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QUALITY OF LIFE IN URBAN ENVIRONMENT: AN ANALYSIS BASED ON GEOGRAPHIC INFORMATION SYSTEMS METHODOLOGY IN GAZİANTEP

Kentsel Çevrede Yaşam Kalitesi Analizi: Gaziantep'de Coğrafi Bilgi Sistemleri Metodolojisine Dayalı Bir Analiz

Ezgi ŞAHİN *

* Şehir ve Bölge Planlama, Mersin Üniversitesi | Department of City and Regional Planning, Mersin University

Abstract

This study evaluates the quality of the urban environment in Gaziantep, a city that embodies the dichotomy of planned and unplanned urban development, and identifies the areas most in need of intervention. The primary objective of this research is to determine the urban zones with the lowest quality of life in Gaziantep and to provide actionable insights for urban planning and land use strategies. By doing so, the study aims to bridge the gap between existing urban challenges and the potential for sustainable and equitable development. To assess urban quality of life, the study employs Geographical Information Systems (GIS)-based spatial analyses, relying on objective and measurable indicators. The findings indicate that the lowest quality of life areas are concentrated in the corridor between the city centre, the city hospital, Yeşil Vadi, and small-scale industrial zones. These areas are characterized by inadequate infrastructure, inequalities in access to public services, and environmental degradation. The study's findings are expected to guide policymakers and urban planners in formulating strategies that address both immediate and long-term urban challenges. By adopting principles of equitable development and sustainability, this research contributes to shaping a future in which Gaziantep's urban fabric ensures a higher quality of life for all its residents.

Keywords: Urban Quality of Life, Urbanization, Geographic Information Systems, Urban Growth, Spatial Analysis

Özet

Bu çalışma, planlı ve plansız kentsel gelişimin ikilemini bünyesinde barındıran bir şehir olan Gaziantep'e odaklanarak kentsel çevrenin kalitesini değerlendirmiş ve kentin müdahaleye en acil ihtiyaç duyan bölgelerini belirlemiştir. Bu araştırmanın temel amacı, Gaziantep'te kentsel yaşam kalitesinin en düşük olduğu alanları belirlemek ve bu alanlarda kentsel planlama ve arazi kullanım stratejileri açısından uygulanabilir içgörüler sağlamaktır. Çalışma, böylece, mevcut kentsel problemler ile sürdürülebilir ve eşitlikçi kalkınma potansiyeli arasındaki boşluğu kapatmaya katkı yapmayı hedeflemektedir. Çalışmada kentsel yaşam kalitesinin değerlendirilmesi için Coğrafi Bilgi Sistemleri (CBS) tabanlı mekânsal analizleri esas alan nesnel ve ölçülebilen göstergeler kullanılmıştır. Bulgular, Gaziantep'te en düşük yaşam kalitesine sahip bölgelerin şehir merkezi, şehir

Statement |Beyan:
The research presented in this paper was originally prepared as a graduation project for the 2019-2020 planning studio at Mersin University, Department of City and Regional Planning. | Bu makalede sunulan araştırma, 2019-2020 planlama stüdyosu kapsamında Mersin Üniversitesi Şehir ve Bölge Planlama Bölümü'nde mezuniyet projesi olarak hazırlanmıştır.

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Correspondence | İletişim:
ezgisahin.9600@gmail.com
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hastanesi, Yeşil Vadi ve küçük sanayi bölgeleri arasında yoğunlaştığını göstermektedir. Bu bölgeler, altyapı yetersizliği, kamu hizmetlerine erişimde eşitsizlik ve çevresel bozulma gibi sorunlarla öne çıkmaktadır. Bu analiz ile ortaya konulan bulguların hem acil hem de uzun vadeli kentsel kullanımları ele alan stratejiler oluşturmada politika yapıcılara ve şehir plancılarına rehberlik etmesi beklenmektedir. Bu çalışma, adil kalkınma ve sürdürülebilirlik ilkelerinin benimsenmesi yoluyla Gaziantep'in kentsel dokusunun tüm sakinleri için daha yüksek bir yaşam kalitesi düzeyine ulaştığı bir geleceği desteklemektedir.

Anahtar Kelimeler: Kentsel Yaşam Kalitesi, Kentleşme, Coğrafi Bilgi Sistemleri, Kentsel Büyüme, Mekânsal Analiz

