



The Impacts of Urban Environment Aspects on The Life Satisfaction of Older Adults

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Abstract

Ageing comes with several discomforts such as a decline in mobility and losses in social networks as well as societal roles. Therefore, improving the life satisfaction of older adults has become a significant policy focus for delivering age-friendliness in national and international movements in the living environment. The hypothesis of the current study is that older people, who live in urban neighbourhoods that provide safe, aesthetic and accessible environments, experience greater life satisfaction. Accessibility, attractiveness and attachment as the three key dimensions of life satisfaction were used to understand the key aspects of the life satisfaction of older people in the neighbourhoods and how the urban environment serves as an indicator. This research consists of two steps. The first step involved in-depth interviews with the older adults aged over 65 in different urban areas, the district of Fatih and Şişli in the city of Istanbul, Turkey, with sampling based on the diversity, heterogeneity and urban functions. Second, these urban areas were analysed using space syntax to understand the street network and connectivity to reveal the urban structure. The qualitative and quantitative findings were analysed comparatively. The study concluded that when attachment to the place is supported by walkability and psychical enticing, the older adults experience a higher level of life satisfaction. Additionally, financial independence serves as a backup solution to access a better environment. This comparative analysis also highlights a mixed method for policymakers to analyse the urban environment and makes room for older adults to raise their voices and participate in the policy and planning process.

Keywords:

Age-friendly, ageing population, life satisfaction, space syntax

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INTRODUCTION

This research stands on the idea of physical and social features provided by a neighbourhood have a greater proportion to the life satisfaction of older people. This section will reveal the literature review regarding ageing and life satisfaction in the urban environment, and the theoretical structure of the study.

Since it is estimated that urban areas will host 4.6 billion people aged over 60 in middle and low-income countries by 2050, urban environments are particularly relevant in considering the life satisfaction of older adults (URL 1). In addition, as people age, they become more dependent on their immediate surroundings, especially at the neighbourhood scale. Therefore, the life satisfaction of older adults has become a major issue in the urban environment debates.

Life satisfaction in this research is defined as how much people enjoy their life, but it is also associated with well-being and self-esteem (Fry, 2000; Veenhoven, 1996). However, measuring life satisfaction for a subgroup of the population such as older adults should also consider concepts of self-preservation, self-organising, and self-creating to support ageing well (Wiesmann & Hannich, 2013). The concept of 'well-being of older people' is interbedded with 'ageing well' and studies on well-being point out that it is influenced by social networks and relationships with the community (Antonucci et al., 2006; Lee et al., 2016). The largest body of research emphasizes that socialisation and being active in social life enhance the mental and physical health of older people (Astell-Burt et al., 2013; Dean et al., 1992; Kloos & Townley, 2011; Thoits & Hewitt, 2001). So, given that the design of the living environment can support socialising and participating in social activities, the living urban environment is deeply engrained in the well-being of older people as well as their life satisfaction (Berkman & Glass, 2000; Bowling et al., 2003). Especially, the neighbourhood environment is a wider determinant of life satisfaction in older adults (Cramm et al., 2013; Robinette et al., 2013; Tucker et al., 2010).

The neighbourhoods characterised by a sense of comfort and ease of access to facilities assist emotional, physical, and mental aspects of welfare in ageing, where people also feel safe (Burton et al., 2011; Gilleard et al., 2007; Perez et al., 2001). Moreover, neighbourhood features related to outdoor activity patterns such as walkability, cohesion, land use, and residential mix (Frank et al., 2005; Friedman et al., 2012) are also important indicators of older people life satisfaction. In alignment with this, Türkoğlu (2018) argues that the key features of neighbourhood quality have a profound influence on life satisfaction, which can be categorised into three dimensions: attachment, attractiveness and accessibility. Thus, considering these three as the essential dimensions of urban environment quality and life satisfaction has led us to question how the living environment interferes with experiencing life satisfaction later in life. It seems that these three dimensions adequately outline the design principles for urban life quality (Marans & Stimson, 2011).

Attachment can be explained in a sociological context as the sense of place for citizens. Accordingly, researchers have categorised place attachment at certain levels such as home, neighbourhood and city levels (Vaske & Kobrin, 2001). It can also be explained as an emotional bond that occurs in the individuals towards the living place, which can either be the home building, the living environment, the city or all of them

(Giuliani, 2003; Hudson, 1979). The attachment phenomenon has been widely studied to understand the experience of public space by individuals for the sake of planning policies (Kyle et al., 2005; Scannell & Gifford, 2010).

