

# Investigation of Urban Planning In Improving The Life Quality

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**Abstract**—As the technology makes progress, it will be so important to improve human being life quality. However, the links between the built environment and subjective well-being are not sufficiently understood. This paper reviews the evidence on the range of pathways linking the built environment to subjective well-being. three potential pathways are identified and reviewed: (1) travel, (2) leisure, (3) work. Based on this knowledge, the paper presents an overview of strategies for improving subjective well-being through urban planning. Among others, proposed strategies are to: enhance conditions for active travel; improve public transport while restricting cars; provide easy access to facilities and services; develop or steer technology and emerging mobility options to improve inclusiveness and quality of life for different groups; integrate various forms of urban nature as much as possible; provide accessible, inclusive public spaces and communal spaces; maintain upkeep and order in urban space, vegetation, and transport systems; implement noise reduction strategies; develop aesthetically pleasing buildings and public spaces based on residents' needs and preferences.

**Keywords**—urban planning, Life quality strategy, travel

## I. INTRODUCTION

Improving quality of life in cities is becoming an increasingly critical issue for urban planning. The rise of urban populations worldwide, caused by rapid population growth and urbanization processes, makes urban quality of life relevant to more and more people. At the same time, the physical characteristics of cities change to accommodate new residents. The Coronavirus disease (COVID-19) pandemic has also exerted a fundamental influence on the quality of life of almost every resident in every city around the world. A deeper knowledge on the relationship between the built environment and quality of life in cities can play a catalytic role in shaping present and future urban development. Knowledge on the ways in which the built environment can influence quality of life is growing rapidly. Several researchers have attempted to synthesize

knowledge on how to improve quality of life via urban planning. Marans and Stimson (2011) provided an overview of how to measure and analyze the relationships between urban environments and quality of life. Kent and Thompson (2014) synthesized literature and suggested that the built environment can contribute to health and wellbeing via three pathways: physical exercise, community social cohesion, and equitable access to healthy food. Pfeiffer and Cloutier (2016) provided an overview of the main drivers of happiness in neighborhoods including, among others, open, natural, and green spaces, and urban design that fosters social interaction and safety. Wang and Wang (2016) provided an overview of theories and empirical evidence on how the geographical context may shape subjective well-being (SWB). Mouratidis (2018c) provided a conceptual framework explaining how the neighborhood-scale built environment may influence SWB through four pathways: social relationships, leisure, health, and affective experience. Shekhar et al. (2019) suggested that well-being in human settlements is shaped by four drivers: participation and engagement, access, identity, and safety. More recently, Tonne et al. (2021) reviewed evidence on urbanization and health and suggested a set of actions to promote health through sustainable urban development: integrated planning, evidencebased policy-making, and monitoring the implementation of policies. Nevertheless, the whole range of ways through which the built environment may contribute to SWB – the personal evaluation of quality of life (Diener, Oishi, & Tay, 2018) – is still not sufficiently understood. There is a lack of a holistic conceptualization that includes all the major pathways between the built environment and SWB. Previous studies have proposed conceptualizations that do not completely capture the range of relevant pathways. Some pathways included in one study are not captured by another, and vice versa (see e.g. Kent & Thompson, 2014; Mouratidis, 2018c; Pfeiffer & Cloutier, 2016), and some possible pathways have been ignored. Moreover, as new evidence on the built environment and SWB is constantly being produced, there is a need for an

