# Evaluation and Prioritization of Indicators That Improve the Quality of Life in Residential Neighborhoods

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**ABSTRACT:** Providing the conditions of residential neighborhoods to enhance residents' quality of life has always been an issue of great for urban experts and policymakers of various fields. According to the extensive research in this field, addressing quality of life indicates its importance in residential neighborhoods. The present manuscript evaluates and prioritizes the indicators that improve quality of life based on the review and analysis of experts (in architecture, landscape architecture, urban design, and planning). The strategy of this study is the correlation with a descriptive-analytical approach to evaluate and prioritize the indicators of quality of life, four of which have been identified for review by experts, namely Institutional; Economic; Social and Environmental satisfaction. A total of 22 experts answered the questions, and the findings were analyzed using the DANP technique. The findings indicate that the components of "institutional satisfaction" and "social satisfaction" have the most significant impact on enhancing residents' quality of life, respectively, from the perspective of experts. In addition, based on the weight of the obtained components, "policy-making and decision-making of organizations and institutions" in the neighborhood and "access to health facilities and services" were ranked as the first and last practical components, respectively. Therefore, strategies can be developed based on the prioritization of experts, such as strengthening social and infrastructural services and facilities (institutional); Residents' decision-making and participation in neighborhood management (social); provision of participatory housing (economic), and development of open and green space (environmental).

**Keywords:** *Quality of Life, Residential Satisfaction, Residential Neighborhoods, Expert Evaluation, Neighborhood Sustainability.*

## INTRODUCTION

Residential neighborhoods are among urban spaces in which people where the community has the most relationship and interaction due to the concept of housing. Rupture and discontinuity of communication among residents and the neighborhood in which they live can lead to instability of neighborhoods. It can be claimed that the problem of instability of neighborhoods is due to the low quality of life among residents. It seems that through enhanced quality of life, one can expect satisfaction, communication, and a sense of belonging to neighborhoods. The concept of quality of life also affects the quality of place, and paying attention to this issue will enable one to decide which place or neighborhood seems better and more suitable to live in (Silver & Clark, 2016).

Quality of life in residential neighborhoods is one of the issues in the spotlight of experts in various fields due to the lack of criteria and indicators, especially in new residential neighborhoods. The purpose of this study is to evaluate and prioritize the components and indicators affecting the quality of life in residential neighborhoods based on the evaluation of experts in architecture, landscape architecture, urban planning, and design. Explaining the components that directly or indirectly affect residents' satisfaction with their living environment can provide policies and strategies in the design and planning of residential complexes that improve living conditions and quality of life. In line with the research aims, the following questions can be raised: what are the indicators that explain the quality of life in residential neighborhoods? From the experts" point of view, which quality of life indicators have the most significant impact on residential neighborhoods? Furthermore, what policies and strategies improve the quality of life based on experts" evaluation in residential neighborhoods?

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## Theoretical Framework

As a social component, quality of life has examined the relationship between economic and social well-being concepts since the 1960s (Council, 2002). The concept of quality of life was considered in the late 1960s as an alternative to the social goals of the time to increase the standard of living. In addition to the material dimensions of welfare, this concept includes indirect aspects of life such as health, social relationships, or the quality of the natural environment (Noll, 2002). Since the 1970s, as a result of the adverse effects of economic growth on the one hand and the emergence of the theory of sustainable development on the other, quality of life has taken on more social dimensions, including distributing the consequences of growth, conserving natural resources and the environment, among others, entering the planning topics seriously as the primary goal of development. The 1990s began discussing the quality of social life, emphasizing social structures such as social capital, social solidarity, social justice. (Ghaffari & Omidi, 2011, 2-3). The concept of "quality of life can be equated with the meaning of a "good life" (Michalos, 2015); Quality of life is a "dynamic" concept, and this concept has a different interpretation for each person (Bowling, 2003).