The attractiveness of a place relates to amenities, resources, and the environmental comfort that support individuals' life satisfaction (Bayar & Türkoğlu, 2021; Stokols & Shumaker, 1981). Physical features related to attractiveness are conceptualized as houses, streets, open green spaces, natural environment, and quality design of the neighbourhood (Manzo, 2003; 2005). Older adults are particularly dependent on the neighbourhood environment; hence, the physical features at this scale are especially important for this group's daily activities, independence, and health. Ramps, pedestrian pavements and paths, public toilets, sitting areas, lighting, signage, and shelters from the weather are essential physical elements of neighbourhood environments to support life satisfaction for older people (Ambrey & Fleming, 2014; Berkoz & Yirmibesoglu, 2013; Griffin & McKenna, 1999; Oswald et al., 2011). Also, living in a decent urban environment facilitates emotional attachment when they feel safe, happy, and independent (Pain, 2000).

The accessibility of neighbourhood environment encompasses both physical accessibility as well as affordability. For older people, physical accessibility is described as being able to access basic needs within walking distance (Jun & Hur, 2015) as well as reaching out to a wider range of facilities such as hospitals, shopping malls, or higher education facilities through public transport or on foot. Accessibility of an urban environment means walkability to older people as they tend to walk or utilize the facilities within walking distance to be more independent and perform daily activities without asking for help or even just to meet and have a little chat with a neighbour (Wiles et al., 2012). In the context of Turkey, accessibility to basic needs particularly corresponds to accessibility to health facilities, pharmacies, open green spaces, and religious buildings since they are regularly used for gathering and socialising in Turkey (Bayar & Türkoğlu, 2021; Biando, 2005). Therefore, in this study, open green spaces and religious buildings were accepted as fundamental gathering points and activity areas. These facilities are the top priorities for older people to maintain their daily activities as well as promote their life satisfaction (WHO, 2007). On the other hand, affordability is associated with reduced income, which is a major concern of older people due to retirement age regulations etc. In response to this, the affordability of public transportation is essential to create accessible environments (Wong et al., 2017).

To conclude, this research assumes that physical and social features provided by a neighbourhood contribute to the life satisfaction of older people to a great extent. Particularly attachment, attractiveness, and accessibility were addressed as evaluation criteria. Thus, this study aimed to investigate which of these three aspects has more effect on later life satisfaction in comparison to the others to provide insight into urban policies. In addition, how sociodemographic diversity among the older adults' controls life satisfaction in later life was also examined.

METHODOLOGY

The hypothesis of this research is that "older people, who live in the neighbourhood environments that provide a safe, aesthetic and

accessible environment, experience greater life satisfaction". Therefore, the aim of the study was to examine the relationship between neighbourhood design and the life satisfaction of older adults. Neighbourhood design here primarily refers to the accessibility to basic needs such as health facilities, pharmacies, open green spaces, and religious facilities.

The assessment of life satisfaction can be clearly identified by both subjective responses and objective conditions (Cummins, 2000; Marans, 2003). Although objective and subjective indicators are considerably independent, this study seeks to understand the link between personal characteristics and environmental support since life satisfaction differs based on living geography (McCrea et al., 2006). Therefore, this study used comparative analysis to reveal the relationship between subjective responses to objective conditions (table 1) (Schneider & Wagemann, 2012).

