



ADDIS ABABA UNIVERSITY
COLLEGE OF TECHNOLOGY AND BUILT
ENVIRONMENT
SCHOOL OF BUILT ENVIRONMENT

**Exploring the therapeutic role of urban parks on mental and
physical health of city residents: The case of Addis Ababa**

A thesis submitted to the Addis Ababa University College of Technology and Built Environment, School of Built Environment for the Partial Fulfilment of the Requirements for the degree of Master of Science (M.Sc.) in Urban Design and Development.

By: BLEN SHIMENGUS

Advisor: WONDWOSSEN D. (MSc, PhD Candidate)

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Addis Ababa, Ethiopia

DECLARATION

I, the undersigned, declare that this thesis is my own and original work and has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged, following the scientific guidelines of the institute.

Student's Name: Blen Shimengus

Signature: _____

Date: _____

CONFIRMATION

This thesis has been submitted for examination with my approval as an Institute's advisor.

Advisor's Name: Mr. Wondwossen Debebe

Signature: _____

Date: _____

This thesis is submitted to the Addis Ababa University College of Technology and Built Environment, School of Built Environment, Department of Urban and Regional Planning in partial fulfilment of the requirements for the Master's degree in Urban Design and Development.

Title of Thesis: **Exploring the therapeutic role of urban parks on mental and physical health of city residents: The case of Addis Ababa**

Author: Blen Shimengus

Date: February, 2025

Approved by the Board of Examiners:

Mr. Wondwossen Debebe (MSc, PhD candidate)

Advisor

Signature

Date

Dr. Aramde Fetene (Associate Professor)

External Examiner

Signature

Date

Dr. Mulugeta Maru (Assistant Professor)

Internal Examiner

Signature

Date

Chairperson

Signature

Date

Urban and Regional Planning Department

Signature

Date

ABSTRACT

Rapid urbanisation in Addis Ababa has led to increased environmental problems, making the issue of urban parks as a tool for mental and physical health support regain the lead on the agenda. This paper investigates the perceptions of the residents of Addis Ababa on the mental and physical health benefits of selected urban parks in Addis Ababa and the extent to which these parks satisfy therapeutic urbanism principles. A concurrent triangulation mixed-methods design was employed, combining a cross-sectional survey that was conducted among 372 park users, and data were collected through a five-point Likert scale. This was further supported by an observational assessment based on the standards of therapeutic urbanism through domains of accessibility, amenities, design quality, placemaking, and sustainability. Semi-structured key informant interviews with relevant authorities was conducted. Survey respondents were selected through on-site convenience sampling with proportional allocation across eight selected urban parks in Addis Ababa, representing diverse park typologies. Quantitative analysis using weighted mean analysis showed that stress reduction was the factor that gained the highest perception score ($M = 4.62$), which was then followed by the overall improvement of mental well-being ($M = 4.26$), thus indicating very positive psychological outcomes. Over 96% of the respondents were in agreement that visits to the park help in reducing stress. The observational study results showed differences in therapeutic design compliance among the parks, with the better-performing parks having stronger place-making and sensory design elements. The results revealed that urban parks in Addis Ababa are mainly operating as places of psychological restoration and function as informal restorative infrastructure. Thus, they support Stress Reduction Theory and Attention Restoration Theory, but they require stronger integration of therapeutic design standards and equitable access strategies to enhance mental-health outcomes citywide. The research also demonstrated that the principle of therapeutic design should be involved in urban planning if one wants to make the most of the mental health benefits obtained from rapidly urbanising cities.

Key Words: Addis Ababa; Accessibility; Mental health; Rapid Urbanization; Stress reduction; Therapeutic urbanism; Urban parks

DEDICATION

This work is dedicated to
The blessed memory of my late father, Mr. TASSEW BERHE, who planted the seed
of knowledge in my mind and nurtured it, and
For my mother (1944–2017), who continued to inspire me.

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LIST OF ABBREVIATIONS

<i>AACPPO:</i>	Addis Ababa City Planning Project Office
<i>IDI:</i>	In-depth Interview
<i>KII:</i>	Key Informant Interview
<i>NBI:</i>	Nature-Based Infrastructure
<i>UGS:</i>	Urban green space
<i>UPs:</i>	Urban Parks
<i>PL:</i>	Place-making
<i>TLs:</i>	Therapeutic Landscapes

CHAPTER ONE: INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Urban environments are important for the health and well-being of the people who live there. In today's world, where cities are growing fast, they are a big part of our lives. The way cities are designed and laid out can make a difference to our physical health and how we feel inside. Urban environments are made up of things like parks and green spaces, streets that are easy to walk on, community centers and cultural hubs. These environments can make our health better in lots of ways. Urban environments and the way they are designed can affect our health and well-being. The parks and green spaces, in environments can help us relax and feel better. Urban environments are where we live and work. They can make our lives better or worse depending on how they are designed. For example, access to green spaces in cities is linked to lower stress levels and better emotional well-being. Likewise, neighborhoods designed to prioritise the safety of pedestrians and cyclists promote physical activity, which helps reduce the risk of chronic diseases like obesity and heart problems (Zhong et al., 2022).

Even though city life supplies more jobs and buzz, the cramped sidewalks, gritty air, and nonstop noise grind down health and well-being. Cities wear people down. The dirty air, nonstop noise, barely any parks, and a crowd that never stops make one's mind and body feel the strain (Litman, 2017; Trojanowska, 2021). Therapeutic landscapes are recent; yet the drive to shape healthful spaces dates to when city planning began. Therefore, Marques et al. (2021) note that when an individual goes outside, the body seems to mend faster, the neighbours pull together, and a person starts to feel that they are in control of their own recovery. Design that pushes prevention and rehab may close the split between hospital care and daily life, so it keeps at-risk people healthy.

In developed countries the rise in obesity, type II diabetes and heart disease have created an interest to create designs that could push people to move more. There's a growing worry about poor mental health, especially among adolescents; they want places that can lift mood and cut stress, so they look for those kinds of spaces. Since body and mind are tightly linked, through time the focus was shifted to places that get

us moving and also calm our thoughts; like a bike trail, a gym, or even a quiet corner (Thompson, 2011).

According to the U.S. Department of Agriculture Forest Service (2018), limited green space hurts heart health; therefore, having parks nearby can lower obesity, boost mood and guard against heat-related illness. Research shows that people who live near a park feel less stress; they tend to be more active, and they seem to live longer. It seems that being near nature might shave off some of the deaths caused by long-lasting illnesses. When people workout outdoors, they often keep at it longer; thus, they also get tougher. Put a pond or a small blue spot in a green area, and the good health effects get bigger. A quick walk in the forest makes kids with ADHD actually keep their focus longer (U.S. Department of Agriculture Forest Service, 2018).

Ouf et al. (2023) also noted that nature's strong healing vibes can be stitched into street design, making city residents feel lighter, easing stress, soothing tension, dulling fatigue, calming pain, lifting sadness, and alleviating depression and anxiety. With thoughtful design, a street can help city people's health and also strengthen how they connect, therefore it helps them live better (Ouf et al., 2023).

1.2. STATEMENT OF THE PROBLEM

For the past 30 years, Ethiopia has been rapidly urbanising, with Addis Ababa witnessing a substantial increase in population size, spatial extent, and built-up density (Benti et al., 2022). This growth has paved the way for economic and infrastructural changes, but at the same time, it has opened up a range of environmental and public health issues. Higher densification, the growth of informal settlements, traffic congestion, and environmental degradation have changed the city's spatial layout to the extent that it has a direct impact on the residents' well-being (Habtamu et al., 2022).

The earliest urban planning activities in Addis Ababa were influenced by the successive master plans that aimed to organise the city's spatial development. However, the actual implementation of these plans has frequently deviated from the planning intentions due to various political, economic, and institutional factors (Tufa, 2008). Moreover, rapid population growth and development pressures have largely altered landuse patterns. One of the crucial issues is the shrinkage and fragmentation of green and open spaces

available for the public. Besides affecting leisure provision, this change is also likely to have an impact on public health (Woldegerima et al., 2017).

Urban living conditions are having an increasingly significant impact on both mental and physical health. Studies point out that being in an urban environment that includes stress factors such as overcrowding, poor environmental conditions, and the absence of green spaces for relaxation leads to higher levels of stress, anxiety, and depression (Habtamu et al., 2022; Zewdie et al., 2022). However, at the same time, Ethiopia is finding it hard to handle a rapidly increasing load of non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, and hypertension. There is a higher rate of such diseases in urban centres like Addis Ababa (Federal Ministry of Health Ethiopia [FMoH], 2020; Koye et al., 2022).

Green and public open spaces play a crucial role in the creation of therapeutic urban environments when they are carefully designed and fairly distributed. These spaces help promote physical activity, provide conditions for mental restoration, facilitate social interaction, and generally enhance public health (Zhong et al., 2022). The city of Addis Ababa, however, is facing a severe lack of recreational green infrastructure. Azagew and Worku (2020) point out that the provision of park area per capita in the city was only around 0.37 square meters, which is drastically lower than the Ethiopian planning norm of 15 square meters. Moreover, over 90% of the population did not have access to parks within acceptable walking distance limits, a fact which reveals large spatial distribution inequities (Azagew & Worku, 2020). This shortage of facilities restricts urban open spaces in their role as therapeutic landscapes.

Renewed willingness of the government to supply more green spaces in cities is evidenced by recent large-scale park development projects in Addis Ababa. On the other hand, data shows that the health benefits of these places are still far from being completely exploited. A research by Beyene & Borishe (2021) on the patterns of park use showed that although a lot of people in the city acknowledge the mental health benefits of green areas, only half of the park users reported going to the park mainly for health reasons (Beyene & Borishe, 2021).

Even though the therapeutic role of urban parks in health has been globally recognised, very few local studies have been conducted in Addis Ababa to explore how the urban

spatial structure and park design can be used as therapeutic environments. The city's burgeoning urban health problems point to a glaring disconnect between the incorporation of therapeutic urban design principles and the city's planning framework.

1.3. RESEARCH QUESTIONS

1. How do urban residents in Addis Ababa perceive the contribution of urban parks to mental and physical health outcomes?
2. Do urban parks in Addis Ababa satisfy the basic standards of therapeutic urbanism?
3. What existing urban design and planning interventions that promote mental and physical well-being have been done in Addis Ababa?

1.4. OBJECTIVES OF THE RESEARCH

1.4.1. General Objective

The primary aim of the research was to explore the therapeutic role of urban parks in Addis Ababa on mental and physical health of city residents.

1.4.2. Specific Objectives

- ✓ To examine the perception of urban residents on the contribution of urban parks to mental and physical health outcomes.
- ✓ To analyse whether urban parks in Addis Ababa satisfy the basic standards of therapeutic urbanism.
- ✓ To identify existing urban design and planning interventions that promote mental and physical well-being.

1.5. SIGNIFICANCE OF THE STUDY

Addis Ababa faces environmental stressors such as traffic congestion and air pollution, which can negatively affect physical and mental health (Avis et al., 2019; Moges & Alemu, 2024). Identifying therapeutic roles of urban landscape can help alleviate these stressors and enhance overall well-being (World Health Organization [WHO], 2016).

Urban parks exert a complex influence, affecting not only individuals but also the overall health and well-being of society within a country (Beyene & Borishe, 2021; UN-Habitat, 2025). As Addis Ababa continues to grow, it is critical to promote sustainable urban development that prioritises health and well-being. The outcomes of this research will have significant implications not only for Addis Ababa but also for Ethiopia as a whole. This study can provide valuable insights for designing healthier, more liveable cities that benefit both current and future generations.

The study is also expected to inform government and civil society agencies about the current situation on the ground, serving as a reference point for developing intervention programmes. It is also expected to inform planners and policymakers on designing health-promoting urban parks. The study's results are also anticipated to draw attention to highlight these issues, providing valuable information and recommendations to encourage relevant bodies to prioritise them. Additionally, future researchers will benefit from this study, as it offers insights into the prevailing conditions.

1.6. SCOPE OF THE STUDY

Given the subject's vast scope and global significance, it was essential to narrow the focus to a more manageable scale. Therefore, the emphasis was placed solely on exploring the therapeutic role of urban parks in Addis Ababa, rather than the entire urban environment. This research also did not encompass all parks in Addis Ababa; instead, it concentrated on eight parks. These parks were selected based on the criteria established through the literature review on types of urban parks. Selection criteria and descriptions of each park are further discussed in the methodology section.

Thematically, the study revolves around the role of urban parks to mental and physical health and in particular, the psychological, emotional, and social well-being of users. The study investigates how certain spatial features, environmental qualities, and design elements of urban parks contribute to the users' restorative experiences and health benefits as perceived.

The research is also confined to healing effects of urban parks and does not cover other environmental health determinants, clinical health assessments, or different types of urban infrastructure. In addition, urban sustainability and the ecological functions of

parks, though acknowledged, are not the main focus of the study. The key point is to understand how park environments serve as a source of restoration and therapy for their users.

1.7. RESEARCH LIMITATIONS

The primary limitation of this research was the absence of prior local studies in the specific research area, which constrained the availability of existing literature and precedents to inform and support the current study. This lack of previous research may have affected the depth and breadth of the analysis and discussion within the study.

Another limitation of this research was the constraint of resources, including time, budget, and personnel. These limitations may have impacted the scope of data collection, the size of the sample population, and the overall depth of analysis that can be performed within the study. Consequently, the findings and conclusions drawn from the research may have been influenced by these resource constraints.

It was also an anticipated limitation that some key reports in the health system and urban planning and design disciplines were not easily and promptly accessible to the researcher. Nonetheless, the researcher took all necessary actions and made her utmost efforts to access as much information as possible that the research required.

1.8. ORGANIZATION OF THE DOCUMENT

The paper is organised as follows. It begins by introducing the concept of urban spaces and their healing potential for mental and physical health in the first chapter. It also provides the statement of the study's problem, research questions, objectives, limitations, scope, and significance. The second chapter is dedicated to a literature review, discussing different terminologies, theories on therapeutic urbanism, urban parks in Addis Ababa, and a detailed critique of the existing literature relevant to the study. The third chapter presents the methodology. In the fourth and fifth chapters, the paper presents and discusses the results, showing the analysis of various findings and data from a completed questionnaire, interview guide, and observation checklist. Finally, the last chapter provides a conclusion and recommendations based on the findings.

CHAPTER TWO: LITERATURE REVIEW

2.1. INTRODUCTION

This chapter reviews the theoretical, conceptual, and empirical literature on the therapeutic role of urban parks in promoting mental and physical health. It first defines major concepts, continues with theoretical interpretations of how urban green spaces affect psychological and physiological well-being, and then presents global evidence on health outcomes. The chapter also points out the design characteristics of therapeutic urban parks, gives a brief account of urban parks in Ethiopia and Addis Ababa, and finally, draws the reviewed literature together and points out the research gap that this study addresses.

2.2. THEORETICAL REVIEW

Therapeutic urbanism theories focus on the idea that urban planning and design can serve therapeutic purposes, addressing social, economic, and environmental challenges while promoting the physical and mental health of urban residents. These theories emphasised the connection between the urban environment and human well-being, suggesting that thoughtful planning can enhance residents' quality of life.

2.2.1. Attention Restoration Theory (ART)

Marques et al. (2021) wrote that exposure to urban green spaces can provide attention restoration according to the attention restoration theory (ART) by Kaplan & Kaplan (1989). Beside all other ordinary and busy daily lives distractions, especially and more importantly, in cities can exhaust our attentional capacity. Natural environments, such as green spaces within the urban context, provide aesthetically pleasing and peaceful setting, which enables restoration by providing a sense of escape. According to this theory, being in nature can produce an effortless attention, a soft fascination which requires less or no effort at all on our brain to process, and that helps restore directed attention. Activities such as walking in a green park or sitting amidst trees can be highly beneficial for the human mind. Better attention or attentional capacity can improve cognitive functioning, concentration, and problem-solving skills (Marques et al., 2021).

Moreover, reduced stress, anxiety, and improved mood can promote psychological well-being. By integrating these green spaces into urban design by providing citizens with urban green spaces, Marques et al also mentioned that providing opportunities for attentional restoration can help alleviate mental fatigue associated with urban lifestyle leading to a more balanced and harmonious way of living. This brings about the importance of planning in the context of mental health and well-being (Marques et al., 2021).

2.2.2. Stress Reduction Theory (SRT)

In the article entitled “Features of Urban Green Spaces Associated with Positive Emotions, Mindfulness, and Relaxation”, Olszewska-Guizzo et al. (2022) proposed that the experience of natural environments is beneficial because it helps us recover from stress and mental fatigue and provides positive emotional experiences that are good for mental health. The authors hypothesised that the first way in which UGS may reduce stress is by providing a restorative experience through a distinct feeling of being elsewhere different from the everyday city environment. They also explained that experiencing urban green spaces may lead to calmness and relaxation due to lush vegetation, presence of water elements, and places to rest and chill being away from threatened states. This in turn has a positive influence on emotions and supports a state or feeling that heightens the awareness or focused attention of present moments needed for mental health. (Olszewska-Guizzo et al., 2022).

According to Olszewska-Guizzo et al. (2022), exposure to nature can reduce levels of cortisol (a stress hormone), lower blood pressure, improve mood, decrease anxiety, increase positive emotions, and enhance emotional well-being. Therefore, Olszewska-Guizzo and her colleagues highlighted the importance of including natural elements within urban design and planning. They pointed out how including accessible and well-designed urban green spaces entails creating places that can help urban inhabitants cope with psychological distress in cities. This conscious inclusion of restorative elements within the city through green spaces makes people relax and reduces stress and therefore support healthier behaviours (Olszewska-Guizzo et al., 2022).

2.2.3. Biophilia Hypothesis

The biophilia hypothesis proposed that humans have an innate tendency to connect with nature, which is crucial for overall well-being. This affinity is rooted in our biology and evolutionary history, suggesting that close interaction with nature has been vital for survival. Exposure to natural environments can significantly impact one's health by meeting this intrinsic need. Natural settings contain sensory and emotional resources that facilitate one's mental and physical well-being. Spending time in nature, through activities like walking in a forest, gardening, or observing a park, provides significant benefits such as reduced stress, reduced blood pressure and cortisol levels, improved mood, and enhanced cognitive functioning (King, 2022).

2.2.4. Planning As Urban Therapeutic

Lacan's "Planning as Urban Therapeutic" proposed that planners view urban problems, such as poor housing conditions and traffic issues, as "lacks" and "illnesses" that require interventions similar to "therapy". The solutions correspond to the "treatment" of these "lacks" or "illnesses" by, for example, providing new programs to generate parks or reshaping the public space to enhance pedestrian activity. The "doctor-patient" complex emerges as planners intervene in the city's deficiencies, positioning themselves as the experts who provide the necessary "therapy" (Gunder & Hillier, 2007).

"Planning as urban therapeutic" also indicated two discourses in urban planning: the "therapeutic" tendency that considers the city as sick or injured and therefore requiring intervention or therapy and the "paternalistic" tendency, which assumed that planners know what is best for the less-than-in-control patient, or urban resident, without significant consideration of the patient's needs. This means that planners controlled the city and have a so-called "authority," while ignoring what residents genuinely desire (Gunder & Hillier, 2007).

2.2.5. Restorative Urbanism

Restorative urbanism" is a theory which was proposed by Roe and McCay. "Restorative urbanism" emphasised the concept of restorative environments. This refers to urban settings that facilitated stress recovery, relaxation, and overall mental rejuvenation.

Elements such as green spaces, tranquil zones, and aesthetically pleasing environments play crucial roles in fostering these restorative qualities. Thus, restorative urbanism highlighted how city design and infrastructure can contribute to or detract from the mental and emotional well-being of its residents (Roe & McCay, 2021).

Restorative urbanism also emphasised the benefits of integrating parks, gardens, water bodies into cities to design spaces that promote socialisation and encourage physical activity while positively impacting mental health. Such restorative spaces may help reduce anxiety, promote an improved mood, and enhance life satisfaction among residents. Restorative urbanism presented the importance of constructing functional and supportive built environments while considering their influence on mental health (Roe & McCay, 2021).

2.2.6. Mental Health Framework

The urban mental health framework is an additional operationalised model which helped synthesise environmental psychology, health psychology, design research, and urban planning knowledge to accomplish objective mental health and literacy through cities. It highlighted the importance of designing urban areas that support mental well-being. It also aimed to promote evidence-based urban planning and design, which required research-based knowledge about urban environments supporting mental health and well-being. It proposed vital principles of salutogenic design (i.e. environments encouraging the feeling of good health instead of only preventing illness) and psychosocially supportive design (i.e. the design supplements individual's psychological and social needs, such as promoting safety and interactions while relaxing) (Müller et al., 2023).

Collectively, these theories underscore the importance of the built environment in resolving social, psychological, and public health issues in urban centres, emphasising the value of natural elements, green spaces, and sustainable development in designing healthy communities.

2.3. CONCEPTUAL REVIEW

2.3.1. *Urban Parks As Health-Promoting Infrastructure*

Urban parks are a crucial part of cities, and they provide numerous benefits to urban residents and the environment. They provide recreational opportunities, contribute to social interactions and community cohesion, and help reduce the environmental impacts of urbanisation. Urban parks are open spaces predominantly covered by vegetation and water and reserved for public use with the primary functions of providing recreation opportunities and improving the urban environmental quality. Urban parks exist in a variety of sizes from parks to small pocket parks, and serve as a fundamental element of urban biodiversity and ecosystem conservation. The rapid urbanisation has led to the emergence and changes in urban park landscapes, and their functions have undergone great changes over time (Sadeghian & Zhirayr , 2013).

Urban parks are vital for city life, offering multiple benefits that enhance urban living. They provide recreational spaces, supporting physical health and well-being. Parks encourage social interaction and community engagement through events and gatherings. Economically, parks can increase property values and boost local businesses by attracting visitors. Environmentally, parks improve air quality, manage stormwater, and support biodiversity, helping to mitigate urban heat and promote a healthier ecosystem. Urban parks are essential green spaces that strengthen communities and contribute to sustainable urban development (Zhang et al., 2024).

Urban parks as health-promoting infrastructure refers to wellness, new urban pathways and creates interventions aiming to favor the enhancement of psycho-physical health of the elderly as urban habitats and forms. Incorporating urban health welfare into the very design and planning principles. It is like creating therapeutic urban health pathways for the elderly. These new urban health pathways aim to cater specifically to the needs of the elderly population, recognising that as people age, they require environments that support their health, mobility, and psychological well-being. The idea is to design urban spaces that are not only accessible and safe but also therapeutic in nature. These pathways are designed with features such as smooth, even surfaces to prevent trips and falls, ample seating areas for rest, and clear signage to ensure navigation is easy. They

are often situated in areas of natural beauty, like parks, gardens, or near water bodies, to provide a calming and restorative environment (Szewczenko et al., 2023).

Lastly, interventions may feature components that promote socialisation and community engagement, which are essential to reduce loneliness and social isolation in the elderly. Social components can consist of gathering spaces and seating areas, outdoor fitness equipments, and organised group activities such as walking clubs or gardening groups. These social elements encourage older adults to connect with others in their community, fostering a sense of belonging and improving their quality of life (Szewczenko et al., 2023).

Additionally, therapeutic principles in urban health path design might extend beyond the physical environment to include other aspects of the senses, such as artwork, sensory gardens with fragrant plants, and interactive installations that engage the mind and senses. These features stimulate cognitive function and offer mental challenges that are beneficial for maintaining cognitive health. By increasing physical activity in the elderly, urban health paths can help them maintain mobility and function, strength, and balance, reducing the risk of falls and other health problems associated with a sedentary lifestyle. Mental health, on the other hand, is also supported by the stress-reducing qualities of nature and the opportunities for social interaction and engagement. Therefore, these features collectively contribute to a comprehensive urban health path design that enhances the overall well-being of the elderly population (Szewczenko et al., 2023).

2.3.2. Therapeutic Landscape

A therapeutic landscape is a space that offers the combination of physical and built environments, social conditions, and human perceptions and experiences of these spaces to enhance health and well-being (Marques et al., 2022). The concept of therapeutic landscapes was first introduced by geographer Wilbert Gesler in the early 1990s to describe and define particular environments that have achieved lasting reputations for providing physical, mental, and spiritual healing (Doughty, 2018).