Felce and Perry (1995) define and classify the concept of quality of life in four categories: a) quality of life is formed under living conditions; b) quality of life is defined based on people" s satisfaction; c) quality of life will be defined by the combination of the two mentioned, i.e., living conditions and satisfaction, and d) combining living conditions and satisfaction will define the quality of life based on "individual values." In other words, as Michalos (2015) states, quality of life follows two significant issues, first, "real-life conditions" and second, the problems resulting from these conditions by individuals and society. Noll (2002) introduces concepts such as "social cohesion and sustainability as dimensions that shape the quality of life. Boelhouwer (2002) also considers "improving living conditions, "safety, and "social participation as the quality of life outcomes. Sung and Phillips (2016) also consider the quality of life as a determining factor for "community well-being" and other factors such as "welfare," "happiness," and "social development." Costanza et al. (2007) consider the quality of life as a multifaceted concept that, according to human needs, relates to opportunities presented in the form of "human, social and natural capital." In this regard, Abdul-Hakim et al. (2010) consider life satisfaction created by social capital as a factor in improving quality of life. Quality of life includes the objective features of life and individuals' mental evaluation of "material, physical and social" well-being (Felce & Perry, 1995).

Quality of life is a function of objective characteristics and affects the perception and satisfaction of individuals (Perlaviciute & Steg, 2017). From the perspective of Lee and Park (2010) and Ibrahim and Chung (2003), quality of life is essentially a mental concept; mental assessment of the quality of life is based on people" s satisfaction. In other words, people" s satisfaction with life is the crucial issue of quality of life (Ghaffari & Omidi, 2011). In general, there are two approaches to examining the concept of quality of life: a) a mental approach that considers "promoting happiness" and b) an objective approach that seeks to "meet needs" (Phillips, 2006). The issues raised further describe the quality of life and refer to its effects on the social dimensions of quality of life. However, the quality of life associated with the environment involving individuals and measuring this concept, which is the main subject of this manuscript, has been discussed in the literature review.

## Literature Review

Studies on the built environment in the field of quality of life can be examined and analyzed in two scales: macro (city) and micro (neighborhood) among the studies conducted in the study of Santos and Martins (2007), which assesses citizens" perceptions of living conditions and their impact on the quality of urban life in Porto. The results indicate that urban safety and environmental quality are among the mental characteristics that affect the quality of life more than other characteristics, with urban insecurity and crime as the most damaging aspects.

Quality of life was assessed by citizens, showing high-level satisfaction of residents. In another study, Yang (2008) investigated physical factors and their relationship with quality of life caused by residents' satisfaction. This study performed a comparative evaluation in Charlotte, North Carolina, Portland, and Oregon. The results of this study indicate that intensive growth and diverse activities can increase satisfaction in the neighborhood. As a result, it improves the quality of life in the neighborhood. It should be noted that researchers consider the different conditions to be effective in achieving the quality of life of a resident in each of the neighborhoods studied.

Ibrahim and Chung (2003) assessed residents' mental quality of life in the industrial town of Jurong, Singapore. The results indicate that the environmental and leisure aspects are ranked as the lowest and "public safety" and "family life" as the highest level of satisfaction by residents. In general, the quality of life in this area is highly evaluated. Ng et al. (2018) also examine the relationship between the living environment and the perception of the quality of life of Hong Kong residents. It is noteworthy that environmental indicators such as environmental quality, security, services, infrastructure facilities, and "urban renewal" have been measured to assess residents' quality of life in Hong Kong. The results of this study indicate that the level of residents' satisfaction with the neighborhood varies according to the "housing type." Besides, researchers point out that mental satisfaction with the living environment can be considered a "predictor variable" of quality of life.

Komalawati and Lim (2020) assess residents' perceived quality of life in three Jakarta neighborhoods, varying in density. This study has investigated the relationship between urban form and the quality of life of residents. The study results show that the quality of life is higher in neighborhoods with low density and