Responses such as economic status, use of public transport, managing daily routine, and experiencing living environment were obtained through semi-structured in-depth interviews. 20 participants aged 65 and above were asked 35 questions that reveal the subjective parameters affecting life satisfaction. The neighbourhood level is considered in this study; the number of participants was limited to 20 people because the interviews were conducted face-to-face by the researcher personally and it is considerably difficult to reach such a fragile group for forty-five minutes of an interview. Many of them refused to contribute and some participants were eliminated due to answering only yes and no to semi-structured questions. Therefore, the number of participants in this study was limited to 20 people. Moreover, although the researcher followed semi-structured questions, she also deviated from the interview to access more information as a result the sample groups were limited to 10 each (Adams & Cox, 2008). The participants resided in two different neighbourhoods that have similar characteristics in terms of built environment elements but differ in demographic and financial terms. These two sites were selected for their diversity, heterogeneity and urban functions. The study areas are representing the oldest district in Istanbul which is Fatih and its connection and extension throughout history which is Şişli. Fatih district is the beginning of Istanbul city itself and it has been extended from the city wall to the Galata, Pera and to Şişli throughout the history (Fatih Municipality, 2018). Fatih district is a growth point where Constantinople and, afterwards, Istanbul; hereupon, deliver heterogenous population, urban and building structures as well as attraction sites. So, Fatih and Şişli as the two study sides have a historical connection. While Fatih represents the older face of Istanbul, Şişli is prestigious and demanded perspective (Mağgönül, 2006). The connection is not only urbanism related but also there is a famous novel called Fatih-Harbiye (historical name of Şişli) that compares the social and economic life in these areas (Safa, 1931). This underlines another important reason that heterogeneity regarding income level. Moreover, both areas are central in terms of land use diversity with the provision of mixed housing opportunities, public transport facilities, open spaces, and

basic needs such as grocery, personal grooming facilities, post offices, and health services.

The objective conditions in this study were accessibility to basic needs (table 1). These were comprised of health facilities, pharmacies, open green spaces, and religious buildings. These resources were measured through a spatial analysis tool, Space Syntax Tool (SST) kit in Quantum Geographic Information System (QGIS). The SSTxQGIS analyses the role that land use carries on the street network. There are multiple analyses that can be conducted in SS such as integration, choice and connectivity. This study used 400 meters to analyse normalised integration values that focus on to-movements that calculate the potential destinations and the depth of a total urban system. Up to a certain distance in other words radius (400 meters in this study), SS normalised integration analysis measures the mathematical closeness of the distance from each spatial element to all others in the urban network; additionally, normalised integration aims to normalise total depth by comparing the system to the urban average. (Hillier et al., 2012). Briefly, normalised integration analysis explains to us how well-integrated urban network is and 400 meters buffer of the walkability that older adults live their daily lives on the local scale was determined based on previous studies (Alves et al., 2020; Horak et al., 2022; Jun & Hur, 2015). The main idea of the graphs is to represent the values of segments in a categorised colour palette. Accordingly, the scale goes up to warm colours (red and orange) to point out better accessibility of larger segments while cold colours (blue and green) represent the less integrated and even segregated smaller segments from the urban network.

The spatial data of urban facilities are derived from Open Street Map (OSM). OSM Is a reliable and open source of cities globally for such analysis and provides accurate and updated spatial data for researchers. The key reasons for choosing to collect data through OSM are that first it is coordinated, detailed data of the study area, and secondly, it is compatible with SS analysis in QGIS. SSxQGIS kit requires to use of segment data which is an equivalence of OSM road network and all other spatial data.

Study Area

Istanbul is the metropolitan city of Turkey that is home to more than fifteen million residents and it consists of Asian and European sides that have multiple core centres. As the two sides are connected to each other with three bridges, there is a major commuting flow between the two sides every day. More than one million people, who are aged 65 and above, live in the city (TUIK, 2020)(see figure 1 below).

The study areas were determined based on several points: a) two study areas contain a certain number of older people which is more than %10. This number is officiated by the Turkish Statistical Institute (TUIK, 2020); b) the study areas deliver urban facilities such as mixed housing, different modes of public transportation, open spaces, health facilities,



Open green spaces are the key design elements for socialising, physical activity, and engagement with the society. These are the spaces for the older people where they can be socially and physically active, spend time outside of the home and prevent themselves from isolation and loneliness (Astell-Burt et al., 2013; Kaczynski & Henderson, 2008; Wen et al., 2018).

Basic needs such as groceries, personal grooming, shopping areas, and post offices are primary activities of the daily routine of the older adults (Bayar & Türkoğlu, 2021; Gehl, 2011). The neighbourhood needs to deliver basic needs within walking distance to promote active ageing and the life satisfaction of older adults (Burns et al., 2012; Temelová & Dvořáková, 2012).

Pharmacies are especially important for older people because the frequency of prescriptions increases as people age and measuring blood pressure and glucose levels can be easily done in the pharmacies in Turkey. Accessing this facility is a comfort for older adults (Padeiro, 2018).

Religious facilities were considered gathering and socialising areas in Turkey. Many older adults gather and talk to each other, sit and sunbathe in the religious facilities' yards (Bayar & Türkoğlu, 2021); therefore, this urban facility is also important, especially where the older people do not have access to open green spaces (Biando, 2005).

