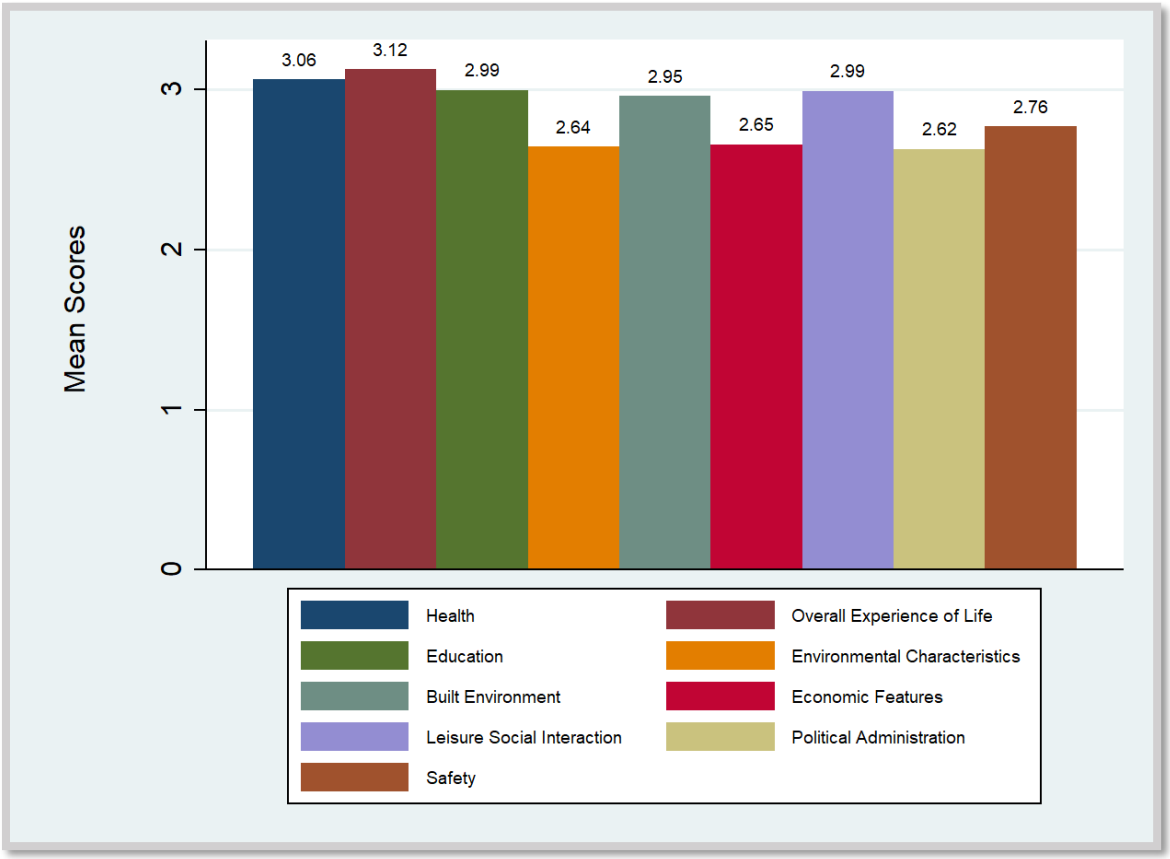
Table 38. *Results of the full adjusted model for all variables in Turin*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2906892	.1049285	2.77	0.006	.0850331	.4963453
Overall_Experience_of_Life	.2342129	.1107494	2.11	0.034	.0171481	.4512777
Education	-.2322505	.1216944	-1.91	0.056	-.4707671	.0062662
Environmental_Characteristics	.3041418	.1895779	1.60	0.109	-.0674241	.6757076
Built_Environment	.722996	.1911987	3.78	0.000	.3482534	1.097739
Economic_Features	.3248781	.1660266	1.96	0.050	-.0005281	.6502842
Leisure_Social_Interaction	.3910215	.1733903	2.26	0.024	.0511828	.7308601
Political_Administration	.3002632	.1999543	1.50	0.133	-.0916401	.6921664
Safety	.4292115	.1432856	3.00	0.003	.1483769	.7100461
D1	.0093906	.008224	1.14	0.254	-.0067282	.0255094
D2						
Female	.3240656	.1701063	1.91	0.057	-.0093366	.6574678
isced						
Lower secondary education (ISCED 2)	-1.121727	.9459831	-1.19	0.236	-2.97582	.7323659
Upper secondary education (ISCED 3)	-1.387575	.9262924	-1.50	0.134	-3.203075	.427925
Post-secondary non-tertiary education (ISCED 4)	-1.29987	.9517942	-1.37	0.172	-3.165352	.5656123
Short-cycle tertiary education (ISCED 5)	-1.061	.9479034	-1.12	0.263	-2.918857	.7968563
Bachelor or equivalent (ISCED 6)	-1.480151	.9368791	-1.58	0.114	-3.3164	.3560981
Master or equivalent (ISCED 7)	-1.825115	.9792996	-1.86	0.062	-3.744507	.0942774
Doctoral or equivalent (ISCED 8)	-1.124508	1.384094	-0.81	0.417	-3.837282	1.588267
d11						
Unemployed, not looking actively for a job	-2.194182	1.150586	-1.91	0.057	-4.449289	.0609248
Unemployed, looking actively for a job	-.1574998	.3918151	-0.40	0.688	-.9254432	.6104436
Retired	.1663482	.3005533	0.55	0.580	-.4227255	.755422
Unable to work due to long-standing health problems	.3131503	.8651053	0.36	0.717	-1.382425	2.008726
In full-time education (at school, university, etc...	.0839739	.3802098	0.22	0.825	-.6612236	.8291713
Full-time homemaker/responsible for ordinary shoppi..	.5774623	.46554	1.24	0.215	-.3349793	1.489904
d8						
Lone parent with at least one child aged less than 25	.5686275	.5166371	1.10	0.271	-.4439626	1.581218
Lone parent with all children aged 25 or more	-.3713802	.4705855	-0.79	0.430	-1.293711	.5509504
Couple without any child(ren)	.1564443	.2562953	0.61	0.542	-.3458852	.6587739
Couple with at least one child aged less than 25	-.2070253	.2709535	-0.76	0.445	-.7380844	.3240338
Couple with all children aged 25 or more	-.153087	.2819979	-0.54	0.587	-.7057927	.3996187
Other type of household	.3509084	.4123778	0.85	0.395	-.4573372	1.159154
q15						
Bad	-.5409106	.933191	-0.58	0.562	-2.369931	1.28811
Fair (neither good or bad)	-.2487334	.8112309	-0.31	0.759	-1.838717	1.34125
Good	-.3363565	.8099173	-0.42	0.678	-1.923765	1.251052
Very good	-.1835669	.83161	-0.22	0.825	-1.813492	1.446359

Source: Author, 2022

4.3.2.6. Statistical Analysis of Verona

Figure 17. *The satisfaction rate of Verona citizens with independent variables*



Source: Author, 2022

The outcomes of the descriptive analysis for nine urban life satisfaction related variables in Verona represent that 'overall experience of life' has the highest rate of average satisfaction while governance and political administration has the lowest value (Table 33).

Furthermore, from the standpoint of inhabitants of Verona, the condition of healthcare services, educational facilities, and leisure and social interaction, have a better quality rate than other independent variables. On the other hand, the state of the city in terms of domains like natural and environmental characteristics, economic features and safety was reported undesirable according to the self-perceived satisfaction level of individuals in Verona (Figure 10).

Table 39. *Descriptive statistics for all variables in Verona*

Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank*
Urban life satisfaction	700	3.38	0.658	1	4	-
Health	700	3.06	0.754	1	4	2
Overall Experience of Life	700	3.12	0.689	1	4	1
Education	700	2.99	0.665	1	4	3
Environmental Characteristics	700	2.64	0.508	1	4	8
Built Environment	700	2.95	0.498	1	4	5
Economic Features	700	2.65	0.467	1	4	7
Leisure and Social Interaction	700	2.99	0.597	1	4	4
Political Administration	700	2.62	0.409	1	4	9
Safety	700	2.76	0.570	1	4	6

Note: * The order of citizens' self-perceived satisfaction with independent variables

Source: Author, 2022

As reported by results of crude model in Verona, natural and environmental characteristics with *P*=.001 and economic features with *P*=.006 show a high significant relevance with urban life satisfaction while health with *P*=0.035 indicates a moderate significance on the urban life satisfaction as the dependent variable of the study (Table 40).

Table 40. *Results of the crude model for Verona*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2231526	.1061193	2.10	0.035	.0151626	.4311427
Overall_Experience_of_Life	.0965077	.1144986	0.84	0.399	-.1279055	.3209209
Education	.229738	.1210497	1.90	0.058	-.0075151	.4669912
Environmental_Characteristics	.5287607	.1638591	3.23	0.001	.2076027	.8499187
Built_Environment	.2377024	.1777278	1.34	0.181	-.1106376	.5860425
Economic_Features	.4719302	.1715948	2.75	0.006	.1356107	.8082498
Leisure_Social_Interaction	.253322	.1383991	1.83	0.067	-.0179353	.5245794
Political_Administration	-.0994028	.1915647	-0.52	0.604	-.4748628	.2760571
Safety	.2676507	.148368	1.80	0.071	-.0231451	.5584466

Source: Author, 2022

*p < 0.05, **p < 0.01, *** p < 0.001

At the same time, education (*P*=.058), leisure and social interaction (*P*=.067) and safety (*P*=.071) are three predictors that have weak significance on urban life satisfaction (Table 40). On the contrary, the other predictors including governance and political administration with *P*=.604, overall experience of life with *P*=.399 and built environment with *P*=.181 are found insignificant in the study and indicate irrelevance association with response variable.

In terms of coefficient results, among the relevant variables in the crude model, natural and environmental characteristics with $\beta=0.52(e^{0.52}=1.68)$ have the highest degree of significant effect on the urban life satisfaction in regard to the size and direction of their relationship. In the same way, based on the magnitude of the association with response variable, health with $\beta=0.22(e^{0.22}=1.24)$ indicates the weakest relevance with urban life satisfaction.

On the basis of the p-value results of full adjusted model in Table 41, the significance level of safety (*P*=.028), education (*P*=.034) and leisure and social interaction (*P*=.028) were increased from weak to moderate degree by adding all the control variables to the crude outcomes.