INTRODUCTION

Migration from rural to urban areas caused by intense modernization in the agricultural sector had led to the acceleration of urbanization since the early 1950s in Türkiye. The pace of urbanization, which had been accelerated with the industrialization that started in the Republican period, caused the cites to grow uncontrollably in Türkiye. As a result of migration flows, housing problem has emerged as one of the most striking problems besides other economic and socio -cultural problems. Unhealthy and informally built housing, infrastructure problems, destroyed cultural heritage, low physical standards have emerged, especially in the big cities of Türkiye (Geray, 1988). Economic, social and physical uses in the cities and the spatial changes they brought have intensified in line with the demand brought by the population increase. The main purpose of this study is to examine the quality of urban environment in the city of Gaziantep and to find out the urban areas with the lowest quality of life. It is aimed to guide planning decisions directed towards these areas as well as the land use decisions regarding the whole city. There is a correlation between quality of life in urban environment in Gaziantep and those parts of the city determined as urban transformation areas. The city of Gaziantep was historically built on trade routes, and after the 1950s, with the increase in industrialization and internal migration, unplanned development areas were formed around the historical city centre. Urban quality of life inputs, which can be measured physically, have also had a significant impact on the city as a whole. As a multidimensional concept, urban quality of life is assessed both subjectively, in terms of individuals' perceptions and evaluations of objective living conditions, and objectively, in terms of tangible characteristics of the built environment, natural environment, economy and social spaces, with each approach providing insights into the lived experiences of urban dwellers and the measurable conditions of urban environments (Figure 1). This dual perspective ensures a comprehensive understanding of the factors influencing urban quality. Subjective approaches, as highlighted by Rogerson (1999), delve into individual feelings, perceptions, and mental states, capturing the personal dimensions of urban life (Figure 2). Objective and subjective approaches to urban quality of life offer complementary insights into the conditions shaping urban environments. Within the urban planning discipline, spatial quality of life plays a critical role in shaping the identity and memory of places, influencing the well-being of residents and the functionality of urban spaces. Unlike other disciplines that assess quality of life through broader socio-economic and psychological dimensions, urban planning discipline integrates these perspectives with spatial interventions and

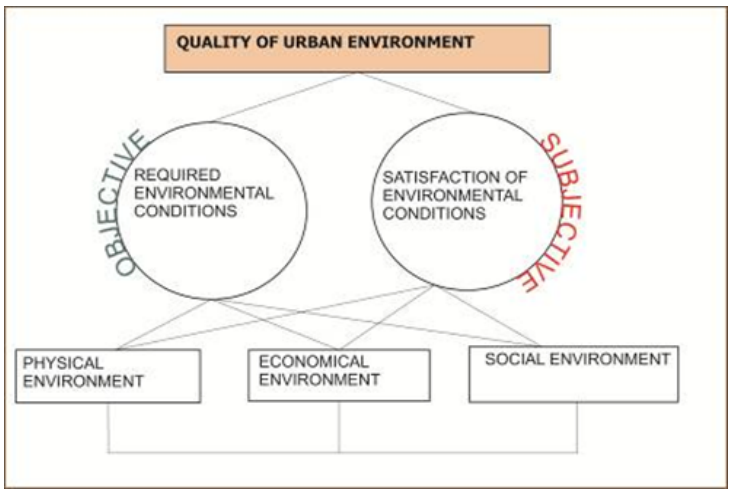


Figure 1. Quality of life (Das, 2008)

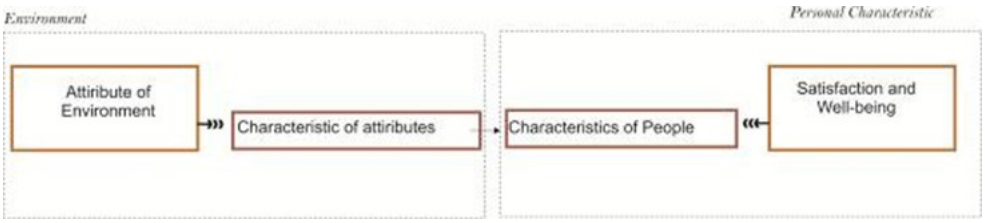


Figure 2. Quality of life (Rogerson, 1999)

land use strategies. In the modern urban planning approach, human actions are recognized as key factors influencing spatial quality of life. Therefore, quality of life can be actively managed and improved through planning decisions that incorporate both objective and subjective indicators (Belge, 2020). By identifying urban areas with the lowest quality of life, particularly in cities like Gaziantep, planners can guide urban transformation processes, ensuring sustainable and liveable environments for all urban inhabitants.

THE CONCEPT OF URBAN QUALITY OF LIFE

Pacione (1982) identifies critical domains that shape urban life quality and define environmental, social, cultural, economic, and institutional factors which affect the quality of life in urban areas. Pacione emphasizes the contextual nature of the "quality of life" concept, arguing that its meaning varies based on selected indicators like water quality, housing standards, health, and education. Similarly, Helburn (1982) underscores the influence of environmental attributes on human satisfaction and proposes five key dimensions—economic, political, environmental, health, and education—as essential components of urban life quality. Elariane (2012) expands on these dimensions by categorizing quality of life into social, urban, economic, and political domains, with each encompassing specific criteria such as health, safety, housing, transportation, and governance. Ülengin (2001) further enhances granularity by defining urban life quality under four key parameters: physical, social, economic, and transportation-related. These encompass elements such as green spaces, cultural activities, living costs, and traffic flow.

Geographical Information Systems (GIS) have recently become an essential tool in urban studies, particularly in evaluating urban quality of life through spatial data analysis. Numerous studies demonstrated the effectiveness of GIS tools for assessing urban well-being, infrastructure quality, environmental conditions, and

socio-economic disparities (Rahman et all., 2007; Rahman et al., 2011; Sarrafi, 2018; Afsari et al., 2023). The integration of GIS into urban quality of life assessments enables spatially accurate decision-making, allowing planners and policymakers to identify areas in need of targeted interventions.

Globally, quality of urban life has been a focal point of various international frameworks which guide the development of social and spatial policies for designing urban life. The European Urban Charter (Council of Europe, 1992) and the United Nations' Habitat Agenda emphasize the perspective of a comprehensive and integrated urban development which addresses transportation, environmental preservation, urban security, cultural integration, health, and public participation. These frameworks underscore the interconnectedness of physical infrastructure, social cohesion, and economic vitality in enhancing urban living conditions. In Türkiye, numerous studies and institutional efforts have aimed to define and improve urban quality of life by different central institutions (Sarı & Kindap, 2018).