These urban facilities were retrieved as location points and areas from OSM as layers (OSM, 2021).

Table.1 The description of the dataset used in objective conditions and subjective responses in the analysis method

The measurement of life satisfaction of older adults in the neighbourhood							
	Dimensions				Dimensions		
	OBJECTIVE CONDITIONS	Description and measurement	Data		SUBJECTIVE RESPONSES	Description and measurement	Data
Accessibility to the urban facilities	Health facilities	Measures the accessibility and availability of health facilities	(OSM, 2021)	The attractiveness of the neighbourhood	Assessment of accessibility	Measures how participants access to all objective conditions	Semi-structured in-depth interview
	Religious facilities	Measures accessibility and usability of religious facilities			Assessment of open green spaces	Measures both the usage and the design of open green spaces	
	Open green spaces	Measures accessibility and availability of open green spaces			Assessment of public transport	Measure the efficiency and the usage of public transport	
	Pharmacies	Measures accessibility and availability of open green spaces			Assessment of quality of the neighbourhood	Measures perceived the quality of the living environment	
Attachment to the neighbourhood							

The subjective responses were retrieved from face-to-face, semi-structured in-depth interviews. It was conducted in the summer of 2019 (table 1). The interview consisted of 35 questions that were categorised

based on accessibility, sociability, attractiveness, and outdoor activities (Bayar & Türkoğlu, 2021). However, the questions were organised as interbedded to avoid overlap. The subjective responses aimed to reveal the assessments of accessibility, open green spaces, public transport, quality of the neighbourhood, and daily routine.

Assessment of accessibility was the key data in subjective responses. This dimension reveals how accessible health facilities, religious facilities, open green spaces, pharmacies, and other basic needs are from the older adults' perspective as the accessibility issue depends on physical and mental well-being (Iwarsson & Ståhl, 2003; Somenahalli & Shipton, 2013). The participants were asked 'Can you use public transportation easily? Is there anything you want to change? Do you easily get on and off the bus?' also, they were asked to contribute to the research by explaining the area and answering the 'Do you think this area is walkable?' and 'Do you walk for your health? Can you find a bench to sit on or a place to rest and cover from the sun and wind?' questions

Assessment of the open green space measured both the usage and the design of the areas. Because ease of access and existence is not efficient enough to encourage older adults to visit open green spaces, the responses involved how older adults experience open green spaces and how conditions affect the usage of the areas. For example, due to low-quality designs and a lack of supporting design elements such as sitting areas and public toilets, older people may refrain from spending time in open green spaces (Gehl, 2011; Mahmood & Keating, 2012; Talen, 2010; Ward et al., 1986). This study asked the participants 'how often do you visit a park, is the green space in the living area walkable, safe and secure; also, what is the main reason for you to visit a park'.

Assessment of public transport measured the efficiency and the usage of public transport modes and one key question is whether or not they feel safe while using a mode of public transport. Older people may avoid using public transport for many reasons such as crowds, traffic, lack of available seats, and mental problems; thus, the existence of public space is not always reliable data (Broome et al., 2013; Grimaldi et al., 2016; Wong et al., 2017).

Assessment of the quality of the neighbourhood focused on the design of the environment as to whether it is supportive. The neighbourhood itself is the primary environment where urban features and design elements such as housing, public spaces, streets, and commercial areas are delivered for the people's experience. So, from lower scale to upper scale, a neighbourhood should provide a comprehensive and inclusive design to support ageing in place for the older people (Burns et al., 2012; Lager et al., 2016; van Dijk et al., 2015). Older people feel more attached to the living environment emotionally; therefore, the neighbourhood should support their needs in all stages of life (Gilleard et al., 2007; Jacobvitz et al., 2002; Wiles et al., 2009). The participants were questioned if they would prefer to live somewhere else or move to other parts of the city, how they carry out their daily routines such as shopping,

grocery, and personal grooming also if the facilities around the neighbourhood are sufficient enough to support their routine.

Assessment of daily routine focused on the daily needs of older adults such as shopping, banking, visiting neighbours, walking, sunbathing, and talking to friends etc. As older adults perform their daily routines within the walking distance in the neighbourhood, accessibility and allowance to practice their daily routines is a significant dimension of the life satisfaction of older adults (Bayar & Türkoğlu, 2021; Horgas et al., 1998). The key question for participants was that 'Do you feel like you need to change your habits because of the area?' which is related to another question 'how does the area affects your daily activities?'. These questions help us to understand how participants perform their daily routines in the urban environment.