updated synthesis of empirical evidence. The paper attempts to address these gaps by presenting a new organization of the pathways linking the built environment to SWB and by providing an overview of the state of knowledge. The objectives of the paper are: (1) to present a conceptual model that organizes the pathways linking the built environment to SWB, (2) to provide an overview of the empirical evidence on these pathways, and (3) based on the knowledge from the overview, to present potential strategies on how to improve SWB through urban planning. The outcomes of this paper may provide updates and refinement to existing literature and conceptual models on the built environment and SWB and can be used as theoretical and methodological guidance for further empirical research. Besides its scientific contribution, this paper provides suggestions on urban planning strategies that could guide practitioners, policy makers, and decision makers who work on urban planning issues. It aims to shed further light on practical ways to improve quality of life in cities by improving the most relevant life domains through the built environment. The review presented in the paper is based on a qualitative interpretation of research evidence. Due to the broad scope of the topic and the large number of relevant studies, the review is a synthesis of literature that presents an overview of the state of knowledge. It is not an exhaustive review of each pathway included in the conceptual model. The review assessed around 150 relevant studies. The focus was mostly on peer-reviewed articles published in international journals. This ensured that the literature covered in the review is more manageable. On some occasions, a few books, book chapters, and reports were also included to complement peer-reviewed evidence. The literature search was based on identifying relevant literature review papers and highly relevant empirical papers and performing backward snowballing. This was supplemented by a search in scientific databases. Several relevant papers had to be excluded to keep the literature manageable. The review is however expected to cover the main trends found in the existing empirical evidence. The paper is structured as follows. Section 2 presents the conceptual model of the review, displaying the pathways linking the built environment to SWB. Section 3 presents a review of the empirical evidence on the pathways linking the built environment to SWB. Section 4 presents potential strategies on how to improve SWB through urban planning. Section 5 summarizes and discusses the findings and provides concluding remarks.

## II. CONCEPTUAL MODEL

The model was developed analytically, by synthesizing earlier conceptual frameworks (Marans, 2003; Mouratidis, 2018c) and recent empirical findings (Mouratidis, 2020a). In this section, the model is described briefly in general terms. In the following sections below, the model is employed to structure the literature review and to develop recommendations for urban planning strategies. SWB comprises life satisfaction (i.e. contentment with life overall), emotional well-being (also called affect or hedonic well-being), and eudaimonia (i.e. self-actualization and meaning in life) (OECD, 2013; Sirgy, 2012). By encompassing measures of overall life evaluation as well as emotions at specific time points, SWB is a reliable, scientific way to measure trends in quality of life and has become a public policy goal worldwide (Diener, Oishi, & Tay, 2018; OECD, 2013; Veenhoven, 2012). The built environment refers to the physical human-made environment where human activity occurs. Its components can be organized in several ways. The distinction used here is: land use, transport systems, urban design, and housing. The built environment can influence SWB through pathways that mostly correspond to life domains (Marans, 2003; Mouratidis, 2018c). Life domains all contribute to SWB (Diener, Oishi, & Tay, 2018; Sirgy, 2012). SWB can also contribute to life domains, but this reverse relationship is not examined in the model. Life domains may also influence each other, having what is called "spill-over effects" (Sirgy, 2012). These interconnections are explained in the sections below but are not shown in the model to reduce complexity. The pathways linking the built environment to SWB are organized in the conceptual model in seven domains. The organization of these seven pathways is novel, but is also inspired by previous conceptual frameworks (Marans, 2003; Mouratidis, 2018c). The seven pathways linking the built environment to SWB are: travel, leisure, work, social relationships, residential well-being, emotional responses, and health. These are considered major life domains based on several different conceptualizations (Diener, 2009; Sirgy, 2012). There are certain life domains not included in or not captured by the conceptual model such as civic duties and rights, spirituality, and religion. The potential links from the built environment to such life domains are not clear and not backed up by adequate empirical evidence so they were excluded from this review. Other aspects that may influence SWB include sociodemographic characteristics, personality traits, and human values (Diener, 2009; Diener, Oishi, & Tay, 2018).

These are, nevertheless, moderators of the link between the built environment and SWB, and not mediating pathways (Ballas & Tranmer, 2012; Jokela et al., 2015; Morrison & Weckroth, 2017). The seven pathways identified in this review represent life domains that are all influenced by the built environment in distinct – and to some extent overlapping – ways, as explained below.