Table 41. *Results of the full adjusted model for Verona*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.259681	.1132314	2.29	0.022	.0377515	.4816104
Overall_Experience_of_Life	.0763978	.1252138	0.61	0.542	-.1690168	.3218124
Education	.281171	.1323511	2.12	0.034	.0217676	.5405744
Environmental_Characteristics	.5367957	.1782774	3.01	0.003	.1873785	.886213
Built_Environment	.2652296	.1961203	1.35	0.176	-.1191592	.6496184
Economic_Features	.5388643	.1894965	2.84	0.004	.1674579	.9102706
Leisure_Social_Interaction	.3438659	.1564438	2.20	0.028	.0372417	.65049
Political_Administration	-.2595511	.2141921	-1.21	0.226	-.6793599	.1602577
Safety	.3566599	.1622886	2.20	0.028	.03858	.6747398

Source: Author, 2022

*p < 0.05, **p < 0.01, *** p < 0.001

Table 42. *Coefficients results of the adjusted models for Verona*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Health	0.223*	0.215*	0.216*	0.241*	0.246*	0.255*	0.259*
Overall experience of life	0.096	0.098	0.095	0.076	0.080	0.097	0.076
Education	0.229	0.239*	0.259*	0.227	0.231	0.266*	0.281*
Environmental Characteristics	0.528**	0.550**	0.548**	0.547**	0.542**	0.539**	0.536**
Built Environment	0.237	0.226	0.207	0.223	0.213	0.232	0.265
Economic Features	0.471**	0.451**	0.447**	0.433*	0.460*	0.514**	0.538**
Leisure and Social Interaction	0.253	0.250	0.279*	0.354*	0.350*	0.334*	0.343*
Political Administration	-0.099	-0.115	-0.138	-0.236	-0.237	-0.222	-0.259
Safety	0.267	0.273	0.310*	0.335*	0.329*	0.330*	0.356*

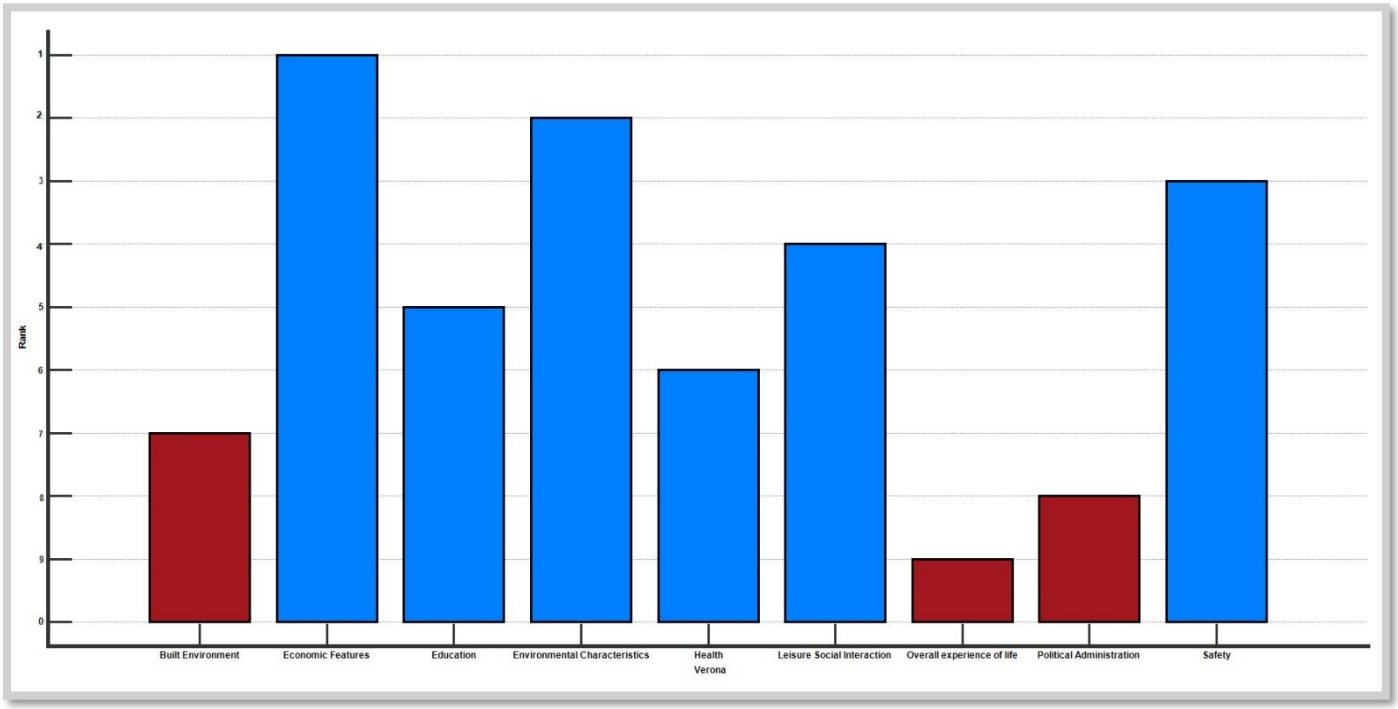
Note: Model 1: crude model; Model 2: age is adjusted; Model 3: age and gender are adjusted; Model 4: age, gender and health condition are adjusted; Model 5: age, gender, health condition and education status are adjusted; Model 6: age, gender, health condition, education status and household composition are adjusted; Model 7: full adjusted model.

*p < 0.05, **p < 0.01, *** p < 0.001

Source: Author, 2022

In terms of the size and direction of association with the urban life satisfaction, for the relevant independent variable, latest coefficient values (β) and the magnitude of the relationship between each variable and the response variable (e^{β})—while other values remain constant—are equal to β=0.53, $e^{0.53}$=1.69 for economic features, β=0.53, $e^{0.53}$=1.69 for natural and environmental characteristics, β=0.35, $e^{0.35}$=1.41 for safety, β=0.34, $e^{0.34}$=1.4 for leisure and social interaction, β=0.28, $e^{0.28}$=1.32 for education, β=0.25, $e^{0.25}$=1.28 for health (Table 42).

Figure 18. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction in Verona*



Blue: Significant variables

Yellow: Inverse relationship with dependent variable

Red: Insignificant relationship with dependent variable

Source: Author, 2022

Table 43. *Results of the full adjusted model for all variables in Verona*

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.259681	.1132314	2.29	0.022	.0377515	.4816104
Overall_Experience_of_Life	.0763978	.1252138	0.61	0.542	-.1690168	.3218124
Education	.281171	.1323511	2.12	0.034	.0217676	.5405744
Environmental_Characteristics	.5367957	.1782774	3.01	0.003	.1873785	.886213
Built_Environment	.2652296	.1961203	1.35	0.176	-.1191592	.6496184
Economic_Features	.5388643	.1894965	2.84	0.004	.1674579	.9102706
Leisure_Social_Interaction	.3438659	.1564438	2.20	0.028	.0372417	.65049
Political_Administration	-.2595511	.2141921	-1.21	0.226	-.6793599	.1602577
Safety	.3566599	.1622886	2.20	0.028	.03858	.6747398
D1	.0071399	.0080822	0.88	0.377	-.008701	.0229808
D2						
Female	.5403474	.1703054	3.17	0.002	.2065549	.8741399
isced						
Lower secondary education (ISCED 2)	-.2126432	.6560674	-0.32	0.746	-1.498512	1.073225
Upper secondary education (ISCED 3)	-.1632367	.5969572	-0.27	0.785	-1.333251	1.006778
Post-secondary non-tertiary education (ISCED 4)	.2040918	.6316963	0.32	0.747	-1.03401	1.442194
Short-cycle tertiary education (ISCED 5)	-.1892623	.624795	-0.30	0.762	-1.413838	1.035314
Bachelor or equivalent (ISCED 6)	.0383122	.6126175	0.06	0.950	-1.162396	1.23902
Master or equivalent (ISCED 7)	.6280328	.6946504	0.90	0.366	-.7334569	1.989522
Doctoral or equivalent (ISCED 8)	-.6686927	1.019387	-0.66	0.512	-2.666654	1.329268
d11						
Unemployed, not looking actively for a job	1.129992	.6715269	1.68	0.092	-.1861768	2.44616
Unemployed, looking actively for a job	.2790415	.372195	0.75	0.453	-.4504473	1.00853
Retired	-.4821192	.3053031	-1.58	0.114	-1.080502	.1162639
Unable to work due to long-standing health problems	-.9142526	2.429914	-0.38	0.707	-5.676797	3.848292
In full-time education (at school, university, etc...	.0129445	.4559302	0.03	0.977	-.8806624	.9065513
Full-time homemaker/responsible for ordinary shoppi..	.6549054	.4952512	1.32	0.186	-.3157692	1.62558
d8						
Lone parent with at least one child aged less than 25	-.5111373	.5137707	-0.99	0.320	-1.518109	.4958347
Lone parent with all children aged 25 or more	.464647	.5042288	0.92	0.357	-.5236233	1.452917
Couple without any child(ren)	.3028224	.2501564	1.21	0.226	-.1874753	.79312
Couple with at least one child aged less than 25	.0967237	.2810322	0.34	0.731	-.4540894	.6475368
Couple with all children aged 25 or more	.087468	.3012286	0.29	0.772	-.5029291	.6778652
Other type of household	-.5432832	.3550613	-1.53	0.126	-1.239191	.1526242
q15						
Bad	-.5531963	1.586703	-0.35	0.727	-3.663077	2.556685
Fair (neither good or bad)	-1.28995	1.544547	-0.84	0.404	-4.317206	1.737306
Good	-1.321339	1.54436	-0.86	0.392	-4.348228	1.705551
Very good	-1.438102	1.557267	-0.92	0.356	-4.49029	1.614086

Source: Author, 2022

4.3.3. Discussion

4.3.3.1 Interpretation and Explanation of Statistical Findings

Until recently, quality of life has been mainly studied at country level and a number of research proposed country specific satisfaction measures. However, many of the features that influence satisfaction with life are likely to be locality-specific and spatially variable. Within the same country, individuals have different access to collective provisions depending on where they live and consequently the self-perceived satisfaction level of them might differ from one region to another. On the

contrary, people living in the same city of a specific country share a common cultural, political and socio-economic environment, which can contribute to achieve a more homogeneous level of people's satisfaction with life. Therefore, studying the quality of life situation regarding different domains of life in the context of cities can bring more accurate and reliable results because it helps to interpret findings in terms of comparisons and policy implications.

Cities as complex socio-ecological systems (Cook et al., 2012; McHale et al., 2015) provide a suitable platform for research on many aspects of life where personal, environmental and social dimensions can be studied simultaneously (McPhearson et al., 2016; Pickett et al., 2016). Although, it should always be noted that the most significant component of an urban living environment is its residents. Cities essentially exist for their citizens, who play an active role in the city and are not just passive beneficiaries of what the city offers. This issue shows the importance of considering subjective approach and individual-level determinants to investigate the performance of cities in the field of inhabitants' life satisfaction.

Additionally, measuring quality of life at local level is essential for improving policy making as well as for monitoring and understanding local community trends and outcomes. When defining policies, it is critical to have a good understanding of the state of the local community and the level of satisfaction of the inhabitants regarding their daily lives, by considering their subjective evaluation regarding life domains. When citizens express their opinions regarding life satisfaction, they refer to the place in which they live and work. In fact, people build their sense of satisfaction by responding to their local community and neighborhood. It is therefore crucial to comprehend the drivers of life satisfaction at a local level by considering those variables that represent the physical and social environment where they live in. In this way policy makers are able to identify cities and regions on which to focus in order to enhance overall self-perceived satisfaction with life.

As a result, as mentioned earlier, considering the specific condition of Italy in terms of the obvious differences between an evolved center-north and a less developed southern part, utilizing cluster analysis and comparative investigation, can verify that whether this distinction persisted even in the case of investigation on the satisfaction with the life in urban environments.