Participant's profile

Participants in both sites differ in terms of income level, which is the key hidden aspect behind their life satisfaction. They were selected based on the researchers' personal network and their connections within the neighbourhood. Also, some of the participants were approached randomly while they were sitting in a park or mosque. The reason behind this method is that they refused to carry out an interview many times.

Table.2 Participant demographics

Area	Participants	Age	Gender	Type of income	The latest level of education
Fatih	1	74	Male	Retired	Secondary School
	2	70	Female	Housewife	Literate but uneducated
	3	72	Female	Housewife	Primary School
	4	73	Female	Widow's pension	Literate but uneducated
	5	73	Male	Retired	Secondary School
	6	96	Female	Retired	Primary School
	7	71	Female	Old age's pension	Literate but uneducated
	8	81	Male	Retired plumber	Secondary School
	9	74	Female	Retired	Primary School
	10	73	Female	Retired	Secondary School
Şişli	11	70	Male	Still working	Bachelor Degree
	12	71	Male	Still working	Highschool
	13	79	Female	Housewife	Primary School
	14	81	Female	Retired	Bachelor Degree
	15	83	Female	Retired	Bachelor Degree
	16	90	Male	Retired	Bachelor Degree
	17	85	Female	Retired	Highschool
	18	85	Female	Retired	Highschool
	19	81	Male	Retired	Bachelor Degree
	20	73	Male	Retired	Bachelor Degree

Consequently, participants were selected according to their age, income level, and educational background (table 2). So, a total of 20 participants, with 10 participants from each site, were interviewed in depth. The total sample consisted of eight female and 12 male participants aged between 70 and 96 with varying educational backgrounds ranging from being uneducated to graduate degrees. Three participants were literate but uneducated. Eight of them had at least a secondary school degree. Nine of them had higher education degrees. The participants also showed diversity in the level of income such that 13 of them were retired while two participants were still in the workforce. Three female participants were with no income and lived with their husbands. One participant got a widow's benefit and one participant received an old age pension.

FINDINGS

The interview findings were analysed based on three aspects of the living environment, which are accessibility, attachment and attractiveness as addressed above. So, the related questions for each indicator of subjective evaluations were categorised under the topic of accessibility, attachment and attractiveness. The answers clarifying the life satisfaction of participants for each of these topics were explained in the following sections. Additionally, the accessibility to basic needs was also compared to interview findings.

Accessibility to urban facilities in the neighbourhood

The neighbourhood in Fatih district, accessibility is emphasised by older people as they said that they can perform their daily needs, such as shopping for groceries, visiting open spaces, and chatting with a neighbour within a walking distance. Participants signified that being able to reach basic needs without too much physical effort is the best way of making a living environment accessible. This also includes public transport stations being within walking distance as well. Fatih district provides easy access to their needs and several transportation options; therefore, they feel involved in city life and feel independent to spend time outside the home. They also pointed out that having a park or religious building nearby home is the best way of socialising, spending time or even sunbathing. Religious buildings' yards appear to be public spaces and older people spend relatively more time there than in parks. Getting to the health facilities and pharmacies easily whenever they need is indicated as a must-have for them since ageing results in biological health decline. They said that they choose to live in areas where health facilities are close. Even though walking is an advantage for them, the low urban quality is a disadvantage. They revealed that the broken pedestrian roads, ramps, poor lighting, lack of sitting areas, shelters to cover from sun and rain, and public toilets are discouraging them from walking and as well as performing outdoor activities. These findings led us to analyse urban networks to see how accessible the area itself and where the

mentioned urban facilities are located in the network system. Normalised integration (NAIN) map of the district in figure 2 reveals that the higher integration values are close to major roads and the periphery of the district is found to be segregated from the whole district.