These national efforts in defining and improving urban quality of life provide a foundation for understanding spatial inequalities across Türkiye. Gaziantep, as a city significantly shaped by migration and rapid urbanization, reflects both the challenges and opportunities associated with planned and unplanned development. The influx of population, particularly after the 1950s, has led to spatial disparities, requiring comprehensive urban interventions. Examining how these frameworks and indicators of urban quality of life apply to Gaziantep can offer valuable insights into the city's urban transformation dynamics. In other words, in this article, the context of urban transformation sets the stage for assessing the local conditions of urban quality of life and identifying areas in need of targeted planning strategies in Gaziantep.

Criteria for Measuring Urban Quality of Life

Inputs used for urban quality of life analysis studies conducted in cities with similar urbanization patterns and socio-economic challenges to that of Gaziantep provided valuable insights to understand the urban quality of life in Gaziantep. Criteria that were gathered from these studies were adapted to assess the urban life quality across 24 zones in Gaziantep. Indicators such as population density, infrastructure, green spaces, and economic conditions were analysed using GIS tools. The findings identified a corridor between the city centre, Yeşil Vadi, and small-scale industrial zones as the most problematic area, characterized by deteriorating infrastructure, inadequate services, and environmental degradation. Historical migration trends and economic shifts were examined to contextualize these disparities, emphasizing the need for future policies of urban transformation. This enhanced understanding of urban quality of life highlights the importance of integrative approaches that address both subjective experiences and objective conditions. By learning from international frameworks and comparative case studies, this research offers practical insights for policymakers and urban planners. A particular focus on sustainable development practices, equity in resource distribution, and community-cantered solutions will be essential in improving Gaziantep's urban living standards. The study also emphasizes the importance of ongoing monitoring and adaptation to evolving urban challenges, ensuring that interventions remain relevant and effective in fostering a resilient urban environment.

STUDY AREA

Gaziantep is located 36 ° 28 'and 38 ° 01' east longitudes and 36 ° 38 'and 37 ° 32' north latitudes (Figure 3) at the junction of the Mediterranean Region and the South-eastern Anatolia Region (Figure 4). The population of Gaziantep metropolitan area (Şehitkamil and Şahinbey districts) was 1.680,222 people in 2018. Şehitkamil district's population is 774,179 (369,260 male and 383,919 female) and Şahinbey district's population is 906,043 (458,113 male and 447,930 female) (TUIK 2018).

Figure 3. Location of Gaziantep city in Türkiye (Google Satellite Image)

Figure 4. Location of Gaziantep in the region (Google Satellite Image)

According to the provincial level development indices conducted in 2011 and 2017, Gaziantep ranks 30th in the list of third-tier provinces (SEGE-2011; SEGE-2017). According to the 2022 district-level development indices, Şehitkamil, the central district of Gaziantep, ranks 31st in the first development level, while Şahinbey, the other central district, ranks 151st. In the 2017 study, Şahinbey district ranked 210th and Şehitkamil ranked 10th (T.C. Kalkınma Bakanlığı, 2013; T.C. Sanayi ve Teknoloji Bakanlığı 2019a; 2019b; 2022).

Urbanization Process in Gaziantep in the Republican Era

The urbanization process in Gaziantep during the Republican era has been shaped by industrialization, migration, and changing socio-economic structures. The city, historically an important regional trade and production centre, underwent significant transformations since the early years of the Republic to the present day. In those areas specified in the Jansen Plan as working districts uncontrolled and irregular urban development was experienced during the Early

Republican Period (1946-1960) (Figure 5). The population growth of Gaziantep started in the 1950s, like most of the cities in Türkiye, and the population growth and urbanization rate gained momentum in the 1960s. During the period 1923-1950, the population of the city increased by 25 ‰ on average (Ayik, 2019). This increase also led to an increase in the demand for housing and workplaces in the city. But the increase in the population of the city in the period beginning from the establishment of the Republic of Türkiye until 1950 is considerably less when compared to the increase in the period after 1950. Especially the intense migration from rural areas to urban areas after 1955 caused the formation of today's Karşıyaka neighbourhood. However, uncontrolled housing has increased and growth has been experienced in Yeşilova and Boyno neighbourhoods (Şahin, 2016). As a result of the industrialization initiatives of the Republic, Gaziantep continued its role of being an important city for its region between 1946-1960.