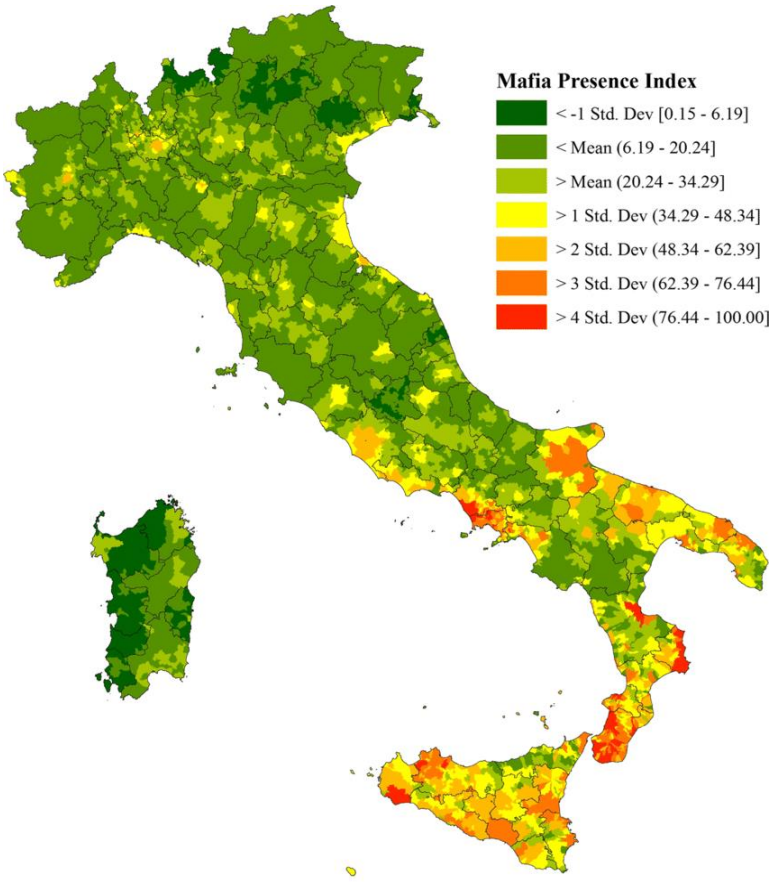
Table 44. *Independent Variables Ranking based on the inhabitants' satisfaction in each city*

Variable	Bologna	Naples	Palermo	Rome	Turin	Verona
Health	1	5	6	4	3	2
Overall Experience of Life	2	5	6	3	4	1
Education	1	5	6	4	3	2
Environmental Characteristics	2	5	6	4	3	1
Built Environment	1	5	6	4	2	3
Economic Features	2	5	6	3	4	1
Leisure and Social Interaction	1	5	6	4	2	3
Political Administration	2	4	6	5	3	1
Safety	2	5	4	6	3	1

Source: Author, 2022

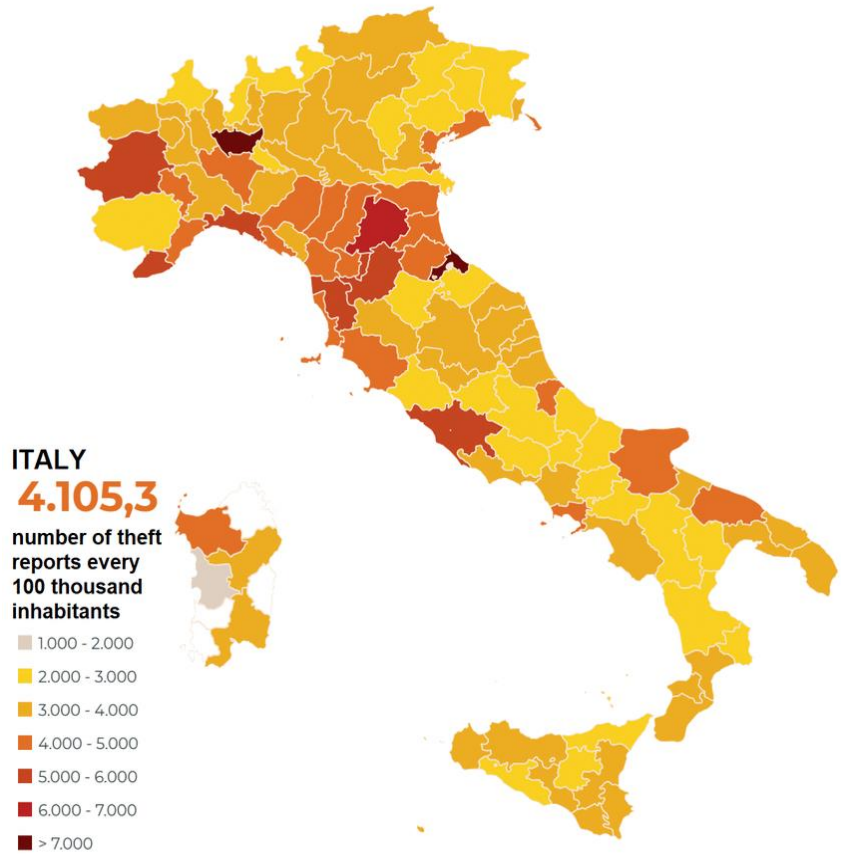
The results of the descriptive statistics for each of the nine urban life satisfaction related variables in the six selected cities predictably represent the meaningful and significant inequality between the performance of Southern and Central-Northern cities in most of the urban life domains (Table 44). Based on the self-reported satisfaction level of individuals, Palermo and Napoli have the bottom two rank for 8 variables which shows the huge quality difference in the performance of central-northern and southern cities. These minimum and maximum values can be used as the benchmarks for each variable by architects, urbanists and policymakers to find the effective policies that can enhance the overall quality of urban life in Italy. Focusing on the variable-oriented data in the cities which have negative status on a specific variable and comparing them with other urban environments can help policymakers to suggest practical policy recommendations and thus allow cities to achieve a higher grade in urban life satisfaction. For instance, the only item at which the southern cities are not ranked as the lowest level is related to the safety variable which is unexpected considering the presence of organized crime in the southern areas (Figure 11).

Figure 19. *Mafia Presence Index, municipal level, 2000–2015*



Source: Dugato, Calderoni & Campedelli, 2020

Figure 20. *Number-of-theft reports in 2016*

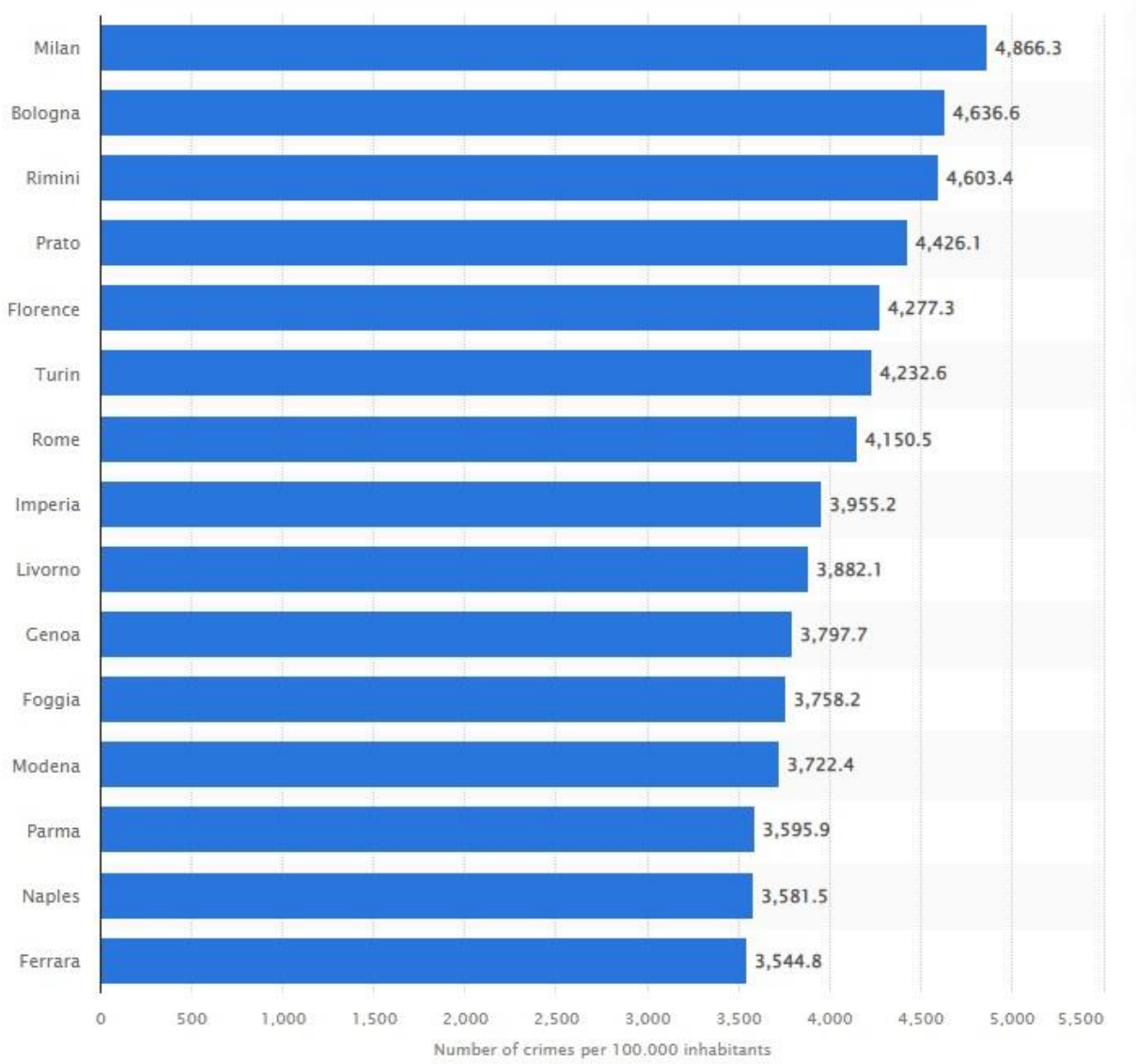


Source: ISTAT data of the Italian Ministry of the Interior, 2016

Although, according to the published statistics by ISTAT (Figure 12), the number of theft reports for every 100 thousand inhabitants in 2016 in Rome and Turin was reported more than the two southern cities of the study (i.e. Naples and Palermo). In addition, as stated in the information from the 'Statista Research Department' (Figure 13), the crime rate in year 2020 in Rome and Turin is much higher than Naples and Palermo is not even in the list of leading provinces. These statistics, while confirming the findings of the study, demonstrate that only the presence of organized crimes in the southern regions cannot be a definite reason for the low level of safety in these cities. Respectively, even in the intracity reports related to the descriptive statistics of all the independent variables in Naples and Palermo, the average satisfaction rate regarding safety is among the top three rank and inhabitants

are relatively more satisfied with the status of safety than other features of urban life (Figures 11,12).All things considered, it is Rome that needs urgent urban management solutions and the most amount of investment in the field of safety not the southern city. This finding demonstrates the crucial significance of intracity and variable-oriented comparative analyses in each city to improve the self-perceived satisfaction level of individuals with more purposive contribution and urban planning.

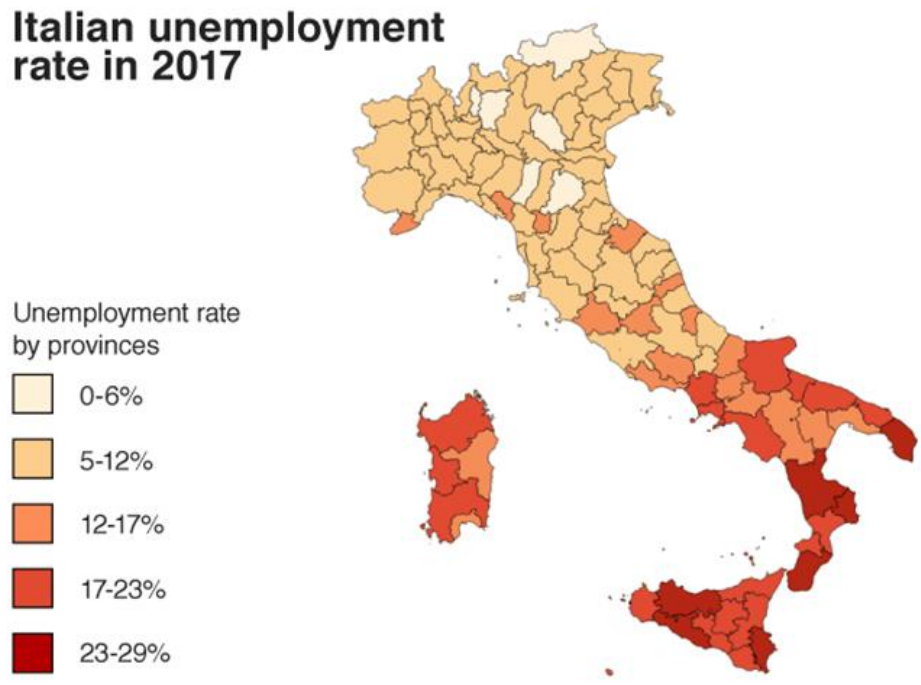
Figure 21. *Leading provinces for crime rate in Italy in 2020 (number of cases per 100,000 inhabitants)*