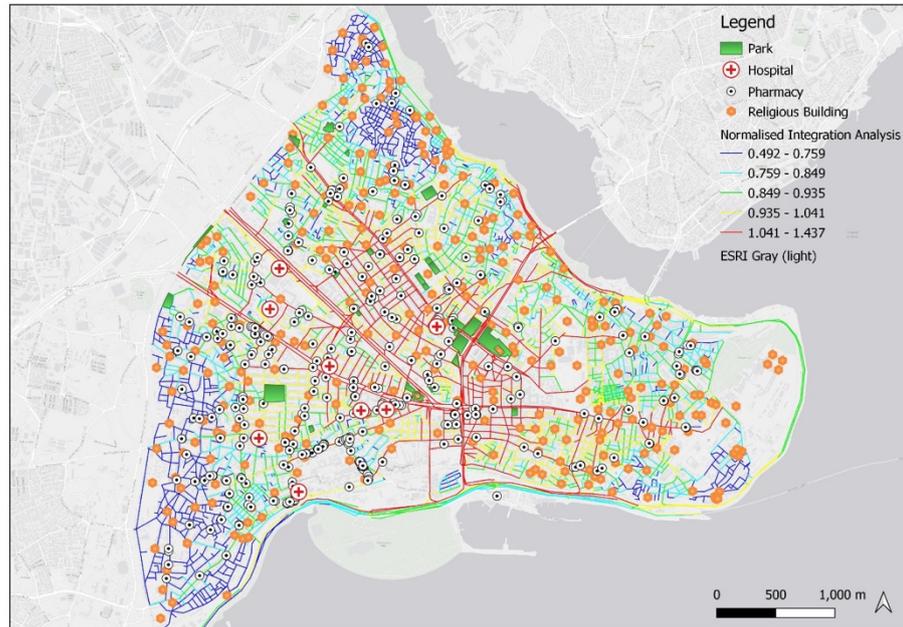


Figure 2. Normalised integration values of Fatih District in 400 m local scale (prepared by the authors)

The lack of green urban spaces can be seen clearly in figure 2. But, notably, in terms of health facilities, religious facilities, and pharmacies, every street has access to them. The measurement of walking distance, which is 400 m, indicates that the places close to the major roads have better accessibility regarding the potential of multiple route choices, but the periphery of the district is neglected in terms of walkable accessibility to urban facilities.

The accessibility of Sişli district is described by the participants as delivering multiple choice of transport modes and walkability to daily needs; however, some physical environmental characteristics such as slopes and high pedestrian roads are obstacles for those who have declining health. Sişli district delivers various options for grocery, pharmacy, and personal grooming within walking distance. But all participants highlighted that the lack of open green spaces is the main problem. Although there is one urban park close to the centre of the district, participants said that they do not want to walk due to the slopes and narrow pedestrian roads. The area is surrounded by various health facilities and pharmacies; therefore, participants underlined this as the main reason for living in this particular district.

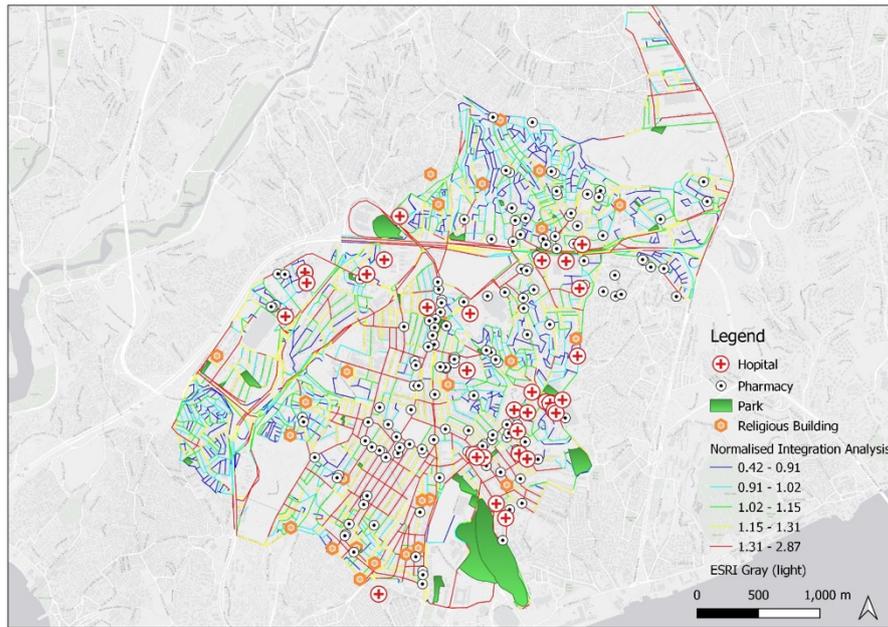


Figure 3. Normalised integration values of Şişli District in 400 m local scale (prepared by the authors)