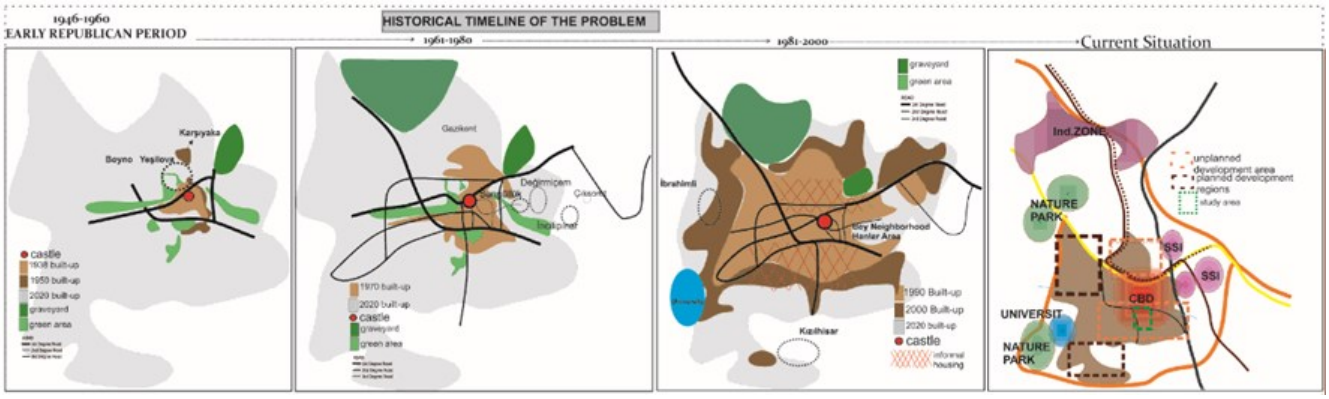


Figure 5. Historical development of the Gaziantep city (own elaboration)

In the 1961-1980 period, nearly 40 new neighbourhoods were formed in Gaziantep. The construction of unqualified housing and workplaces accelerated, and a significant portion of this urban growth was developed informally on treasury lands and private agricultural land in shared ownership. These areas on the periphery of today's city centre are inadequate in terms of transportation services and social facilities. Although planned development continued in this period, housing areas were not sufficient and the city continued to expand. With the continuation of informal urban development , the formation of unhealthy parts of the city disconnected from the whole accelerated in this period (Şahin, 2016).

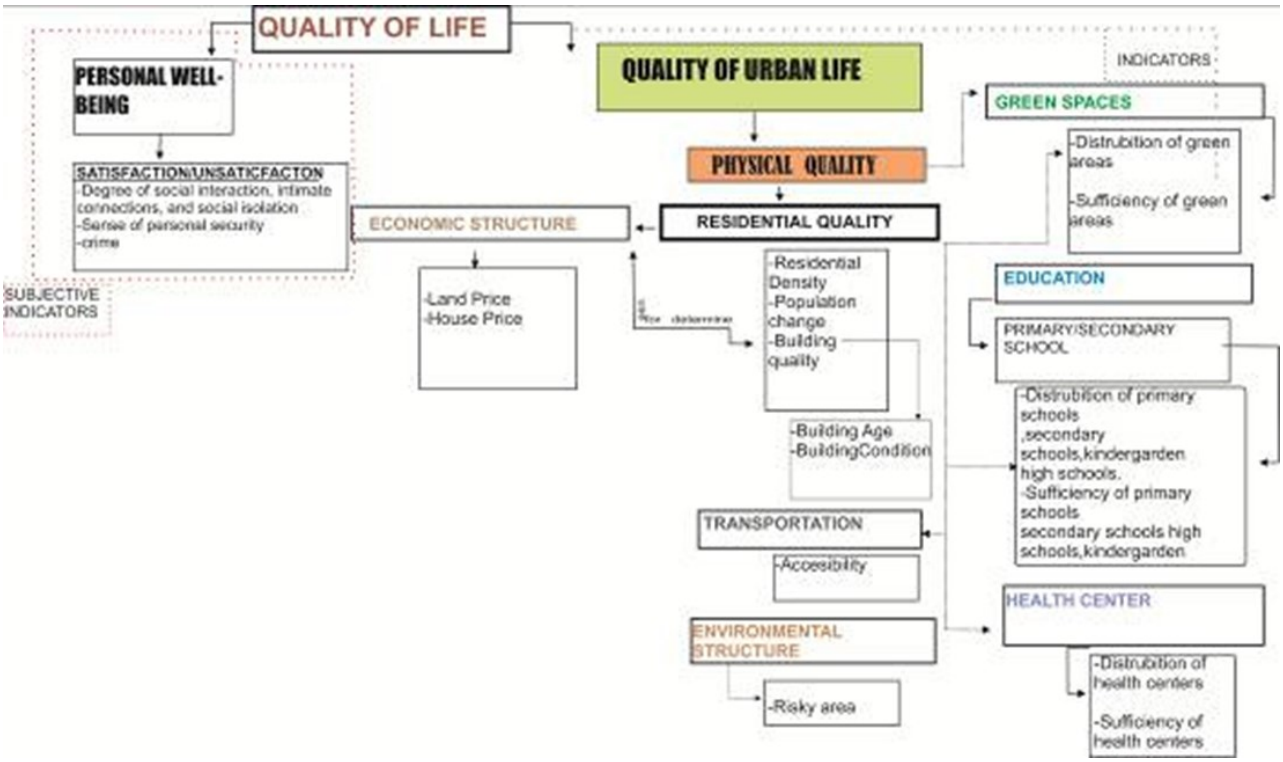
During 1981-2000 period, 25% of those who came to Gaziantep through migration were before 1980, and 75% were in the period after 1980. Therefore, 3 out of 4 migrants moved to the city after 1980. The main factor that determines the immigration potential of Gaziantep is the economy (Ayik 2019). In this period, taking into account the rapid increase in the population of Gaziantep, residential development areas were planned primarily in the North and South of the city, in İbrahimli and Kızılhisar regions in order to meet the housing demand of the new population. The residential development areas, which are generally privately owned, has created a significant land stock in the city During this period, Gaziantep's urbanization rate increased compared to the previous period (1975-1980) and reached 45% (Koyuncu 2018).