Source: Statista Research Department, 2021

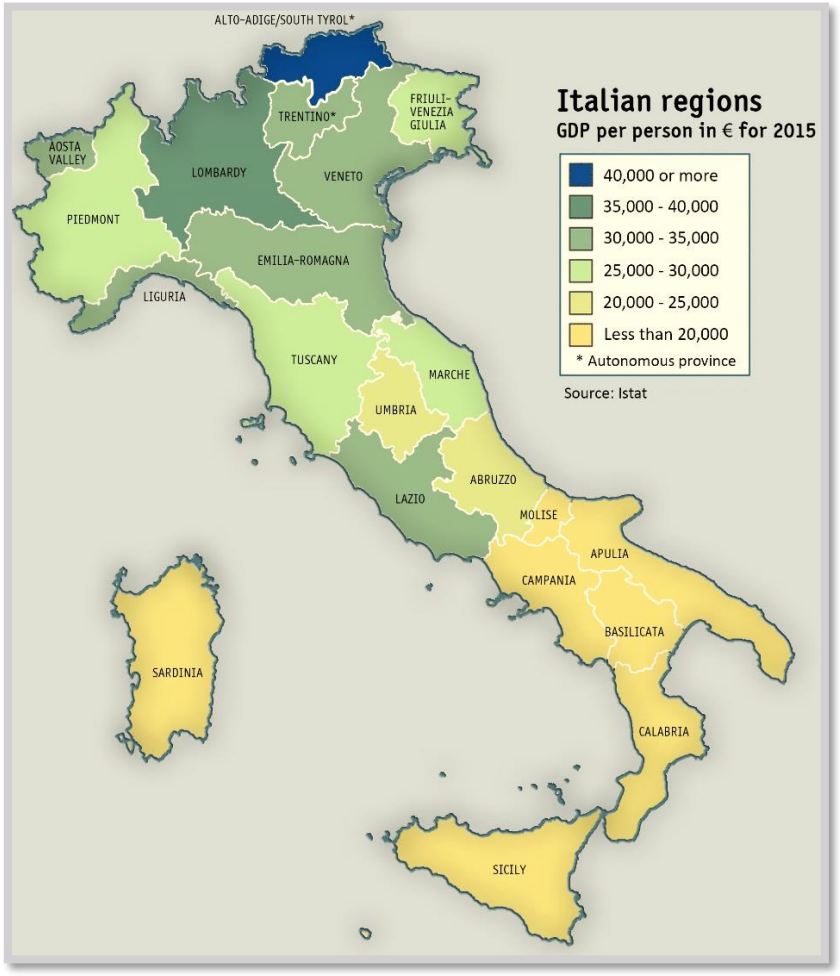
As mentioned, except for the safety variable, the findings of the study show that the center-north Italian cities have a higher average satisfaction in all other domains of urban life which indicates a better quality of urban life in these areas. This distinct functional variation in the empirical findings of the study can be explained by considering the many inequalities of the evolved center-north regions in terms of key economic features (Figures 14,15), public infrastructures, environmental characteristics and social capital. The unsuitable performance of the southern cities and spatial gap in this study is in line with the reports of the Italian National Statistical Bureau – ISTAT, Eurostat, and other researches undertaken at Italian national level, which interprets the dissimilarity in respect to the quality and quantity of public services provided at local level, institutional factors, the educational facilities, the unemployment rate, and the overall shortcoming of the private sector in the context of investment and production in central and southern Italy (Laureti, Costantiello & Leogrande, 2022; Viganó, Grossi & Blessi, 2019; Musolino, 2018; Grossi el at., 2011; Cannari and Franco, 2011; ISTAT 2019; Eurostat 2015).

Figure 22. *Italy Unemployment rate in 2017*



Source: ISTAT, 2017

Figure 23. *Italian Region GDP per Capita in 2015*



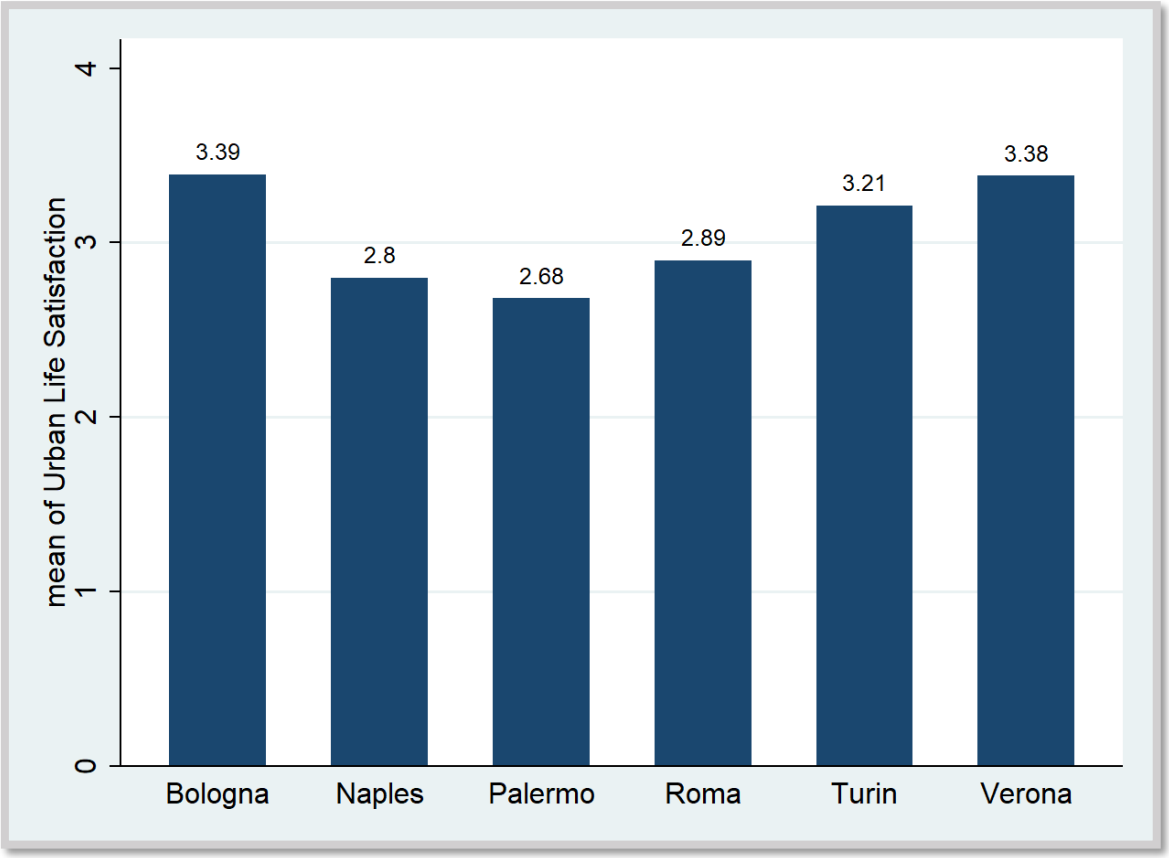
Source: ISTAT, 2015

These significant differences in infrastructural facilities, public services, socio-economic inequalities and urban capitals have crucial effect on the inhabitants' overall quality of urban life. Respectively, the findings of the study indicate that functional status of the northern-central Italian cities is much better than the southern cities in terms of average citizen satisfaction (Figue16, Table 45). This is completely in line with the survey conducted by 'Sole24Ore annual quality of life index[23]' in the

[23] The Sole24Ore has been started since 1988 with the aim of evaluating the quality of life in 107 Italian provinces through a set of statistical indicators. In its dossier, quality of life, conceived in terms of livability in the provinces, is measured through six domains considered equally relevant: standard of living, business and labour market, services, environment and health, population, public order and leisure. Each of these domains is measured by more than one indicator; for each indicator 1,000 points are attributed to the province that is at the top, while a proportional score is attributed to all the others, on the basis of the distance from the highest ranking. The average scores achieved in each domain allow one to rank the provinces in the six dimensions and, finally, in the general index of quality of life.

year 2020 which has been done throughout Italian cities. In the survey, ranking of all similar cities has the same order as the findings of this study in terms of quality of life. Bologna has highest level of life satisfaction among all Italian cities and the two southern cities of the study do not have favorable condition. Likewise, in the research conducted by Moeinaddini el at. (2020) on the life satisfaction in European cities which was based on the secondary data of the 'Flash Eurobarometer[24] (2015)', the order of the Italian cities included in the research is exactly the same as the findings of this study, except for the difference in the first and second position between Bologna and Verona.

Figure 24. *Ranking of Italian Cities based on urban life satisfaction (2019-2020)*



Source: Author, 2022

[24] Eurobarometer is a series of public opinion surveys conducted regularly on behalf of the European Commission and other EU Institutions since 1973. These surveys address a wide variety of topical issues relating to the European Union throughout its member states.

Table 45. *Ranking of Italian Cities based on Urban Life Satisfaction (2019-2020)*

City	Variable	Obs.	Mean	Std. Dev.	Min	Max	Rank
Bologna	urban life satisfaction	697	3.39	0.6252261	1	4	1
Naples	urban life satisfaction	700	2.8	0.8838076	1	4	5
Palermo	urban life satisfaction	691	2.68	0.8633591	1	4	6
Roma	urban life satisfaction	696	2.89	0.8657843	1	4	4
Turin	urban life satisfaction	700	3.21	0.6993325	1	4	3
Verona	urban life satisfaction	700	3.38	0.6588175	1	4	2

Source: Author, 2022

The unique characteristics of the influencing variables in each city with regard to quality of urban life create different effects on the inhabitants' urban life satisfaction. In this respect, to support local and national policies about urban quality of life and have more efficient decisions and strategies, it is important to have deep knowledge regarding the factors that influence the quality of urban life in Italian cities because evaluating these factors on a regular basis could help to identify changes and problems from the citizens' point of view.

The proposed analysis method helped in identifying the variables that have the most impact on the urban life satisfaction. By using this technique, it can be assessed that each one of the nine variables, in each city and subsequently the entire country, has what kind of relationship in terms of significance and the magnitude of the effect on the urban life satisfaction. Such findings can be a very beneficial supplement for the descriptive statistics, in order to promote variables with a lower rate of satisfaction

which are more essential in terms of the influence on the quality of urban life. In addition to enhance the level of urban life satisfaction, it prevents the squandering of human resources and economic capital in wrongly organized policies.

Table 46. *Ranking of independent variables based on priority of influence (Coef. Values) on urban life satisfaction*

Variable	Bologna	Naples	Palermo	Rome	Turin	Verona	Italy
Health	6	6	5	8	4	6	6
Overall experience of life	8	5	9	3	5	9	7
Education	9	7	7	7	9*	5	8
Environmental Characteristics	3	2	1	2	7	2	1
Built Environment	1	4	3	1	1	7	2
Economic Features	2	8	8	5	6	1	5
Leisure and Social Interaction	7	3	2	9	3	4	4
Political Administration	4*	9	6	6	8	8	9
Safety	5	1	4	4	2	3	3

- The red numbers in the table are the insignificant variables.
- *Inverse relationship
- 1 has the highest impact and 9 has the least effect on urban life satisfaction in each column

Source: Author, 2022

As can be observed in the Table 46, the significance status of all the independent variables of the study, the type of their relationship (i.e. positive or negative) with the response variable and their ranking determined by the magnitude of impact on the urban life satisfaction (based on coefficient values) in all the six cities and the entire country have been displayed. In order to explain how these findings along with descriptive statistics can be utilized to achieve accurate local solution regarding

each independent variable; the variables of safety in Rome, education in Turin and natural and environmental characteristics in Palermo are interpreted.

In terms of descriptive statistics for average satisfaction rate of independent variables within the city, safety is in the 7th place out of 9 in Rome (Table 29). It also has the lowest rate of average individuals' satisfaction among the six cities with regard to variable-oriented information (Table 44). Furthermore, based on the study analyses in Rome, safety form a moderate level of significant relationship with the response variable (Table 31) and in terms of the importance and magnitude of the impact on the urban life satisfaction has the fourth rank out of nine (Table 46). Altogether, it can be interpreted that due to the poor state of safety reported by the residents of Rome and the relatively high impact of this variable on the response variable, proper urban management and reasonable investing in this field can lead to the improvement of the urban life satisfaction in this city.