The NAIN analysis shown in figure 3 demonstrates which streets are more integrated into the urban network. Major roads have the highest value but the streets within walking distance have lower values. Thus, although it depends on where they live, this can be interpreted that there are fewer potential movement choices and lower integrations to the urban facilities for older people. The streets that directly connect to the major roads are also the greatest but other streets shown in yellow are difficult to access. In line with the participants' reports on the ease of access to health facilities and pharmacies, these are located in the highest segmented network system. The lack of open green spaces can also be seen in figure 3 as participants pointed out. The urban park located in the south of the area serves the whole district, yet it is inaccessible due to the housing units and other major restrictions such as slopes, which is another obstacle for older residents in this area.

Attractiveness of the neighbourhood

In Fatih district, participants clearly indicated that they often avoid spending time at parks due to the lack of sitting areas and safety concerns caused by crowds. Instead of visiting parks, female participants prefer to meet at home and spend time with their neighbours. But they also book a table at the nearest restaurant to spend time with friends once a month or two. Male participants; on the other hand, enjoy chatting with friends while heading somewhere or on the way back home. All participants share the same opinion that sitting at a café or a restaurant when they feel tired of walking due to the lack of sitting areas is an extra cost they avoid. Uneven pedestrian roads and ramps are other problems for them in that they restrain them from spending time outside. Therefore, they do not define the district as deficient in terms of attractiveness.

In contrast, Şişli district is also a well-known attractive shopping area with luxury brands, cafés, restaurants, and a shopping mall; thus, the place is very crowded in all the seasons and days of the year. Therefore, although participants are able to walk to get their certain needs met, the crowdedness of the place makes pedestrian routes even more difficult to walk. They added that when they get tired of walking, there is no sitting area to take a rest so they must sit at a café or restaurant, which is an extra cost. But, those who have higher income levels accept this situation normally. Meeting friends and socialising usually take place in restaurants and cafés. In this area, none of the participants said that they spend time or gather at religious buildings. The participants with higher incomes indicated that their outdoor activities are not affected by the obstacles or the insufficiency of the environment because they can commute somewhere else whenever they need.

Attachment to the neighbourhood

Although the participants in Fatih district complained about the inadequate quality of the urban environment, all of them highlighted that they prefer to remain in the same neighbourhood as they feel emotionally attached to the place. When they were asked about the key reasons for living in the area, they indicated that the area is the centre of the city and they have access to several urban facilities easily and quickly. Secondly, all of their friends and neighbours are nearby and they don't want to leave them. Lastly, despite the low urban quality, they said that the place is their home and they can tolerate the disadvantages. Also, as long as they feel happy where they live, they feel satisfied with their life. Participants were also questioned about what they would change about their living environment. The answers were related to having a nice and safe park around their homes, being able to access housing options as they prefer to live in the same neighbourhood, and the environment becoming more attractive.

The results are similar to Fatih in Şişli district. The participants indicated that were born there and would die there. Despite the lower urban quality, the lack of open space, and the limitations in performing activities, they do not want to leave the area. They said that they would remain to live in the same neighbourhood as long as they have friends and family around even though they have the financial independence to move somewhere else.

DISCUSSION

Population ageing has been debated among different types of disciplines and excepted as an inevitable issue that all countries are going to face. The discussions on ageing involve today's older people as well as being prepared for future populations. The suitable policies combine social and environmental issues and deliver urban planning policies for age-friendly environments. The fundamental expectations, first of all, need to be considered to deliver age-friendly services such as basic needs

for daily activities, health facilities, and open green spaces (Woolrych, 2017). However, the goal is not only to create more age-friendly environments but also to enhance the life satisfaction of older people. Although there is a correlation between urban facilities and life satisfaction, this study provides a deeper understanding of the effects of the urban environment on the life satisfaction of older adults. The interview findings were compared to the street connectivity of the study areas.