Gaziantep is also affected by these migrations. It is a city consisting of planned and unplanned parts of urban development after 2000. The development of the city is shaped in the form of an oil stain, rather according to the opportunities

offered by the geographical infrastructure. Development areas continued by being articulated to the city, and it was observed that a regular transportation network and no density grading were formed. The earthquakes cantered in Kahramanmaraş on February 6, 2023, had a profound impact on the urban development of Gaziantep. The city experienced severe destruction, particularly in the districts of Nurdağı and Islahiye, while various degrees of structural damage were also observed in the urban core. This disaster has once again underscored the critical importance of urban resilience, disaster management, and strategic urban planning in shaping sustainable urbanization policies. In the post-earthquake period, efforts towards urban regeneration, infrastructure rehabilitation, and disaster-resilient planning approaches have gained significant momentum.

ANALYSIS AND FINDINGS

The determination of the main components of urban quality of life was supported by literature research and the table in Graph 1 was prepared. In order to present a multidimensional framework that analyses urban quality of life through various indicators, attention was paid to being comprehensive, comparable, spatially contextual, measurable and reliable in the selection criteria. In Graphic 1 general quality of life is considered as the combination of the individual's personal well-being). and urban quality of life. Urban quality of life is categorized under the title of physical quality. This emphasizes the physical and socio-economic conditions of the environment in which the individual lives. Personal well-being is the level of satisfaction that the individual feels from social relations; personal security and life satisfaction were also evaluated in this dimension. This is a more subjective indicator and is based on the individual's personal perception. Therefore, it may be difficult to measure it directly via objective urban indicators, but it is an indispensable dimension of quality of life. The study was also conducted in line with the Physical Quality criteria. In the figure (Graphic 1), urban quality of life is divided into five basic components: Economic Structure, Residential Quality, Green Spaces, Education and Health Centre. Economic Structure indicators reflect the economic attractiveness and accessibility of urban areas and land and housing prices were utilized. Under the Residential Quality heading, indicators such as population density, building age and building conditions were evaluated. These data are of critical importance in determining the quality of the building stock and the liveability of a region. Under the Transportation heading, the effectiveness of the transportation infrastructure and the quality of urban connections were analysed. Under the Accessibility heading, access to public spaces was assessed. The Environmental Structure heading includes the existence of risky areas criterion. Under the Green Spaces and Education heading, the distribution and adequacy of open and green areas; in education, the distribution and adequacy of primary schools, secondary schools, high schools and kindergartens were analysed. Under the Health Centres heading, distribution and adequacy of health centres were examined. Some measurements were determined to see how these indicators change within the city and according to what. Ersoy (2009), OECD standards, TUIK (2018) data and other related sources were used to determine these measurement standards. Graphic 1 offers an opportunity for multi-



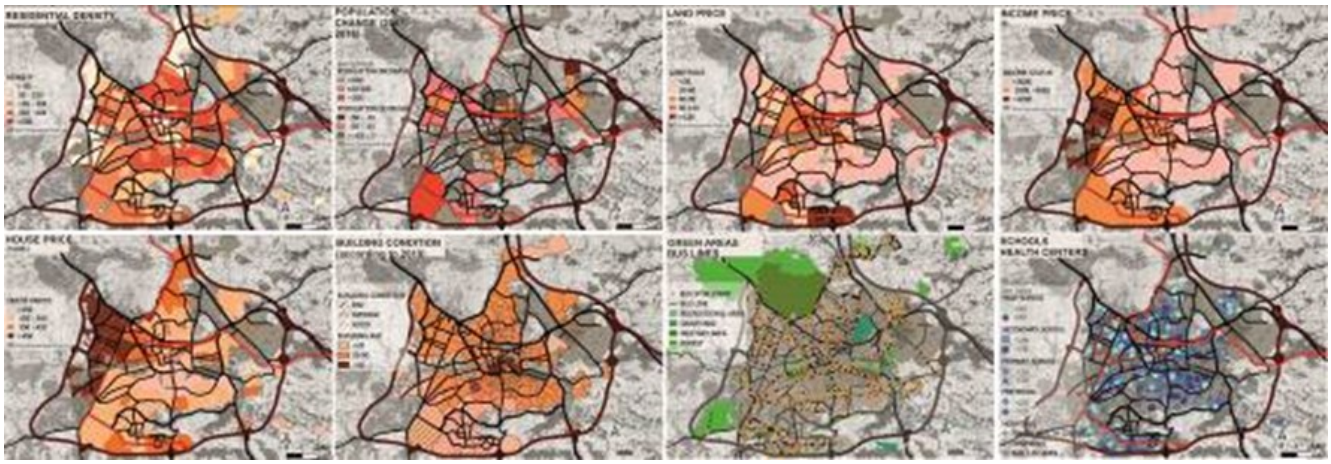
Graphic 1. Component table produced by the author as a result of literature research (own elaboration)

dimensional analysis by considering different criteria together in terms of objective indicators.