Table 1: Key literature from the perspective of researchers and scientists

| Author/s | Year | / Article title / Book Thesis | Research achievements | Approach |
|---|---|---|---|---|
| Sirgy & Cornwell | 2002 | How Neighborhood Features Affect Quality of Life | The study found that residents' satisfaction with the characteristics of the neighborhood is effective in improving the quality of life. The researchers in this study have presented three models to evaluate the concept of quality of life in "Southwest Virginia," ultimately reporting that the satisfaction of physical characteristics affects the satisfaction of residents of the neighborhood. | Mental |
| McCrea et al. | 2006 | What is the strength of the link between objective and subjective indicators of ur-?ban quality of life | Objective and subjective quality of life indicators has been assessed using the GIS in "Southeastern Queensland." The results indicate that the link between objective and subjective indicators of quality of life is weak. | Objective/Mental |
| Kowaltowski et al. | 2006 | Quality of life and sustainability issues as seen by the population of low-income housing in the region of Campinas, Brazil | Quality of life parameters in public housing for the low-income groups has been examined in "Campinas Brazil." Residents' assessments show that the economic factor has a more significant impact on quality of life than other factors. Also, owing to the inadequacy of proper infrastructure, positive resident satisfaction has been reported. | Mental |
| Westaway | 2009 | Aspects of environmental quality of life that affect neighborhood satisfaction in disadvantaged and advantaged Johannesburg communities | This study examines the impact of quality of life on residents' satisfaction in informal settlements in Soweto, squatter camp, and the suburbs of Johannesburg, Africa. Participants in the assessment expressed satisfaction with housing, "public schools," "public clinics," "safety," and "local infrastructure." Findings indicate the importance of "housing" and "personal safety" on residents' life satisfaction in deprived and non-deprived contexts. | Mental |
| Lee & Park | 2010 | Housing Satisfaction and Quality of Life Among Temporary residents in the United States | This is a study of factors affecting satisfaction and quality of life among temporary Korean residents in Lansing, Michigan, USA. The findings show that housing has a significant impact on the quality of life of residents. The results also indicate that in addition to residents' satisfaction, other features of housing, such as "housing perception" and neighborhood, affect the "quality of life" as perceived by residents. | Mental |
| McCrea .et al | 2011 b | Subjective Quality of :Life in Queensland<br><br>Comparing Metropolitan, Regional and Rural Areas | This study investigates the mental concept of quality of urban life concerning the four components of the urban environment, such as 1) "access to services and facilities"; 2) "noise pollution"; 3) "incivilities" and 4) "social capital" in the state of Queensland, Australia. The findings indicate that "noise pollution" and "incivilities" are lower than the other two components related to the quality of urban life. | Mental |
| Gandelman et al. | 2012 | Neighborhood Determinants of Quality of Life | This study examines the components of quality of life in Uruguay, the results of which emphasize the influential role of neighborhood facilities and "public good" on the life satisfaction of residents. | Objective/Mental |
| El-Din et al. | 2013 | Principles of urban quality of life for a neighborhood | This research has dealt with the relationship between sustainable neighborhood development and the concept of quality of life. Also, after receiving this relationship, practical physical, social, economic, and political principles that can be effective in improving the quality of urban life in neighborhoods have been proposed. | Objective |
| Soleimani et al. | 2014 | The Assessment of Quality of Life in Transitional Neighborhoods | This study examines the concept of quality of life from both objective and subjective dimensions in the Darvazeshemiran neighborhood of Tehran. The results of this study indicate that the quality of life in this neighborhood has been assessed primarily negatively by residents. The two indicators of environmental quality and access status have been assessed as extremely low. | Objective/Mental |
| Gobbens et al. | 2017 | Associations of Environmental Factors With Quality of Life in Older Adults | The impact of environmental factors on the quality of life of older people in the Netherlands has been studied. The results indicate that indicators such as housing, neighborhood residents, and harassment have a more significant impact on the quality of life of the elderly. | Mental |

"high-mixed use." In this regard, researchers point out that the urban form can help establish and improve the quality of life of neighborhood residents. However, other micro-scale studies - including a subjective assessment of the quality of life of residents in the recreated "Akpinar" neighborhood in Ankara, Turkey, conducted by Orhan et al. (2020) show that components such as cultural facilities, adequacy of infrastructure, and service systems, as well as issues such as tranquility in the neighborhood, have a positive impact on the quality of life of residents. It should also be noted that the findings indicate that residents' satisfaction with recreational and commercial facilities in the neighborhood is low.