Participants highlighted that the walkability of their neighbourhood to their daily needs is a major support to their lives. Accessing basic urban facilities supports their independence as well as their life satisfaction. SS analysis of the areas supported these findings. Street connectivity here can be understood as greater accessibility, shorter and alternative routes, walkability distances and directness to basic needs (Talavera-Garcia & Soria-Lara, 2015). Older people who have limitations on walking and live in less walkable areas tend to have less life satisfaction (Frijters et al., 2004). In line with this, the results of this study also suggest that accessibility within walking distance should be the first step to promoting the life satisfaction of older adults. However, participants in Sişli, who have higher income levels, indicated that even though they cannot walk to get certain needs, they have the financial ability to afford a taxi to access there. This also shows that income level is also associated with life satisfaction (Blanchflower & Oswald, 2004) and for those who have a lower, affordable public transport is fundamental for an age-friendly environment.

Accessibility to basic needs leads us to the physical enticing of the living environment, which is attractiveness. Many researchers have argued that the physical environment and urban natural amenities have a boosting effect on life satisfaction (Winters & Li, 2017; Zenker et al., 2013). The age-friendly environment is also expected to advocate for the life satisfaction of older people by providing a convenient urban design. However, supporting walkability is not limited to only providing needs and stores nearby, it also means designing pedestrian roads conveniently, adding sitting areas in the routes, providing public toilets, lighting the area, and providing shelter places for sun and rain that encourage older people walk on the streets (Bahrainy & Khosravi, 2013). Participants said that they avoid walking because pedestrian roads are too bumpy, there is no bench to sit on when they feel tired or it feels unsafe if it is too dark. Accessibility itself is one dimension; however, encouraging walking by delivering high-level urban design quality is also necessary.

This study also revealed that attachment is another major factor contributing to life satisfaction along with accessibility and attractiveness. Older people become more attached to the places they live in as they avoid changes in both social and environmental (Fausset et al., 2009). Participants highlighted that they wish to keep living in the same area because they have all they need nearby, they can access to hospitals easily, and they have neighbours and friends close whenever they need

them. So, accessibility to not only the goods and needs but also to neighbours and friends is found to be an essential dimension of attachment to the place. Because knowing that they have the independence to access to all these make them feel safe and at home and they feel more attached to the place. As living close to the social network and basic needs have strong effects on the life satisfaction of older people (Oswald et al., 2011), participants highlighted that they would move to another house if they can afford but they would never leave the neighbourhood. Additionally, the 'if they can afford' idea here raises another important concern. Some participants have the financial ability to move to a house that meets their indoor needs in later life adequately, but some participants also indicated that they would want to move to a house where it gets more sunshine or has lift access. Although some participants in Fatih said that they are satisfied with their lives, the underlying expression seems to be austerity. They are happy with the accessibility and they clearly expressed their fear of losing these opportunities. They also think that if they move somewhere else, they would definitely change their house but not the neighbourhood. As a consequence, this study underlines that the level of income strong influence on place attachment as well as the life satisfaction of older adults.

CONCLUSION

This study measured objective conditions and subjective responses that have an influence on the life satisfaction of older adults. The objective and subjective indicators were categorised into three dimensions: accessibility, attractiveness and attachment. These three dimensions were analysed using both quantitative and qualitative methods. The first method was using space syntax analysis, which helped to understand the street networks and connectedness of urban facilities.

Secondly, subjective responses were collected through semi-structured in-depth interviews with older adults. The results led us to discuss what urban planning practice ideally should be like and how urban policy should focus on promoting the life satisfaction of older people.

It is a fact that making changes in the built urban environment in especially metropolitan areas is challenging for many reasons. Therefore, this study suggests a bottom-up approach such that local governments should focus on locality first and seek to improve urban quality in the neighbourhoods. The urban planning practice should focus on delivering safe, aesthetic and supportive neighbourhoods such as providing sitting areas and public toilets, eliminating safety concerns, improving lighting and shelters for rain and sun, and advancing greenery. In addition, the basic needs of older people should be accessible within walking distance and the walkability of the urban environment should be supportive regarding the barrier-free pavement designs.

While urban policies to improve the life satisfaction of older people are a must, older people should also find their voice in the process. Therefore, the political representation of older people should be secured during the process. They need to find room for raising concerns in all kinds of areas such as the inequality of income levels, urban facilities, public transportation, and health services.

To sum up, this study concludes that the life satisfaction of older people is linked to accessibility, which mainly means walkability to them. Walkability is encouraged by the attractiveness of the living environment and especially accessibility enhances attachment to the place. On top of all these, income level takes a back seat as an influencer to either enhance or hinder the life satisfaction of older people.

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