In total, 14 different analyses were conducted for the central districts of Gaziantep by digitizing the data including population density, population change, transportation, green areas, education areas, health centres, income levels, building age, building status, land prices and housing prices with the GIS environment. QGIS software was used for analysis and visualization. While executing this analysis, the city was divided into 24 parts within the framework of topographic threshold, natural threshold, and artificial threshold. Afterwards, each part was examined with these indicators and the values of the zones were determined (Figure 6). Based on the score table, the region with the highest score indicated the most problematic region. The first analysis phase was made with neighbourhood-based and point data, and the second analysis was made by overlapping the polygons. The first zones created are divided into sub-zones.

Figure 6. First analysis maps[1] (own elaboration)

(1) While creating analysis maps, some data were shown on the same map.



Preparation of Analysis Maps and Score Tables

For the population density, 2018 TUIK population data and neighbourhood boundaries were used. The score limits created to determine the changes in the score table were created with the "Spatial Plans Construction Regulation" legend category. Population increase and decrease schemes are based on the change between the populations of 2007 and 2018. Points were determined in the analysis divided into three groups. For the average age of the building, operations were made on the MSOffice Excell file by using the year 2000 TUIK building census data. This value was adapted to 2019 and turned into a diagram. The class here is divided into three groups. The data obtained for the land prices were taken from the "Turkish Revenue Administration" as a neighbourhood based average value. Values per square meter were found and the examination here was made in five categories. Endeksa site was used for house price values as this site relies on TUIK data for analysis. Neighbourhood-based average values were entered in the table. The analysis showing the income status was also taken from the Endeksa website. These data, which are handled on neighbourhood basis, are also scored in three categories. For the building condition analysis, again, TUIK building census data for the year 2000 were used. And these data have been adapted to 2019. Stop points for access to bus stops were determined on gaziulas.com and processed on Google Earth Pro. The limit determination here was made according to the walkability distance (500 m). Accessible and non-accessible locations are determined. The accessibility of the green areas is calculated as access to the stops and walkability is based on. For the green area sufficiency, the minimum standard determined by the "Chamber of City Planners-Standards for Minimum Social and Technical Infrastructure Areas and Minimum Area Sizes for Different Population Groups" is taken as basis (10 square meters per person).

There have been differences in the cases examined for each school. First of all, the Standards Book by Melih Ersoy was used to determine the potential number of kindergarten students in kindergartens and regions. After finding this ratio, it is calculated how much of the region benefits from it. Another analysis was made on the number of students per classroom. It has been evaluated whether the average number of students per classroom is above or below the standard. The standard here is also taken from the Standards Book by Ersoy (2009). Repetitions of the same procedure were done separately for primary, secondary and high schools. The interpretation of the data obtained for health areas was found both on accessibility and the number of physicians per person. Accessibility is limited to 500 meters. Threshold number of doctors per capita in the OECD's Türkiye-based is defined as the average per capita number of physicians per 2018. The boundaries of the planned / unplanned areas have been determined using the website of the General Directorate of Land Registers (*Tapu ve Kadastro Genel Müdürlüğü*). The point value in the zone with the unplanned area has been increased. Risky area data has also been obtained by referencing the maps in Şahin (2016).

Standards used in calculations

Walkability to schools (buffer analysis): 500 meters for pre-schools and primary school functions, 1,000 meters for secondary schools and 2,500 meters for high schools (Spatial Plans Construction Regulation / *Mekansal Planlar Yapım Yönetmeliği*). Standards for the number of students per classroom in different types

of schools: The number of students per classroom is 25 in kindergartens and the number of students per classroom is 30 in primary schools (Ministry of National Education - Minimum Design Standards for Educational Buildings / *Milli Eğitim Bakanlığı-Eğitim Yapıları Asgari Tasarım Standartları*). The limit of the number of students per classroom in secondary schools is 36 and the number of students per classroom in high schools is 40 (Ministry of National Education - Regulation on Secondary Education Institutions / *Milli Eğitim Bakanlığı Ortaöğretim Kurumları Yönetmeliği*). Estimated number of students for each urban zone: When calculating the estimated number of students: 60 children kindergarten students per 1,000 people, 175 primary school students per 1,000 people, 75 secondary school students per 1,000 people , It is assumed that 0.22 high school students per family[2] (Ersoy, 2009). (See Table 1)

(2) Estimated number of high school students come from the average of Gaziantep households is 4.2 (Turkish Statistical Institute (TUIK) Family Statistics, 2018).

CONCLUSION

As a result of this study, which was conducted through GIS and included two different analytical phases, Gaziantep's "lowest physical quality of the urban environment" is determined as the corridor between the city centre - the city hospital - the Yeşil Vadi and the small industrial zone. As a result, deciding the applications to be made in this region, which corresponds to the urban scale equivalent of low physical quality of life, can support both upper scale plan decisions and lower scale plan decisions.