Above all, therapeutic landscapes intervened in the physical dimension at the outset. The body, aesthetics, tranquillity, climate, water, green amenities, pollution, and

negative externalities were on the top list (Gesler, 2003). With the time being, the notion of “therapeutic landscape” remains renewed and in turn acts on the definition of itself. Simply, the TLs developed from only focusing on the aesthetics to engaging with the environment physically and psychometrically (Andrews, 2004; Curtis, 2005; Curtis, 2007; Dyck, 1998).

2.3.3. Salutogenic Design

Salutogenic design is a form of designing built environment such that it promotes the usability, health and well-being or sense of coherence of its inhabitants. It does not only enhance life and living situation but also includes health and wellbeing issues. Salutogenic origin is the Latin term *Salus*, which means health, Greek word *genesis* which means origin. Salutogenic means origin of health and implies in using health-related issues only for cause of well-being thus contrasting with prevention issues (Antonovsky, 1987) or rather imposing positivity in lifestyles of humans for their well-being (Golembiewski, 2012).

Salutogenic design is a kind of wholesome design consideration with respect to well-being. It means providing people physically safe and accessible spaces, not only to prevent injury, but for people of all ages and abilities. Nature can also help restore by stimulating calming effects in the brain that reduce our blood pressure, stress hormones and enhance our mood; whilst healing urban nature may inspire positive feelings, and promote a sense of being connected to something greater than ourselves through the experience of awe and wonder, and promote hope as well (Yang et al., 2023; Golembiewski, 2022)

2.4. EMPIRICAL EVIDENCE ON MENTAL AND PHYSICAL HEALTH OUTCOMES

2.4.1. Psychological Health Outcomes

A number of studies have empirically shown that living in urban areas with green spaces leads to frequent and significant positive changes in one's psychological health. For instance, a considerable number of studies show that being in a park or a natural setting helps to alleviate the symptoms of both anxiety and depression. In their

systematic review, Twohig-Bennett and Jones (2018) examined the existing literature and found that people who reside in greener areas not only have lower levels of psychological distress but also suffer less from depressive symptoms. Similarly, Bratman et al. (2015) found that a walk in a natural environment, relative to a walk in an urban setting, results in a substantial decrease in rumination, which is a type of thought strongly associated with depression.

Urban green spaces contribute to psychological well-being in various ways. One of the most notable benefits is that they help to regulate emotions and stabilise moods. Stress Reduction Theory explains how nature exposure leads to stress relief through a variety of physiological changes such as the reduction of cortisol levels and the suppression of sympathetic nervous system activity (Ulrich et al., 1991). These bodily adjustments go hand in hand with positive changes in mood, lessened feelings of anger, and increased sensations of tranquillity. Just a few moments spent in nature, according to some experimental studies, are enough to cause some immediate changes in one's mood and emotional state (McMahan & Estes, 2015).

Moreover, urban green areas serve as venues for psychological restoration and are conducive to mindfulness. Attention Restoration Theory argues that going to see natural scenes basically gives the brain a rest thereby enabling it to work better when the person has to concentrate again; the reason for this is believed to be that nature provides a kind of "soft fascination" which gently draws a person's attention in such a way that the brain's "directed attention" mechanisms can be recharged (Kaplan & Kaplan, 1989).

Empirical research has shown that visits to parks can help people to improve their cognition, attention, and working memory (Berman et al., 2008). These benefits to one's mental state are especially important in crowded city areas that are always full of noise, rush, and over, stimulation of senses.

All in all, these studies indicate that parks are the kind of places where people can allow themselves to go through their feelings, get calm, and lower their stress levels. By offering a mix of effects, stress relief at the physical level, mental rejuvenation, and friendly social contact, city parks are the first line of mental health support in the urban environment.

2.4.2. Physical Health Outcomes

Urban parks are one of the key ways through which a city can help its residents stay physically fit. People who live in a neighborhood with a park nearby end up walking, running, riding a bike, and sometimes even playing sports more than people who do not have parks (Kaczynski & Henderson, 2007). Getting physical near nature especially helps people meet their exercise goals regularly and thus, keeps them less inactive (Lachowycz & Jones, 2011).

Habitual exercise alone accounts for a great decrease in the development of such major diseases as cardiovascular disease, obesity, high blood pressure, and type 2 diabetes. In its report, the World Health Organization (2020) highlights physical inactivity as one of the top risk factors for non-communicable diseases (NCDs) in the state of rapid urbanisation. Accessible and safe environments for exercise are an important preventive tool that urban parks provide against NCDs. In addition to that, data from a cohort study show that people living in areas with higher greenery have their death rate decreased through all causes, one of the reasons being that those people are more active and perform more physical exercise (James et al., 2016).

Green culture not only offers people new means of staying fitter but also contributes to improving local environment thus, positively affecting health in general. Plants clean the air by trapping dust and other harmful particles on their leaves and through the biochemical process, they absorb dangerous gases, hence enhancing the well-being of people with respiratory problems (Nowak et al., 2014). Trees and vegetation in the cities are the main factors in diminishing an urban heat island by shading the area, which makes people more comfortable and by evapotranspiration which is a natural cooling process; hence less people suffer from heat-related illnesses and cardiovascular problems (Bowler et al., 2010).

2.4.3. Park Proximity And Accessibility

Requirement to physical distance to the closest green space from a home or neighbourhood is one of the biggest factors in measuring the accessibility of urban parks. This distance can be defined through different methods such as: linear distance

from a home to the nearest green space, measuring distance through a street/path network, time (Ward Thompson & Silveirinha de Oliveira, 2016).

Indicators can also be aggregated at a higher, population level, to assess the percentage of any population living within a certain distance of a green space of a given size or of a selected type or types. It should be noted, here, that they may include proximity to green spaces that are not accessible to the public, depending on available data. There is a range of distances cited in the urban green space access literature and no clear threshold that has been defined as ‘accessible’ nor is there clarity over whether this relates to the perimeter of any green space or to an entrance or path access point (Ward Thompson & Silveirinha de Oliveira, 2016).

Such an indicator could be essential for setting green space standard at national or other administration level. For instance, Natural England has developed an Accessible Natural Greenspace Standard for England (Ward Thompson & Silveirinha de Oliveira, 2016). This standard suggests that individuals should have access to green spaces that meet the following criteria:

- A minimum area of 2 hectares, situated no more than 300 metres (approximately a 5-minute walk) from home.
- At least one accessible site of 20 hectares within two kilometres of the house.
- One accessible site of 100 hectares is located within five kilometres of the home.
- One accessible site spanning 500 hectares is located within ten kilometres of home.
- A minimum provision of one hectare of designated Local Nature Reserves for every thousand residents.

The European Common Indicator for local public open spaces does not set a specific target and is not solely focused on green areas. Instead, it employs a related metric: the proportion of residents living within 300 metres of a public open space that is at least 0.5 hectares in size. There is no agreement on what distance should define accessibility; for instance, while the Natural England standard states that 300 metres corresponds to a 5-minute walk, the European Common Indicators suggest that this distance is more aligned with a 15-minute walk (Ward Thompson & Silveirinha de Oliveira, 2016).

Additionally, the EnviroAtlas 13 tool provided by the U.S. Environmental Protection Agency (EPA) offers a range of indicators concerning the availability and accessibility of green spaces. These include green space per capita, the total residential population within a 500-metre walking distance along accessible roads and pathways to a park entrance, and the percentage of residents living within that same distance from a park entrance at the census block level. This version retains the central concepts while employing varied phrasing and sentence structures (Ward Thompson & Silveirinha de Oliveira, 2016).

2.5. DESIGN CHARACTERISTICS OF THERAPEUTIC URBAN PARKS

2.5.1. Global Typologies Of Urban Parks

Globally urban parks break into many kinds, by size, design, function, and user group (Cao, Du, Yang, & Du, 2021; Understanding the many different types of parks, n.d.). So, here are the main categories listed:

2.5.1.1. Comprehensive Park

A comprehensive park is a huge space built to act as the town's hub for games, picnics and just hanging out, therefore people end up meeting there. These parks have sport fields for games, playgrounds for kids, picnic spots for friends, and trails to walk or bike, whether a person just wants to relax or push themselves. Their main aim is to answer all sorts of public wants, so they push people toward active stuff like a basketball game or a run, and they also let them chill with a nap or a picnic on the grass.

2.5.1.2. Community Park

A community park is a neighborhood park, which basically is a tiny green spot for nearby families, it offers a place to play and a place to chill, making it a handy part of the block. Most parks got the basics: a playground for kids, a field for pick-up or league games, and a green area where you can just sit eat a picnic or do something casual. Big, all-purpose parks sit far away but, neighborhood parks stay nearby giving locals easy

chances to head outdoors and have fun. By lifting the neighborhood vibe, these parks become hubs for health, friends gathering, and for both active games and chill time.

2.5.1.3. Pop-Up Park

A pop-up park is a tiny slice of green that pops up on a city block, giving nearby workers, locals and tourists a spot to chill and meet, even though it's barely a few hundred feet across. Just a simple space, one big open area like a single room with benches, a few trimmed plants and clean design. Pop-up parks are unique and can be reshaped and features can get switched or turned later to match whatever the community needs as it grows. In the middle of the busy city, they sit as fast, easy spots to slip away, feel calm and sense a real connection to the streets around you.

2.5.1.4. Recreational Park

Recreational parks are smaller open areas designed for relaxation and light outdoor activities. They provide calm environments for picnics, casual walks, and family gatherings allowing visitors to unwind and reconnect with nature.

2.5.1.5. Sports and Fitness Park

Sports and fitness parks are designed to encourage physical activity. These parks include fields, courts, running tracks, and outdoor exercise stations, supporting organised sports, casual play, and fitness routines. They promote healthy lifestyles, teamwork, and social interaction within the community.

2.5.1.6. Waterfront Park

A waterfront park is an outdoor space beside a river or lake. It is designed to pull the water view into the trails and let the natural scene feel close. Walking paths, fishing spots, picnic tables and open space where people just chill, therefore visitors soak in a calm vibe with the water's sights and sounds. Waterfront parks aren't just a place to chill; moreover, guard the local marshes and the fish, and people living close start feeling a real tie to the water. A peaceful spot by the water showcases its unique charm. So, it is a place to relax and nudge people toward caring for the planet.

2.5.1.7. Historical Garden

A historical garden is a park trying to keep the past in view, showing the old story of a place and keeping the heritage alive. Unique paths, hand-picked plants and old-style arches make it feel like the place is telling its story. A monument, a plaque, an interpretive sign tells the garden's story and show why it's culturally important, making people feel linked to the stories that made it.

2.5.1.8. Botanical Garden

Botanical gardens are designed to study, display, and educate about plants. They often have themed sections highlighting plant diversity, serving as classrooms, research spaces, and peaceful recreational areas. They promote environmental awareness and conservation of plant species.

2.5.1.9. Heritage Park

Heritage parks maintain significant historical sites and stories. Visitors can stroll through monuments, plaques, and statues, learning about the area's history while enjoying outdoor space. These parks promote community pride and historical appreciation.

2.5.1.10. Wetland Park

Wetland parks preserve critical wetland ecosystems, providing boardwalks, observation decks, and trails for visitors. They allow people to observe wildlife and learn about wetlands while protecting habitats and promoting environmental awareness.

2.5.1.11. Forest Park

Forest Parks are a huge stretch of trees turned into a park. Some woods grew on their own, others planted on purpose. It's both wild and managed. It is built to let people step into nature with trails for walking, biking, and wildlife-watching being scattered. Forest parks whether inside a city or just outside, give us green space to hike, appreciate earth, and feel more tied to nature.

2.5.1.12. Zoo

Zoos display and protect animal species, often replicating natural habitats. They serve educational, conservation, and recreational purposes, giving visitors opportunities to learn about wildlife while enjoying an interactive experience.

2.5.1.13. Amusement Park

Amusement parks provide entertainment through rides, games, and shows. They are designed to offer fun, excitement, and memorable experiences for all age groups, making them popular destinations for families, friends, and individuals seeking leisure and recreation.

2.5.2. Core Principles Of Therapeutic Urbanism

Urban design plays a pivotal role in creating places that are health-promoting, socially inclusive, and environmentally sustainable. Principles of therapeutic urban design guide the development of urban spaces that address the diverse needs of individuals, fostering environments that enhance overall well-being. The sustainable, accessible, amenity, design, placemaking features of health-promoting places, which are interdependent and manifest from different perspectives are grouped into five principles as per Trojanowska (2021). The researcher used Monica Trojanowska's model to analyze the data collected through observation checklist. Catharine Ward Thompson and Eva Silveirinha de Oliveira's model, was not used due to the completeness, high relevance and high level of linkages with topic of the former model, These principles (Annexe 3) are detailed as follows:

2.5.2.1. Sustainability

This principle focuses on the sustainable development of urban areas, the characteristics of the location, including area, site, and surrounding urban pattern, affect how these elements integrate with the place (site or ground). Key aspects include environmental characteristics (soil, water, air, noise), forms of natural protection (green or blue infrastructure), and biodiversity (native plants, animals, maintenance methods, and restricted areas within open green spaces). Sustainable water management practices, such as rain drain infiltration and the use of non-potable water for watering, contribute

to ecological balance. Second generation parks signify better sophistication, while urban metabolism and ecological energy are such sources that are applied to minimize the ecological impact of the city.

2.5.2.2. Accessibility

Accessibility refers to the ease' of navigating an urban park, and implies inclusivity. This signifies provision of open spaces and parks within close proximity to its users and entails a pre-requisite need to provide appropriate walking pavements to such places. These features include pavements which are of adequate width, levelled, uninterrupted, have adequate pitch and retain good drainage. These walking paths should be well maintained, inviting, and have adequate seating' available, along with perceived safety' and buffered from traffic'. In terms of traffic criteria, speed control and provision of crossings and stop signs, improve walking' accessibility. Along with these, adequate lighting, shading, visibility of nearby facilities/buildings and proximity to public transport stops/car parks enhance user experience for inclusivity. These features ensure equal access to required resources for every individual.

2.5.2.3. Amenities

Amenities refers to ensuring that the urban built of an urban park is facilitating the needs of its users, especially their psychological and physical needs. Naturalness' is such a criterion, which provides the scope of psychological and physical restoration by means of green open spaces, water bodies, and shaded seating pavements. Physical activity and social restoration in terms of invigorating infrastructures or recreational opportunities and community gardening' explicitly provide needed amenities. Among other basic lifestyle amenities, the availability of safety, clean and maintained environment, seating' and shelter, toilets, drinking water, and food within and in close vicinity to that park should be sufficiently available. To cater to the entire community, certain specific fixtures for disabled are required and suggested in every such city. All these features single-doubly ensure everyone has accessibility to essential facilities, while the surroundings remain restorative and recreational.

2.5.2.4. Design

Refers to aesthetic features of an urban park, which make it look attractive, but also promote a healthy urban built environment. Architectural design is on a human scale, and there are focal points, landmarks and structures that create interior connections and framed views. Long views, pathways with scenic vistas and hidden elements of the landscape draw people out to explore and imagine. Elements of salutogenic design help ensure optimal complexity and engagement and include risk, fascination, enticement with movement and mystery. Stimulation through the senses, such as seeing, hearing, smell, touch and even taste enrich the experience of using the space. Opportunities to people watch, bird watch, etc enrich the liveliness and vibrancy of the urban form.

2.5.2.5. Place-making

Place-making is about shaping a park that feels real to the people where they show the local culture, set up a meetup spot, throw events, and people end up chatting; the community grows. Spiritual and symbolic aspects that are highlighted by an old church wall, a war memorial stone, a sunrise painting, and a rose garden show the stories tied to our ancestors; therefore, it feels alive. When people help design a room and manage it on their own, they start to feel that it's theirs, and a sense of belonging appears. Adding informal hangouts like coffee shops and newer community spots pushes people to chat more, so chances for social interaction just rise. By turning an empty lot into a buzzing square, the block feels alive, and one can see the neighborhood's true values.

These principles constitute the assessment framework for the selected urban parks in Addis Ababa.

2.6. URBAN PARKS AND HEALING IN THE ETHIOPIAN CONTEXT

2.6.1. Urbanisation And Health In Ethiopia

During the last 30 years, Ethiopia has witnessed rapid urbanisation, accompanied by dramatic changes in demographic, spatial, and socio-economic structures. The country was and still is mostly rural, but the urban population has been increasing steadily, mainly due to the migration from rural to urban areas, natural population

growth, and economic restructuring (United Nations Department of Economic and Social Affairs [UN DESA], 2022). Addis Ababa, being the political and economic capital, has taken in a largely disproportionate share of this growth, which has led to increased population density, the spread of informal settlements, and intensified land use change. Urbanisation has offered one side of the coin the creation of economic opportunity and infrastructure development, but on the other hand, it has brought about the generation of environmental stressors that affect the public health.

Looking into urban expansion in Ethiopia, it has become synonymous with congestion, air pollution, traffic, related stress, housing shortages, and limited access to green and open spaces (Benti et al., 2022). It is thus not surprising that environmental degradation and sub-standard urban infrastructure have made it easier for the population to be exposed to heat stress, particulate matter, and noise pollution all of which are known to cause negative physical and psychological health effects. Studies show that Ethiopia's rapidly urbanising areas are already facing a great deal of stress in their struggle to handle environmental health risks, especially in informal settlements and high-density areas (Habtamu et al., 2022).

At the same time, Ethiopia is experiencing an epidemiological transition in which the burden of non-communicable diseases (NCDs) continues to increase. Cardiovascular diseases, diabetes, hypertension, and obesity are on the rise, especially in urban areas like Addis Ababa (Federal Ministry of Health [FMoH], 2020). Among the factors that play a major role in this upward trend is physical inactivity. Urban lifestyles characterised by less walking, fewer recreational spaces, and more sedentary work have contributed to the increased prevalence of NCD risk factors (Koye et al., 2022). According to the World Health Organization (2016), urban planning and environmental quality are major factors in the prevention of NCDs that have been linked to the provision of green spaces and their accessibility as a means to encourage people to be physically active.

Mental health alongside physical health is yet another issue that has become apparent in Ethiopia's urban areas. Unemployment, economic insecurity, lack of housing, and social isolation are some of the problems that urban dwellers are confronted with, which in turn increase mental health problems. Research findings from Addis Ababa

indicate high psychological distress, anxiety as well as depressive symptoms among the urban residents (Zewdie et al., 2022). Factors such as overcrowding, heavy traffic, and lack of recreational areas contribute to the chronic exposure to stress. Although these patterns persist, mental health is still not sufficiently mainstreamed within urban planning and policy frameworks.

Green space provision in Ethiopian cities is still very low when compared to international standards. The available data suggested that the green space cover per capita in Addis Ababa is far below the recommended limits, and the spatial distribution varies between sub-cities (Azagew & Worku, 2020). The uneven distribution of green space deprives residents of opportunities for exercising, socializing, and relaxing mentally.

In response to the city's insufficient public park coverage and aiming to increase the per capita green space from 0.33 m² to 5.2 m² per person, Addis Ababa has 105.6 hectares of city and sub-city parks, with further parks currently under development. (Yeshitla, 2020). The city's Structure Plan proposed the development of recreational parks covering a total area of 2,730 hectares, which is divided into 2437 hectares for city parks, 237 hectares for sub-city parks, and 56 hectares for district (woreda) parks (AACPPO, 2017).

While on one hand, recent large-scale park development projects indicate a new governmental pledge to green infrastructure, on the other hand, issues of accessibility, affordability, and incorporation of health-oriented design elements remain.

2.6.2. Historical Development of Parks in Addis Ababa

Urban parks were designed and originated during the 19th century as a reaction to the impacts of the first Industrial Revolution. During this period, formal park creation was used to give urban residents a much-needed reprieve from these congested, polluted and unhealthy urban conditions (Hinds, 1979). A big theme in creating the initial successful parks in concentrated urban areas was as an area for recreation, for public health and urban beauty from the gloomy slate-walled or industrialised urban areas. Birkenhead Park in Liverpool, England, for example, opened in 1843 and is often cited as the world's first public park. It was designed explicitly to offer the working class an

opportunity for relaxation, exposure to greenery, and outdoor activities, something that had become increasingly rare due to urban sprawl (Hinds , 1979 ; Fainstein, 2026).



Figure 2.1: Birkenhead Park in 1847, Source: (A Brief History of Birkenhead Park, n.d.)



Figure 2.2: Entrance to Birkenhead Park in 1904, Source: (Liverpool Parks, n.d.)

Another iconic example is Central Park in New York City, designed in 1857 by landscape architects Frederick Law Olmsted and Calvert Vaux. Central Park was not merely a recreational space but also an essential symbol of the idea that green areas should be accessible to all, regardless of social class. Its design emphasized the importance of nature within the urban environment and set a new standard for urban park planning globally. These parks were groundbreaking in their dual purpose. They aimed to improve public health by offering cleaner air and spaces for physical activity, while also providing visual and psychological relief from the noise, pollution, and congestion of city life. Their creation reflected a growing awareness of the importance of green spaces in cities, particularly as urbanization reached new heights. As such, urban parks began to be seen as essential for enhancing the quality of life, improving public well-being, and contributing to social and environmental sustainability goals during rapid industrial and urban transformation (Hinds , 1979 ; Fainstein, 2026).



Figure 2.3: Central Park in 1862, Source: (New York public library, n.d.)

Kebede & Besim (2024) state that urban parks in Addis Ababa have undergone significant evolution, and this might be due to a broader shift in urban planning and priorities of the residents. Previously, in particular in the pre-20th century and during the monarchy, Addis Ababa hosted open spaces of natural landscape that were utilised as venues for public gatherings, religious ceremonies, festivals, political events, and open and makeshift markets. Janmeda, for instance, was used by Emperor Menelik II for horse races and festivals. Expansive open areas have been identified and reserved for religious celebrations such as Meskel (the Finding of the True Cross) and Timket (Epiphany) during holiday seasons (Kebede & Besim, 2024).

The second Italo-Ethiopian war and the subsequent occupation (1936-1941) of the country by Italian forces introduced the notion of structured parks to Addis Ababa city. As the city expanded during this time, these natural landscapes evolved into more organised urban parks, particularly as foreign planners introduced new urban planning concepts. Therefore, during this brief Fascist Italian rule, the city's first urban plan was integrated into the initial city master plan in 1936 and subsequently implemented. Throughout this period, urban planners focused on landscaping, preserving a green belt that included the forested Entoto hills to the north of the city, establishing gardens and squares, and enhancing the greenery along riverbanks (Seifu & Stellmacher, 2021).

The period around 1965 is dedicated to the development of new urban parks. However, many of these planning initiatives failed to materialise. The rapid and often unregulated expansion of settlements in Addis Ababa, a regime change in 1975, a subsequent civil

war that severely impacted the nation, and another regime shift in 1991, complicated efforts to implement effective urban planning (Seifu & Stellmacher, 2021).

The development of modern parks in the city has been ongoing in an incremental manner since the turn of the 20th century. Recent notable examples have turned the city into a hub for the largest urban parks in East Africa. These include Unity Park (2018), developed on the site of Emperor Haile Selassie's (1920) palace, and Friendship Park. Additionally, there are recent revitalisation efforts (Sahle et al., 2025). These transitions from multifunctional open spaces to structured urban parks are illustrated in Figure 2.4.

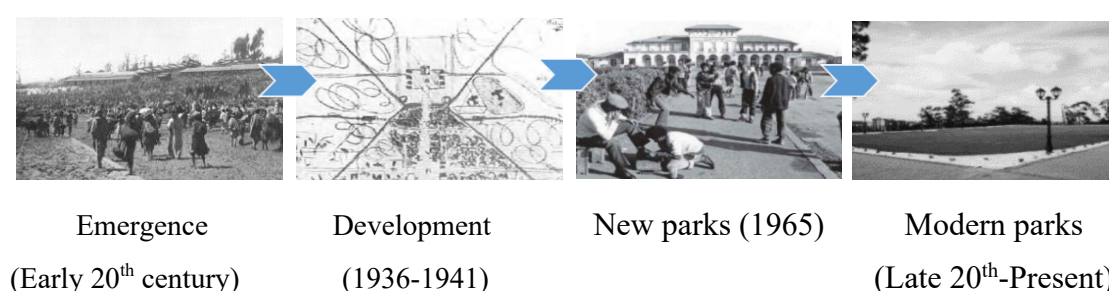


Figure 2.4: Historical evolution of Addis Ababa's urban park, Source: (Kebede & Besim, 2024)

The transformation of parks in Addis Ababa has mirrored parts of political and urban changes. The first parks were few and served symbolically. Recent large-scale developments, such as major river corridor projects and newly constructed parks, indicate a fresh governmental commitment to green infrastructure. Yet, issues such as the accessibility, equity, and the inclusion of health-based design principles remain to be resolved.