Attributed to the intracity descriptive statistics of residents' average satisfaction rate regarding the nine independent variables in Turin, education is in the third place out of nine (Table 34). Concerning the variable-oriented information of six Italian cities, Turin possess the third rank with regard to average satisfaction rate of inhabitants which indicates the relatively decent condition of educational facilities in this city (Table 44). Besides, based on the information obtained from the analyses of the study in Turin, education has a negative impact and weak significance on the response variable (Table 36). As a result, since the magnitude of the influence of education in Turin has the lowest rank among other variables (Table 46), excessive investment and planning in this context does not have the support of individual-level information and cannot play a decisive role in enhancing the quality of urban life in this city.

Based on the descriptive statistics of the intracity data in Palermo, the natural and environmental characteristics has the lowest rate of satisfaction among other variables (Table 24) This specific variable also has the minimum satisfaction rate among the six cities of the study (Table 44). Furthermore, according to the study analyses in Palermo, natural and environmental characteristics has a high significance on the response variable (Table 26) and the magnitude of its impact on the urban life satisfaction is at the highest level among nine independent variables (Table 46). As a result, considering the unpleasant state of the natural and environmental characteristics in Palermo from the point of view of inhabitants and the great influence of this variable in improving urban life satisfaction, effective

urban planning and proper related policies in this field should be the number one priority by city officials and local policymakers.

These cluster analyses and comparative findings help authorities, policymakers and urban planners to refine the effectiveness of their decisions and policies with respect to the subjective evaluation of individuals regarding related life domains. In this respect, it seems that the utilization of individual-level determinants and subjective assessment at both local and national levels is necessary in order to ensure the achievement of higher degrees of quality of life.

The study outcomes regarding various life domains in Italy indicate that from the wide scope of considered factors, 8 of nine main variables significantly associated with the response variable and have the following order in terms of the importance and magnitude of the effect on the overall urban life satisfaction, i.e. (1) satisfaction with the 'natural and environmental characteristics', (2) satisfaction with 'built environment', (3) feeling safe in the city, (4) satisfaction with 'leisure and social interaction', (5) satisfaction with 'economic features', (6) satisfaction with 'healthcare services', (7) satisfaction with ' educational facilities in the city' and (8) 'overall experience of life'. The only insignificant variable is satisfaction with the 'governance and political administration' (Table 45).

Satisfaction with the natural and environmental characteristics in the city has the highest contribution in the proposed model of the study. In recent years, there is increasing attention to the natural and environmental issue. Citizens are increasingly concerned about the environmental situation and believe that living in places that are satisfactory from an environmental point of view is an essential component of subjective quality of life. Many studies have shown that the individual self-assessment of environmental characteristics such as air quality and noise level along with natural environments within the city are important issues that need to be taken into account because annoyance due to the perceptions of these kind of stressors can impair overall life satisfaction.

According to the results of other studies conducted in the context of city, it has been reported that natural and environmental characteristics can have a direct impact on the urban quality of life through urban green spaces (e.g., de Oliveira et al., 2021; Moeinaddini el at., 2020; Zhang el at., 2017; Biedenweg, et al., 2017; Pfeiffer & Cloutier 2016; Węziak-Biało-wolska, 2016; MacKerron & Mourato, 2013; Ambrey & Fleming, 2011), air quality (e.g., Chen et al., 2020; Węziak-Białowolska, 2016; Ambrey et al., 2014; Biggeri, Laureti & Secondi 2013), noise level (e.g.,

Moeinaddini el at., 2020; Zenker et al., 2013; Smyth et al., 2011; Baum et al., 2010; Insch & Florek, 2010) and cleanliness (e.g., Zenker et al., 2013; Baum et al., 2010; Insch & Florek, 2010).

Based on the study results, the built environment is also a significant factor that impacts urban life satisfaction. This result in line with Kent and Thompson (2014), who found that the built environment can contribute to health and urban life satisfaction. In addition, according to the results of other studies conducted in the context of city, it has been reported that the built environment can have a direct impact on the urban quality of life through public spaces (e.g., Winters & Li, 2017; Ambrey & Fleming, 2014; Zenker & Rütter, 2014; Zenker, el at., 2013; Insch & Florek, 2010), public transport (e.g., Moeinaddini el at., 2020; Węziak-Biało-wolska, 2016; Insch & Florek, 2010) and neighborhood condition (e.g., Kyttä et al. 2016; Węziak-Biało-wolska, 2016).

Safety is the third most important variable in the study results. The importance of safety is also acknowledged in literature as an important factor associated with urban quality of life (Shekhar et al., 2019; Węziak-Białowolska, 2016; Insch & Florek, 2010;). Shekhar et al. (2019) introduced safety as one of the 4 main drivers that shape well-being in human settlements. Węziak-Białowolska (2016) concluded that safety has greater explanatory power for urban life satisfaction than other contextual variables. However, some studies like Zenker et al. (2013) did not consider the effects of safety.

The results reveal that satisfaction with the leisure and social interaction in the urban environments is another significant factor for urban life satisfaction in Italian cities. This finding is in compliance with Cocozza el at. (2020), and Leadbetter and O'Connor (2013) who concluded that participation in social activities are conducive to various forms of human and social development which positively reflect into quality of life. Moreover, Mouratidis (2020), Liu (2014) and Sirgy (2012) believed that leisure is an independent life domain with substantial contribution to life satisfaction.

Also, Satisfaction with economic features significantly influences urban life satisfaction in Italy. The value of economic condition is recognised in literature as a vital factor associated with urban life satisfaction (e.g., Mouratidis 2020; Bernini & Tampieri, 2017; Weziak-Bialowolska, 2016). Bernini and Tampieri (2017) considered the economic condition as one of the main determinants of subjective quality of life in Italian metropolitan. Furthermore, Weziak-Bialowolska (2016)

declared that individuals' satisfaction with their quality of life is influenced by the financial situation.

Healthcare service is another significant factor based on the results. Health is bidirectionally linked to urban life satisfaction and well-being (e.g., Kushlev et al., 2020; Diener, Oishi, & Tay, 2018;). Although, Węziak-Białowolska (2016) identified this factor as non-significant for city satisfaction. Likewise, some studies like Zenker et al. (2013) did not consider the effects of this factor. Ge and Hokao (2006) considered health as one of the components that explain residential satisfaction, but they did not consider healthcare services as related attributes for this component.

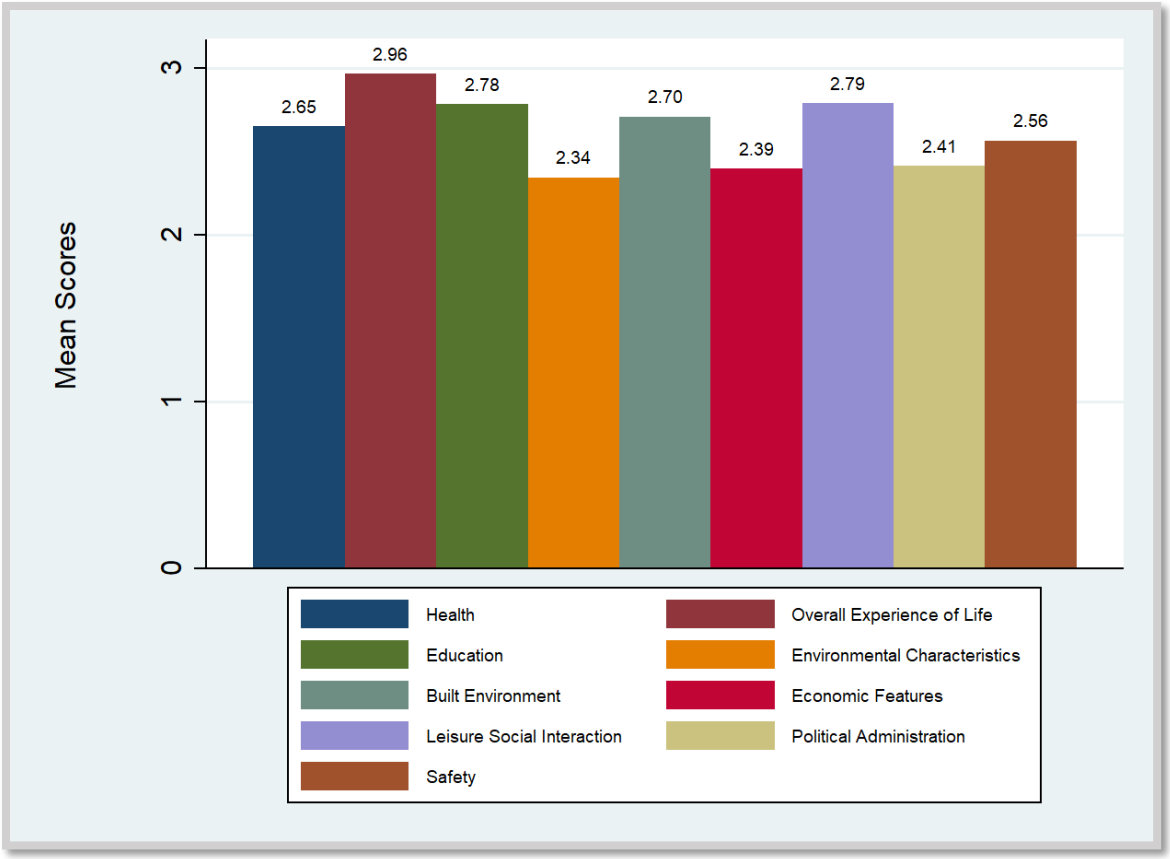
In reference to the study findings, satisfaction with educational facilities is another significant factor for urban life satisfaction in Italy. The researches in this particular field showed that access to the educational facilities is associated with being satisfied with life in a city (e.g., Zenker, et al., 2013; Baum, Arthurson, & Rickson, 2010). On the contrary, Liao (2009) determined that residents who live in cities with high educational attainment as measured by literacy rates or years of education, for example, may not always have high levels of satisfaction with regard to the city's education system.

Overall experience of life is the last significant factor based on the results which is missing from most of previous studies in the context of life satisfaction. Life satisfaction can be experienced and perceived differently depending on the context and situation, because it reflects social and personal factors in addition to the environmental elements. Since in the subjective approaches, the individual's mood and characteristics have great importance on self-perceived satisfaction level, this variable can perform as a complementary factor along with urban features.

The insignificance relationship between 'governance and political administration' and urban life satisfaction in this study is in contrast with the results of past studies by Weziak-Bialowolska (2016) and Charron, Dijkstra and Lapuente, (2014) who announced the quality of governmental services is positively contributed to the quality of life in urban environments.

As mentioned, the findings related to the degree of importance of each of the nine independent variables with the urban life satisfaction, along with descriptive statistics, can be the best criteria for establishing optimal policies for urban planning and urban management at the regional and national level.

Figure 25. *The satisfaction rate of Italian citizens with independent variables*



Source: Author, 2022

According to the self-perceived satisfaction rate of inhabitants regarding various life domains in Italy, among significant variable, natural and environmental characteristics, economic features, and safety relatively have an unfavorable quality compared to other independent variables in this country (Figure 17). As a result, considering that these variables have the high degree of importance and influence on the urban life satisfaction (i.e., natural and environmental characteristics with rank 1, safety with rank 3, and economic features with rank 5), the largest amount of national investment should be taken in these fields in terms of urban planning, policies and legal measures to achieve higher level of urban life satisfaction in Italy.

Chapter 5

This study tries to investigate the influences of utilizing subjective method to assess the urban quality of life in six cities of Italy. It specifically focused on the influence of proposed urban-related dimensions on inhabitants' subjective well-being by using multiple analyses on self-perceived data. This analysis method helped in identifying the variables that have the most important impact on urban life satisfaction. It can be assessed that each variable, in each city and subsequently the entire country, and the kind of relationship in terms of significance and the magnitude of the effect with urban life satisfaction as the response variable of the study.

The rapid process of urbanization has become one of the most concerns of today's human life consequently the importance of urban development and sustainable settlement is considered worldwide. Transforming our world: the 2030 UN Agenda for Sustainable Development is an action program for people, the planet and prosperity. This program represents a good common basis to build a different world and offer everyone the chance to live in an environmentally, socially, economically and socially sustainable world. the Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 Sustainable Development Goals and 169 targets were announced. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental. The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet (A/RES/70/1).