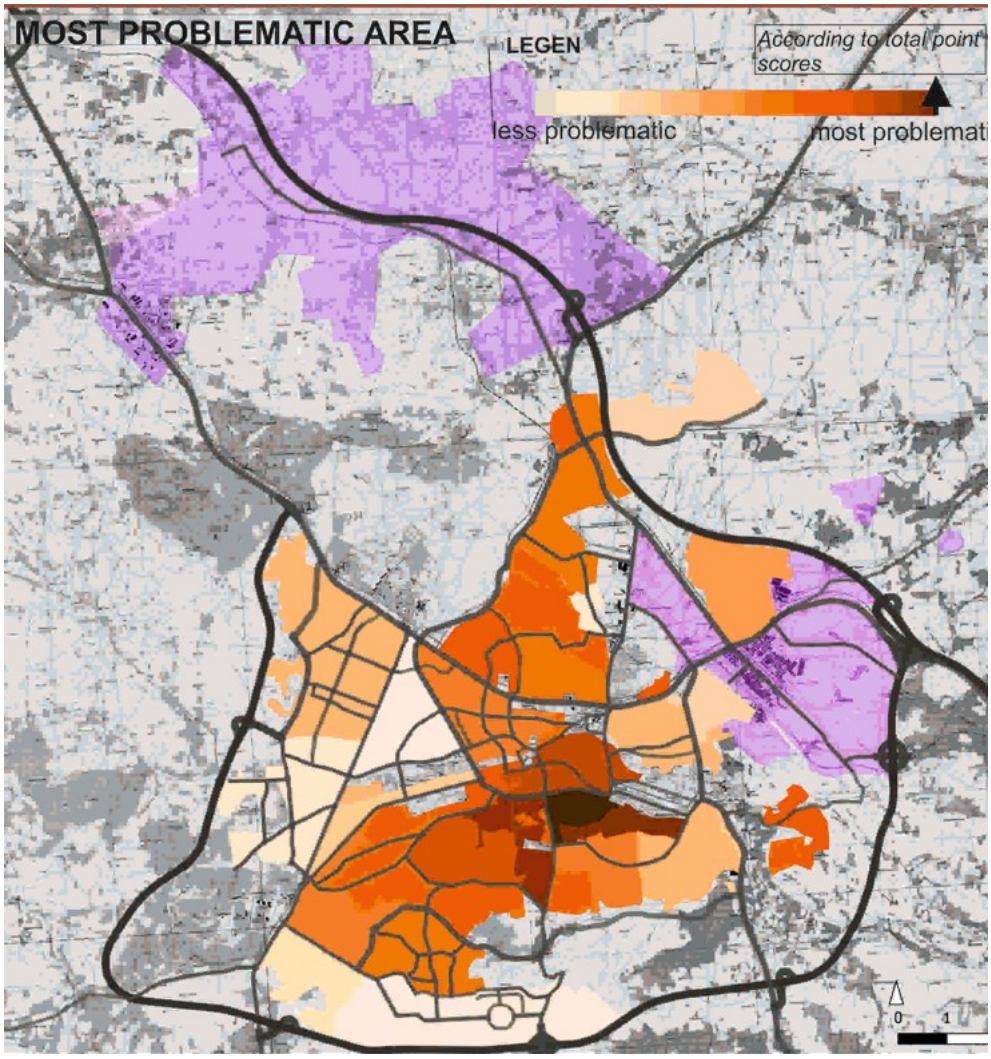


Figure 7. Synthesis map (The darkest zone has the lowest physical quality of life.) (own elaboration)

Table 1. Indicators-Measurements and Data Sources table (own elaboration)

Indicators	Measurements	Data Sources
Residential Density	A) If the average Density <50 = 1 If the Density 50-150 = 2 If the Density 150-300 = 3 If the Density 300-600 = 4 If the Density >600 = 5	2018 population data in tuik.gov.tr based on neighbourhood scale
Population Change	B) If the population increased <%100 = 1 If the population increased %100-%200 = 2 If the population increased > %200 = 3 If the population decreased %-50 - %-30 = 3 If the population decreased %-30 - %-15 = 2 If the population decreased > %-15 = 1	Population change ratio between 2007-2018 in tuik.gov.tr
Land Price	C) If land prices <30 = 5 If land prices 30-60 = 4 If land prices 60-90 = 3 If land prices 90-120 = 2 If land prices >120 = 1	Calculated using square meter value from gib.gov.tr, Endeks.com (2018 tuik.gov.tr data)
House Price	D) If House Prices <150 = 4 If House Prices 150-300 = 3 If House Prices 300-450 = 2 If House Prices >450 = 1	House prices from real estate sites (Endeksa), Endeks.com (2018 tuik.gov.tr data)
Income Status	E) Income Status <3000 = 3 Income Status 3000-4000 = 2 Income Status >4000 = 1	House prices collected from real estate sites (Endeksa)
Building Age	F) If the Building Age <25 = 1 If the Building Age 25-50 = 2 If the Building Age >50 = 3	Neighbourhood building census data from 2000 (tuik.gov.tr) + 19 years
Building Condition	G) If the Building Condition is Bad = 3 If the Building Condition is Average = 2 If the Building Condition is Good = 1	Neighbourhood building census data from 2000 (tuik.gov.tr) + 19 years
Accessibility To Bus Station	H) If the Maximum Distance to Bus Station <500m = 1 If the Maximum Distance to Bus Station >500m = 2	(Radius 500m/Walking Distance/ *Mekansal Planlar Yapım Yönetmeliği*) Certain routes on gaziulas.com
Distribution Of Green Areas	I) If the Distance to Green Areas <500 = 1 If the Distance to Active Green Areas >500 = 2	(Radius 500m/Walking Distance/ *Mekansal Planlar Yapım Yönetmeliği*) Public Service analysis data from Google Earth
Sufficiency Of Green Areas	J) If the per capita net Green area >10m² = 1 If the per capita net Green area <10m² = 2	Public Service analysis group data from Google Earth, green area standard per capita = 10m²
Distribution Of Pre -School	K) If the ratio >75% = 1 If the ratio 50-75% = 2 If the ratio 25-50% = 3 If the ratio <25% = 4	Public Service analysis data from Google Earth, meb.gov.tr
Sufficiency Of Pre-School	L) If the average number of students per class <25 = 1 If the average number of students per class >25 = 2 If there is no kindergarten = 3	Public Service analysis data from Google Earth, meb.gov.tr, assumption: 60 children per 1000 people
Distribution Of Primary School	N) If the ratio >75% = 1 If the ratio 50-75% = 2 If the ratio 25-50% = 3 If the ratio <25% = 4 If there is no primary school = 5"	Ratio of zone to service area (500m/Walking Distance/ *Mekansal Planlar Yapım Yönetmeliği*-For Standards). The number of students per classroom is 30 (*MEB- Eğitim Yapıları Asgari Tasarım Standartları)* by using Public Service analysis group data from Google Earth and meb.gov.tr