2.6.3. Typology Of Urban Parks In Addis Ababa

The Ministry of Urban Development and Construction classifies green and open spaces such as parks, gardens, amenity green spaces, and corridors. The current Addis Ababa city structure plan outlines two types of park typologies: recreational and special function parks (Yirga, Tebarek, & Kumelachew, 2022). Recreational parks are divided into four typologies, classified according to size and service area radius. These typologies include City Parks, Sub-city Parks, District (woreda) Parks, and Neighbourhood Parks. Each type is managed by the respective administrative bodies: the City Administration, Sub-city Administrations, District Administrations, and local communities (AACPPO, 2017). These are further illustrated in Table 2.1. The second

classification, known as special function parks, includes spaces designated for wildlife habitat conservation while also providing recreational services. The former Central (Peacock) Park, now named Addis Zoo Park, and Gullele Botanical Garden fall under this category (AACPPO, 2017).

Table 2.1: Urban Park typology in Addis Ababa, Source: (AACPPO,2017)

Park types	Size (ha)	Catchment radius (km)
City Park	>10	10
Sub-city park	1-10	5
District Park	0.3-1	1.5
Neighborhood Park	<0.3	0.3

2.6.4. Accessibility And Distribution Of Parks In Addis Ababa

Public recreational parks in Addis Ababa are limited in number and small in size, and serve extensive areas. Additionally, their distribution across the city is uneven, with parks located in only six of the ten sub-cities. According to the latest report, Addis Ababa now has 20 operational recreational parks among the 23 existing parks, ranging from city-level to sub-city and local/neighbourhood levels (Seifu & Stellmacher, 2021).

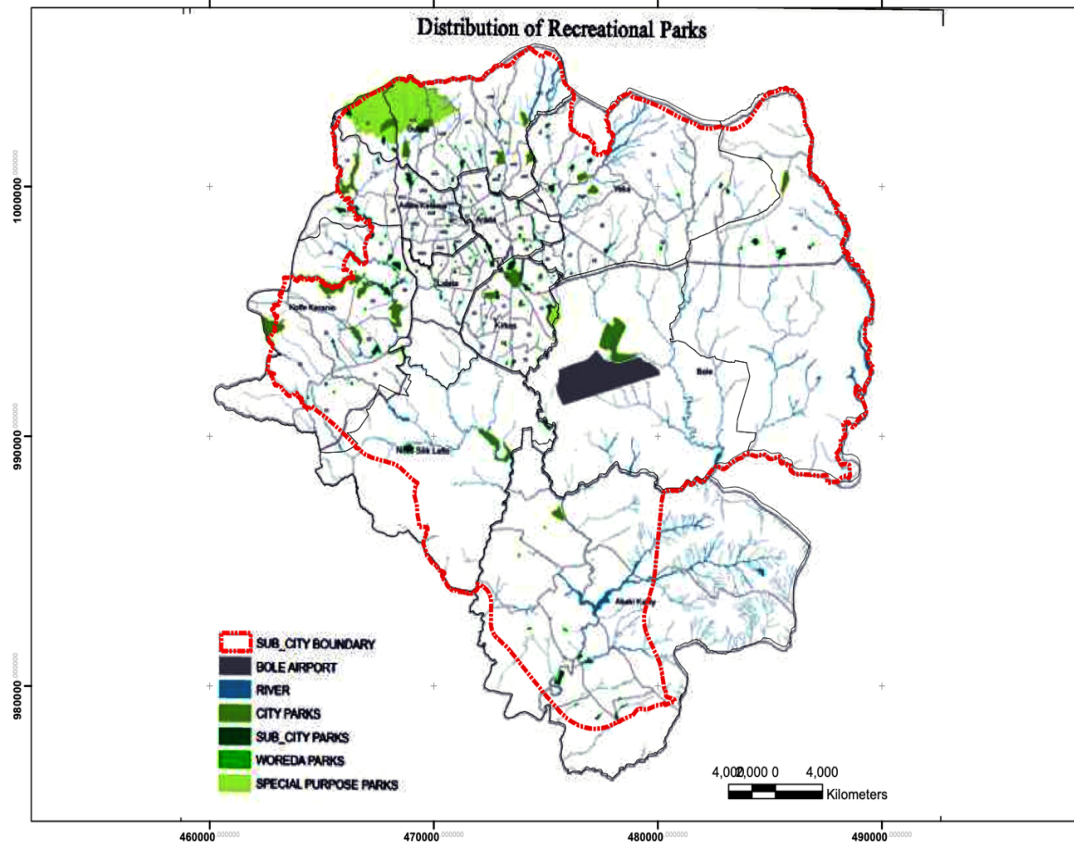


Figure 2.5: Map of recreational parks in Addis Ababa, Source: (Yeshitela, 2015).

On the other hand, Azagew & Worku (2020) note that the largest area of urban parks (UPs) is located in the Bole sub-city, whereas Akaki Kality has the smallest area. In terms of UPs per capita, the Arada sub-city ranks the highest, while the Kolfe Keraniyo sub-city ranks the lowest. Table 2.2 illustrates urban park coverage across various sub-cities in Addis Ababa.

Table 2.2: Urban Park coverage and per capita in each sub-city of Addis Ababa,Source: (Azagew & Worku, 2020)

Sub-city	Area of Sub-city (m ²)	Total population	Population density /km ²	Area of UPs (m ²)	UPs land use (%)	UPs Per-capita (m ²)
Akaki Kality	123,455,172	303,842	2461	58,845	0.05	0.2

Nefas Silk Lafto	62,078,558	530,150	8540	264,438	0.4	0.5
Kolfe Keraniyo	63,492,540	718,908	11,323	74,297	0.12	0.10
Gulelle	31,193,134	448,588	14,381	182,297	0.6	0.41
Lideta	9,177,843	338,109	36,840	65,252	0.7	0.19
Kirkos	14,645,876	370,830	25,320	278,315	1.9	0.75
Arada	9,499,376	354,515	37,320	306,405	3.2	0.86
Addis Ketema	8,638,853	428,051	49,550	-	-	-
Yeka	86,130,129	581,074	6746	93,942	0.1	0.16
Bole	118,472,112	517,933	4372	364,000	0.3	0.7
Lemi-Kura	78,670,000	344,944	-	-	-	-

2.7. RESEARCH GAP

Urban parks are getting more attention worldwide because they offer several benefits that are good for one's health such as reducing stress, psychological restoration, encouraging social connections, and supporting physical health (Hartig et al., 2014; World Health Organization, 2016). However, most of these studies are from Europe, North America, and parts of Asia, with very few from rapidly urbanising African cities. This means that it was not clear how the therapeutic function of urban parks fits into the socio-cultural, environmental, and spatial context of African cities that are in the Sub-Saharan region such as Addis Ababa. This reveals a knowledge gap.

There are studies that have been carried out in Ethiopia, but are mainly about green space accessibility, distribution, and user satisfaction (Azagew & Worku, 2020), and have not really delved into the therapeutic aspects of park use, such as psychological restoration, stress recovery, and emotional well-being. Furthermore, there is little research that directly associates urban parks with mental and physical health. This shows an empirical gap of insufficient localized evidence documenting the therapeutic impacts of urban parks in Addis Ababa.

Besides that, there is a conceptual gap in the way therapeutic environments are interpreted in the Ethiopian urban design context. Globally recognized models such as Attention Restoration Theory (Kaplan & Kaplan, 1989) and Stress Reduction Theory (Ulrich et al., 1991) give an account of how natural environments aid psychological recovery. Nonetheless, these hypotheses have seldom been framed or tested in the context of Addis Ababa's distinctive urban morphology, the cultural patterns of park usage, and the environmental stressors present there. Hence, the therapeutic role of parks in this context is mainly a theoretical void.

Moreover, most available studies take a public health or environmental science perspective and use mostly quantitative health indicators without spatial design characteristics or user experience assessments. There is little research that links therapeutic effects to specific spatial features of parks to guide urban planning and design strategies. It shows a methodological gap, especially in the use of interdisciplinary approaches that combine spatial analysis, behavioural observation, and user perception studies.

Considering Addis Ababa's rapid urban growth, rising environmental stressors, and changing public space dynamics, local research is required to focus on the role of urban parks as therapeutic places. The present research is thus trying to fill the knowledge, empirical, conceptual, and methodological gaps identified through a spatial and user-centred study of the healing role of selected urban parks in Addis Ababa.

CHAPTER THREE: RESEARCH MATERIALS AND METHODS

3.1. INTRODUCTION

This study employs a mixed research method that utilize both qualitative and quantitative approaches. The quantitative approach is preferred to facilitate the representation and analysis of numerical data. The qualitative approach is invoked to analyse the depth of people's experiences in a manner that allows for the study and understanding of individuals from their perspectives (Bisht, 2024). As a result, the researcher is able to capture participants' experiences in their own words and from their unique viewpoints with no limitations imposed by the study's design or methodology.

3.2. RESEARCH DESIGN

This research used a mixed research design method combining descriptive, exploratory, and explanatory approaches to thoroughly investigate the therapeutic role of urban parks in Addis Ababa. The researcher used an exploratory research design to find out how Addis Ababa's city residents interpret the contribution of urban parks to their mental and physical health. Closed-ended and open-ended questionnaires helped to identify the user's subjective experiences, emotional reactions, and the perceived restorative benefits. This method allowed an in-depth understanding of the experiences that could not be fully explained with the descriptive assessment.

The descriptive research design was used to examine the extent to which the selected urban parks satisfy the established principles of therapeutic urbanism. Structured observation checklists were utilized to record spatial qualities, physical features, access, facilities, and the general environmental conditions of selected parks. The attributes were further tested against therapeutic urbanism principles that were derived from the literature. In this phase, the study obtained objective quantifiable data and conducted a systematic evaluation of the park's ability to provide therapeutic qualities.

The explanatory research design was used to examine how existing urban design and planning interventions in Addis Ababa promote mental and physical well-being. It builds upon findings from the previous two methods and integrates them with policy

and planning analysis. By carrying out such an integrative analysis, the research was capable of pinpointing the major urban planning and design policy interventions in the city.

Through the combination of descriptive evaluation, exploratory inquiry, and explanatory analysis, the multi-phased approach thus offers a thorough and context-sensitive picture of how urban parks can serve as therapeutic spaces in Addis Ababa. The approach systematically links the therapeutic features of the park, the perceptions of the users, and implications for planning.

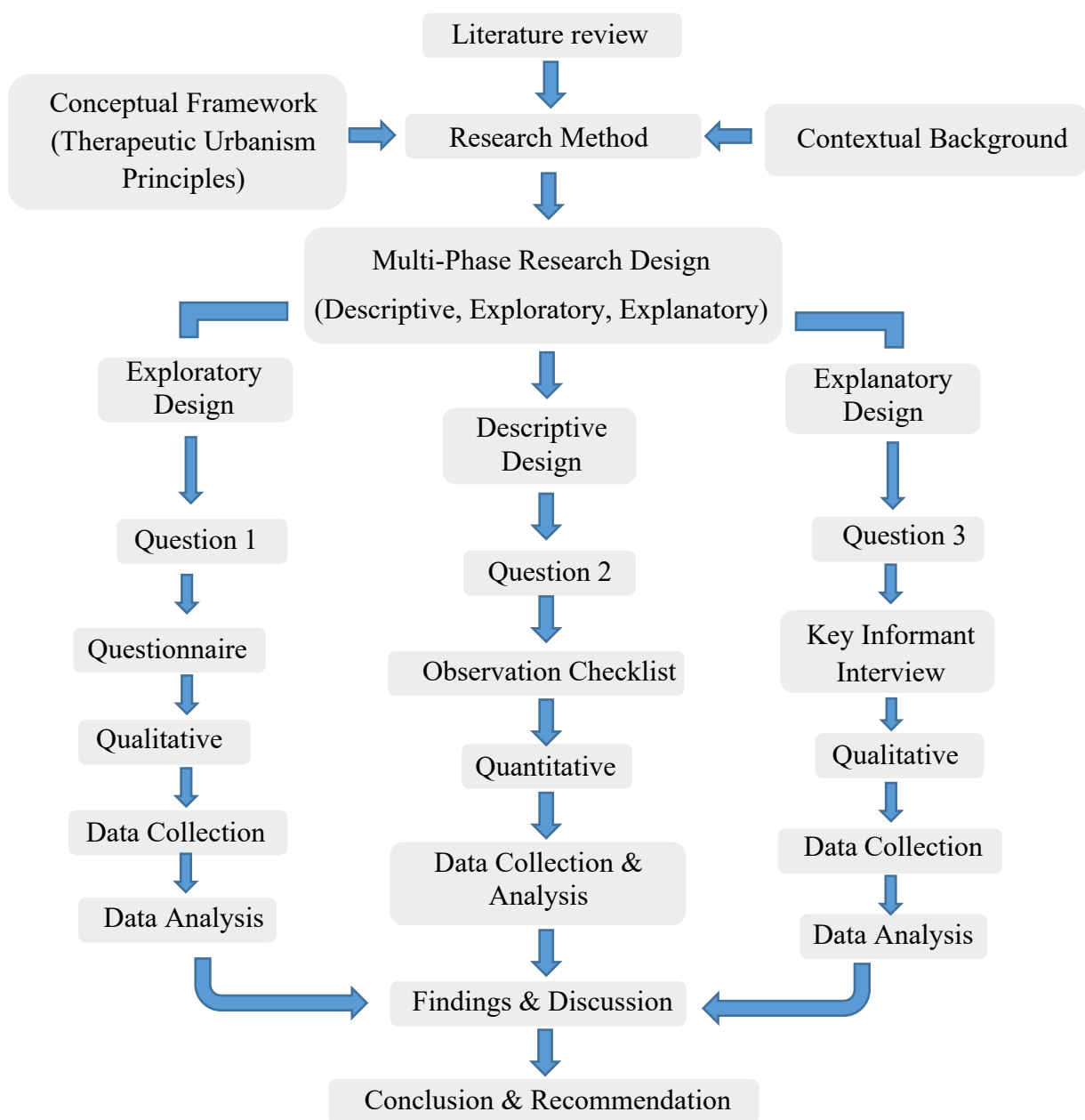


Figure 3.1: Research design framework, Source: (Author, 2026)

3.3. DESCRIPTION OF THE STUDY AREA

This research is conducted in Addis Ababa, the capital and largest city of the Federal Democratic Republic of Ethiopia. The study area was selected due to the rising number of health challenges. According to the Federal Ministry of health Ethiopia (2020), as the country's middle class expands, there is an increasing incidence of non-communicable diseases such as cancer, diabetes, heart disease, and hypertension, with the highest prevalence in Addis Ababa (Koye et al., 2022). One of the major factors leading to this increase is lack of exercise. City living, characterised by less walking, fewer recreational areas, and mainly sedentary jobs, has largely increased the risk factors for non-communicable diseases (Koye et al., 2022). Additionally, mental health issues are emerging as significant concerns within Addis Ababa's city population (Habtamu et al., 2022). Further, as a resident of the city, the researcher is familiar with the environment and the ongoing development regarding urban parks (Kebede & Besim, 2024).

Reaching each and every part of Addis Ababa appeared not feasible for reasons of time and resources. As a result, this study adopted an initial phase of identifying the target area within Addis Ababa by narrowing its focus to the types of global urban parks identified in the literature review. According to this review, there are approximately 13 typologies of parks. Among these, only eight typologies were chosen due to their availability. The researcher employed a purposive sampling method to purposively selected eight parks, one from each type for these eight typologies. The selection was based on the parks' characteristics, purpose, and size.

According to a list compiled by the Addis Ababa City Administration Public Recreational Areas Corporation (AACARAC) and an Architectural consultancy firm named Rise, there are 27 parks in Addis Ababa, of which 22 are managed, maintained, and supervised by the corporation. The complete list of parks from which these eight parks are selected is provided below.

- | | | |
|-------------------|---------------|-----------------|
| 1. Addis Zoo Park | 4. Ambassador | 5. Ethio-Korean |
| 2. Ethio-Cuba | park | War veteran's |
| 3. Africa park | | memorial park |

- | | | |
|---------------------------------------|--|------------------------------------|
| 6. Mayor
Bitwoded
W/Tsadik park | 14. Kaleb park
15. Gola-Michael
park | 22. Gullele
botanical
garden |
| 7. Hamle-19 park | 16. Kolfe park | 23. Friendship park |
| 8. Biheretsige park | 17. Teklehaymanot
park | 24. Unity park |
| 9. Lideta park | 18. Ferensay park | 25. Yeka park |
| 10. Entoto park | 19. Akaki park | 26. Pyness |
| 11. Sheger park | 20. Millenium park | 27. Ambessa Gibi |
| 12. Holand Park | 21. Gedame Eyesus | |

The selected eight parks for each urban park type are shown in Table 3.1.

Table 3.1: Urban park types and selected parks, Source: (Author, 2025)

No	Global typology of Urban parks / Literature based	Selected parks	Area(ha)	Justification for selection
1	Comprehensive Park	Friendship Park	46.42	Selected since it is the biggest park in Addis Ababa.
2	Community Park	Hamle 19 park	6.8	Selected in order to include old park.
3	Pop-up Park	Ethio-Cuba Friendship park	2.98	Selected because it is one of the

				best urban located pop-up parks
4	Recreational Park	Ambassador Park	1	Selected in order to include newly modified park.
5	Sports and fitness park	-	-	-
6	Waterfront Park	-	-	-
7	Historical garden	-	-	-
8	Botanical garden	Gullele Botanical Garden	705	Selected because it is the only botanical garden.
9	Heritage Park	Unity Park	24.28	Selected because it happens to be the only heritage park.
10	Wetland Park	-	-	-

11	Forest Park	Entoto Park	1300 (including the escarpment)	Selected because it is the biggest forest & natural park.
12	Zoo	Peacock (Addis Zoo) park	36.4	Selected because it is the largest zoo park.
13	Amusement Park	-	-	-

The selected eight urban parks in their sub-cities are shown in Figure 3.2.

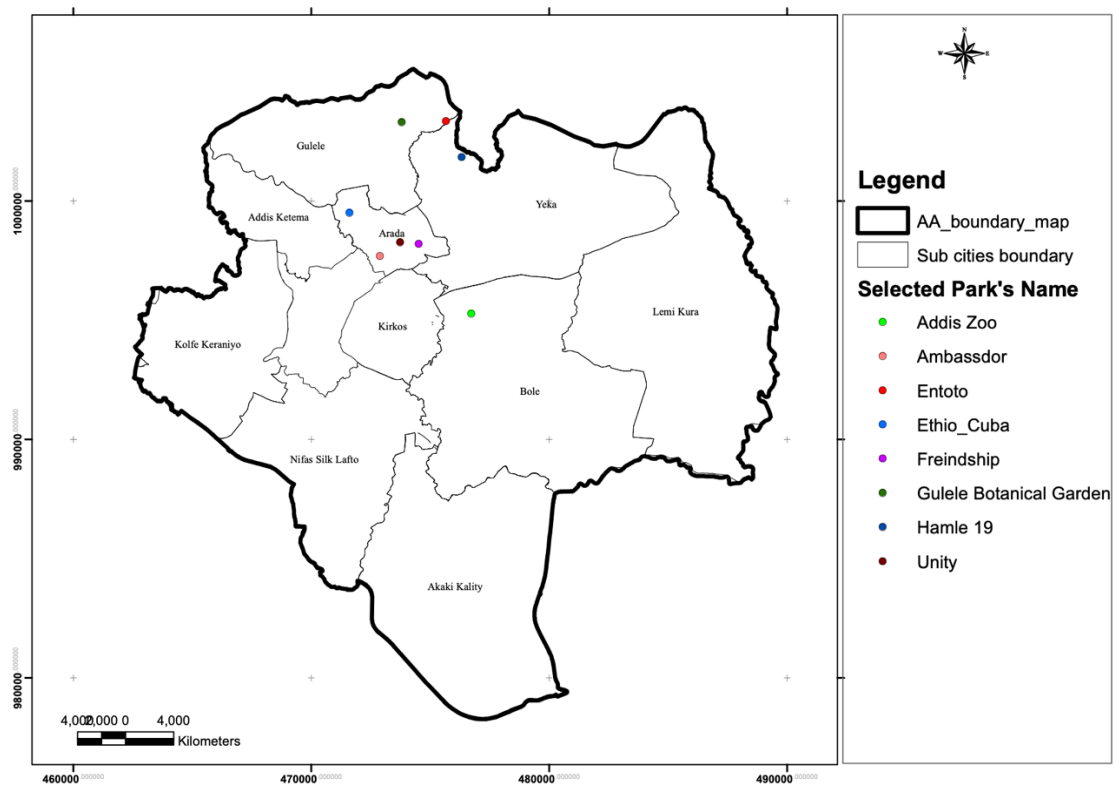


Figure 3.2: Study area, Source: (Author, 2026)

3.4. SAMPLING AND SAMPLE SIZE

3.4.1. Sampling Frame

The following three study phases have been adopted to determine the research design and selected parks.

Phase 1: The researcher selected eight parks among the global typology of urban parks, which was assessed in the literature review.

Phase 2: After identifying the eight target areas, the researcher evaluated the parks based on the identified model, Universal Standards of Therapeutic Urban Parks by Monica Trojanowska. The author updated this model to align with the context of the study area. The author observed the parks and judged their state against the pre-identified standards.

Phase 3: After parks were assessed in phase 2, they were subjected to further study that assessed public perceptions of their relevance from the visitor's perspective regarding their potential contribution to mental and physical health.

The direct variables of this study were urban parks (independent variable). Examples of aspects of these urban parks include the physical and social characteristics of the parks, such as the availability of green spaces and walkability. The other direct variables, which were dependent variables, were mental and physical health. The mental and physical health outcomes include stress, anxiety, depression, overall happiness, cardiovascular health, respiratory health, and general physical health indicators.

For the indirect variables, socioeconomic status and age were the moderating variables of this study, and diet and genetics were the control variables.

3.4.2. Sampling Techniques

The study used both convenience and purposive sampling methods among non-probability sampling methods. The convenience sampling method was used to approach any willing park users available at different locations and times in the selected parks. This method was selected because it works well in open, public spaces like parks,

where visitors come and go unpredictably. Thus, random selection was impractical since the researcher could not have a complete list of park users.

The purposive sampling method was used to deliberately select participants from concerned authorities and offices for a key informant interview because of their expertise in the area. This method helped the researcher be flexible in using her judgment and select a sample that fulfilled the requirements.

To reduce the bias that the convenience sampling technique might cause, the researcher surveyed at different times and on different days to reach diverse respondents. Thus, the sample was taken in the morning(6 AM-10 AM) to address more joggers and elderly people, in the Afternoon(10 AM-4 PM) to address families, students, and casual visitors, and in the Evening(4 PM-8 PM) to address office workers and social groups.

The researcher also changed survey locations within the park(entrances, benches, playgrounds and cafes). Surveys at entrances were made to capture a random mix of visitors, at benches and picnic areas to include people who spend more time in the park, playgrounds to address parents and children and walking paths to capture joggers and fitness groups.

The researcher also used quota-based selection to ensure equal representation of gender and age. Thus, the researcher took 50 % female and 50 % male respondents. For the age classification, the researcher used 20% teenagers (13-19 years old), 20% young adults(20-34 years old), 30 % middle-aged adults (35-54 years old) and 30% elderly(55 years old). The researcher also distributed respondents across the eight parks proportionally.

3.4.3. Sample Population

The sample population was calculated by adding the number of daily park users of the selected eight parks (AAPRAC, 2025; City parks attracting tourists, boosting economy, 2023; Tekle, 2024). The sample population, which is their sum was 5389 in total (Refer to Table 3.2).