This research has tried to explore the fundamentals concerns in the field of sustainable development by addressing two goals of this global program, wellbeing and city environment, due to the importance of subjective approach in quality of life evaluation.

5.1 Reflections of Research Results

Overall, based on statistical analysis on six selected cities the research results demonstrated a significant correlation between urban dimensions and individual well-being and the importance of these factors can be different in diverse regions. the study compares the state of all cities in terms of overall urban life satisfaction based on the inhabitants' self-perceived satisfaction level.

Main question: To what extent do urban quality of life dimensions affect subjective wellbeing in Italy?

Urban-related dimensions are undeniably among the most influential aspect in regard to subjective well-being. According to the statistical results of this study, significant correlations are observed between enhancing the quality of urban life dimensions and achieving a higher level of individual well-being.

The study classified urban quality of life dimensions into nine principal categories environmental (natural and built), physical, social, psychological, educational, economic and political afterward tried to explore the priority of each of these dimensions in the diverse zone. Research findings on six selected cities indicate that 8 of nine main variables are significantly associated with the response variable and have the following order in terms of the importance and magnitude of the effect on the overall urban life satisfaction, i.e. (1) satisfaction with the 'natural and environmental characteristics', (2) satisfaction with 'built environment', (3) feeling safe in the city, (4) satisfaction with 'leisure and social interaction', (5) satisfaction with 'economic features', (6) satisfaction with 'healthcare services', (7) satisfaction with ' educational facilities in the city' and (8) 'overall experience of life'. The only insignificant variable is satisfaction with the 'governance and political administration'.

human life is a complex notion and an individual's quality of life is influenced by place, culture, economic and environmental resources. Human needs are ever changing and becoming more and more multifaceted with time which makes the field ever-growing and assessing QoL more complex. Urban quality of life is a concept that has emerged as a solution to the various challenges and problems faced by urban populations and contributes to a healthy and livable environment in cities (Yadav and Gupta, 2021).

Enhancement of quality of life in the urban area appears to be an important concern in city planning. The rapid increase of urbanization has significantly impacted individual life, therefore profound awareness and knowledge of aspects and dimensions of urban living can be a guideline to achieve proper urban and sustainable development.

Sub-questions 1. What effect do natural and environmental characteristics have on subjective well-being in urban area?

Based on the study results, satisfaction with the natural and environmental characteristics in the city has the highest contribution in the proposed model of the study and consequently has a significant impact on subjective well-being.

Several studies have emphasized the correlation between natural and environmental characteristics with quality of life from different perspectives. Such characteristics can inspire specific influences on human life. Properties of the environment can embed influences on humans. Natural and 'environmental characteristics' is a general term that can regard to various characteristics such as air quality, water pollution, noise level, urban green space, and the visual effects of the living environment.

Green space is one of the most well-documented evidence for the impact of natural and environmental characteristics on human well-being. green spaces provide a setting for physical exercise, social interactions, and mental improvement furthermore cause advantages such as decreased risks of obesity, preferable cardiovascular health, and minimized rates of depression in adults. green areas improve air quality, lighten noise pollution, moderate temperatures, and foster biodiversity in city landscapes. the importance of the availability and accessibility of green spaces play a vital role on proper health condition and subsequently well-being of individuals.

The presence of green space has long been associated with positive health through the restorative (Kaplan & Kaplan, 1989) and calming (Ulrich et al., 1991) Moreover, green space often provides opportunities to engage in physical activity, which in turn can enhance well-being (McCormack & Shiell, 2011).

The role of urban green spaces has been recognized as a primary source of a livable and sustainable city (Dhingra & Chattopadhyay, 2016). Urban Greenness improves human life actively by mitigating the urban heat island densely populated areas. The significance of urban green spaces has been analysed for better human life through leisure activities, social interaction, noise reduction, and removal of air pollution (Wolch et al., 2014). The occurrence of urban green spaces mitigates climatic change effects, provides a platform for social connection, and enhances human health and well-being (Krellenberg et al., 2014). Green spaces deliver several positive health impacts through physical activities (Sanders et al., 2015). Also, under the COVID-19 crisis, urban green spaces were a significant source of leisure activities. Outside

events were reported 291% higher during lock-down than the past 3 years over the same day in Oslo (Norway). Walking, jogging, and hiking practises in urban parks have expanded, emphasising relevance of urban green spaces during the crisis (Venter et al., 2021). By providing trails and benches with a canopy of vegetation, the benefits of urban green spaces can be improved (Madureira et al., 2018). Urban societies demanded proper management and more urban green spaces (Campagnaro et al., 2020). It was evaluated that authentic fitness was linked with physical recreation activity. The appearance and convenient access to green spaces also found supportive for life satisfaction and health promotion. More links of walking and cycling are found to public health in urban and suburban areas within urban green spaces (Zhong et al., 2020).

Environment-related indicators are indispensable features that need to be taken into consideration in urban development because such parameters can enhance or impair overall well-being, individuals' health condition and the economic prosperity of societies.

Sub-questions 2. How does the quality of built environment improve subjective well-being?

Based on the study results, the built environment is the second significant factor that impacts satisfaction and has an extremely high contribution to the proposed model of the research.

The built environment includes the urban structures and infrastructure, individual housing, and generally the places where individuals' life, work and spend their leisure time. all the components of social, economic and environmental status influence physical and mental health. The built environment could contribute positively as well as negatively toward wellbeing.

Each aspect of the built environment in urban areas can have an influence on subjective well-being through pathways that mostly corresponded to life domains such as work, social relationships, leisure, health. For example, green space in cities as a relevant physical environment to planning, design and policies can affect large number of residents. "Although green space has a broad variety of objective referents, it is also experienced subjectively and is effective as a social construction" (Hartig el at., 2014).

The built environment provides the setting and opportunities in various scale Including buildings, neighborhoods and cities for human activities and bonding,

social contribution and place attachment. The relationships between social participation and community empowerment and well-being are unquestionable. The built environment can foster social interaction and recognized as a vital component in supporting individual well-being, friendship creation, self-identity and a sense of belonging to the place Social cohesion can be defined as the "extent of connectedness and solidarity among groups in society" (Kawachi & Berkman, 2000) and is closely connected to the concept of social capital (Forrest & Kearns, 2001). Social cohesion and social capital have important implications for the health and well-being of those living in cities (Poortinga, 2006).

Due to the amount of time that people have direct and indirect interaction with the built environment, the impact of individual perspective and demand besides high-quality and built environment standards must be considered in urban planning and development.

Sub-questions 3. How dose social interaction can alter subjective well-being in the urban environment?

Based on study findings, the social interaction is the third significant factor that impacts satisfaction and has high contribution to the proposed model of the research. As mentioned before built environment can improve individual wellbeing by provide setting for social relationship and leisure thus in addition to proper design of such surroundings also availability and accessibility of these setting play a vital role to achieve sociality satisfaction and consequently individual wellbeing.

Social interactions and activities and the potential to receive social support and social cohesion rated greatly influential in subjective well-being evaluation. several research examined that strong social cohesions are relevant to a longer lifespan. in contrary, lack of social relationships and social isolation are linked to weaker health, depression, and enhance the risk of untimely death.

social interactions may also lead to the cultivation of social capital, in the form of friendships, acquaintances and support networks (Granovetter, 1973; Jacobs, 1961). On the other hand, among the negative influences of social separation, COVID-19 pandemic can be mentioned which vastly impacted global life. The negative psychological impact of COVID-19 has been observed across the world. In a U.S. study examining people's experiences from January 2020 (N = 1,010) to June 2020 (N = 3,020), reports of happiness and life satisfaction saw one of the largest declines during the pandemic, along with mental and physical health, together with more modest declines in meaning in life and overall flourishing (VanderWeele et al.,

2020). The quality of people's social relationships and social interactions during the pandemic were also found to be risk factors for worse well-being and mental health during COVID-19. For example, increases in loneliness from before to during the pandemic were associated with decreases in life satisfaction among U.S. and U.K. adults (Folk et al., 2020). Physical distancing policies instituted worldwide to mitigate COVID-19 may have adverse impacts on people's well-being. For example, in a study with 435 U.S. adults in March 2020, those who distanced reported increases in depressive symptoms, generalized anxiety disorder, intrusive thoughts, and acute stress (Marroquín et al., 2020). Different types of social relationships have also been found to differentially impact people's well-being during the pandemic. For example, some parents and children appear to have experienced diminished well-being. In a June 2020 study of parents with children under the age of 18, 27% of parents personally reported worse well-being, and 14% reported worse behavioral problems in their children since March 2020 (Patrick et al., 2020).

Due to the positive impact of social interaction on wellbeing, high-quality design of setting for social relationship and suitable accessibility for all the resident of city must be considered in urban planning and development.

5.2 Recommendations for Further Research

The current research can be interpreted as a step in quality of life evaluation through a subjective approach, for paving the path to achieve sustainable development goals. From the study result, it is observed that there is a significant correlation between urban dimensions and individual well-being and the importance of examined aspects is different in diverse regions.

Due to the undeniable role of urban areas on quality of life, the importance of appropriate policies and well-planned urban development based on residents' self-evaluation should consider more significant to address all needs of modern urban life. This kind of investigation can be underpinned for urban development and sustainability furthermore could cause a deep understanding of individual needs to satisfy residents of the urban area relevant to the living environment.

As stated by the bright perspective of the universal Agenda for sustainable development with 17 goals and 169 targets, the ultimate purpose is the lives of all will be profoundly improved and the world will be transformed for the better (A/RES/70/1).

To pursue this global participation, future research could utilize subjective approach to evaluate diverse announced goals in different regions to create theoretical and methodological guidelines for architects, policymakers, practitioners and other stakeholders who work on urban planning issues to identify constructive solutions to enhance quality of life.

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Annex 1: Research Questionnaire and Answer Categories

Independent variables	Categories/Range
Health Health care services, doctors, and hospitals ***Natural and Environmental Characteristics*** Green spaces such as parks and gardens The quality of the air The noise level Cleanliness ***Built Environment*** Public spaces such as markets, squares, pedestrian areas Public transport, for example the bus, tram or metro The neighborhood where you live ***Leisure & Social Interaction*** Sport facilities such as sport fields and indoor sports halls Cultural facilities such as concert halls, theatres, museums, and libraries ***Education*** Schools and other educational facilities	e. Very unsatisfied f. Rather unsatisfied g. Rather satisfied h. Very satisfied
Economic Features It is easy to find a good job in my city Your personal job situation The financial situation of your household ***Overall Experience of Life*** The life you lead	e. Not at all satisfied f. Not very satisfied g. Fairly satisfied h. Very satisfied
Governance & Political Administration The amount of time it takes to get a request solved by my local public administration The fees charged by my local public administration are reasonable Information and services of my local public administration can be easily accessed online There is corruption in my local public administration ***Safety*** e. Feel safe walking alone at night in my city f. Feel safe walking alone at night in my neighborhood g. Most people in my city can be trusted	e. Strongly disagree f. Somewhat disagree g. Somewhat agree *h.* Strongly agree