### III. PATHWAYS BETWEEN BUILT ENVIRONMENT AND SUBJECTIVE WELLBEING: AN OVERVIEW

#### A. *Travel*

Travel can influence all SWB components – life satisfaction, emotional well-being, and eudaimonia (De Vos et al., 2013; De Vos & Witlox, 2017). A way to, at least partially, assess the influence of travel on SWB is to measure the level of satisfaction with travel (travel satisfaction). Travel satisfaction has been measured with unidimensional or multidimensional scales, cognitive and/or affective items, and momentary and/or general assessments (Friman et al., 2013; Olsson et al., 2013; Susilo & Cats, 2014). Travel satisfaction mainly depends on travel time and travel mode, but also on a wide range of factors such as safety, comfort, and cleanliness (Chatterjee et al., 2020; Ettema et al., 2016). Short travel times and active travel modes are associated with increased travel satisfaction (Ettema et al., 2016; Morris & Guerra, 2015; Mouratidis et al., 2019). Compact urban form is conducive to increased travel satisfaction, as it may reduce travel times and promote walking and cycling (Mouratidis et al., 2019). Information and communications technology and new mobility options can change travel and travel experience in cities and could potentially provide opportunities to improve inclusiveness and quality of life (Lyons et al., 2018). Travel to the main occupation and travel for other purposes are linked to SWB in a variety of ways (Chatterjee et al., 2020; Clark et al., 2019; Ettema et al., 2010; Friman et al., 2017) that may not be completely captured by “travel satisfaction” measurements. (1) Travel enables people to access places, facilities, and services, and thereby participate in activities and cover their needs. (2) It generates emotional responses – for example, stressful or pleasant trips – and therefore influences emotional well-being. (3) It may enable or constrain physical activity – for example, active travel such as walking and cycling versus sedentary travel – and thereby may influence health outcomes which in turn contribute to SWB. (4) It has spill-over effects on other domains such as leisure, work, health, and residential well-being.

Travel allows people to meet other people, access their workplace, visit shops, and access healthcare, educational, recreational, sport, and cultural facilities and services. These access options contribute to needs satisfaction and enable people to fulfill their potential and achieve eudaimonia. Needs satisfaction and eudaimonia may in turn also contribute to emotional well-being. Built environments that facilitate

travel to places, facilities, and services are conducive to increased SWB (Leyden et al., 2011). Land use, transport systems, and urban design may act synergistically to facilitate travel (Næss et al., 2019). Studies have shown that the higher the accessibility to facilities, to public transport, and to green space, the more satisfying the daily travel (Dong et al., 2016; Feng et al., 2017). Transport disadvantage, on the other hand, that restricts access to all these options may hinder SWB (Delbosc & Currie, 2011). Information and communications technology now offers plenty of options for multi-tasking during travel (Kenyon & Lyons, 2007). People are thus able to perform more than two activities at the same time; for example, travel and telework, travel and socialize online, travel and perform educational or recreational activities. Travel and in-person participation in activities have been hampered during the COVID-19 pandemic. This triggered a strong boost in online remote activities such as telework, teleconferencing, online shopping, telehealth, online learning, teleleisure, and video calls (e.g. Marcucci et al., 2021; Pierce et al., 2020). The widespread adoption of these online activities leads to changes in cities and in the way people travel (Mouratidis et al., 2021) and may have implications for SWB in the post-COVID-19 period.

Travel not only serves the purpose of allowing participation in activities, but also may also directly influence emotional well-being by generating positive or negative emotions. Active travel such as walking and cycling is the most pleasant way of travel (Mouratidis et al., 2019; Smith, 2017; Wild & Woodward, 2019), while car driving is found to be the least pleasant and the most stressful travel mode, at least in certain cases (Legrain et al., 2015; Mouratidis et al., 2019). Higher neighborhood densities, proximity to city center, local amenities, mixed land uses, walkability, public transport density, and a high variety of transport systems have all been found to promote active travel such as walking and cycling (de Nazelle et al., 2011; Durand et al., 2011; Næss et al., 2019; Sallis et al., 2016). Increased travel times, especially for commuting, are found to induce negative affective reactions and increase stress (Chatterjee et al., 2020; Morris & Guerra, 2015). Compact urban forms that enable shorter distances to destinations are associated with reduced travel times, especially when they are accompanied by increased walkability, efficient public transport, and restrictions in car travel (Mouratidis et al., 2019).