Table 3.2: Number of daily users of selected parks, Source: (AAPRAC, 2025; City parks attracting tourists, boosting economy, 2023; Tekle, 2024)

№	Selected parks	Number of daily park users
1	Friendship Park	1800-2000 visitors
2	Hamle 19 park	200 visitors
3	Ethio-Cuba Friendship park	250 visitors
4	Ambassador Park	250 visitors
5	Gullele Botanical Garden	489 visitors
6	Unity Park	1000 visitors
7	Entoto Park	1000 visitors
8	Peacock (Addis Zoo) park	300 visitors
Total		5389

3.4.4. Sample Size

The number of respondents was calculated using Taro Yamane's formula. (Uakarn et al., 2021)

$$n = \frac{N}{1+Ne^2}$$

Where n = Sample size,

N = Population size and

e= error (0.05), reliability level- 95%

This method was selected because Taro Yamane's formula is the most convincing and practical method for determining the sample size in this study. After all, it ensures a balance between statistical accuracy and feasibility in an environment where exact population data may be limited. Here is why it is ideal for this research on park users in Addis Ababa:

1. Adapts to Unknown Population Sizes

In public parks, daily visitor numbers fluctuate due to weather, events, and time of day. As such, it is unrealistic to adopt formulas requiring exact population figures. Instead, Taro Yamane's method, which is adopted in this research, works with estimated values, which appear to be realistic for open-access public spaces, given that precise visitor counts are unavailable.

2. Ensures Representative Sampling Across Parks

The study involves multiple parks with different visitor volumes. Using Taro Yamane's formula, the study is able to proportionally distribute respondents across the eight parks using an estimated number of visitors. This ensures balanced representation and feasible comparison as it avoids over-sampling at low-traffic parks and under-sampling at high-traffic parks.

3. Controls for Sampling Error

Taro Yamane's approach is particularly relevant in survey research such as this one as it enhances accuracy by minimising errors. The formula accounts for the standard 5% margin of error. In doing so, it helps in ensuring that the findings are reliable and reflect the views of park users. It avoids the risk of relying on a small and potentially biased group.

4. Maximises Resource Efficiency

It is usually the case that collecting data in multiple parks may lead to excessive surveying unless carefully planned. An optimal sample size which is large enough for statistical validity and at the same time small enough for practical reasons is desirable. And Taro Yamane's formula allows for just that.

5. Widely Accepted in Social Science Research

The selected method is commonly used in urban studies, environmental research, and public space analysis, which is why it is adopted here. Using an established formula also adds credibility to this research, especially if presenting findings to policymakers or stakeholders.

Inserting the total number of users(population), which is 5389, in the formula resulted in a sample size of 372.

$$n = \frac{N}{1+Ne^2}$$

$$n = \frac{5389}{1+5389(0.05)^2}$$

$$n = 372.3 \sim 372$$

To distribute the sample size proportionally, the researcher estimates the number of visitors as a percentage and then assigns the number of respondents for each park accordingly.

Table 3.3: Number of respondents for each selected park, Source: (AAPRAC, 2025; City parks attracting tourists, boosting economy, 2023; Tekle, 2024)

Selected parks	Number of daily visitors & percentile	Selected respondents based on the %
Friendship Park	1800-2000 visitors (35.3%)	131 respondents
Hamle 19 park	200 visitors (3.7%)	14 respondents
Ethio-Cuba Friendship park	250 visitors (4.6%)	17 respondents
Ambassador Park	250 visitors (4.6%)	17 respondents
Gullele Botanical Garden	489 visitors (9%)	34 respondents
Unity Park	1000 visitors (18.6%)	69 respondents

Entoto Park	1000 visitors (18.6%)	69 respondents
Peacock (Addis Zoo) park	300 visitors (5.6%)	21 respondents

Thus, the questionnaire was designed to ensure a representative sample size of 372 respondents. The researcher then met with the respondents and clearly explained the research aim and some ethical issues and disseminated questionnaires to the participants.

3.5. DATA TYPES AND THEIR SOURCES

Both primary and secondary data sources were used to conduct the study. The primary data sources included key informant interviews with relevant stakeholders from the Addis Ababa city government construction bureau, the Addis Ababa city administration mega projects construction office, Rise architectural consultancy firm and the Addis Ababa city administration public recreational areas corporation (AACAPRAC), questionnaires distributed to urban park users, photo recordings, and personal observations made during the site visit to evaluate whether urban parks in Addis Ababa satisfy the basic standards of therapeutic urbanism using a universal standard for health-promoting urban places made by Trojanowska (2021). It was then documented as a compilation of site photographs and notes.

The secondary source included essential information from a literature review of publications such as relevant books, journals, magazines, annual reports, web pages, published reports, and advanced research papers about the study.

3.6. DATA COLLECTION METHODS

Qualitative and Quantitative research methods were employed to collect and analyse data. The qualitative method involved the use of questionnaires, observation checklist, and interviews with concerned authorities which were very important to determine the perception of urban residents on the contribution of urban environments to mental and physical health outcomes, whether urban environments in Addis Ababa satisfy the basic standards of therapeutic urbanism and what existing interventions in urban design and planning processes that promote mental and physical well-being have been done in

Addis Ababa. The quantitative method was used for the collection and statistical analysis of numerical data.

3.6.1. Questionnaire

Based on the first research objective, the in-depth questions from the questionnaire were structured and focused on the respondents' usage of the urban parks, their background history, their perceptions of mental and physical health benefits of urban parks, and their overall perception of the healing potential of therapeutic urban parks. The questionnaire was instrumental in determining the user's attitude or perception regarding the contribution of the urban parks to the physical and mental health of the residents.

3.6.2. Interview

A key-informant interview with a concerned authority was also conducted among the Addis Ababa City government construction bureau, the Addis Ababa City Administration Mega Projects construction office, Rise Architectural consultancy Firm and the Addis Ababa City Administration Public Recreational Areas Corporation (AACAPRAC). The key informants were four, one from each concerned authority. These informants were selected purposively using purposive sampling techniques to assess existing therapeutic urbanism initiatives and interventions in urban planning and design of urban parks in Addis Ababa. Relevant documents were also analysed.

3.6.3. Observation

An observation was made during a site visit to the selected urban parks. The observation was focused on the selected eight urban parks. The observation then tested these urban parks using basic elements of the universal standard for health-promoting urban places (Annex 2). Alternatively, the selected areas were assessed to determine whether they met international standards of therapeutic urban areas or not.

3.6.4. Document Analysis

To assess the state and potential of urban parks in Addis Ababa, a comparative analysis based on international principles was made specifically against a basic checklist.

3.7. DATA ANALYSIS

The opinions and views collected through the questionnaire and key informant interview of related officials and views collected through observation and secondary sources were analysed and compiled with the help of Microsoft Excel.

The data collected through observation were analyzed with the help of Monica Trojanowska's model which consists of five categories (Annexe 3). The set of sub-categories and specific attributes according to which the evaluation is performed is used for binary assessment and detailed assessment (Trojanowska, 2021). The binary judgment has two optional results:

0 – The researcher does not find the attribute in the place, or if they believe it is not satisfactory.

1 – The researcher finds the attribute in the place and also deems it satisfactory.

The maximum number of points that are calculated in the binary assessment are shown in Table 3.4. The points were counted manually, and the results were checked with the use of the excel sheet.

Table 3.4: Maximum number of points for binary assessment, Source: (Trojanowska, 2021).

CATEGORIES	MAXIMUM NUMBER OF POINTS
1.SUSTAINABILITY	15
1.1. Place	Category with no points
1.2. Environmental characteristics	6
1.3. Biodiversity protection	4
1.4. Sustainable water management	2
1.5. Parks of Second (New) Generation	1

1.6. Urban metabolism	1
1.7. Ecological energy sources	1
2. ACCESSIBILITY	26
2.1. Distance to park	1
2.2. Sidewalk Infrastructure	5
2.3. General conditions of walkways	8
2.4. Traffic	5
2.5. User experience	5
2.6. Public transport stops	1
2.7. Sufficient Parking	1
3. AMENITIES	15
3.1. Psychological and physical regeneration	5
3.2. Promotion of physical activities	4
3.3. Catering for basic needs	6
4. DESIGN	21
4.1. Architectural design	10
4.2. Salutogenic design	4
4.3. Sensory stimuli design	6
5. PLACEMAKING	12
5.1. Enhancement of Social Contacts	2

5.2. Human perception-spiritual & symbolic	6
5.3. Community Engagement	4
Total	89

The proposed method of evaluating individual categories is presented in Annexe 4-8. In each table, the maximum points of each category are given and the prerequisites for a feature are also explained. For the readers' convenience, the assessment results are provided in five separate tables (Annexe 4-8).

It is divided into five categories as follows:

1. Sustainability

This category required assessment of the park area's overall feature (see Annexe 4). In the case of existing parks, some features such as park area, its location and configuration of the neighborhood generally cannot be handled by the park designers. However, a park's location can change at the planning stage. Thus, site location and environmental and landscape values should be emphasized in the design practices.

There are many environmental influences such as biodiversity, soil, water, and air quality and all of them can influence the therapeutic potential of a park positively or negatively. It covers all the requirements of sustainable park design from the preservation of local fauna and flora to natural infiltration of rain water and its collection for later irrigation. Water and soil management in a sustainable way might require certain maintenance applications and can limit the choice and composition of flora; however, it provides beneficial effects for nature and also on the health of the park users.

2. Accessibility

For health promoting urban open spaces which can be commonly referred to as urban parks, the arrangement of the entrances and pedestrian ways to the park is as important

as the design of the park itself (see Annexe 5). This category can also be regarded as "walkability assessment". Universal accessibility deals with requirements of disabled people and is closely related to therapeutic value and health promoting potential of a park.

3. Amenities

The third category is concentrated on the sport, recreational equipment, and facilities of a park, which are able to promote physical and psychological restoration, physical exercises, and moderate socialisation (Annexe 6). Another sub-category in this section is daily demands on shelter, washroom, water supply, catering service, and resting facilities. It also includes the park setting that rectifies safety and security issues, such as securities, cleanliness, and repair.

4. Design

The fourth section emphasised on the functional allocation in the park and the structure of the path network and other linkages (Annexe 7). The park setting should be easily comprehended, while the composition should be well proportioned. Other distinct features, such as mystery, danger, and motion are necessary for interests. Another sub-category in this section emphasised on the multi-sensory perceptions and sensation paths.

5. Place-making

A prominent feature of the user-friendly landscape is to make everyone feel safe and find it somewhere they belong to (Annexe 8). Public parks are ideal places for socialisation, which are more important for people that generally live in isolation, specifically senior and physically-challenged people. Place-making has a close relationship with the popularity of the park. This category consists of moderate socialisation and factors to make the visitor feel comfortable as a layman.

3.8. DATA PRESENTATION AND INTERPRETATIONS

The data analysed and written using Microsoft Excel and Microsoft Word, respectively, were finally represented using tables, graphs, charts, and as a compiled Word document.

3.9. VALIDITY AND RELIABILITY

Several techniques and measurements are taken for this research to be valid in a broader sense. Logical validity was met by using previous theories as a guiding framework and considering all inputs of the Universal Standards of Therapeutic Urban Parks by Monica Trojanowska. Besides, Construct validity was ensured by multiple measurements of indicators like accessibility, amenities, and placemaking; External validity was met by taking a representative sample size of 372 based on Taro Yamane's sample size determination method; and Face validity was ensured by consulting experts from Addis Ababa City Administration Public Recreational Areas Corporation before conducting the survey to accomplish this research.

On the other hand, the reliability of the results of this study was ensured through Test-retest reliability by comparing the early and late responses of questionnaires; Inter-rater reliability by ensured by analyzing observational checklists to make the result less subjective; Internal consistency was ensured by applying measurement scales (Likert scale questions from 1-5) on variables that describe urban parks like accessibility and distance from the survey respondent's home, degree of satisfaction, *etc.* and finally, triangulation was ensured by multiple data sources: in this case, by using surveys, interviews, and observations as a source of data to get consistent results.

3.10. ETHICAL CONSIDERATIONS

This study conformed to the standard ethical requirements for social science and urban research with human participants. Since the research incorporated diverse methods, such as structured questionnaires completed by park visitors, key informant interviews with urban officials and experts, and systematic on-site observations, special care was taken with respect to obtaining informed consent, ensuring confidentiality, allowing voluntary participation, and protecting data.

Before data collection, all participants were told about the purpose, objectives, and extent of the research. For respondents to the questionnaires and interview participants, the researcher explained that the study was purely academic, had no commercial intent, and that the results would be used strictly for academic purposes. Participation was voluntary, and participants were told that they could refuse to participate or that they could withdraw at any time without any negative consequences. Verbal informed consent was sought before the questionnaires were given and interviews were conducted.

The study maintained the utmost confidentiality of the participants' identities and of what they said. No personal identifiers such as names, addresses, or telephone numbers were included in the questionnaire dataset. As for the key informant interviews, any identifying information was deleted in the transcript and during analysis, and the interviewees were referred to using neutral terms (*e.g.*, Team leader and Senior Architect). To ensure the participants' anonymity, the data were presented in aggregated form.

The research also did not expose the participants to risk as it involved non-intrusive ways of data collection, such as surveys and interviews regarding the public's perception of urban parks and associated healthy outcomes.

The researcher was very careful not to ask personal or sensitive questions. The questions were formulated to show respect and were mainly about the person's perception and experience, and not his/her medical history. The research did not subject the participants to psychological, social, or physical harm of any degree.

Observations were also limited to public spaces of urban parks open to everyone. Environmental aspects, design elements, and patterns of space use were the main emphasis of the observational data rather than individual behaviors that could raise privacy concerns. The observations also honored the public nature of the environment and at the same time, they were ethically considerate of its users.

All forms of data, which were obtained from participants, were safely kept. The researcher was the only one who had access to the locked storage where the printed questionnaire forms were stored. Interview transcripts and survey entries, among other

digital materials, were also kept on password-protected devices. The data were only used for academic purposes and were not disclosed to other parties. Upon completion of the research, data archiving and disposal procedures followed the university's regulations.

The research was carried out following the rules of academic research of Addis Ababa University, College of Technology and Built Environment. Throughout the research, ethical considerations were maintained at a level consistent with the requirements of graduate research.

CHAPTER FOUR: RESULTS

4.1. INTRODUCTION

This chapter presents the empirical findings of the study from a questionnaire response by the Park users(n=372), from key informant interviewees among different personnel of the Addis Ababa city government construction bureau and Addis Ababa city Administration Public Recreational Areas Corporation (AACAPRAC) and an observational assessment of eight selected urban parks in Addis Ababa based on a model by Trojanowska (2021) which was filled out by the author while site visit. The questionnaire employed a five-point Likert scale coded as: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). Mean values were calculated using weighted frequency analysis.

4.2. DEMOGRAPHIC DATA

The gender distribution among survey respondents was purposefully balanced to ensure equal representation using quota-based selection. Thus, the researcher selected 50% female and 50% male respondents. This balanced sampling enhances comparative reliability across gender groups.

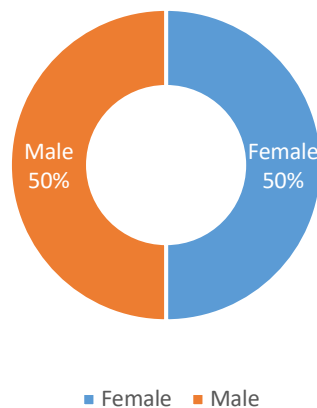


Figure 4.1: Sex distribution of the respondents, Source: (Author, 2026)

As per the age of the respondents, Out of the total sample park users, 20% of them were teenagers (13-19 years old), 20% were young adults (20-34 years old), 30 % were middle-aged adults (35-54 years old) and the rest 30% were elderly(55 + years old). This showed the existence of diversified societies using the selected urban parks in

Addis Ababa. However, the middle and old aged people proportion is relatively higher in using urban parks. This signifies the attached importance of the urban parks to these groups.

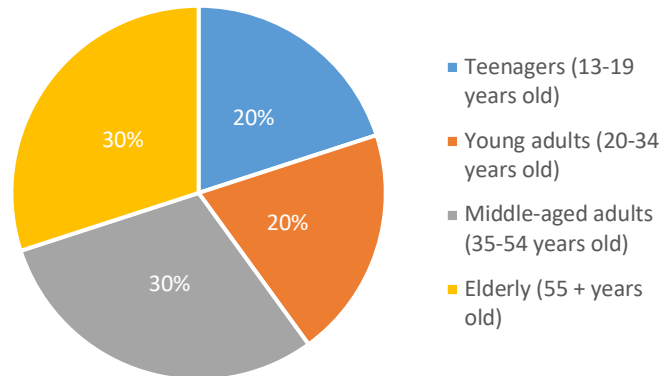


Figure 4.2: Age distribution of respondents, Source: (Author, 2026)

Regarding length of residency in Addis Ababa, Most respondents, around 64%, have lived 10-30 years, while 25% of them lived 0-10 years, This informs us that the majority of respondents have been living in Addis Ababa for more years. This implied that the majority of urban people are mostly urban settlers. The third group, representing the smallest percentage (11. 0%), had lived in the city for 30 years or more. This indicated that they are the most grounded age group. This suggested that the majority of people who visited the park have been living in the city for a long time. This perhaps may have an effect on their behaviour towards park usage or the perception of parks.

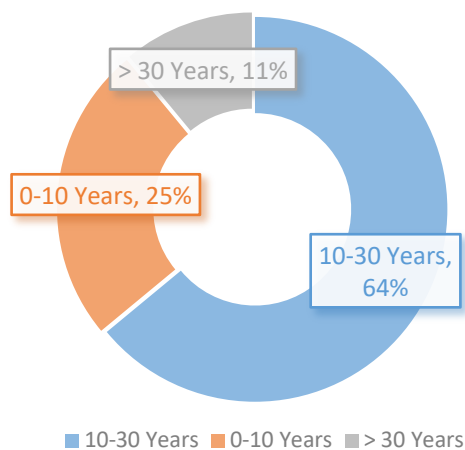


Figure 4.3: Length of residency of respondents in Addis Ababa, Source: (Author,2026)

4.3. FREQUENCY OF PARK USE

This section represents the contextual information, like how often the respondents visited the selected parks, how long they stayed per visit and in what activities they engaged in during their stay. From the sample survey, 2.2 % of the respondents reported that they visited the selected urban parks daily, while 12.1 % of them visited weekly, 25.8 % of them visited monthly and 59.9 % of them visited rarely. This indicated that daily use of green space is relatively low among the urban population. This may be associated with the lack of urban parks, deteriorated conditions of the parks, poor access to parks, lack of knowledge or proper functioning and maintenance of existing parks.

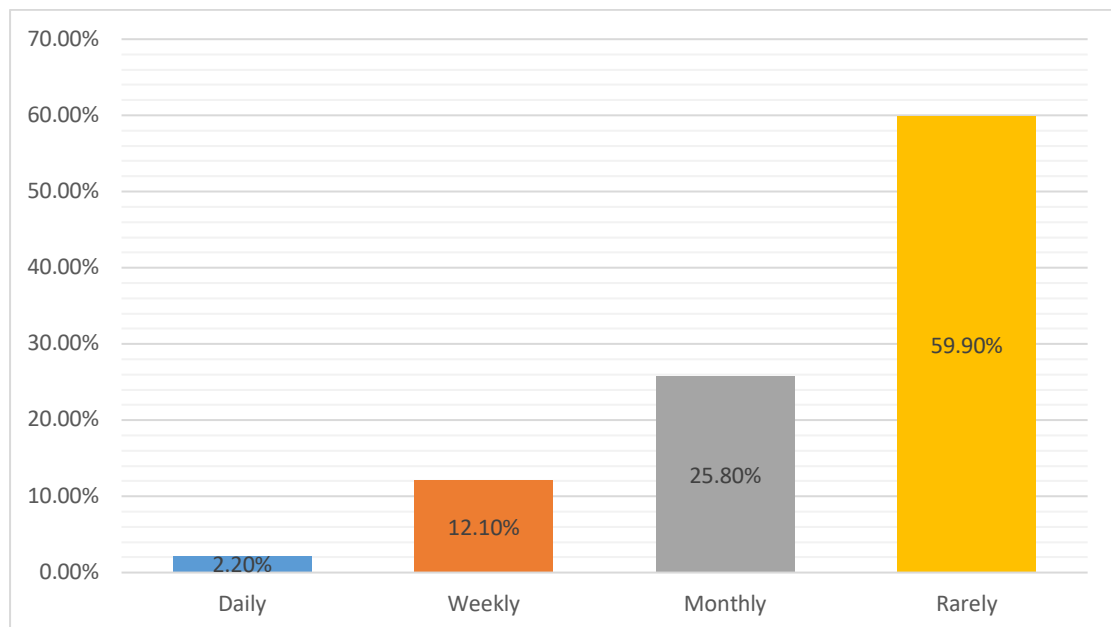


Figure 4.4: Park visitation frequency of respondents, Source: (Author,2026)

The respondents were asked how long they usually spend in these parks per visit, and 4.03 % of them responded that they stayed less than 30 minutes, 27.42 % of them said they stayed 30 minutes to 1 hour, while 59.14 % of them said they stayed 1 to 2 hours, and the rest 9.41 % of them stayed more than 2 hours per visit. The medium length of time spent by a majority of participants may possibly be attributed to the lack of open space provision, lack of interest or other activities associated with the sociocultural background.

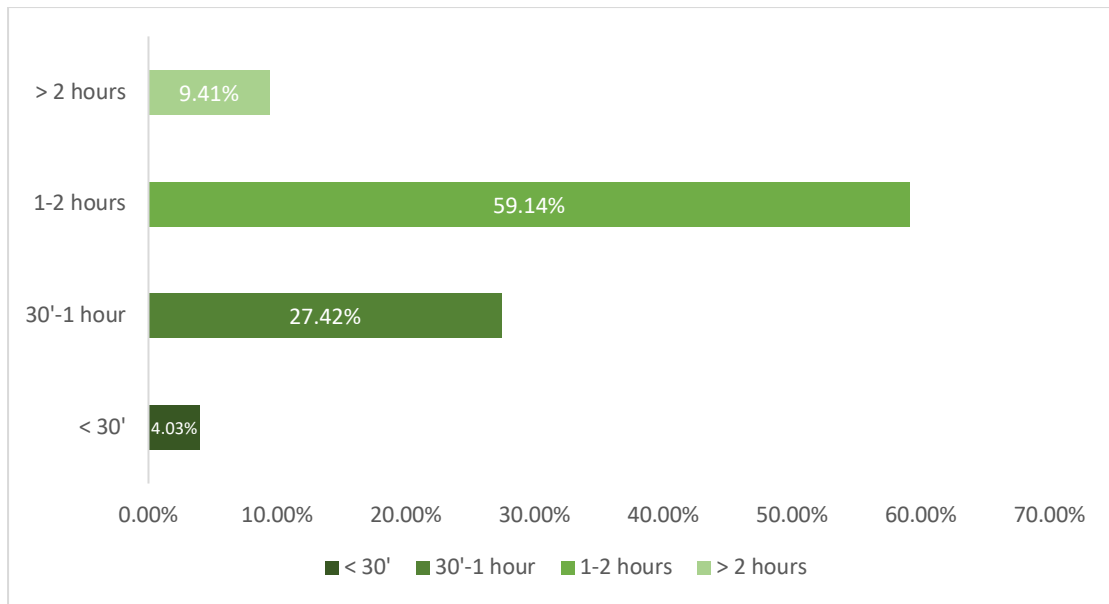


Figure 4.5: Duration of park stay, Source: (Author,2025)

Regarding the activities the respondents engage in while they stayed at the park, 26.1 % of them responded that they do walking/ jogging, 17.2 % of them said that they socialise with friends or family, 23.9 % of them relax or meditate, 22% of them exercise, and 10.8 % of them read or work. This suggested that some of these parks can accommodate a mixed-use balance of physical, social, and mental health activities. As there are fair proportions of active and passive users, it can be assumed that the current design and policies should not negatively interfere with this positive balance in the future.

4.4. PERCEPTION OF MENTAL HEALTH OUTCOMES

This section represents the respondents' perceptions of the mental health benefits of urban parks.

4.4.1. Stress Reduction

When the respondents were asked to what extent they agree with the following statement that urban parks help reduce stress and promote relaxation, improve mood and mental clarity, promote a connection to nature, and provide a sense of peace and calm in a busy urban environment. 66.39 % (247 respondents) of them responded that they strongly agree, 29.56 % (110 respondents) of them responded that they agree, 4.05

% (15 respondents) of them responded that they feel neutral and none of them disagree or strongly disagree.