Annex 2: Statistical Analyses

Results of the full adjusted model for all variables in Italy

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2527897	.0398254	6.35	0.000	.1747334	.330846
Overall_Experience_of_Life	.1993007	.0453071	4.40	0.000	.1105005	.2881009
Education	.1176224	.0443845	2.65	0.008	.0306304	.2046145
Environmental_Characteristics	.674016	.0699808	9.63	0.000	.5368561	.8111759
Built_Environment	.6565757	.0708506	9.27	0.000	.5177111	.7954403
Economic_Features	.3079972	.0669204	4.60	0.000	.1768356	.4391587
Leisure_Social_Interaction	.3864657	.0535741	7.21	0.000	.2814624	.491469
Political_Administration	.0476622	.0778928	0.61	0.541	-.1050048	.2003293
Safety	.3980908	.0539833	7.37	0.000	.2922855	.5038961
D1	.0094528	.0030775	3.07	0.002	.0034209	.0154846
D2						
Female	.2573226	.0665107	3.87	0.000	.1269641	.3876811
isced						
Lower secondary education (ISCED 2)	-.2922179	.3386611	-0.86	0.388	-.9559815	.3715457
Upper secondary education (ISCED 3)	-.2558253	.3280074	-0.78	0.435	-.8987081	.3870575
Post-secondary non-tertiary education (ISCED 4)	-.2980434	.3395062	-0.88	0.380	-.9634633	.3673766
Short-cycle tertiary education (ISCED 5)	-.194603	.3365368	-0.58	0.563	-.854203	.4649971
Bachelor or equivalent (ISCED 6)	-.3389487	.332234	-1.02	0.308	-.9901154	.312218
Master or equivalent (ISCED 7)	-.4960934	.3530401	-1.41	0.160	-1.188039	.1958526
Doctoral or equivalent (ISCED 8)	-.6388122	.481261	-1.33	0.184	-1.582066	.304442
d11						
Unemployed, not looking actively for a job	-.1050023	.2750501	-0.38	0.703	-.6440905	.4340859
Unemployed, looking actively for a job	-.0168475	.1466651	-0.11	0.909	-.3043059	.2706109
Retired	-.0727978	.1197254	-0.61	0.543	-.3074553	.1618596
Unable to work due to long-standing health problems	.192021	.5409555	0.35	0.723	-.8682323	1.252274
In full-time education (at school, university, etc...	.1278098	.1664908	0.77	0.443	-.1985063	.4541258
Full-time homemaker/responsible for ordinary shoppi..	.1667654	.1622686	1.03	0.304	-.1512751	.4848059
Compulsory military or civilian service	.8941199	1.365664	0.65	0.513	-1.782533	3.570773
d8						
Lone parent with at least one child aged less than 25	.1192731	.1806993	0.66	0.509	-.234891	.4734372
Lone parent with all children aged 25 or more	.0902794	.1883967	0.48	0.632	-.2789714	.4595301
Couple without any child(ren)	.1439244	.1036374	1.39	0.165	-.059201	.3470499
Couple with at least one child aged less than 25	.1197523	.1092586	1.10	0.273	-.0943906	.3338952
Couple with all children aged 25 or more	-.0140883	.1201059	-0.12	0.907	-.2494915	.2213149
Other type of household	.066635	.1491696	0.45	0.655	-.225732	.3590021
q15						
Bad	-.5677479	.4838332	-1.17	0.241	-1.516044	.3805478
Fair (neither good or bad)	-.7737829	.4656803	-1.66	0.097	-1.686499	.1389337
Good	-.9541354	.465061	-2.05	0.040	-1.865638	-.0426325
Very good	-.7819833	.4700477	-1.66	0.096	-1.70326	.1392933

Results of the full adjusted model for all variables in Bologna

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2876809	.111492	2.58	0.010	.0691607	.5062012
Overall_Experience_of_Life	.0600586	.1251332	0.48	0.631	-.185198	.3053152
Education	.0230669	.1285698	0.18	0.858	-.2289253	.2750592
Environmental_Characteristics	.518646	.1995639	2.60	0.009	.1275079	.9097841
Built_Environment	.7658874	.2054671	3.73	0.000	.3631793	1.168595
Economic_Features	.5218698	.1706489	3.06	0.002	.1874041	.8563354
Leisure_Social_Interaction	.1784785	.1648402	1.08	0.279	-.1446024	.5015594
Political_Administration	-.5078558	.2162561	-2.35	0.019	-.9317099	-.0840017
Safety	.4556551	.1402137	3.25	0.001	.1808413	.7304689
D1	.0109644	.0081381	1.35	0.178	-.0049861	.0269148
D2						
Female	.5210725	.1746857	2.98	0.003	.1786948	.8634501
isced						
Lower secondary education (ISCED 2)	1.141358	.8589117	1.33	0.184	-.5420778	2.824794
Upper secondary education (ISCED 3)	1.626636	.8216251	1.98	0.048	.0162808	3.236992
Post-secondary non-tertiary education (ISCED 4)	2.091774	.8572257	2.44	0.015	.4116419	3.771905
Short-cycle tertiary education (ISCED 5)	1.783744	.8365035	2.13	0.033	.1442272	3.423261
Bachelor or equivalent (ISCED 6)	1.866669	.8356004	2.23	0.025	.2289222	3.504416
Master or equivalent (ISCED 7)	1.106446	.8927968	1.24	0.215	-.6434039	2.856295
Doctoral or equivalent (ISCED 8)	2.821551	1.430505	1.97	0.049	.0178115	5.62529
d11						
Unemployed, not looking actively for a job	.4397523	.8086688	0.54	0.587	-1.145209	2.024714
Unemployed, looking actively for a job	-.3411328	.4724913	-0.72	0.470	-1.267199	.5849332
Retired	.5203222	.3198986	1.63	0.104	-.1066675	1.147312
Unable to work due to long-standing health problems	-2.564763	1.953063	-1.31	0.189	-6.392696	1.263169
In full-time education (at school, university, etc...	.679204	.4772163	1.42	0.155	-.2561228	1.614531
Full-time homemaker/responsible for ordinary shoppi..	-.0804118	.4079495	-0.20	0.844	-.8799782	.7191547
Compulsory military or civilian service	13.07763	549.5435	0.02	0.981	-1064.008	1090.163
d8						
Lone parent with at least one child aged less than 25	-.0543136	.4953311	-0.11	0.913	-1.025145	.9165175
Lone parent with all children aged 25 or more	-.4170408	.4850463	-0.86	0.390	-1.367714	.5336324
Couple without any child(ren)	.3444677	.2582166	1.33	0.182	-.1616276	.850563
Couple with at least one child aged less than 25	.3383347	.2856432	1.18	0.236	-.2215156	.898185
Couple with all children aged 25 or more	.2119952	.324545	0.65	0.514	-.4241014	.8480918
Other type of household	.6482143	.3948749	1.64	0.101	-.1257263	1.422155
q15						
Bad	-.5457935	1.499009	-0.36	0.716	-3.483798	2.392211
Fair (neither good or bad)	-.774733	1.451226	-0.53	0.593	-3.619083	2.069617
Good	-.8243123	1.453424	-0.57	0.571	-3.672972	2.024347
Very good	-.1905481	1.462211	-0.13	0.896	-3.05643	2.675334

Results of the full adjusted model for all variables in Naples

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.3820937	.1051464	3.63	0.000	.1760105	.5881769
Overall_Experience_of_Life	.4041571	.1165118	3.47	0.001	.1757981	.6325161
Education	.337774	.1060099	3.19	0.001	.1299985	.5455496
Environmental_Characteristics	.6705958	.1778678	3.77	0.000	.3219814	1.01921
Built_Environment	.516229	.1796454	2.87	0.004	.1641305	.8683275
Economic_Features	.0598336	.1753958	0.34	0.733	-.2839359	.4036031
Leisure_Social_Interaction	.5432376	.1284359	4.23	0.000	.2915078	.7949673
Political_Administration	-.0548242	.1864838	-0.29	0.769	-.4203256	.3106773
Safety	.850004	.1463632	5.81	0.000	.5631374	1.136871
D1	.0220247	.0075969	2.90	0.004	.0071351	.0369143
D2						
Female	.3229824	.1716888	1.88	0.060	-.0135215	.6594863
isced						
Lower secondary education (ISCED 2)	1.208896	.8984888	1.35	0.178	-.5521097	2.969902
Upper secondary education (ISCED 3)	.8170948	.8783611	0.93	0.352	-.9044614	2.538651
Post-secondary non-tertiary education (ISCED 4)	.8709322	.9094778	0.96	0.338	-.9116115	2.653476
Short-cycle tertiary education (ISCED 5)	.7431815	.9045178	0.82	0.411	-1.029641	2.516004
Bachelor or equivalent (ISCED 6)	.5872947	.8914289	0.66	0.510	-1.159874	2.334463
Master or equivalent (ISCED 7)	1.104772	.9564541	1.16	0.248	-.7698434	2.979388
Doctoral or equivalent (ISCED 8)	-.2894759	1.392134	-0.21	0.835	-3.018009	2.439057
d11						
Unemployed, not looking actively for a job	-1.372102	.4920383	-2.79	0.005	-2.336479	-.4077246
Unemployed, looking actively for a job	-.0532119	.3117343	-0.17	0.864	-.6641998	.557776
Retired	-.6300706	.3070125	-2.05	0.040	-1.231804	-.0283371
Unable to work due to long-standing health problems	.23573	1.104765	0.21	0.831	-1.929569	2.401029
In full-time education (at school, university, etc...	-.0965729	.3988963	-0.24	0.809	-.8783953	.6852496
Full-time homemaker/responsible for ordinary shoppi..	.363784	.3776762	0.96	0.335	-.3764478	1.104016
d8						
Lone parent with at least one child aged less than 25	.2040254	.4274299	0.48	0.633	-.6337218	1.041773
Lone parent with all children aged 25 or more	-.215574	.4784198	-0.45	0.652	-1.15326	.7221115
Couple without any child(ren)	-.4221312	.2969239	-1.42	0.155	-1.004091	.1598289
Couple with at least one child aged less than 25	-.398054	.2987027	-1.33	0.183	-.9835005	.1873925
Couple with all children aged 25 or more	-.5644958	.3465209	-1.63	0.103	-1.243664	.1146726
Other type of household	.132757	.3910068	0.34	0.734	-.6336023	.8991163
q15						
Bad	-1.641738	1.517994	-1.08	0.279	-4.616952	1.333475
Fair (neither good or bad)	-1.995488	1.469503	-1.36	0.174	-4.875662	.8846855
Good	-2.118921	1.474368	-1.44	0.151	-5.008629	.770788
Very good	-1.638552	1.488989	-1.10	0.271	-4.556918	1.279814

Results of the full adjusted model for all variables in Palermo

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.210224	.0937383	2.24	0.025	.0265004	.3939477
Overall_Experience_of_Life	.057295	.1082156	0.53	0.596	-.1548038	.2693937
Education	.1688967	.0964246	1.75	0.080	-.020092	.3578854
Environmental_Characteristics	.8960413	.1761263	5.09	0.000	.5508401	1.241242
Built_Environment	.6309518	.1674189	3.77	0.000	.3028168	.9590869
Economic_Features	-.124217	.1775172	-0.70	0.484	-.4721444	.2237104
Leisure_Social_Interaction	.7283603	.1313056	5.55	0.000	.471006	.9857145
Political_Administration	.2430793	.2007692	1.21	0.226	-.150421	.6365796
Safety	.2800406	.1300909	2.15	0.031	.0250671	.5350141
D1	.0081531	.007306	1.12	0.264	-.0061664	.0224726
D2						
Female	-.071848	.1609759	-0.45	0.655	-.3873549	.243659
isced						
Lower secondary education (ISCED 2)	-1.362289	1.001448	-1.36	0.174	-3.325092	.6005139
Upper secondary education (ISCED 3)	-.6457309	.9844925	-0.66	0.512	-2.575301	1.283839
Post-secondary non-tertiary education (ISCED 4)	-1.138268	1.003232	-1.13	0.257	-3.104566	.8280311
Short-cycle tertiary education (ISCED 5)	-.5239474	1.002603	-0.52	0.601	-2.489013	1.441118
Bachelor or equivalent (ISCED 6)	-.6464721	.998769	-0.65	0.517	-2.604023	1.311079
Master or equivalent (ISCED 7)	-1.238096	1.018609	-1.22	0.224	-3.234532	.7583408
Doctoral or equivalent (ISCED 8)	-.4971751	1.29646	-0.38	0.701	-3.03819	2.04384
d11						
Unemployed, not looking actively for a job	.8020776	.7746418	1.04	0.300	-.7161924	2.320348
Unemployed, looking actively for a job	.2503177	.3736269	0.67	0.503	-.4819776	.9826129
Retired	.4416297	.3070274	1.44	0.150	-.1601329	1.043392
Unable to work due to long-standing health problems	1.928202	1.587616	1.21	0.225	-1.183468	5.039872
In full-time education (at school, university, etc...	.076611	.4438253	0.17	0.863	-.7932705	.9464925
Full-time homemaker/responsible for ordinary shoppi..	.3143661	.4045723	0.78	0.437	-.478581	1.107313
d8						
Lone parent with at least one child aged less than 25	.9330107	.4488915	2.08	0.038	.0531996	1.812822
Lone parent with all children aged 25 or more	.6887388	.5637953	1.22	0.222	-.4162797	1.793757
Couple without any child(ren)	.3770181	.2620942	1.44	0.150	-.1366771	.8907132
Couple with at least one child aged less than 25	.8026694	.2650687	3.03	0.002	.2831442	1.322195
Couple with all children aged 25 or more	.4918375	.289871	1.70	0.090	-.0762993	1.059974
Other type of household	.1099309	.3570595	0.31	0.758	-.5898928	.8097546
q15						
Fair (neither good or bad)	.2136581	.4260233	0.50	0.616	-.6213322	1.048649
Good	-.1595253	.4206337	-0.38	0.705	-.9839522	.6649015
Very good	-.0366066	.4436982	-0.08	0.934	-.906239	.8330259