By enabling the use of certain travel modes, the built environment can also influence physical activity during travel. Built environments that promote walking and cycling may have a positive impact on physical activity and physical health. Especially walking-inclined individuals are enabled to walk more in walkable environments (Frank et al., 2007). Compact environments characterized by higher densities, mixed-uses, proximity to destinations, and focus on active travel and public transport instead of car use are associated with increased walking and cycling

(e.g. Ewing & Cervero, 2010; Mouratidis, 2019a; Saelens & Handy, 2008; Stefansdottir et al., 2019; Stevenson et al., 2016). Increased access to public transport can also by itself contribute to increased walking to and from public transport stops and thereby help promote and maintain active lifestyles (Besser & Dannenberg, 2005; Freeland et al., 2013; Sallis et al., 2016). On the other hand, car-oriented, low-density environments are linked to more car travel and longer driving distances (Næss, 2012; Newman & Kenworthy, 1989). Urban design qualities related to street design, pedestrian environment, safety features, and adjacent land uses may influence walking conditions and perceptions of walking, potentially contributing to walking activity (Adkins et al., 2012; Ewing & Handy, 2009).

Travel may relate to SWB indirectly via other life domains and domain satisfactions since travel allows people to participate in activities and achieve their goals (Ettema et al., 2010). Domain satisfactions that are substantially influenced by travel are neighborhood satisfaction, leisure satisfaction, and job satisfaction (De Vos, 2019; Mouratidis, 2020a). The location and internal characteristics of a neighborhood can influence how people travel and how satisfied they are with their travel (Mouratidis et al., 2019). This consideration could in turn influence their evaluation of neighborhood satisfaction. Thereby, the evaluation of travel may contribute to neighborhood satisfaction (De Vos & Witlox, 2017; Mouratidis, 2020a). Long commutes contribute to less leisure time, and are linked to lower levels of physical activity, lower job satisfaction, and lower leisure satisfaction (Clark et al., 2019; Mouratidis, 2019a). The mood during travel to a leisure activity as well as the evaluation of the trip can contribute to the satisfaction with a leisure K. Mouratidis Cities 115 (2021) 103229 4 activity (De Vos et al., 2017). Again, built environments that reduce commute time and promote active travel contribute to positive spill-over effects of travel on other life domains (Clark et al., 2019).

### B. Leisure

Leisure is an independent life domain with an important contribution to SWB (Hribernik & Mussap, 2010; Liu, 2014; Lloyd & Auld, 2002; Mouratidis, 2020a; Sirgy, 2012; Spiers & Walker, 2008). Leisure satisfaction can be defined as the level of content with the leisure activities one participates in (Beard & Ragheb, 1980; Francken & van Raaij, 1981). Leisure activities and leisure satisfaction are positively associated with physical and mental health outcomes (Caldwell, 2005; Mausbach et al., 2012). Prioritizing time for leisure activities instead of focusing on gaining more money has been linked to higher levels of happiness (Hershfield et al., 2016). To understand how the built environment may influence leisure and leisure satisfaction, we can first look at how leisure satisfaction is shaped. Leisure satisfaction is shaped by the participation in social activities and physical

activities (Brown & Frankel, 1993; Crandall, 1979; Mouratidis, 2019a) and in preferred leisure activities in general (Lloyd & Auld, 2002). Leisure satisfaction may also be affected by various possible constraints that could pose restrictions on participation in certain activities (Crawford et al., 1991). Time available for leisure activities is positively linked to leisure satisfaction (Crandall, 1979), while, longer commute duration may result in reduced physical leisure activities (Hilbrecht et al., 2014), reduced leisure activity duration (Cao & Chai, 2007), and lower leisure satisfaction (Mouratidis, 2019a; Stutzer & Frey, 2008). Studies that directly focus on how the built environment contributes to leisure satisfaction are scarce. A recent study developed and tested a relevant model examining pathways between the built environment and leisure satisfaction (Mouratidis, 2019a). The study showed that built environment characteristics are significantly associated with participation in leisure activities and leisure satisfaction. Urban greenness and local amenities were found to be positively linked to leisure satisfaction. High neighborhood density and proximity to city center were also found to relate to leisure satisfaction via indirect pathways. Compact urban forms of high neighborhood density and proximity to city center were negatively related to leisure satisfaction via reduced urban green space, and positively related to leisure satisfaction via higher access to local amenities, shorter commutes, and increased social interaction. During COVID-19, green spaces were considered to be especially important as they provided space for performing leisure activities with a lower risk of infection (Ugolini et al., 2020; Xie et al., 2020).