Table 1 (cont.) Indicators-Measurements and Data Sources table (own elaboration)

Indicators	Measurements	Data Sources
Sufficiency Of Primary School	P) The ratio >75% = 1 The ratio 50-75% = 2 The ratio 25-50% = 3 The ratio <25% = 4"	The ratio of the number of students calculated based on population to the existent number of students by using Public Service analysis group data from Google Earth and meb.gov.tr. Assumption: 175 primary school students per 1000 people
Distribution Of Secondary School	R) If the ratio >75% = 1 If the ratio 50-75% = 2 If the ratio 25-50% = 3 If the ratio <25% = 4 If there is no secondary school = 5"	Ratio of zone to service area (1000m/*Mekansal Planlar Yapım Yönetmeliği-For Standarts*). The number of students per classroom is 36 (MEB - *Ortaöğretim Kurumları Yönetmeliği*) by using Public Service analysis group data from Google Earth and meb.gov.tr
Sufficiency Of Secondary School	T) The ratio >75% = 1 The ratio 50-75% = 2 The ratio 25-50% = 3 The ratio <25% = 4"	The ratio of the number of students calculated based on population to the existent number of students by using Public Service analysis group data from Google Earth and meb.gov.tr. Assumption: 75 secondary school students per 1000 people
Distribution Of High School	U) If the ratio >75% = 1 If the ratio 50-75% = 2 If the ratio 25-50% = 3 If the ratio <25% = 4 If there is no high school = 5"	Ratio of zone to service area (2500m/*Mekansal Planlar Yapım Yönetmeliği*-For Standards). The number of students per classroom is 40 (*MEB - Ortaöğretim Kurumları Yönetmeliği*)
Sufficiency Of High School	Y) The ratio >75% = 1 The ratio 50-75% = 2 The ratio 25-50% = 3 The ratio <25% = 4"	The ratio of the number of students calculated based on population to the existent number of students by using Public Service analysis group data from Google Earth and meb.gov.tr. Assumption: It is assumed that 0.22 high school students per family (Melih Ersoy -Standards in Urban Planning, Estimated number of high school students while the average of Gaziantep households was 4.2. (TUIK-2018 Family Statistics))
Distribution Of Health Centre	Z) If the distance to Family Health Centre <500m = 1 If the distance to Family Health Centre >500m = 2"	(500m/Walking Distance/ *Mekansal Planlar Yapım Yönetmeliği*) by using Public Service analysis group data from Google Earth and saglik.gov.tr
Sufficiency Of Health Centre	W) If the number of doctors per 1000 people >1.8 = 1 If the number of doctors per 1000 people <1.8 = 2"	The number of doctors per 1000 people was compared according to 1.8 (The Average Turkey Per-OECD 2018) by using Public Service analysis group data from Google Earth and saglik.gov.tr

Figure 8. Photos from field © Ezgi Şahin, 2020.

The current structural condition of the most problematic area was photographed on the field trip made after the analysis (Figure 8). It is seen that the physical quality of residential, commercial and industrial buildings is quite low. There are unused, ruined structures as well as empty spaces and caves on the high slope land.

As a result this study presents a replicable framework for assessing urban quality of life using GIS-based spatial analysis. The findings highlight the corridor between the city centre, city hospital, Yeşil Vadi, and small scale industrial zone as the region with the lowest physical urban quality of life. The deteriorating infrastructure, inadequate services, and environmental degradation in this area necessitate targeted interventions. Addressing these challenges requires comprehensive urban policies that integrate spatial, economic, and social planning. The study emphasizes the importance of upper-scale and lower-scale plan decisions in mitigating disparities in urban life quality. Implementing sustainable urban transformation projects and ensuring equitable resource distribution can significantly enhance the living conditions in Gaziantep. Furthermore, the research contributes to the broader discourse on urban quality of life by providing a methodological framework applicable to other cities facing similar challenges. The findings serve as a valuable resource for policymakers, urban planners, and researchers seeking to develop resilient and inclusive urban environments. Future studies should focus on continuous monitoring and adaptive urban strategies to ensure sustainable urban development in Gaziantep and beyond.

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TUIK (https://www.tuik.gov.tr/)

Turkish Revenue Administration (https://www.gib.gov.tr/)

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