Results of the full adjusted model for all variables in Rome

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.1056579	.0956125	1.11	0.269	-.0817392	.2930551
Overall_Experience_of_Life	.4651172	.1167704	3.98	0.000	.2362514	.6939829
Education	.114267	.1060934	1.08	0.281	-.0936722	.3222061
Environmental_Characteristics	.6178747	.1860143	3.32	0.001	.2532934	.9824561
Built_Environment	.9361282	.1758485	5.32	0.000	.5914715	1.280785
Economic_Features	.2530536	.1709198	1.48	0.139	-.0819432	.5880503
Leisure_Social_Interaction	.0724306	.1227566	0.59	0.555	-.1681679	.313029
Political_Administration	.1390743	.1961233	0.71	0.478	-.2453204	.5234689
Safety	.2674821	.1343328	1.99	0.046	.0041946	.5307695
D1	-.0014182	.0080296	-0.18	0.860	-.0171559	.0143196
D2						
Female	.0837597	.1672511	0.50	0.617	-.2440465	.4115658
isced						
Lower secondary education (ISCED 2)	-2.678613	1.217128	-2.20	0.028	-5.064141	-.2930863
Upper secondary education (ISCED 3)	-2.9067	1.19965	-2.42	0.015	-5.257971	-.5554285
Post-secondary non-tertiary education (ISCED 4)	-3.256211	1.23092	-2.65	0.008	-5.66877	-.8436509
Short-cycle tertiary education (ISCED 5)	-2.899352	1.222386	-2.37	0.018	-5.295185	-.5035182
Bachelor or equivalent (ISCED 6)	-3.24306	1.20311	-2.70	0.007	-5.601113	-.8850079
Master or equivalent (ISCED 7)	-3.51154	1.2686	-2.77	0.006	-5.99795	-1.02513
Doctoral or equivalent (ISCED 8)	-4.032041	1.403502	-2.87	0.004	-6.782853	-1.281228
d11						
Unemployed, not looking actively for a job	.0917144	.7022362	0.13	0.896	-1.284643	1.468072
Unemployed, looking actively for a job	-.5941245	.3913258	-1.52	0.129	-1.361109	.1728599
Retired	-.1570396	.3003384	-0.52	0.601	-.7456919	.4316128
Unable to work due to long-standing health problems	14.32065	620.6198	0.02	0.982	-1202.072	1230.713
In full-time education (at school, university, etc...	.4532811	.4328252	1.05	0.295	-.3950407	1.301603
Full-time homemaker/responsible for ordinary shoppi..	-.120291	.3618745	-0.33	0.740	-.8295519	.5889699
Compulsory military or civilian service	-.4723523	1.827213	-0.26	0.796	-4.053624	3.10892
d8						
Lone parent with at least one child aged less than 25	-.3392941	.4104266	-0.83	0.408	-1.143715	.4651273
Lone parent with all children aged 25 or more	.2300913	.4347022	0.53	0.597	-.6219093	1.082092
Couple without any child(ren)	-.0705014	.2736002	-0.26	0.797	-.6067479	.4657451
Couple with at least one child aged less than 25	-.1511228	.2842306	-0.53	0.595	-.7082045	.405959
Couple with all children aged 25 or more	.0013138	.3062566	0.00	0.997	-.5989381	.6015656
Other type of household	-.1885536	.3846143	-0.49	0.624	-.9423839	.5652767
q15						
Bad	.6112176	1.206701	0.51	0.612	-1.753873	2.976309
Fair (neither good or bad)	.397955	1.171498	0.34	0.734	-1.898138	2.694048
Good	.2529384	1.166051	0.22	0.828	-2.03248	2.538357
Very good	.1808564	1.172815	0.15	0.877	-2.117818	2.479531

Results of the full adjusted model for all variables in Turin

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.2906892	.1049285	2.77	0.006	.0850331	.4963453
Overall_Experience_of_Life	.2342129	.1107494	2.11	0.034	.0171481	.4512777
Education	-.2322505	.1216944	-1.91	0.056	-.4707671	.0062662
Environmental_Characteristics	.3041418	.1895779	1.60	0.109	-.0674241	.6757076
Built_Environment	.722996	.1911987	3.78	0.000	.3482534	1.097739
Economic_Features	.3248781	.1660266	1.96	0.050	-.0005281	.6502842
Leisure_Social_Interaction	.3910215	.1733903	2.26	0.024	.0511828	.7308601
Political_Administration	.3002632	.1999543	1.50	0.133	-.0916401	.6921664
Safety	.4292115	.1432856	3.00	0.003	.1483769	.7100461
D1	.0093906	.008224	1.14	0.254	-.0067282	.0255094
D2						
Female	.3240656	.1701063	1.91	0.057	-.0093366	.6574678
isced						
Lower secondary education (ISCED 2)	-1.121727	.9459831	-1.19	0.236	-2.97582	.7323659
Upper secondary education (ISCED 3)	-1.387575	.9262924	-1.50	0.134	-3.203075	.427925
Post-secondary non-tertiary education (ISCED 4)	-1.29987	.9517942	-1.37	0.172	-3.165352	.5656123
Short-cycle tertiary education (ISCED 5)	-1.061	.9479034	-1.12	0.263	-2.918857	.7968563
Bachelor or equivalent (ISCED 6)	-1.480151	.9368791	-1.58	0.114	-3.3164	.3560981
Master or equivalent (ISCED 7)	-1.825115	.9792996	-1.86	0.062	-3.744507	.0942774
Doctoral or equivalent (ISCED 8)	-1.124508	1.384094	-0.81	0.417	-3.837282	1.588267
d11						
Unemployed, not looking actively for a job	-2.194182	1.150586	-1.91	0.057	-4.449289	.0609248
Unemployed, looking actively for a job	-.1574998	.3918151	-0.40	0.688	-.9254432	.6104436
Retired	.1663482	.3005533	0.55	0.580	-.4227255	.755422
Unable to work due to long-standing health problems	.3131503	.8651053	0.36	0.717	-1.382425	2.008726
In full-time education (at school, university, etc...	.0839739	.3802098	0.22	0.825	-.6612236	.8291713
Full-time homemaker/responsible for ordinary shoppi..	.5774623	.46554	1.24	0.215	-.3349793	1.489904
d8						
Lone parent with at least one child aged less than 25	.5686275	.5166371	1.10	0.271	-.4439626	1.581218
Lone parent with all children aged 25 or more	-.3713802	.4705855	-0.79	0.430	-1.293711	.5509504
Couple without any child(ren)	.1564443	.2562953	0.61	0.542	-.3458852	.6587739
Couple with at least one child aged less than 25	-.2070253	.2709535	-0.76	0.445	-.7380844	.3240338
Couple with all children aged 25 or more	-.153087	.2819979	-0.54	0.587	-.7057927	.3996187
Other type of household	.3509084	.4123778	0.85	0.395	-.4573372	1.159154
q15						
Bad	-.5409106	.933191	-0.58	0.562	-2.369931	1.28811
Fair (neither good or bad)	-.2487334	.8112309	-0.31	0.759	-1.838717	1.34125
Good	-.3363565	.8099173	-0.42	0.678	-1.923765	1.251052
Very good	-.1835669	.83161	-0.22	0.825	-1.813492	1.446359

Results of the full adjusted model for all variables in Verona

Subjective_well_being	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Health	.259681	.1132314	2.29	0.022	.0377515	.4816104
Overall_Experience_of_Life	.0763978	.1252138	0.61	0.542	-.1690168	.3218124
Education	.281171	.1323511	2.12	0.034	.0217676	.5405744
Environmental_Characteristics	.5367957	.1782774	3.01	0.003	.1873785	.886213
Built_Environment	.2652296	.1961203	1.35	0.176	-.1191592	.6496184
Economic_Features	.5388643	.1894965	2.84	0.004	.1674579	.9102706
Leisure_Social_Interaction	.3438659	.1564438	2.20	0.028	.0372417	.65049
Political_Administration	-.2595511	.2141921	-1.21	0.226	-.6793599	.1602577
Safety	.3566599	.1622886	2.20	0.028	.03858	.6747398
D1	.0071399	.0080822	0.88	0.377	-.008701	.0229808
D2						
Female	.5403474	.1703054	3.17	0.002	.2065549	.8741399
isced						
Lower secondary education (ISCED 2)	-.2126432	.6560674	-0.32	0.746	-1.498512	1.073225
Upper secondary education (ISCED 3)	-.1632367	.5969572	-0.27	0.785	-1.333251	1.006778
Post-secondary non-tertiary education (ISCED 4)	.2040918	.6316963	0.32	0.747	-1.03401	1.442194
Short-cycle tertiary education (ISCED 5)	-.1892623	.624795	-0.30	0.762	-1.413838	1.035314
Bachelor or equivalent (ISCED 6)	.0383122	.6126175	0.06	0.950	-1.162396	1.23902
Master or equivalent (ISCED 7)	.6280328	.6946504	0.90	0.366	-.7334569	1.989522
Doctoral or equivalent (ISCED 8)	-.6686927	1.019387	-0.66	0.512	-2.666654	1.329268
d11						
Unemployed, not looking actively for a job	1.129992	.6715269	1.68	0.092	-.1861768	2.44616
Unemployed, looking actively for a job	.2790415	.372195	0.75	0.453	-.4504473	1.00853
Retired	-.4821192	.3053031	-1.58	0.114	-1.080502	.1162639
Unable to work due to long-standing health problems	-.9142526	2.429914	-0.38	0.707	-5.676797	3.848292
In full-time education (at school, university, etc...	.0129445	.4559302	0.03	0.977	-.8806624	.9065513
Full-time homemaker/responsible for ordinary shoppi..	.6549054	.4952512	1.32	0.186	-.3157692	1.62558
d8						
Lone parent with at least one child aged less than 25	-.5111373	.5137707	-0.99	0.320	-1.518109	.4958347
Lone parent with all children aged 25 or more	.464647	.5042288	0.92	0.357	-.5236233	1.452917
Couple without any child(ren)	.3028224	.2501564	1.21	0.226	-.1874753	.79312
Couple with at least one child aged less than 25	.0967237	.2810322	0.34	0.731	-.4540894	.6475368
Couple with all children aged 25 or more	.087468	.3012286	0.29	0.772	-.5029291	.6778652
Other type of household	-.5432832	.3550613	-1.53	0.126	-1.239191	.1526242
q15						
Bad	-.5531963	1.586703	-0.35	0.727	-3.663077	2.556685
Fair (neither good or bad)	-1.28995	1.544547	-0.84	0.404	-4.317206	1.737306
Good	-1.321339	1.54436	-0.86	0.392	-4.348228	1.705551
Very good	-1.438102	1.557267	-0.92	0.356	-4.49029	1.614086