### C. Work

Work is one of the most important life domains and job satisfaction substantially contributes to SWB (Mouratidis, 2020a; Sirgy, 2012). Cities provide opportunities for work and education and thereby they can influence SWB. The level of diversity of and accessibility to opportunities for work and education may in turn contribute to SWB (Glaeser, 2011). According to some studies (Glaeser, 2011; Glaeser et al., 2001), denser, vibrant cities increase access to goods and services, facilitate daily interaction, attract talent, facilitate entrepreneurship, and enable social and economic mobility. However, it has been argued that under neoliberal political-economic and spatial organization, cities can also be arenas of inequality, injustice, and exploitation (Brenner et al., 2009). As described in Section 2, an indirect way that the built environment may influence work is through travel's spill-over effect on job satisfaction. Long commutes allow less time for leisure, and are associated not only with lower leisure satisfaction but also lower job satisfaction (Clark et al., 2019; Sun et al., 2020). Commute satisfaction is found to indirectly contribute to SWB via job satisfaction (among other pathways) (Mouratidis, 2020a). One way to reduce the negative

impacts of long commutes on SWB is teleworking (or telecommuting). Telework enables people to work remotely by increasing virtual accessibility, flexibility and reducing geographical restrictions (Moriset, 2003). This however might in turn encourage urban expansion and decentralization (Yousefi & Dadashpoor, 2019). would differ for different individuals and different contexts.

5. Conclusions This paper has provided a framework in which the potential pathways linking the built environment to SWB are organized into seven domains: travel, leisure, work, social relationships, residential wellbeing, emotional responses, and health. An overview of the state of knowledge on each of these pathways has been presented. The new organization of pathways between the built environment and SWB and the literature review presented in the paper have extended and refined knowledge from previous relevant conceptual frameworks and reviews (e.g. Kent & Thompson, 2014; Marans & Stimson, 2011; Mouratidis, 2018c; Pfeiffer & Cloutier, 2016; Shekhar et al., 2019; Wang & Wang, 2016). The paper's conceptual model and literature review can offer theoretical and methodological guidance for future empirical research. Although the literature review presented links from the built environment to SWB during the COVID-19 period, future research should further explore such links when the evidence is more mature. The relationship between the built environment and SWB is also likely to change in post-pandemic times and should be re-evaluated. The paper has also attempted to contribute to urban planning education and practice. It has provided evidence-based suggestions on urban planning strategies that could guide current and future practitioners, policy makers, and decision makers working on urban planning issues. These strategies represent practical ways to improve SWB in cities by improving the most relevant life domains through the built environment. Strategies related to urban planning processes have also been discussed. All these strategies are more relevant for economically developed countries, since less developed countries may lack crucial infrastructure and provisions that should be prioritized. They could however guide, to some degree, urban planning in developing contexts as well. The strategies presented here have integrated and extended previous relevant recommendations (e.g. Carmona & Sieh, 2004; Hofstad, 2011; Tonne et al., 2021). Based on the overview presented in the paper, potential strategies for improving SWB through urban planning could be to: enhance conditions for active travel and public transport while restricting cars when possible; provide easy, equitable access to facilities and services; develop or steer technology and new mobility options to improve inclusiveness and quality of life for different groups; integrate various forms of urban nature as much as possible; provide accessible and inclusive public spaces as well as communal spaces; maintain upkeep and order in urban space, vegetation, and transport systems; implement noise reduction strategies; develop

aesthetically pleasing buildings and public spaces based on residents' needs and preferences; reduce sociospatial inequalities while providing support for housing and transport K. Mouratidis Cities 115 (2021) 103229 8 for vulnerable groups; ensure that urban policies, plans, laws, and regulations consider evidence-based knowledge; improve the knowledge transfer and interaction between planners and public health coordinators; apply measurement and benchmarking of urban planning outcomes; and employ empowerment strategies and encourage public participation and the inclusion of vulnerable groups in the planning process. CRediT authorship contribution statement Kostas Mouratidis: Conceptualization, Methodology, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing. Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### IV. CONCLUSION

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and extended previous relevant recommendations (e.g. Carmona & Sieh, 2004; Hofstad, 2011; Tonne et al., 2021).

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