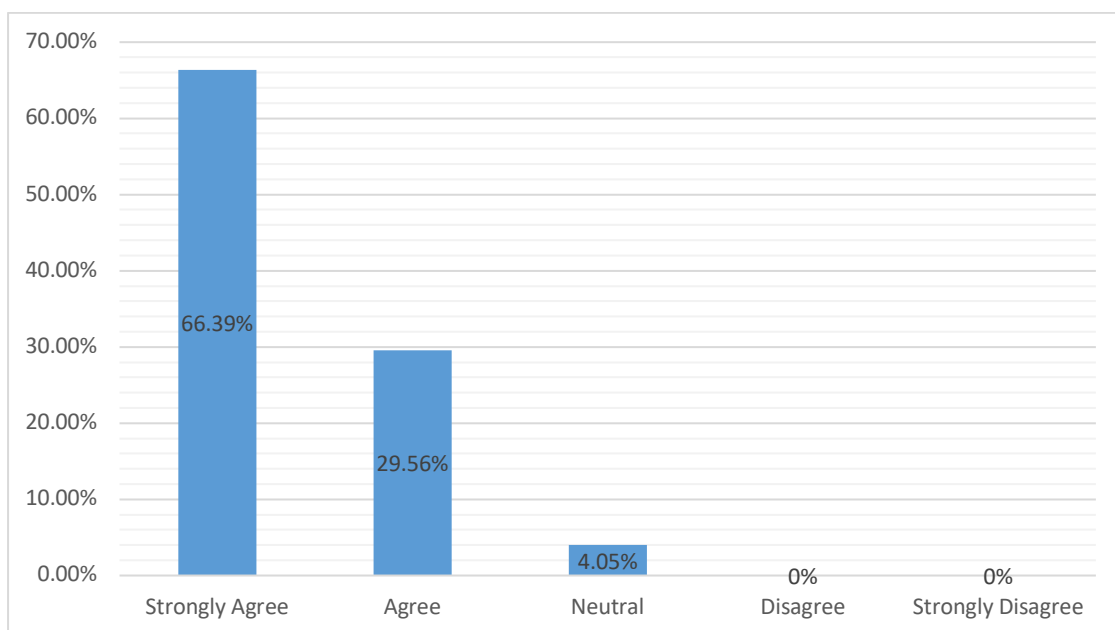


Figure 4.6: Perception of respondents towards mental health benefits of urban parks, Source: (Author, 2026)

Table 4.1: Mean value of the measurements for perception of respondents towards mental health benefits, Source: (Author, 2026).

Response	Score	Frequency	Percentage	Weighted Score
Strongly Agree	5	247	66.39%	1235
Agree	4	110	29.56%	440
Neutral	3	15	4.05%	45
Disagree	2	0	0%	0

Strongly Disagree	1	0	0%	0
Total	-	372	100%	1720

This represents a mean value of 4.62 which is the highest mean value among all variables measured in the study. Over 96% of respondents agreed or strongly agreed that parks reduce stress. indicating that stress reduction is the most strongly perceived therapeutic benefit of urban parks in Addis Ababa.

4.4.1. Impact on Mental Well-Being

When the respondents were asked how visiting these parks impacts their mental well-being, 48.92% (182 respondents) of them responded very positively, 32%(119 respondents) of them said somewhat positively, 15.05% (56 respondents) said neutral/no impact, 4.03% (15 respondents) of them were not sure and none of them said negatively.

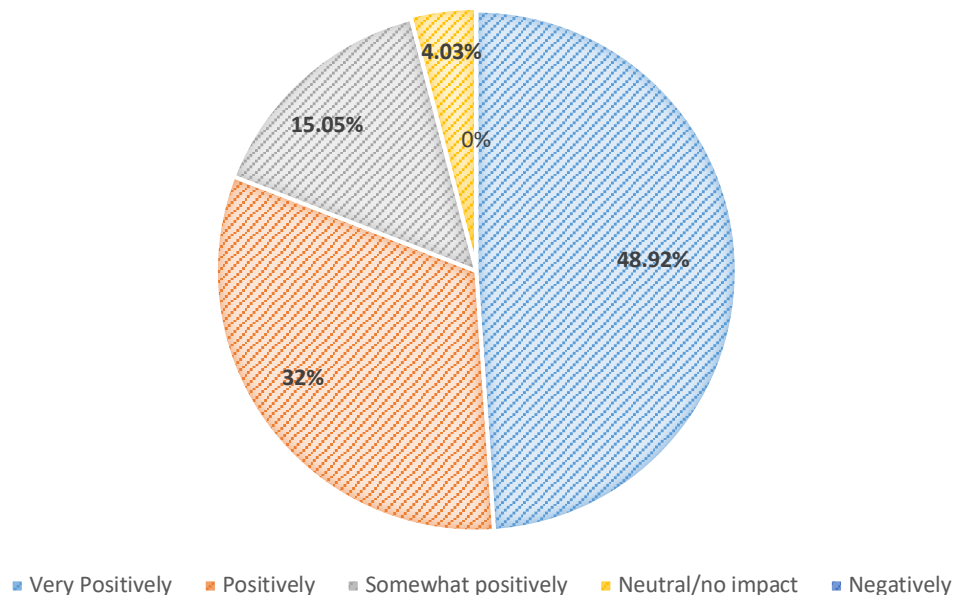


Figure 4.7: Impact of park visits on the mental well-being of respondents, Source: (Author,2026)

Table 4.2: Mean value of the measurements for impact of park visits on the mental well-being of respondents, Source: (Author, 2026).

Response	Score	Frequency	Percentage	Weighted Score
Very positively	5	182	48.92%	910
Somewhat positively	4	119	32.0%	476
Neutral	3	56	15.05%	168
Not sure	2	15	4.03%	30
Negative	1	0	0%	0
Total	-	372	100%	1584

The computed mean value of 4.26 indicates a strongly positive perception of mental health improvement. Collectively, 80.9 % of respondents expressed positive mental health outcomes associated with park visits. This very big percentage of positive response indicated that serious investors or stakeholders of urban parks for natural states can derive the added benefit of this positive mental health issue. Furthermore, it showed us that the literature which said that nature can prevent or improve the mental health of people is right and thus should be considered for the future.

Regarding any psychological experiences in these parks that positively affected the mental health of the respondents, 40.86% (152 respondents) of them responded that relaxation/ stress relief through nature, 17.47% (65 respondents) of them said spending quality time with family/ friends, 10.48 % (39 respondents) said Meditation/ quiet time, 17.2 % (64 respondents) said Enjoying scenery/ greenery and 13.99% (52 respondents) doesn't mention any significant experience. The experiences implied that the general

feelings of mood improvement occurred after spending time in the park without any specific practice. It is worth noting that the answers ranked in the top five phenomenon can occur at no cost in the nature-based activity, such as walking with friends, lying on the grass, which indicates the importance of quality experience to active recreation that, in turn influenced the psychological state of stress. These five most common

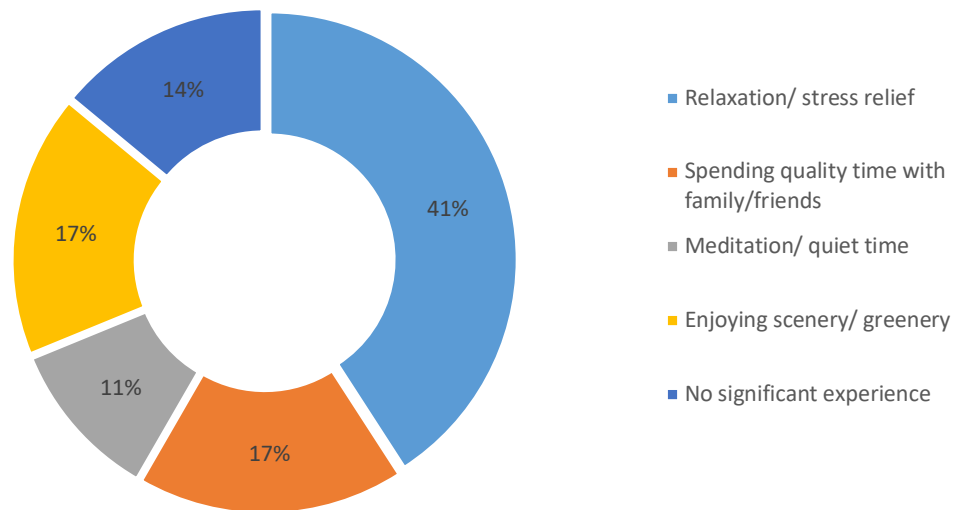


Figure 4.8: Experiences in these parks that positively affected the mental health of the respondents,
Source: (Author,2026)

4.5. PERCEPTION OF PHYSICAL HEALTH OUTCOMES

4.5.1. Motivation To Engage In Physical Activity

For the statement "This green space motivates me to engage in physical activities," 167 respondents (44.89%) strongly agreed, and an additional 145 (38.98%) agreed. 38 respondents (10.21 %) selected neutral, while only a small minority of 22 respondents (5.91%) disagreed, and none of them strongly disagreed. The majority of the 372 respondents expressed positive sentiment, indicating strong support for the park's role in promoting physical health.

Table 4.3: Mean value of the measurements for motivation to engage in physical activity, Source: (Author, 2026).

Response	Score	Frequency	Percentage	Weighted Score
Strongly Agree	5	167	44.9%	835
Agree	4	145	39.0%	580
Neutral	3	38	10.2%	114
Disagree	2	22	5.9%	44
Strongly Disagree	1	0	0%	0
Total	-	372	100%	1573

The results indicate strong agreement that green spaces motivate physical activity. The calculated mean score of 4.23 indicates a strongly positive perception, suggesting that urban parks serve as effective facilitators of moderate physical activity. It showed that those parks are important parks in terms of motivating health-enhancing behaviour, such as walking, jogging or informal exercises, since the majority of visitors (users) recognized those parks around them as a motivator to engage in physical activity. Most of the disagreed and neutral respondents are found in three of the 8 parks, namely at Hamle 19, Ambassador and Peacock (Addis Zoo) park.

4.5.2. Design And Facilities Supporting Fitness Goals

When the researcher asked them their agreement for the question “The design and facilities of the park are appealing for physical activity” they again responded positively. About 149 respondents (40. 05%) answered strongly agree and 143 people (38. 44%) agreed. However, compared to the first statement, slightly fewer participants

strongly agreed, potentially signalling room for design improvements or better maintenance of fitness-related infrastructure in some of the parks, such as Ambassador and Gullele botanical garden. 45 respondents (12.1 %) felt neutral, while 20 respondents (5.38 %) disagreed, and 15 respondents (4.03%) strongly disagreed mainly in Hamle 19 and Peacock (Addis Zoo) park. This means a total of 292 respondents (78.4 %) expressed positive views regarding how those parks’ design and facilities support their fitness goals. This high level of agreement indicates that many users find the infrastructure, such as walking paths, open spaces, or fitness stations useful. However, the slight dip in “strongly agree” and some amount of “Strongly disagree” responses compared to the first statement may signal a need for facility upgrades or targeted improvements to meet diverse user needs more effectively.

Table 4.4: Mean value of the measurements for design and facilities supporting fitness goals, Source: (Author, 2026).

Response	Score	Frequency	Percentage	Weighted Score
Strongly Agree	5	149	40.1%	745
Agree	4	143	38.4%	572
Neutral	3	45	12.1%	135
Disagree	2	20	5.4%	40
Strongly Disagree	1	15	4.0%	15
Total	-	372	100%	1507

The resulting mean score of 4.05 falls within the “moderately positive” category. Although the majority of respondents expressed agreement, this variable recorded the

lowest mean among physical health indicators, suggesting that structured fitness infrastructure may not be as strongly perceived as motivational or restorative benefits.

4.5.3. Feeling Physically Refreshed And Energized

The highest level of agreement was recorded for the statement "Spending time here helps me feel physically refreshed and energized," where approximately 186 respondents (50%) strongly agreed and 112 (30.1%) agreed. 58 respondents (15.6%) felt neutral, while 16 respondents (4.3 %) disagreed, and none of them strongly disagreed.

Table 4.5: Mean value of the measurements for Feeling physically refreshed and energized, Source: (Author, 2026).

Response	Score	Frequency	Percentage	Weighted Score
Strongly Agree	5	186	50.0%	930
Agree	4	112	30.1%	448
Neutral	3	58	15.6%	174
Disagree	2	16	4.3%	32
Strongly Disagree	1	0	0%	0
Total	-	372	100%	1584

The computed mean score of 4.26 indicates a strongly positive perception. This finding demonstrates that parks contribute not only to psychological relief but also to perceived physical revitalisation.

4.5.3. Features Helpful For The Physical Health

When respondents were asked which features of the green space most contribute to their physical health, 42% (156 respondents) selected walking paths, 15% (56 respondents) selected exercise equipment, 25% (93 respondents) selected open spaces for activities, 10% (37 respondents) selected Accessibility and proximity and 8% (30 respondents) selected clean air and natural surroundings. This showed that more than 80% of the total sample related their physical health with the direct usable features of the park where the other respondents mentioned the physical attributes or location attributes for their health issues.

When survey subjects were asked how these parks encourage them to stay physically active, 44% (164 respondents) responded walking/ Jogging paths, 21%(78 respondents) said playgrounds for kids, 29%(108 respondents) said open spaces for sports(aerobics, football, etc.) and 18% (67 respondents) responded that it doesn't encourage physical activity, which means the design or facilities there did not satisfy some people's demands. Or there may have been other factors, like too many people, not enough space to implement the demand, dangerous, no related equipment, and so on. The results showed that most of the respondents got the incentives from the park; the rest could be improved in terms of function diversity, space dimension, and so on.

4.5.3. Factors That Hinder Physical Activity

Regarding any barriers that prevents the respondents from using this space for physical activities, 30%(112 respondents) responded Lack of facilities/ equipment, 26%(97 respondents) mentioned safety concerns(especially at night), 18%(67 respondents) said overcrowding, 22%(82 respondents) mentioned poor maintenance like broken paths or equipment, 35%(130 respondents) said there were no significant barriers. This shows that for more than a third of users the park environment is already very suitable for physical activities. Taken together, this mixed feedback points to some potential improvements, which strengthening infrastructure, extending security, and upgrading existing facilities might make those activities more inclusive, attractive, enjoyable and accessible.

4.6. OVERALL PERCEPTION OF THE URBAN PARKS

When asked whether they think the green space is well-maintained and safe enough for regular visits, most people responded positively. About 78% (290 respondents) chose "Yes". This is a measure of praise for park authorities that have ensured such levels of cleanliness and maintenance in the park which are critical to its optimal utilisation for many, especially children, elderly and women. Around, 22 percent (82 respondents) of respondents said "No", which probably includes areas in parks perceived as unsafe for some reason (could be insufficient lighting, broken furniture, unkempt, garbage, etc.), or unsafe in general.

Similarly, when asked if they would recommend the green space to others to improve their mental and physical health, the majority of people responded Yes, which indicates satisfaction with the site, though most importantly, it suggested that the park was a valuable space for psychological and physical health-related ends. An overwhelming 88% responded Yes to this question (327 respondents); while the other 12% responded No to this question (45 respondents). The high number of Yes responses infers that users of the park held a high level of confidence in the green public space, and that users felt like the park was an adequate place where psychological and physical health could be reaffirmed. Furthermore, the number of Yesses to this question also underscores that users trust the site enough to endorse it to friends, family, neighbours, and other community members. On the contrary, the 45 people who responded No might have felt that the park did not meet their expectations or desired functions.

When respondents were asked about the strongest features of the park they visit, many highlighted the natural aesthetic and tranquil qualities of the environment as its number one strongest point. In this pooled study, the most commonly cited feature of the parks was its natural and environmental quality, which 49% (182) of respondents listed this feature. This not only reflects upon the aesthetic quality of the park, but also important attributes that give each park its unique style and appeal. Another 35% (130 respondents) cited the tranquil atmosphere, reinforcing the premise that urban parks provide serene getaways from urban chaos. Other strengths highlighted were accessibility and proximity – 28% (104 respondents) valued the park being easily reachable, indicating that travel time and convenience have significant influence on regular usage. 25% (93 respondents) listed sports facilities like courts, gyms,

playgrounds etc, indicating the role of activity infrastructure in bolstering physical exercise. And finally, 15% (56 respondents) counted community activities such as events, picnics, gatherings etc, suggesting that the park provides social interaction beyond just individual use.

Regarding upgrades to make the park better for mental and physical health, a plethora of ideas emerged. The most recurrent theme was improving sports and fitness infrastructure, with 32% (119 respondents) wanting more outdoor gyms, exercise equipment, running/walking trails and activity zones. This tallies with previous findings that such facilities inspire more exercise. 25% (93 respondents) sought improved cleanliness and maintenance, which reiterates that even well-positioned parks can be rendered unattractive through neglect. Other frequently mentioned improvements were more lighting and safety measures (20%, 74 respondents), which mirrors the earlier concern regarding vulnerable groups and early/late hour access. 14% (52 respondents) wished to see more organized fitness or wellness events to spur participation, which suggest appetite for mass programs to supplement individual use. Finally, 9 % (34) respondents requested installation of additional seats and resting places which is of particular importance for the elderly, families with children, and in general for those who want to sit, linger and observe.

4.7. OBSERVATIONAL ASSESSMENT RESULTS

The observational assessment was conducted using Trojanowska's (2021) five-category universal standard for health-promoting urban places, with a maximum possible score of 89. The results demonstrate significant variation in therapeutic compliance across the selected parks. This study used a simplified rough assessment method to compare the overall health-promoting qualities of selected urban parks. The binary assessment method evaluated comparable attributes: 0-not present; 1-present. Then, a detailed assessment was made of the selected park (Annex 2).

The total score indicates the total therapeutic quality score out of 89. Accordingly, the summative scores fall between 48 and 79. The results show that, for the selected parks in the city, the overall public health-promoting features are higher for the recent parks, followed by the comparatively bigger parks (Addis Zoo park) and then Gulele botanical garden. For each park, table 6: Gives the detailed presence/absence values for each

renewed theme. presents the scoring for all the attributes considered to evaluate the five themes under the five domains for a particular park. The total scores of Unity Park (79/89), Friendship Park (77/89), and Entoto Park (74/89) are generally relatively higher which indicates the relatively balanced inclusion of the health healing qualities and attests the particular planning efforts invested and given to each park. On the other hand, parks like Ambassador Park (48/89) and Hamle 19 Park (57/89), which are generally small and old in neighbourhood level generally have uneven distribution of criteria performances, demonstrating their unequal distribution of health healing qualities. The analysed result is shown in Figure 4.9.

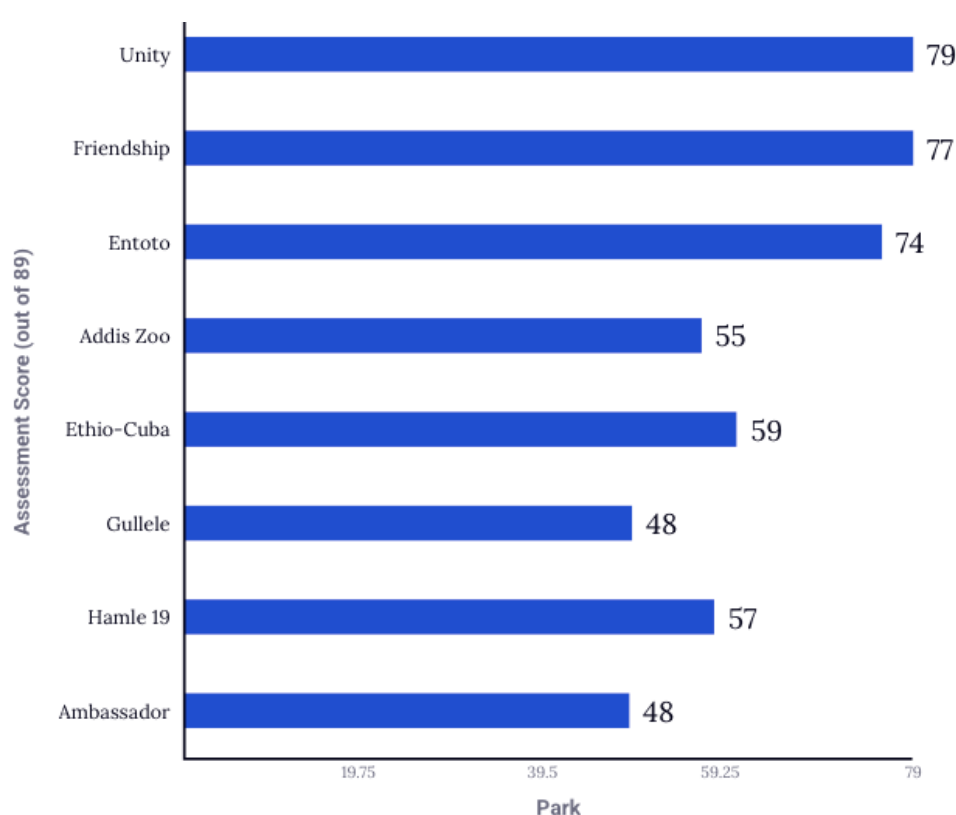


Figure 4.9: Observational assessment of the selected parks, Source: (Author,2026)

Table 4.6: Percentage measurement & interpretation for observational assessment results, Source: (Author, 2026).

Selected Parks	Raw Score	Percentage	Interpretation
Friendship Park	77	86.5%	Strong therapeutic compliance

Hamle 19 Park	57	64.0%	Moderate compliance
Ethio-Cuba Park	59	66.3%	Moderate compliance
Ambassador Park	48	53.9%	Weak compliance
Addis Zoo Park	55	61.8%	Moderate compliance
Unity Park	79	88.8%	Strong therapeutic compliance
Entoto Park	74	83.1%	Strong therapeutic compliance
Gullele Botanical Garden	55	61.8%	Moderate compliance

These percentages were calculated as: $\frac{\text{Observed Score} \times 100}{89}$

The five assessed categories included sustainability, accessibility, amenities, design, and placemaking. The observational data showed that design and placemaking elements were generally strong in recently developed parks, particularly those incorporating structured layouts, event spaces, and organised circulation paths.

4.7.1. Sustainability

From a sustainability perspective, most parks scored highly on basic environmental indicators such as air quality, green and blue infrastructure, rainwater infiltration, and native vegetation. This suggests that ecological considerations are generally embedded in park development across the city. However, more advanced sustainability attributes such as ecological energy sources, irrigation using non-potable water, and systematic

biodiversity protection through native fauna were inconsistently present. Parks with conservation or heritage functions, such as Gullele Botanical Garden, Entoto Park, and Addis Zoo Park, performed better on biodiversity-related indicators, whereas smaller urban parks showed limited capacity to support ecological complexity. These results indicate unequal distribution of therapeutic attributes across parks, with newer or larger parks demonstrating stronger integration of design, amenities, and placemaking features.

4.7.2. Accessibility

Accessibility demonstrated variability, with some parks benefiting from clear pathways and transport connections while others exhibited limitations in universal design and connectivity. Accessibility results revealed notable disparities in pedestrian infrastructure and user comfort. While all parks were geographically accessible (distance to park scored positively across all cases), sidewalk quality, drainage, lighting, and inclusive design features vary considerably. Unity Park, Friendship Park, and Entoto Park demonstrated stronger performance in walkway maintenance, perceived safety, seating provision, and traffic buffering. Conversely, parks such as Ambassador Park and Addis Zoo Park exhibited deficiencies in sidewalk width, drainage, lighting, and public transport connectivity, which may undermine their therapeutic potential, particularly for elderly users, children, and persons with disabilities.

4.7.3. Amenities

In terms of amenities, the assessment showed a generally strong presence of core restorative elements, including green open space, natural landscapes, and water features across all parks. These features are critical for stress reduction and psychological restoration. However, facilities such as seating, lighting, and rest areas were generally available but varied in quality and maintenance levels were unevenly distributed. Sports infrastructure, drinking water, accessible restrooms, and disability-friendly features were concentrated in major parks such as Unity Park and Entoto Park, while several community-level parks lacked these essential amenities. This unevenness suggested

that health promotion through physical activity and prolonged park use remains spatially inequitable.

4.7.4. Park Design

Design and sensory dimensions further differentiated the parks. High-scoring parks demonstrated strong human-scale design, visual coherence, long vistas, and multisensory stimulation (sight, sound, smell, and touch). Elements of salutogenic design such as controlled risk, mystery, fascination, and optimal complexity were most evident in Unity Park, Entoto Park, and Friendship Park. By contrast, Ambassador Park and Ethio-Cuba Park showed limited engagement with these design qualities, reducing opportunities for cognitive restoration and experiential richness.

4.7.5. Place-making

Place-making and community engagement emerged as the weakest dimensions across most parks. While meeting places and general spaces for social contact were widely present, deeper placemaking attributes such as symbolic meaning, monuments, thematic gardens, and community participation in governance are inconsistently integrated. Only Unity Park and Entoto Park demonstrated stronger performance in cultural symbolism, personalisation, and rule-setting for self-management. The near-absence of sacred spaces and limited stakeholder participation in many parks highlighted a gap between physical provision and the social-cultural embedding of therapeutic environments.

During the park visits, the researcher took several pictures of the selected parks. The Photographic documentation of these selected parks, including Gullele Botanical Garden, Ethio-Cuba Friendship Park, and Addis Zoo Park, visually corroborates the observational findings. The images demonstrate biodiversity, landscaped pathways, shaded seating areas, and designated social spaces. These visual elements support the recorded scores in design, sensory stimulation, and placemaking categories and provide tangible confirmation of therapeutic attributes observed during field assessment. Sample pictures of some of these parks are shown in Figure 10., Figure 11. and Figure 12.



Figure 4.10: Sample pictures of Gullele Botanical garden, Source: (Author,2026)



Figure 4.11: Sample pictures of Ethio-Cuba Friendship Park, Source: (Author,2026)



Figure 4.12: Sample pictures of Addis Zoo Park, Source: (Author,2026)

In general, the assessment demonstrated that Addis Ababa's urban parks exhibit a spectrum of health-promoting qualities, strongly influenced by park size, function, and investment priority. While flagship and large-scale parks approached a comprehensive therapeutic urbanism model, smaller and older parks remained under-equipped,

particularly in accessibility, amenities, and placemaking. The binary assessment method effectively revealed these structural disparities and underscores the need for policy and design interventions that elevate neighbourhood-level parks to more equitable standards of mental and physical health promotion.

4.8. RESULTS FROM KEY INFORMANT INTERVIEWS

The findings from the in-depth interviews revealed that the principles of therapeutic urbanism seem to be considered important for the planning and design of urban green infrastructure development, albeit in a fragmented manner. All of the participants repeatedly mentioned that the psychosocial attraction (healing tendencies, for example) of urban parks is deliberately taken into account during planning and design processes.

An instance of such seemingly deliberate inclusion of these principles can be found in the summaries below by a Chief advisor at AACAPRAC, a team leader from Addis Ababa City government plan commission and a senior Architect at a private consultancy firm named Rise: The Chief and the team leader were well aware of the healing capacity of therapeutic urban parks. Hence, there are designs deliberately embedded to make visitors glance at the water fountains, waterfalls, forest-like tree species, and some indigenous bird species, which altogether stimulate the need for relaxation. For instance, the Ethio–Korean War Veterans’ Memorial Park has designed the facilities for jogging, gymnastics, cafes and open restaurants around scenic sites. Similar facilities are found in Lideta park for joggers, swimming pools, and other physical exercises. All these park activities were therapeutic in their script and design. Such facilities targeted different categories of age and hence therapeutic urban parks for all. Most of the urban parks in Addis are in the form of blue–green spaces that contain more of flora and fauna. Such kinds of healing blue and green urban parks are very common today worldwide to absorb pollution and provide some peace and tranquillity for the urban dwellers.

According to the senior Architect, One of the most important criteria taken into account while planning and designing an urban park was a conducive environment to those who come to heal themselves. Although none of the parks have electro-magnetic and magnetic-based healing facilities, bringing the natural elements (fresh air, water, soil,

stones, some fresh smells and aroma, herbs etc.) are imperative. He mentioned that it was not so easy to regenerate components of nature and embed them into artificial urban parks. For instance, the Abay river blue marks, stones were mimicked to show the glimpses of the Abay gorge, savannah grass were planted to imitate the Abay savannah basins, and fountains designed to witness the waterfalls in the Abay banks and valleys. All these generated some visual (optic) and musical (audio) healing and contribute to the propensity of recovery for the sick, maimed, and stressed urbanites. Such natural components in Addis Zoo Park emulate a joyful mood. In a nutshell, the subjective accounts above suggested that the planning and design of urban parks in Addis Ababa considered the therapeutic healing potential of urban green and blue infrastructures by focusing on visual and aesthetic representations of nature. This aligned with what the results of our systematic literature review have detected about nature's attention restoration capacities in nature-based interventions. Otherwise, they appear to miss the objective measurement of their actual health outcomes.

Despite this, the AACAPRAC and other actors engaged with urban park development recognised that plans and designs that promote and/or imitate nature are critical to delivering the positive psychological attributes mentioned above. According to the team leader (planning authority representative), the park guidelines are being implemented at the rate of 60–70% of their desired target, highlighting the significant latent gap between the standards and outcomes. While he suggested that some of the recent large-scale corridor projects are giving more prominence to mental and physical health outcomes, this seems an exception predicated on the nature of the project (exigency on their symbolic and flagship nature) as opposed to a normative compliance with citywide planning guidelines. This partly indicated that therapeutic urbanism in Addis Ababa is still more of a process and practice of opportunism predicated on flagship initiatives as opposed to institutional mechanisms to implement the city parks' guidelines.

In addition, nearly all interviewees expressed mental and physical health outcomes or objectives (including provision of space for physical movement, recreation, water bodies, playgrounds, flowers, materials that elicit natural texture, etc.) as a consideration in their design process. Nevertheless, interview responses on the manifestation or consideration of relevant health outcomes and objectives in park and

open-space designs were still broad and loosely defined. For instance, the health benefits of therapeutic elements highlighted above were neither clinical nor specific markers of emotional well-being (e. g. , reducing stress and pressure, the incidences of posttraumatic growth and recovery, alleviating anxiety, mental morbidity and disorders, etc.), making it difficult to assess the extent to which some of these specific outcomes are inherent in the design plans and implemented outcomes.

As such, while there was a seeming evidence that design and planning efforts target therapeutic elements & features that benefit mental and physical health, it was hard to assess the extent to which the evidence-based behind therapeutic urbanism is embraced in decisions that justify prioritisation of specific elements and features. Interview participants also lamented that the most challenging in designing, planning and implementation of elements that encourage therapeutic urbanism were mostly due to budget limitations and perennial lack of specialised manpower (such as water engineers, horticulturists, veterinarians, etc.). For instance, most respondents mentioned that the perennial shortage of water engineers and maintenance staff was hampering the design and construction of water features, mainly water fountains in terms of transporting water through the city.

In the same vein, interviewees mentioned that financial, technical and associated logistical limitations are hampering their ability to provide more animal husbandry and veterinary services in designed parks. In addition, the lack and strength of cooperation with the office of green beautification, public awareness, and technical capacity were also mentioned as equally important barriers to the design and implementation of therapeutic urbanism features. This partly highlights another piece of evidence that the problem is more with cross-sectoral governance (collaboration, awareness and capacity) arrangements than technical challenges alone.

Second, the answers concerning collaboration with other practitioners (social and natural) corroborate the current state of practice. It was stated that the informants consulted various non-built environmental sciences-related professions (*i.e.*, environmental sciences and study, horticulturist, sport, Veterans, landscape architects, and Architects). However, they did not mention any contact with psychologists and

mental health-related professionals, a crucial limitation in practice, as they fail to include input from the relevant professions and disciplines.

Third, the outcome analysis and agreement on therapeutic impact monitoring and evaluation design show a fragmented and inconsistent implementation of the approach. They mentioned having a relevant assessment and impact studies and evaluation reports in the case of the senior Architect and the chief. The senior Architect cited public feedback from their work at the Addis ZOO Park development project and Unity Park and the consultant team. On the other hand, the team leader only focused on compliance measuring how the design is consistent with the approved master plan and not related to health assessment and analysis. Meaning, although highlighted in his response, the routine monitoring and evaluation did not appear to be based on mental and physical health assessment outcomes. Instead, the analysis was process-oriented.

Fourth, he also reflected that the current policy initiative enabled him to consider the approach when designing or developing park landscapes. Especially, according to all informants, the planning and designing urban parks policy supported health-based park landscape design by project design document. However, the responses to the questions in the case of the interviewer reflected disagreement over the implementation of the existing policy guidelines.

Fifth, even though the chief stated consideration of the public by conducting a socio-political and economic impact assessment, there were disagreements among all other informants over considering public involvement. This was also a strong indication that there was no coherent, rigorous, and inclusive implementation of the participatory research and design thinking practice in Addis Ababa. Sixth, for future effort improvement preference, the response showed an encouraging prospect about the formation of a new mind-shift. Similarly, the planning authority official stated that from the previous design thinking of proportion and form, now they started considering psychological and physiological aspects. In one way or another, such incremental changes over recent years suggested that the concepts of therapeutic urbanism are at least given consideration in the design and implementation process.

4.10. SUMMARY OF RESULTS

The empirical findings demonstrate that urban parks in Addis Ababa are strongly perceived as spaces of psychological restoration, with stress reduction emerging as the highest-rated benefit. Physical health benefits are also positively perceived, particularly in terms of motivation for activity and feelings of refreshment. However, structured design support for fitness goals received comparatively lower ratings. Observational assessments reveal uneven therapeutic compliance across parks, particularly in accessibility and sustainability dimensions.

The key informant interviews have also unveiled that Addis Ababa is positively progressing in implementing aspects of therapeutic urbanism. However, this was still a black box, with no clear understanding of the purpose and outcome, requiring multi-disciplinary participation and thick monitoring and evaluation techniques.

CHAPTER FIVE: DISCUSSIONS

5.1. INTRODUCTION

This chapter interprets the empirical findings presented in Chapter Four in relation to the study's research objectives and situates them within the broader literature on therapeutic urbanism and health-promoting green infrastructure. The discussion focused on key findings rather than repeating descriptive results.

5.2. PERCEIVED MENTAL AND PHYSICAL HEALTH BENEFITS

The first objective sought to examine residents' perceptions of the psychological and physical health benefits of urban parks in Addis Ababa. The findings reveal that stress reduction recorded the highest mean score ($M = 4.62$), followed by overall mental well-being improvement ($M = 4.26$). These results strongly indicate that parks function primarily as environments of psychological restoration.

This finding converges with Stress Reduction Theory, which posited that exposure to natural environments triggers physiological relaxation and emotional recovery (Ulrich et al., 1991). Similarly, Attention Restoration Theory argued that natural settings replenish depleted cognitive resources and improve mental clarity (Kaplan & Kaplan, 1989). The strong positive perception recorded in this study aligns with meta-analytical evidence demonstrating significant reductions in psychological distress associated with green space exposure (Twohig-Bennett & Jones, 2018).

With respect to physical health, motivation to engage in physical activity recorded a strong mean score ($M = 4.23$), while feeling physically refreshed recorded a similar value ($M = 4.26$). These findings indicated that parks encourage moderate physical activity and promote perceived physical revitalisation. This aligned with research demonstrating that accessible parks increase walking and recreational activity (Kaczynski & Henderson, 2007).

However, the slightly lower mean for design and facilities supporting fitness goals ($M = 4.05$) suggested that while parks encourage activity, they may not yet fully optimize

structured fitness infrastructure. This partially diverges from WHO (2016) recommendations advocating integrated design-led health promotion, indicating room for enhancement in exercise-specific facilities.

Overall, the findings suggest that psychological restoration is the dominant perceived benefit, while physical benefits are largely behavioral rather than infrastructure-driven.

5.3. COMPLIANCE WITH THERAPEUTIC URBANISM STANDARDS

The second objective assessed whether selected parks meet established therapeutic urbanism standards. Observational assessment scores ranged from 53.9% to 88.8%, indicating considerable variation across parks.

Higher-performing parks demonstrated stronger integration of design, amenities, and placemaking features, while lower-performing parks exhibited limitations in accessibility and sustainability components. These findings supported Trojanowska's (2021) argument that therapeutic effectiveness depends on integrated performance across multiple dimensions rather than mere presence of green space.

The observed variability also reflected spatial inequality within Addis Ababa's urban landscape. Previous research has noted uneven green space distribution across sub-cities (Azagew & Worku, 2020). The present study confirmed that therapeutic quality is not uniformly distributed and depends significantly on park typology and development level.

5.4. EXISTING INTERVENTIONS AND THERAPEUTIC URBAN DESIGN

The third objective examined existing interventions supporting therapeutic urban design. Recent large-scale park developments indicate strong municipal commitment to expanding green infrastructure. These developments demonstrated notable improvements in aesthetic quality, event organisation spaces, and social interaction areas.

Nevertheless, the study revealed that sustainability integration and accessibility remain inconsistent. While some parks demonstrate high compliance with therapeutic standards, others lag behind, particularly in universal accessibility and ecological sustainability features. This suggested that expansion efforts may prioritised symbolic and visual design elements over comprehensive therapeutic integration.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

This research set out to examine the therapeutic role of urban parks in Addis Ababa by assessing residents' perceptions of mental and physical health benefits as one measure while also checking whether these Urban parks comply with therapeutic urbanism standards.

The findings demonstrate that urban parks in Addis Ababa function primarily as environments of psychological restoration. Stress reduction emerged as the most significant perceived benefit, indicating that parks serve as compensatory spaces within a rapidly urbanizing and increasingly stressful city context. The psychological value of parks appears to outweigh their structured physical fitness functions.

While parks also promote physical activity and feelings of revitalization, these benefits are largely behavioral rather than infrastructure-driven. This suggests that users engage in walking and moderate activity even in the absence of specialized fitness design features.

The observational assessment further reveals that therapeutic quality is not uniformly distributed across parks. Larger and recently developed parks demonstrate stronger compliance with design and placemaking standards, whereas accessibility and sustainability features vary considerably. This indicates that therapeutic urbanism is being implemented unevenly within the city.

Overall, the study confirmed that therapeutic urbanism in Addis Ababa is emerging but unevenly implemented. The city's parks provide substantial mental health value, yet achieving full therapeutic integration requires improved spatial equity, infrastructure enhancement, and sustainability-focused planning. The study also concluded that urban parks in Addis Ababa contribute significantly to public well-being but require more integrated and equitable planning approaches to maximize their therapeutic potential.

6.2. RECOMMENDATIONS

6.2.1. Policy-Level Recommendations

Within the context of Addis Ababa, a citywide therapeutic urbanism framework that formally recognises urban parks as essential public health infrastructure should be the next step for the Addis Ababa City Administration. Given the escalating challenges of rapid urbanisation, environmental stressors, and the amplifying risk factors of non-communicable diseases, parks need to be part of the city planning and policies, not just as recreational spaces, but as preventive health assets. Health-promoting standards should be integrated into park design guidelines. The adoption of Trojanowska's indicators or similar evaluated tools by the park management system for city parks would bring regular assessment and review of various important criteria, *i.e.* design quality, accessibility, safety, inclusivity, and capacity for restoration.

Additionally, there should be established robust mechanisms for budgetary allocations that guarantee sustainable park maintenance, adequate water supply, and inclusive infrastructure provision. Most neighborhood parks in Addis Ababa still have problems with irrigation, maintenance, and infrastructure decay; hence, park funding should be geared to complement long-term operational sustainability rather than concentrating only on new park development. Strategies for the equitable distribution of investments are also indispensable as a means to lessen the differences in spatial distribution among Sub-cities, with a view to guaranteeing that neighborhoods deprived of basic services become beneficiaries of well-maintained and health-supportive green spaces.

6.2.2. Design Recommendations

At the design level of park planning and development, a closer collaboration across disciplines needs to be facilitated by mental health professionals, public health experts, and environmental psychologists from the very beginning to the planning and design stages. The integration of these various disciplines would ensure that parks in Addis Ababa are developed with the necessary aspects to provide the restorative effects of nature, *i.e.*, landscapes, multi-sensory diversity, safe circulation, shaded seating, social interactions, etc.

Design efforts should centre on providing accessible infrastructure for children, adults, elderly persons, women, and people with disabilities. Accessibility for all, visibility for safety, clear and easy to follow signposting, and comfort features such as shade and seating should be the essential aspects of all park renovation and development work.

Moreover, to facilitate the maintenance of the parks, the design should consider the use of drought-resistant plants, water-efficient irrigation systems, and materials with long life that are suitable to the climatic conditions of Addis Ababa. Most importantly, proper mechanisms should be in place that would make it possible for post-occupancy evaluations to be conducted regularly with the purpose of determining the influence of park design interventions on physical activity, social bonding, and mental restoration perceptions.

Future park developments should also incorporate:

- Structured walking and jogging circuits
- Clearly marked fitness zones
- Universal accessibility infrastructure
- Shaded rest areas and
- Ecological sustainability features, such as water-sensitive design

6.2.2.1. Accessibility Improvements

Efforts should prioritize equitable spatial distribution of parks across sub-cities. Public transport connectivity and walkability infrastructure should be enhanced to ensure broader access. To further enhance the therapeutic benefits of small and old parks in Addis Ababa, the pedestrian accessibility to the park, accessibility inclusive design considering all categories of citizens with disability, inclusion in infrastructure, safety, quality of place, seating, sanitation and other basic amenities should be addressed. Design improvements should also move beyond aesthetic enhancement toward health-optimised functionality.

6.2.2.2. Sustainability Integration

Greater emphasis should also be placed on integrating ecological sustainability measures, including biodiversity conservation, air quality buffering vegetation, and water management systems.

6.2.3. Community Engagement Recommendations

The participation of the community in the planning, development, and management of urban parks in Addis Ababa ought to be assured. Design workshops, co-creation activities, general meetings with stakeholders, *etc.*, are some of the ways through which the community can be heard and their cultural, recreational preferences as well as safety concerns be reflected in the parks. This considerable utilisation will result in a greater sense of belonging within the community and the sustainability of the parks over time.

Parks may be described as offering a therapeutic function which, apart from the physical condition of the place, can be enhanced by the provision of community programming activities at a municipal level, such as guided physical activities for all age groups, kids playtime, friendly social gatherings, wellness-oriented programs, etc. It is generally the case that parks that are actively programmed become the venues for the development of strong social cohesion as well as of perceived safety.

Besides, there should be clear, cut roles for funding allocation that take into account community feedback and a community monitoring system that gathers user feedback and evaluates local-level impacts, which will contribute to ensuring accountability and adaptive management. This is even more necessary in marginalized neighborhoods.

6.3. FURTHER RESEARCH

The researcher recommends that future studies should:

- Conduct longitudinal health outcome assessments
- Incorporate physiological health measurements
- Compare therapeutic performance across Ethiopian cities and
- Examine socioeconomic disparities in park accessibility

Generally, Urban parks in Addis Ababa represent valuable public health assets. While they currently function strongly as psychological restorative environments, achieving full therapeutic integration requires deliberate planning strategies that prioritise accessibility, sustainability, and structured health-promoting design. The study underscores the importance of integrating urban health considerations into future green infrastructure development.

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ANNEXES

ANNEXE 1: PUBLISHABLE MANUSCRIPT

Therapeutic urbanism: The healing role of urban parks in Addis Ababa

Blen Shimengus

Addis Ababa University

Abstract

Therapeutic urbanism foregrounds the role of urban design in supporting psychological well-being through salutogenic environments. While evidence from environmental psychology links nature exposure to stress reduction and mental restoration, limited research has examined these benefits in rapidly urbanising Ethiopian cities. This study assesses perceived psychological health benefits of urban parks in Addis Ababa using a concurrent triangulation design combining a cross-sectional survey of park users ($n = 372$), structured park observation guided by health-promoting place standards, and key informant interviews with relevant municipal institutions. Likert-scale analysis indicates overwhelmingly positive perceptions of psychological restoration: stress reduction recorded the highest mean score ($M = 4.62$), with 96.0% of respondents agreeing or strongly agreeing that park visits reduce stress; perceived overall mental well-being impact was also strongly positive ($M = 4.26$). Observational assessments revealed substantial variability in therapeutic design compliance across parks, suggesting that psychological benefits are likely shaped not only by the presence of greenery but also by differences in amenities, accessibility, and placemaking features. The findings support the proposition that Addis Ababa's parks already operate as low-cost restorative environments, but mental-health equity remains constrained by uneven therapeutic quality and accessibility. Embedding explicit therapeutic design standards into park planning and evaluation could strengthen the city's capacity to deliver psychological well-being benefits at scale.

Keywords: *Addis Ababa; Accessibility; Mental well-being; Stress reduction; Therapeutic urbanism; Urban parks*

1. Introduction

Rapid urbanisation has intensified environmental stressors in many African cities, including congestion, overcrowding, air pollution, and noise. Addis Ababa, as one of the fastest-growing metropolitan centres on the continent, has experienced substantial spatial expansion and population growth over the past three decades. These changes have increased pressure on infrastructure and public open spaces while coinciding with rising concerns about chronic and mental health challenges among urban residents (Ministry of Health, 2020; Habtamu et al., 2022).

Urban green spaces are increasingly recognised not merely as recreational amenities but as public health infrastructure. Environmental psychology research demonstrates that exposure to natural settings can reduce stress, restore attention, and improve emotional regulation. However, in the Ethiopian context, research has predominantly focused on the quantity and distribution of green space rather than its therapeutic performance.

Recent municipal investments in large flagship parks and renovation of existing parks in Addis Ababa provide an opportunity to evaluate whether these spaces function as therapeutic environments. This study therefore examines the healing capacity of selected urban parks across Addis Ababa by focusing on users' perceptions of psychological and physical well-being and assessing park design compliance with therapeutic urbanism principles.

2. Literature review

Therapeutic urbanism advances a salutogenic perspective, viewing cities as environments capable of producing health rather than merely preventing disease (Antonovsky, 1996; Duff, 2022a). Central to this framework is the idea that urban design, accessibility, and placemaking can cultivate restorative experiences.

The therapeutic landscapes concept defines healing spaces as those emerging from interaction between physical environments, social processes, and symbolic meaning (Gesler, 2003; Andrews, 2004). Parks become therapeutic not only through vegetation but through integrated design qualities that promote comfort, safety, and social engagement.

Stress Reduction Theory suggests that natural environments trigger physiological and emotional recovery from stress (Ulrich et al., 1991). Attention Restoration Theory proposes that exposure to nature replenishes depleted cognitive resources through effortless attention or “soft fascination” (Kaplan & Kaplan, 1989). Salutogenic design further emphasises usability, inclusivity, sensory richness, and safety as critical dimensions of healing spaces (Golembiewski, 2022).

While these frameworks are well established globally, empirical testing in rapidly urbanising African cities remains limited. Addis Ababa presents a valuable case for evaluating how urban parks operate within such contexts.

3. Methods and Materials

3.1 Study Area

The study was conducted across eight selected urban parks in Addis Ababa representing diverse typologies, including community parks, botanical parks, heritage parks, forest parks, and multi-functional recreational parks. These parks were selected to capture variation in size, design, management, and user profiles across the city.

3.2 Research Design

A concurrent triangulation mixed-methods design was employed to ensure equal emphasis on quantitative and qualitative evidence.

3.3 Data Collection

3.3.1. Questionnaire Survey

A cross-sectional questionnaire was administered to 372 park users. Respondents were selected using on-site intercept sampling, with proportional allocation across the selected parks based on visitation levels. Psychological and physical health perceptions were measured using a five-point Likert scale.

3.3.2. Observational Assessment

Parks were evaluated using structured observation guided by therapeutic urbanism standards (Trojanowska, 2021). Assessment domains included: accessibility, amenities

and services, design quality, placemaking and sustainability. Each criterion was scored to compare therapeutic compliance across parks.

3.3.3. Key Informant Interviews

Semi-structured interviews were conducted with officials and professionals involved in park planning and management within Addis Ababa's municipal institutions. These interviews provided contextual insight into governance structures, design practices, and institutional coordination.

4. Result and Discussion

4.1 Psychological Health Outcomes

Survey results indicate strong psychological restoration benefits. Stress reduction recorded the highest mean score ($M = 4.62$), with 66.4% of respondents strongly agreeing and 29.6% agreeing that park visits reduce stress. This indicates near-consensus regarding the restorative function of parks.

Perceived overall mental well-being impact was similarly positive ($M = 4.26$), with more than 80% of respondents reporting positive effects. These findings strongly support Stress Reduction Theory and Attention Restoration Theory, confirming that urban parks in Addis Ababa serve as environments of psychological relief.

Qualitative responses reinforced these findings, describing parks as spaces of calmness, emotional balance, and escape from urban congestion and visual disorder.

4.2 Physical Health Outcomes

Motivation to engage in physical activity recorded a strongly positive mean ($M = 4.23$), while feeling physically refreshed or energised also scored strongly positive ($M = 4.26$). However, perceived support of fitness goals through park design and facilities recorded a moderately positive mean ($M = 4.05$). These findings suggest that while parks encourage moderate physical activity, structured fitness infrastructure may vary across sites.

4.3 Observational Findings Assessment

Observational assessment revealed meaningful variation in therapeutic compliance across parks. Some parks scored notably higher on features that support restorative experience such as clear circulation paths, seating, maintenance, perceived safety, and placemaking elements that facilitate calm social use while others exhibited deficits in amenities and inclusive accessibility. This variability implies that psychological benefits may not arise solely from “green presence,” but from the interaction of greenery with design quality, safety, and usability, consistent with salutogenic design arguments (Antonovsky, 1996; Golembiewski, 2022; Trojanowska, 2021).

Importantly, uneven therapeutic quality also relates to the equity concerns raised in Addis Ababa’s green space literature. Studies and municipal reports describe both deficiency and disparity in accessible green/open space provision (AACPPO, 2017; Sileshi & Hailu, 2020). In this study, parks may be broadly perceived as restorative, yet the capacity to deliver consistent therapeutic experience remains uneven across sites, raising questions of mental-health equity in access to high-quality restorative environments.

4.4 Governance and planning implications for therapeutic urbanism

Interview data indicated that park planning and management responsibilities are distributed across multiple city bodies, often with limited coordination and without explicit health-outcome performance standards. This institutional fragmentation can hinder systematic adoption of therapeutic design principles and consistent maintenance. Where parks are assessed primarily by size and location standards rather than psychological outcomes, the restorative potential of urban parks may remain under-optimised (AACPPO, 2017; Trojanowska, 2021). The findings therefore support a shift toward outcome-oriented evaluation frameworks that explicitly incorporate mental well-being and restorative quality as planning metrics.

Collectively, the findings suggest that therapeutic benefits are not solely dependent on vegetation presence but on integrated design, accessibility, and maintenance quality.

5. Conclusion and Recommendations

This article has illustrated how the practical uses of urban parks as therapeutic landscapes or urban healing spaces have been identified empirically in the case of Addis Ababa. It also demonstrates the specific role that urban parks play in improving mental and physical wellbeing from the perspective of park users. In a rapidly urbanising city like Addis Ababa where an urban lifestyle and its adverse effects are increasing, urban parks, if considered deliberately by the public health policy and urban planning, can be better recognized and have the potential to become alternative forms of informal therapeutic or healing infrastructure. Though not commonly planned and designed for therapeutic purposes, the thresholds characterizing urban parks use in the case study city is observed to have a positive emotional improvement and brought a cognitive psychological change to certain individual park users.

The analysis also demonstrates that despite not planned for such purpose, in addition to other functions and uses, Addis Ababa urban parks have already started functioning as informal therapeutic infrastructures contributing to the regulation of some chronic stressors and reduction of non-communicable diseases such as public mental health and depressive symptoms, ADD, anxiety, Alzheimer's and dementia of adults. However, the findings of this study also identified varying design approaches, differential uses, and uneven mental and physical well-being effects of existing urban parks. Also revealed was a lack of integration between age-sensitive universal health outcomes and the existing planning, provision and utilization practices of urban parks in the city. Here, a major issue observed is a failure to explicitly state and integrate age-sensitive and universal health components within the planning, design/development and management of urban parks as therapeutic healing infrastructures. Besides, some other factors: inadequate financial and human resources with limited local knowledge and technical capacity on design standards related to therapeutic healing landscape played a major role. In view of this, lack of demand-based options with universal accessibility, inclusiveness, biodiversity, sensory appeals and appropriate park landscape design are resulting with little health effects and uneven distribution among the urban park users and distant residents. It is therefore asserted that existing citywide standards and guide plans for urban parks need to be subject to review and to integrate other age-sensitive functions, including mental and physical health (AAPCPO, 2017).

Most of the interviewees suggested that government officials might need to consider revising the existing urban parks planning and provision policies and standards, and their investments may need to be better recognised for the importance of delivering supportive healing environments and active lifestyles designed for positive health outcomes. This is mainly for two interrelated purposes: resulting health outcome through the adoption of evidence-based healing landscape standards, and ensuring universal accessibility using age-sensitive demand-based options.

Findings from this study have practical and policy implications for cities like Addis Ababa. An integrated healthy design that guides the planning and development of urban parks has a great potential to create a positive therapeutic healing setting on individuals with varying levels of chronic stressors, strengthen people-place interactions, optimize healthy outcomes and the overall city health. The findings also articulate the need for the integration and evaluation of both mental and physical health components and treating urban parks as healing infrastructure in public health and urban planning sectors. It is possible to conclude that cities could reduce the cost due to certain avoidable mortality and non-communicable diseases (e.g., adult dementia or Alzheimer's, attention deficit disorders and cancer of the colon) if there is sufficient consciousness and investment in the planning and design of urban parks infrastructure with either or all forms of physical, emotional and social co-benefits. Last but not least, this study complements the literature on urban parks as therapeutic healing landscapes/infrastructure. It provides an insight on how and to what extent urban parks can play a role and their planning, development and management practices can be integrated into public health and urban planning in rapidly developing urban settings.

These recommendations are put forward with the recognition that therapeutic urbanism is not only an urban design issue but a public health and planning matter. Prioritizing urban parks and green spaces is one practical and equitable means to reduce mental health burdens and economic costs in Addis Ababa. Ultimately, it is a pathway towards more sustainable, people-centered and resilient Ethiopian cities.

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ANNEXE 2: OBSERVATIONAL ASSESSMENT OF SELECTED PARKS

Source: (Author, 2026)

UNIVERSAL DESIGN	SELECTED PARKS							
	1. Frie ndsh ip Park	2. Hamle 19 park	3. Ethi o- Cub a park	4. Amba ssador Park	5. Gull ele Bota nical Gar den	6. Unity Park	7. Ento to Park	8. Addis Zoo park
1.SUSTAINABILLITY								
1.1.Place								
Area approximately (Ha)	46.42	6.8	2.98	1	705	24.28	1300	36.4
1.2.Environmental characteristics								
Soil quality	1	0	1	0	1	1	0	0
Water quality	1	0	1	0	0	1	0	0
Air quality	1	1	1	1	1	1	1	1
Noise Level	1	1	0	1	1	1	1	1
Forms of nature protection	1	1	1	0	1	0	1	1

Green & Blue infrastructure	1	1	1	1	1	1	1	1
1.3. Biodiversity protection								
Parts of open green space not available to visitors	1	1	0	0	1	1	1	1
Native plants	1	1	1	1	1	1	1	1
Native animals	0	1	0	0	1	1	1	1
Natural maintenance methods	1	1	1	0	1	0	0	1
1.4. Sustainable water management								
Rainwater infiltration	1	1	1	1	1	1	1	1
Irrigation with non-potable water	1	0	0	0	1	1	0	1
1.5. Parks of Second (New) Generation	1	1	1	1	1	1	1	1
1.6. Urban metabolism	1	1	1	1	1	1	1	1
1.7. Ecological energy sources	1	0	0	0	0	1	1	0
2. ACCESSIBILITY								

2.1.Distance to park	1	1	1	1	1	1	1	1
2.2.Sidewalk infrastructure								
Width of sidewalk	1	1	1	1	0	1	1	0
Evenness of surface	1	1	1	1	0	1	1	1
Lack of obstruction	1	1	1	0	1	1	1	1
Slope	0	0	0	1	0	0	0	1
Sufficient drainage	1	0	1	1	0	1	1	0
2.3.General conditions of walkways								
Maintenance	1	1	1	0	0	1	1	0
Overall aesthetics	1	0	1	0	1	1	1	1
Street art	1	1	1	1	1	1	1	1
Sufficient seating	1	0	1	1	0	1	0	1
Perceived safety	1	1	1	1	0	1	1	1
Buffering from traffic	1	1	0	0	1	1	1	1
Street activities	1	1	1	1	1	1	1	1
Vacant lots	1	1	1	1	0	1	0	1
2.4.Traffic								

Speed	1	1	1	0	1	1	1	1
Volume	1	1	0	0	1	1	1	1
Number and safety of crossings	1	1	1	0	0	1	1	0
Stop signs	1	0	0	0	0	1	0	0
On-street parking	0	0	0	1	0	0	1	1
2.5.User Experience								
Air quality	1	1	1	1	1	1	1	1
Noise level	1	1	0	0	1	1	1	1
Sufficient lighting	1	0	1	1	0	1	1	0
Sunshine and shadow	1	1	1	1	1	1	1	1
Visibility of nearby buildings	1	0	1	1	1	1	0	0
2.6.Public transport	0	1	1	1	1	1	1	0
2.7.Sufficient Parking	1	0	0	0	0	1	1	0
3. AMENITIES								
3.1. Psychological and physical regeneration								
Natural landscapes	1	1	1	1	1	1	1	1

Green open space	1	1	1	1	1	1	1	1
Presence of water	1	1	1	1	1	1	1	1
Place to rest in the sun and in the shade	1	1	1	1	0	1	1	1
Place to rest in silence and solitude	1	1	1	0	1	1	1	1
3.2. Physical activity promotion								
Sports infrastructure	1	0	0	0	0	1	1	0
Recreational infrastructure	1	1	0	1	0	1	1	1
Community gardens	1	1	1	1	1	1	1	1
Addressing the needs of people with disabilities	1	1	0	1	0	1	1	0
3.3. Catering for basic needs								
Safety and security (presence of guards, cleanliness, maintenance, etc.)	1	1	1	1	1	1	1	1
Places to sit and relax in quiet	1	1	1	1	1	1	1	1
Shelter	1	1	1	1	0	1	1	1

Restrooms	1	0	0	1	0	1	1	1
Drinking water	1	0	0	0	0	1	1	0
Food (possibility to buy food in the park or close vicinities)	1	0	1	1	0	1	1	1
4. Design								
4.1. Architectural design								
Human scale	1	1	1	1	1	1	1	1
Architectural variety of urban environment	1	0	0	0	1	1	1	0
Focal points and landmarks	1	0	1	0	1	1	1	0
Structure of interiors and connections	1	1	1	1	0	1	1	1
Long vistas (Extent)	1	1	1	1	1	1	1	0
Pathways with views	1	1	1	1	1	1	1	0
Invisible fragments of the scene (Vista engaging the imagination)	1	1	0	0	1	1	1	1
Possibility to observe other people	1	1	1	1	0	1	0	1

Possibility to observe animals	0	1	0	0	1	1	1	1
4.2. Salutogenic design								
Optimal level of complexity	1	0	0	0	0	1	1	0
Engaging features	1	0	1	0	1	1	1	0
Controlled Risk	1	1	1	0	1	1	1	0
Mystery/Fascination	1	1	0	0	1	1	1	0
4.3. Sensory stimuli design								
Sensory stimuli: Sight	1	1	1	1	1	1	1	1
Sensory stimuli: Hearing	1	1	1	1	1	1	1	1
Sensory stimuli: Smell	1	1	1	0	1	1	1	0
Sensory stimuli: Touch	1	0	1	0	1	1	1	1
Sensory stimuli: Taste	0	0	0	0	1	0	0	0
Sensory path	1	1	1	0	1	1	1	1
5. PLACEMAKING								

5.1. Social contact enhancement								
Organization of events	1	1	1	1	1	0	0	0
Meeting places for groups	1	1	1	1	1	1	1	1
5.2. Human perception – spiritual & symbolic								
Sacred places	0	0	0	0	0	0	0	0
Works of Art	1	0	1	1	0	1	1	0
Monuments	0	0	1	0	0	1	1	0
Culture and connections to the past	0	1	1	1	1	1	1	1
Thematic gardens	1	0	0	0	0	1	1	0
Personalisation	1	0	0	0	0	1	1	1
5.3. Community Engagement								
Personalizing the architectural process	1	1	1	1	1	1	1	1
Participation of all stakeholders, including inhabitants and users	0	0	0	0	1	0	1	0

Determining the rules of conduct and self-management	1	0	0	0	0	1	1	0
Space for social contact	1	1	1	1	1	1	1	1
Total (/89)	<i>77</i>	<i>57</i>	<i>59</i>	<i>48</i>	<i>55</i>	<i>79</i>	<i>74</i>	<i>55</i>

ANNEXE 3: A UNIVERSAL STANDARD FOR HEALTH- PROMOTING URBAN PLACES

Source: (Trojanowska,2021)

1.SUSTAINABILITY	2.ACCESSIBILITY	3.AMENITIES	4. DESIGN	5.PLACEMAKING
1.1.Place ✓ Area ✓ Location ✓ Surrounding urban pattern	2.1.Distance to park	3.1.Psychological and physical regeneration ✓ Natural Landscapes ✓ Green open space ✓ Presence of water ✓ Places to rest in the sunshade ✓ Places to rest in silence and solitude	4.1.Architectural design ✓ Human scale ✓ Focal points & landmarks ✓ Structure of interior connections ✓ Framed views ✓ Long vistas (Extent) ✓ Pathways with views	5.1.Enhancement of Social Contacts ✓ Organization of events ✓ Meeting places for groups

			✓ Invisible parts of the scenery (Vistas which engage the imagination) ✓ Possibility to watch other people ✓ Possibility to see wildlife	
1.2.Environmental characteristics ✓ Soil quality ✓ Water quality ✓ Air quality ✓ Noise level ✓ Forms of natural protection	2.2.Sidewalk Infrastructure ✓ Width of sidewalk ✓ Evenness of surface ✓ Lack of obstructions ✓ Slope	3.2.Promotion of Physical Activities ✓ Sports & recreational infrastructure ✓ Community gardens ✓ Addressing the	4.2.Salutogenic design ✓ Optimal levels of complexity ✓ Engaging features ✓ Risk	5.2.Human perception - spiritual and symbolic ✓ Sacred places ✓ Works of Art ✓ Monuments ✓ Culture and

✓ Green and Blue Infrastructure	✓ Sufficient drainage	needs of people with disabilities	✓ Mystery/ Fascination	connections to the past ✓ Thematic gardens ✓ Personalization
1.3.Biodiversity protection ✓ Parts of open green space not available to visitors ✓ Native plants ✓ Native animals ✓ Natural maintenance methods	2.3.General conditions of walkways ✓ Maintenance ✓ Overall aesthetics ✓ Street art ✓ Sufficient seating ✓ Perceived safety ✓ Buffering from traffic ✓ Street activities ✓ Vacant lots	3.3.Catering for basic needs ✓ Safety and security (presence of guards, cleanliness, maintenance, etc.) ✓ Places to sit and rest ✓ Shelter ✓ Restrooms ✓ Drinking water	4.3.Sensory stimuli design ✓ Sensory stimuli: Sight ✓ Sensory stimuli: Hearing ✓ Sensory stimuli: Smell ✓ Sensory stimuli: Touch ✓ Sensory stimuli: Taste ✓ Sensory path	5.3.Community Engagement ✓ Personalizing the architectural process ✓ Participation of all stakeholders, including inhabitants and users ✓ Determining the rules of conduct and self-management ✓ Space for social contacts

		✓ Food (possibility to buy food in the park or in the closest vicinity)		– third places – fourth places
1.4.Sustainable water management ✓ Rainwater infiltration ✓ Irrigation with non-potable water	2.4.Traffic ✓ Speed ✓ Volume ✓ Number and safety of crossings ✓ Stop signs ✓ On-street parking	-	-	-
1.5.Parks of Second (New) Generation	2.5.User Experience ✓ Air quality ✓ Noise level ✓ Sufficient lighting	-	-	-

	✓ Sunshine and shade ✓ Visibility of nearby building			
1.6.Urban metabolism	2.6.Public transport stops	-	-	-
1.7.Ecological energy sources	2.7.Sufficient Parking	-	-	-

ANNEXE 4: SUSTAINABILITY ASSESSMENT & NUMBER OF POINTS

Source: (Trojanowska,2021)

1. SUSTAINABILITY		
1.1.Place		Category with no points
Area, approximately	Provide detailed description	Category with no points
Location	Provide detailed description	Category with no points
Surrounding urban pattern	Provide detailed description	Category with no points
1.2.Environmental characteristics		6
Soil quality	Sufficient for recreational use. No visible traces of pollution	1
Water quality	Sufficient for recreational use. No visible traces of pollution	1
Air quality	Sufficient for recreational use. No visible traces of pollution	1
Noise level	No nuisance to moderate noise nuisance	1
Forms of nature protection	Are there any forms of natural protection?	1

Green and Blue Infrastructure	Does the park form part of the green and blue infrastructure? If YES – 1 point	1
1.3. Biodiversity protection		4
Parts of open green space not available to visitors	Are there any secluded areas for biodiversity protection?	1
Native plants	Planting with native species	1
Native animals	Are there native species present in the park? If YES– 1 point	1
Natural maintenance methods	What kind of methods of maintenance are used? If only natural – 1 point	1
1.4.Sustainable water management		2
Rainwater infiltration	Porous, permeable surfaces.	1
Irrigation with non-potable water	If irrigation with non-potable water is used – 1 point	1
1.5. Parks of Second (New) Generation	Can the park be considered as a park of second (new) Generation	1
1.6. Urban metabolism	Is waste segregation facilitated? If YES – 1 point	1

1.7. Ecological energy sources	Are there ecological energy sources used in the park? If YES – 1 point	1
Total points		15

ANNEXE 5: ACCESSIBILITY ASSESSMENT & NUMBER OF POINTS

Source: (Trojanowska,2021)

2. ACCESSIBILITY		
2.1.Distance to park	Is it possible to walk to park? If YES – 1 point	1
2.2.Sidewalk Infrastructure		5
Width of sidewalk	Sufficient for walking	1
Evenness of surface	Sufficient for walking	1
Lack of obstructions	Lack of obstructions	1
Slope	Flat, no significant slope	1
Sufficient drainage	Sufficient for walking	1
2.3.General conditions of walkways		8
Maintenance	The park is perceived as clean. No visible traces of litter	1
Overall aesthetics	The park is perceived as aesthetically pleasing	1
Street art	The park is perceived as a safe place	1
Sufficient seating	Multiple benches	1
Perceived safety	The park is perceived as a safe place	1

Buffering from traffic	Sufficient	1
Street activities	Occasional events, organized or spontaneous	1
Vacant lots	No vacant lots adjacent to park. The park is perceived as a safe place	1
2.4.Traffic		5
Speed Slow	The park is perceived as a safe place	1
Volume	Moderate. The park is perceived as a safe place	1
Number and safety of crossings	Numerous possibilities for crossing the street	1
Stop signs	Yes. The park is perceived as a safe place	1
On-street parking	Yes. The park is perceived as a safe place	1
2.5.User Experience		5
Air quality	Good. The park is perceived as a safe place	1
Noise level	Moderate. The park is perceived as a safe place	1
Sufficient lighting	Yes, numerous lamps. The park is perceived as a safe place	1
Sunshine and shade	Yes. Trees provide shade	1
Visibility of nearby buildings	Yes. The park is perceived as a safe place	1
2.6.Public transports stops	There are bus stops near the park.	1

2.7.Sufficient Parking	Yes, there are numerous parking spots in the park	1
Total points		26

ANNEXE 6: AMENITIES ASSESSMENT & NUMBER OF POINTS

Source: (Trojanowska,2021)

3.AMENITIES		
3.1.Psychological and physical rejuvenation		5
Natural landscapes	Are there places which give an impression of a pristine natural landscape? If YES – 1 point	1
Green open space	Are there any green open spaces? If YES – 1 point	1
Presence of water	Is there any water in the park? If yes, in what form? If YES – 1 point	1
Places to rest in the sun and shadow	Multiple places to sit and rest in the sun and shadow	1
Places to rest in silence and solitude	Multiple benches to rest and enjoy silence and solitude	1
3.2.Physical Activity Promotion		4
Sports infrastructure	Are there any sports infrastructure in the park? Is it satisfactory for various age groups? If YES – 1 point	1
Recreational infrastructure	Is it satisfactory for various age groups? If YES – 1 point	1

Community gardens	Are there any community gardens? If YES – 1 point	1
Addressing the needs of people with disabilities	Are the pathways wide and even? Is the park area accessible? If YES – 1 point	1
3.3.Catering for basic needs		6
Safety and security (presence of guards, cleanliness, maintenance, etc.)	Assessed as a safe place. If YES – 1 point	1
Places to sit and rest	Are there any? Are they satisfactory? If YES – 1 point	1
Shelter	Are there any? Are they satisfactory? If YES – 1 point	1
Restrooms	Are there any? Are they satisfactory? If YES – 1 point	1
Drinking water	Are there any? Are they satisfactory? If YES – 1 point	1
Food (possibility to buy food in the park or close vicinities)	Are there any? Are they satisfactory? If YES – 1 point	1
Total points		15

ANNEXE 7: DESIGN ASSESSMENT & NUMBER OF POINTS

Source: (Trojanowska,2021)

4. DESIGN		
4.1.Architectural design		10
Human scale	Is the design respecting the human scale? If YES – 1 point	1
Architectural variety of urban environment	Is the Architectural variety observed in the surrounding urban environment? If YES – 1 point	1
Focal points and landmarks	Are there any clear landmarks? If YES – 1 point	1
Structure of interior connections	Is there a clear structure of interior connections? If YES – 1 point	1
Framed views	Are there any? Are they satisfactory? If YES – 1 point	1
Long vistas (unobstructed view extent)	Are there any? Are they satisfactory? If YES – 1 point	1
Pathways with views	Are there any? Are they satisfactory? If YES – 1 point	1

Invisible parts of the scenery (Vistas which engage the imagination)	Are there any? Are they satisfactory? If YES – 1 point	1
Possibility to observe other people	Are there any possibilities to observe other people? Are they satisfactory? If YES – 1 point	1
Possibility to observe animals	Are there any possibilities to observe animals? Are they satisfactory? If YES – 1 point	1
4.2.Salutogenic design		4
Optimal levels of complexity	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Engaging features	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Controlled Risk	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Mystery/Fascination	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
4.3.Sensory stimuli design		6
Sensory stimuli: Sight	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Sensory stimuli: Hearing	Are there any features in this category? Are they satisfactory? If YES – 1 point	1

Sensory stimuli: Smell	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Sensory stimuli: Touch	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Sensory stimuli: Taste	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Sensory path	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Total points		20

ANNEXE 8: PLACEMAKING ASSESSMENT & NUMBER OF POINTS

Source: (Trojanowska,2021)

5. PLACEMAKING		
5.1.Social Contact Enhancement		2
Organization of events	Are there any events organized? Are they popular/ frequented? If YES – 1 point	1
Meeting places for groups	Are there any? Are they satisfactory? If YES – 1 point	1
5.2.Human perception – spiritual & symbolic		6
Sacred places	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Works of Art	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Monuments	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Culture and connections to the past	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Thematic gardens	Are there any features in this category? Are they satisfactory? If YES – 1 point	1
Personalization	Are there any features in this category? Are they satisfactory? If YES – 1 point	1

5.3.Community Engagement		4
Personalizing the architectural process	Are the persons responsible for the design, construction and management known to the public? If YES – 1 point	1
Participation of all stakeholders, including inhabitants and users	Do all stakeholders, including inhabitants and users have a real influence on the design and maintenance through participatory process? If YES – 1 point	1
Determining the rules of conduct and self-management	Are there any rules of conduct and self-management established and publicly available? Are there any information boards with rules of conduct and self-management placed in the public space? Were the rules of conduct and self-management established in a participatory process? Do all stakeholders including inhabitants and users agree upon the common rules of conduct and self-management? If YES – 1 point	1
Space for social contacts	Is there an inclusive, accessible space for social contacts available to all? If YES – 1 point	1
Total points		12

ANNEXE 9: OBSERVATION CHECKLIST

Source: (Trojanowska,2021)

1.Universal design	2.Park's functional program	3.Organizatio n of space & functions	4.Place making	5.Sustain- ability	6.Access to park
1.1.Place ✓ Area ✓ Location ✓ Surrounding urban pattern	2.1.Psychological and physical regeneration ✓ Natural landscapes ✓ Green open space ✓ Place to rest in the sun and in the shade ✓ Place to rest in silence & solitude ✓ Possibility to observe other people ✓ Possibility to observe animals	3.1.The park spatial composition follows the surrounding urban pattern	4.1.Works of art	5.1.Green infrastructure	6.1.Sidewalk infrastructure ✓ Width of sidewalk ✓ Evenness of surface ✓ Lack of obstructions ✓ Slope ✓ Sufficient drainage
1.2.Environmental characteristics	2.2.Social contact enhancement ✓ Organization of events inside the park	3.2.Architectural variety of urban environment	4.2.Monuments in the park	5.2.Parks of Second (New) Generation	6.2.General conditions ✓ Maintenance

✓ Soil quality ✓ Water quality ✓ Air quality ✓ Noise level ✓ Biodiversity ✓ Forms of natural protection	✓ Gathering place for group	✓ Focal points and landmark ✓ Structure of interiors & connection ✓ Long vistas (Extent) ✓ Pathways with views ✓ Invisible parts of the scenery (Vistas which engage the imagination) ✓ Framed views ✓ Human scale			✓ Overall aesthetics ✓ Street art ✓ Sufficient seating ✓ Perceived safety ✓ Buffering from traffic ✓ Street activities ✓ Vacant lots
1.3.Universal accessibility (addressing needs of people with disabilities)	2.3.Physical activity promotion ✓ Sports infrastructure ✓ Recreational infrastructure	3.3.Optimal levels of complexity	4.3.Historic places ✓ Culture & connection to the past	5.3.Biodiversity protection ✓ Part of park not available to visitors	6.3.Traffic ✓ Speed ✓ Volume ✓ Number & safety of crossings

	✓ Community gardens			✓ Native plants ✓ Native animals ✓ Natural maintenance methods	✓ On-street parking
1.4. Access to park ✓ Distance to potential users ✓ Public transport stops ✓ Walkways to park	2.4. Catering for basic needs ✓ Safety and security (presence of guards, cleanness, maintenance, etc.) ✓ Places to sit and relax in quiet ✓ Shelter ✓ Restroom ✓ Drinking water ✓ Food (possibility to buy food in the park or close vicinities)	3.4. Natural surfaces	4.4. Thematic gardens	5.4. Sustainable water management ✓ Rainwater infiltration ✓ Irrigation with non-potable water	6.4. User experience ✓ Air quality ✓ Noise level ✓ Sufficient lighting ✓ Sunshine and shade ✓ Transparency of ground floors of building

-	2.5.User Experience ✓ Air quality ✓ Noise level ✓ Sufficient lighting ✓ Sunshine and shade ✓ Visibility of nearby building	3.5.Engaging features ✓ Risk/Peril Movement	4.5.Personalization	5.5.Urban metabolism	-
-	2.6.Public transport stops	3.6.Presence of water	4.6.Animation of place	5.6.Ecological energy sources	-
-	2.7.Sufficient Parking	3.7.Sensory stimuli design ✓ Sensory stimuli: Sight ✓ Sensory stimuli: Hearing ✓ Sensory stimuli: Smell ✓ Sensory stimuli: Touch	4.7.Community engagement ✓ Personalizing the architectural process ✓ Participation of all stakeholders, including inhabitants and users ✓ Determining the rules of conduct and self-	-	-

		✓ Sensory stimuli: Taste ✓ Sensory path	managem nt ✓ Space for social contact -third places -fourth places		
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ANNEXE 10: QUESTIONNAIRE

Questionnaire

ADDIS ABABA UNIVERSITY

COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT

SCHOOL OF BUILT ENVIRONMENT

Department of Urban and Regional Planning

Data Collection Questionnaire

This questionnaire will be used as a data collection tool for a research study under a M.Sc. program at the Addis Ababa University, College of Technology and Built Environment, School of built environment. The researcher is conducting a study in Addis Ababa city urban parks to explore the therapeutic role of urban parks on mental and physical health with a research title “Exploring the therapeutic role of urban parks on mental and physical health of city residents: The case of Addis Ababa”. The researcher would like to ask you a few questions. Dear respondent, she would like to assure you that your response will only be used for the intended purpose and remain confidential for your purpose.

This questionnaire was prepared by Blen Shimengus and was supervised by Mr. Wondwossen D. (PhD candidate)

Dear respondent please;

- *Read the statements carefully*
- *Answer the question wisely and clearly*
- *Mark ‘X’ in the box that corresponds to your choice in the question*
- *Write your answer in the space provided for the descriptive questions*

Thank you for your willingness!

Demographic Data

1. Sex

☐

Male

☐

Female

2. Age

☐

13-19

☐

20-34

☐

35-54

☐

55 +

3. Length of residency in Addis Ababa

☐

0-10

☐

10-30

☐

> 30

Frequency of Park Use

1. How often do you visit this green space?

☐

Daily

☐

Weekly

☐

Monthly

☐

Rarely

2. How long do you usually spend in this green space per visit?

☐

< 30 minutes

☐

30 minutes to 1 hour

☐

1-2 hours

☐

> 2 hours

3. What activities do you engage in while in this green space? (Select all that apply)

☐

Walking/jogging

☐

Socializing with friends or family

☐

Relaxation or meditation

☐

Exercising

☐

Reading or working

Other (please specify) _____

Perception of mental health benefits

4. To what extent do you agree with the following statements about this green space?

- It helps me reduce stress and feel relaxed.
- It improves my mood and mental clarity.
- Spending time here makes me feel more connected to nature.
- It provides a sense of peace and calm in a busy urban environment.

☐☐☐☐☐

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

5. How does visiting this green space impact your mental well-being?

6. Can you describe any specific experiences in this space that positively affected your mental health?

Perception of physical health benefits

7. To what extent do you agree with the following statements?

- This green space motivates me to engage in physical activities (e.g., walking, jogging, or exercising).
- The design and facilities of this green space support my physical fitness goals.
- Spending time here helps me feel physically refreshed and energized.

☐

Strongly Agree

☐

Agree

☐

Neutral

☐

Disagree

☐

Strongly disagree

8. Which features of this green space do you think most contribute to physical health?

☐

Walking paths

☐

Exercise equipment

☐

Open spaces for activities

☐

Accessibility and proximity

☐

Clean air and natural surroundings

9. How does this green space encourage you to stay physically active? _____

10. Are there any barriers that prevent you from using this space for physical activities?

Overall Perception and Suggestions

11. Do you feel this green space is well-maintained and safe for regular use?

☐

Yes

☐

No

12. Would you recommend this green space to others for mental and physical health benefits?

☐

Yes

☐

No

13. What do you think are the strongest features of this park? _____

14. What improvements would you suggest to enhance its contribution to mental and physical health? _____

ANNEXE 11: AMHARIC VERSION OF THE QUESTIONNAIRE

መጠይቅ

አዲስ አበባ ዩኒቨርሲቲ

የቴክኖሎጂ እና የግንባታ አካባቢ ትምህርት ቤት

የከተማ እና የክልል ፕላን መረጃ ትምህርት ክፍል

የውሂብ ስብስብ መጠይቅ

ይህ መጠይቅ በ M. Sc መርሃግብር በ በአዲስ አበባ ዩኒቨርሲቲ የቴክኖሎጂ እና የግንባታ አካባቢ ኮሌጅ፣ ስር ላለው የምርምር ጥናት እንደ መረጃ መሰብሰቢያ ዘዴ ሆኖ ጥቅም ላይ ይውላል፡፡ ተመራማሪው ተመራማሪው በአዲስ አበባ ከተማ ፓርኮች በአእምሮ እና በአካል ጤና ላይ ያላቸውን የህክምና ሚና ለመዳሰስ በአዲስ አበባ ከተማ አረንጓዴ ቦታዎች ላይ “የከተማ ፓርኮች በከተማ ነዋሪዎች የአእምሮ እና የአካል ጤና ላይ ያላቸውን ቴራፒዩቲክ ሚና ማሰስ፡ የአዲስ አበባ ጉዳይ” በሚል ርዕስ ጥናት እያካሄዱ ነው፡፡ ተመራማሪው ጥቂት ጥያቄዎችን ሊጠይቁት ይፈልጋል፡፡ ውድ ምላሽ ሰጪ ተመራማሪዎች መልሳችሁ ለታለመለት ተግባር ብቻ ጥቅም ላይ የሚውሉ እና ለርስዎ ዓላማ ሚስጥራዊ ሆነው እንደሚቆዩ ልታረጋግጡት ትወዳለች፡፡

ይህ መጠይቅ የተዘጋጀው በብሉን ሽመንጉስ ሲሆን አቶ ወንድወሰን ዲ. (የዶክትሬት እጩ) ተቆጣጥሮታል፡፡

ውድ መልስ ሰጪ እባካችሁ፤

- ነጥቦቼን በጥንቃቄ ያንብቡ
- ጥያቄውን በጥበብ እና በግልፅ ይመልሱ
- በጥያቄ ውስጥ ከምርጫዎ ጋር በሚመሳሰል ሳጥን ውስጥ 'X' ብለው ያቅልሙ
- ለዝርዝር ጥያቄዎች በተሰጠው ቦታ ላይ መልስዎን ይጻፉ

ስለ ፈቃደኝነትዎ እናመሰግናለን!

የሰነዱ መረጃ

1. ፆታ

ወንድ

ሴት

2. ዕድሜ

13-19

20-34

35-54

55 +

3. አዲስ አበባ ውስጥ ምን ያህል ጊዜ ኖሩ?

0-10

10-30

> 30

ወደ-ጽሑፋዊ ጥያቄዎች

1. ይህንን አረንጓዴ ቦታ ምን ያህል ጊዜ ይጎበኛሉ?

ዕለታዊ

ሳምንታዊ

ወርሃዊ

አልፎ አልፎ

2. በጉብኝት እዚህ አረንጓዴ ቦታ ምን ያህል ጊዜ ያሳልፋሉ?

< 30 ደቂቃ

30 ደቂቃ እስከ 1 ሰአት

1-2 ሰአት

> 2 ሰአት

3. በዚህ አረንጓዴ ቦታ ውስጥ ምን ዓይነት እንቅስቃሴዎችን ያደርጋሉ? (የሚመለከተውን ሁሉ ይምረጡ)

☐ መራመድ/መሮጥ

☐ ከጓደኞች ወይም ከቤተሰብ ጋር መገናኘት

☐ መዝናናት ወይም ማሰላሰል

☐ የአካል ብቃት እንቅስቃሴ ማድረግ

☐ ማንበብ ወይም መሥራት

ሌላ (እባክዎ ይግለጹ) _____

የአእምሮ ጤና ጥቅሞች ግንዛቤ

4. ስለዚህ አረንጓዴ ቦታ በሚከተሉት መግለጫዎች ምን ያህል ይስማማሉ?

- ጭንቀት እንዲቀንስ እና መዝናናት እንዲሰማኝ ይረዳኛል።
- ስሜቴን እና የአዕምሮዬን ግልጽነት ያሻሽላል።
- እዚህ ጊዜ ማሳለፍ ከተፈጥሮ ጋር የበለጠ እንደተገናኘሁ እንዲሰማኝ አድርጎኛል።
- በተጨማሪም የከተማ አካባቢ የሰላምና የመረጋጋት ስሜት ይፈጥራል።

☐☐☐☐☐

በጣም እስማማለሁ

እስማማለሁ

ገለልተኛ

አልስማማም

በጣም አልስማማም

5. ይህንን አረንጓዴ ቦታ መጎብኘት በአእምሮ ደህንነትዎ ላይ ምን ተጽዕኖ ያሳድራል?

6. በአእምሮ ጤንነትዎ ላይ በጎ ተጽዕኖ የሚያሳድሩትን በዚህ ቦታ ያሉ ልዩ ልምዶችን መግለጽ ይችላሉ?

ስለ አካላዊ ጤንነት ጥቅሞች ግንዛቤ

7. በሚከተሉት መግለጫዎች ምን ያህል ይስማማሉ?

- ይህ አረንጓዴ ቦታ በአካል ብቃት እንቅስቃሴ እንድሳተፍ ያነሳሳኛል (ለምሳሌ በእግር መሄድ፣ መሮጥ ወይም የአካል ብቃት እንቅስቃሴ ማድረግ) ።
- የዚህ አረንጓዴ ቦታ ዲዛይን እና መገልገያዎች የአካል ብቃት ግቦፍን ይደግፋሉ።
- እዚህ ጊዜ ማሳለፍ አካላዊ እድሳት እና ጉልበት እንዲሰማኝ ይረዳኛል።

☐ በጣም እስማማለሁ
 ☐ እስማማለሁ
 ☐ ገለልተኛ
 ☐ አልስማማም
 ☐ በጣም አልስማማም

8. ለአካላዊ ጤንነት የበለጠ አስተዋጽኦ የሚያደርጉት የዚህ አረንጓዴ ቦታ ባህሪያት የትኞቹ ናቸው ብለው ያስባሉ??

- ☐ የእግር ጉዞ መንገዶች
☐ የአካል ብቃት እንቅስቃሴ መሳሪያዎች
☐ ለእንቅስቃሴዎች ክፍት የሆኑ ቦታዎች
☐ ተደራሽነት እና ቅርበት
☐ ንጹህ አየር እና የተፈጥሮ አካባቢ

9. ይህ አረንጓዴ ቦታ በአካል ንቁ እንድትሆኑ የሚያበረታታዎት እንዴት ነው? _____

10. ይህንን ቦታ ለአካል ብቃት እንቅስቃሴ እንዳትጠቀም/ሚ የሚከለክሉ/ሽ እንቅፋቶች አሉ? _____

አጠቃላይ ግንዛቤ እና ጥቆማዎች

11. ይህ አረንጓዴ ቦታ በጥሩ ሁኔታ የተያዘ እና ለመደበኛ አገልግሎት ደህንነቱ የተጠበቀ እንደሆነ ይሰማዎታል?

☐
 አዎ

☐
 አይደለም

12. ይህን አረንጓዴ ቦታ ለአእምሯዊ እና አካላዊ ጤንነት ጥቅማጥቅሞች ለሌሎች ይመክራሉ??

☐
 አዎ

☐
 አይደለም

13. የዚህ አረንጓዴ ቦታ በጣም ጠንካራ ባህሪያት ምን ይመስላችኋል? _____

14. በአእምሯዊ እና በአካላዊ ጤንነት ላይ ያለውን አስተዋፅኦ ለማሳደግ ምን ማሻሻያዎችን ይመክራሉ?

ANNEXE 12: INTERVIEW GUIDE

Key Informant Interview Questions

ADDIS ABABA UNIVERSITY

COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT

SCHOOL OF BUILT ENVIRONMENT

Department of Urban and Regional Planning

Data Collection Interview Questions

This Interview will be used as a data collection tool for a research study under an M.Sc. program at the Addis Ababa University, College of Technology and Built Environment, School of Built Environment. The researcher is conducting a study in Addis Ababa city urban parks to explore the therapeutic role of urban parks on mental and physical health with a research title “Exploring the therapeutic role of urban parks on mental and physical health of city residents: The case of Addis Ababa”. The researcher would like to ask you a few questions. Dear respondent, she would like to assure you that your response will only be used for the intended purpose and remain confidential for your purpose.

This key informant interview guide was prepared by Blen Shimengus and was supervised by Mr. Wondwossen D. (PhD candidate). It is prepared to be conducted among the concerned authority of Addis Ababa city government construction bureau, Addis Ababa City Administration public recreational areas corporation and rise Architectural consultancy firm.

Personal information

1. Name

2. Workplace

3. Position

1. How does your office incorporate evidence-based therapeutic principles, such as nature-based interventions or green space design, in the planning and development of urban parks? Can you provide examples of where these principles have been successfully implemented?

2. What role do mental and physical health outcomes play in the decision-making process when designing urban parks? Are there specific strategies or criteria that prioritize these outcomes?

3. In your experience, what are the main challenges in integrating health-promoting features into urban park planning, and how does your office address these challenges?

4. Are there any collaborations with health professionals, psychologists, or environmental experts in your urban park projects to ensure that therapeutic principles are effectively incorporated? If so, could you share any examples?
5. How do you measure the success of therapeutic design elements in parks? Are there any assessments or feedback mechanisms in place to evaluate their impact on community well-being?

6. Do current urban planning policies provide sufficient support for the integration of mental and physical health considerations in park design, or are there gaps that need to be addressed?

7. How does your office engage with the local community to understand their needs and preferences related to health and well-being in urban parks? Are these community inputs factored into the design process?

8. What future developments or policy changes do you envision for integrating therapeutic and health-promoting elements into urban parks, and how can urban design practices evolve to better support mental and physical well-being?

ANNEXE 13: AMHARIC VERSION OF THE INTERVIEW GUIDE

ቃለመጠይቅ

አዲስ አበባ ዩኒቨርሲቲ

የቴክኖሎጂ እና የግንባታ አካባቢ ትምህርት ቤት

የከተማ እና የክልል ፕላን መረጃ ትምህርት ክፍል

የውሂብ ስብስብ መጠይቅ

የውሂብ ስብስብ ቃለመጠይቅ ጥያቄዎች

ይህ ቃለ መጠይቅ በ M. Sc መርሃግብር በ አዲስ አበባ ዩኒቨርሲቲ የቴክኖሎጂ እና የግንባታ አካባቢ ኮሌጅ፣ ስር ላለው የምርምር ጥናት እንደ መረጃ መሰብሰቢያ ዘዴ ሆኖ ጥቅም ላይ ይውላል። ተመራማሪው ተመራማሪው በአዲስ አበባ ከተማ ፓርኮች በአእምሮ እና በአካል ጤና ላይ ያላቸውን የህክምና ሚና ለመዳሰስ በአዲስ አበባ ከተማ አረንጓዴ ቦታዎች ላይ “የከተማ ፓርኮች በከተማ ነዋሪዎች የአእምሮ እና የአካል ጤና ላይ ያላቸውን ቴራፒዩቲክ ሚና ማሰስ፡ የአዲስ አበባ ጉዳይ” በሚል ርዕስ ጥናት እያካሄዱ ነው። ተመራማሪው ጥቂት ጥያቄዎችን ሊጠይቁት ይፈልጋል። ውድ ምላሽ ሰጪ ተመራማሪዎች መልሳችሁ ለታለመለት ተግባር ብቻ ጥቅም ላይ የሚውሉ እና ለርስዎ ዓላማ ሚስጥራዊ ሆነው እንደሚቆዩ ልታረጋግጥሎት ትወዳለች።

ይህ ቃለመጠይቅ የተዘጋጀው በብሌን ሽመንጉስ ሲሆን አቶ ወንድወሰን ዲ. (የዶክትሬት እጩ) ተቆጣጥሮታል። ይህ ቃለ መጠይቅ የአዲስ አበባ ከተማ አስተዳደር ግንባታ ቢሮ የአዲስ አበባ ከተማ አስተዳደር ፣ የህዝብ መዝናኛ ቦታዎች አስተዳደር ኮርፖሬሽን እና ራይስ የሥነ ሕንፃ አማካሪ ድርጅት ውስጥ ለሚገኙ የሚመለከታቸው አካላት ዘንድ እንዲካሄድ ተዘጋጅቷል።

የግል መረጃ

1. ስም

2. የሥራ ቦታ

3. ስልጣን

1. ቢሮዎ በከተሞች ፓርኮች እቅድ እና ልማት ላይ በማስረጃ ላይ የተመሰረቱ ቴራፒዩቲክ መርሆችን ለምሳሌ ተፈጥሮን መሰረት ያደረገ ወይም የአረንጓዴ ቦታ ዲዛይን እንዴት ያጠቃልላል? እነዚህ መርሆዎች በተሳካ ሁኔታ የተተገበሩባቸውን ምሳሌዎች ማቅረብ ይችላሉ?

2. የከተማ ፓርኮችን ሲነድፉ የአእምሮ እና የአካል ጤና ውጤቶች በውሳኔ አሰጣጥ ሂደት ውስጥ ምን ሚና አላቸው? ለእነዚህ ውጤቶች ቅድሚያ የሚሰጡ ልዩ ስልቶች ወይም መስፈርቶች አሉ?

3. በተሞክሮ ጤናን የሚያስፋፉ ባህሪያትን ከከተማ መናፈሻ ፕላን ጋር በማዋሃድ ረገድ ዋና ዋና ተግዳሮቶች ምንድን ናቸው እና ቢሮዎ እነዚህን ተግዳሮቶች እንዴት ይቀርፋል?

4. በከተሞች ፓርክ ፕሮጀክቶች ውስጥ ከጤና ባለሙያዎች፣ ከሳይኮሎጂስቶች ወይም ከአካባቢ ጥበቃ ባለሙያዎች ጋር የቴራፒዩቲክ ዲዛይን መርሆችን ውጤታማ በሆነ መንገድ መካተታቸውን ለማረጋገጥ ምን አይነት ትብብር አለ? ከሆነ፣ ምሳሌ ማጋራት ትችላለህ?

5. በፓርኮች ውስጥ የቴራፒዩቲክ ዲዛይን መርሆች ስኬት እንዴት ይለካሉ? በማህበረሰቡ ደህንነት ላይ ያላቸውን ተፅእኖ ለመገምገም የተሰጡ ግምገማዎች ወይም የአስተያየት ዘዴዎች አሉ?

6. አሁን ያሉት የከተማ ፕላን ፖሊሲዎች የአእምሮ እና የአካል ጤና መርሆችን በፓርክ ዲዛይን ውስጥ ለማዋሃድ በቂ ድጋፍ ይሰጣሉ ወይስ መስተካከል ያለባቸው ክፍተቶች አሉ?

7. ቢሮዎ ከአካባቢው ማህበረሰብ ጋር በከተሞች ፓርኮች ከጤና እና ደህንነት ጋር የተያያዙ ፍላጎቶቻቸውን እና ምርጫዎቻቸውን እንዴት ይገነዘባሉ? እነዚህ የማህበረሰብ ግብአቶች በዲዛይን ሂደት ውስጥ የተካተቱ ናቸው? _____
8. ቴራፒዩቲካል እና ጤና አጠባበቅ መርሆችን ከከተማ መናፈሻዎች ጋር ለማዋሃድ ምን አይነት የወደፊት እድገቶች ወይም የፖሊሲ ለውጦች አስበዋል እና የከተማ ዲዛይን ልምዶች የአዕምሮ እና የአካል ደህንነትን በተሻለ ሁኔታ ለመደገፍ እንዴት ሊሻሻሉ ይችላሉ? _____

ANNEXE 14: 8-DAY SAMPLING SCHEDULE

Day	Park name	Survey time	Survey location	Target respondents	Sample size
Day 1	Hamle 19	7:00-9:00 AM	Entrance	Morning walkers, elderly	7
		3:00-5:00 PM	Picnic areas & benches	Families, couples, casual visitors	7
Day 2	Ethio-cuba Friendship park	9:00-11:00 AM	Memorial area & entrance	Students, history enthusiasts	9
		5:00-7:00 PM	Walkways & open spaces	Office workers, evening walkers	8
Day 3	Ambassador park	7:30-10:00 AM	Café & seating areas	Middle-aged visitors, tourists	9
		4:00-6:30 PM	Playground & family zones	Parents with children	8
Day 4	Gullele botanical garden	8:00-11:00 AM	Main entrance & nature trails	Nature lovers, students, researchers	17
		2:30-5:30 PM	Picnic areas & educational zones	Families, casual visitors	17

Day 5	Addis Zoo	9:00-12:00 PM	Seating areas & pathways	Families, school groups, tourists	11
		3:00-6:00 PM	Zoo entrance & animal enclosure	Youth groups, casual visitors	10
Day 6	Friendship Park	7:00-10:00 AM	Entrance & green spaces	Early visitors, fitness groups	66
		4:00-7:00 PM	Walking trails & fountains	Families, workers, social groups	65
Day 7	Entoto Park	8:00-11:00 AM	Scenic view points & adventure areas	Tourists, hikers, families	35
		3:00-6:00 PM	Restaurants & resting areas	Casual visitors, city dwellers	34
Day 8	Unity park	7:30-10:30 AM	Historical sites & entrance	Tourists, history enthusiasts, families	35
		3:00-6:30 PM	Benches & open spaces	Youth groups elderly visitors	34