Nakanishi (2015) studied the relationship between urban policy and the quality of urban life in the Canberra neighborhood of Australia. The researcher adopted policies in four components: "land use (location and services)," "architecture (design and quality of building facilities)," "social services (quality of health and care services)," and "public transport," which were proposed to satisfy Canberra residents, ultimately improving the quality of life in this neighborhood. In another study, Mridha and Moore (2011) also assessed the quality of life due to residents' satisfaction with the quality of the neighborhood in Dhaka, Bangladesh; "neighborhood open space," "neighborhood cleanliness," and "traffic safety" were deemed significant. The results indicate that the physical quality of the neighborhood plays a significant part in residents' level of satisfaction with life. Salleh and Badarulzama (2012) measured the residents' satisfaction with the neighborhood in three aspects: physical, social, and economic, as the main factors affecting the quality of life. This study evaluates the quality of life in the Pulau Piang neighborhood of Malaysia. The results of the study reveal that residents are less satisfied with the criteria of "public transportation," "cost of living," and "political activities." It should also be noted that the assessments report social aspects as an essential component compared to physical and economic satisfaction.

From the studies conducted by Iranian scholars, we can refer to Saeideh Zarabadi et al. (2016). They have evaluated and prioritized the indicators of quality of urban life in the city of Mashhad. The results of this study report that areas with less economic potential have a lower quality of life in proportion. Other studies include the study of Lotfi & Manouchehri Miandoaab (2011), who examined the subjective and objective dimensions of the quality of urban life in three neighborhoods with different contexts in the city of Maragheh. The analysis results indicate a significant difference between the subjective and objective quality of life in the new contexts neighborhood. Also, in this neighborhood, residents' satisfaction with low quality of life indicators has been evaluated. Barati and Yazdanpanah Shah Abadi (2016) have also evaluated the quality of life in "Pardis new town." The researchers point out that the social capital approach effectively improves the quality of life of campus residents. This study indicates that the mental quality of life and social capital in the "Pardis new town" is low

and also among the indicators of mental quality of life, "quality of access to services," and "quality of the social environment," as compared to other indicators, are less desirable from the prospective residents.

Table 1 also refers to other fundamental studies conducted by researchers and scholars. The table refers to the approaches of each researcher to the concept of quality of life in three directions: a) objective approach (El Din et al., 2013) which considers most of the criteria of visibility of the environment that can lead to improved quality of life; b) mental approach (Kowaltowski et al., 2006; Gobbens et al., 2017; Lee & Park, 2010), which deals with people" s perception and satisfaction with the characteristics of the built environment and c) integrated approach, where both objective indicators and mental perception of individuals have been used to assess the concept of quality of life (Soleimani et al., 2014; McCrea et al., 2006). However, another noteworthy point mentioned in Table 1 is that the component of residents' satisfaction defines the quality of life and is ineffective in obtaining satisfaction. Indicators and physical quality alone are not effective, and the accompaniment of other indicators such as social and economic indicators has led to residents' satisfaction or dissatisfaction.

Reviewing the concept of quality of life and its approaches, one can argue that quality of life is a factor and a basis for people" s satisfaction with the environment, whether on a Macro scale of a community or a Microscale of residential neighborhoods. Therefore, given its importance and impact on the physical, institutional, social and economic dimensions of neighborhoods, the concept of quality of life should be examined from different perspectives to improve and enhance life in neighborhoods and offer practical solutions. Most of the studies conducted so far are concerned with residents' evaluation and preferences of the neighborhoods. Few have examined and prioritized the quality of life indicators from experts and policymakers of residential neighborhoods. It seems that experts as decision-makers in the planning and design of residential neighborhoods can improve the quality of life in the residential environment by correctly prioritizing factors and adopting required policies and strategies.

### Quality of Life (Indicators & Components)

According to the results extracted from the review of the research background, first, a conceptual model (Figure 1) is presented, based on which the indicators can be classified in a structured way. To describe the model, it should be stated that institutional, economic, social, and environmental characteristics affect the neighborhood, forming residents' perception of the objective and mental characteristics of the environment. Perceptions created according to time and place, if positive, will lead to people" s satisfaction with the environment. Residents' satisfaction can be measured in three scales: a) socio-institutional satisfaction, b) socio-economic satisfaction, and c) the desirability of the neighborhood environment, which ultimately define the quality of the living
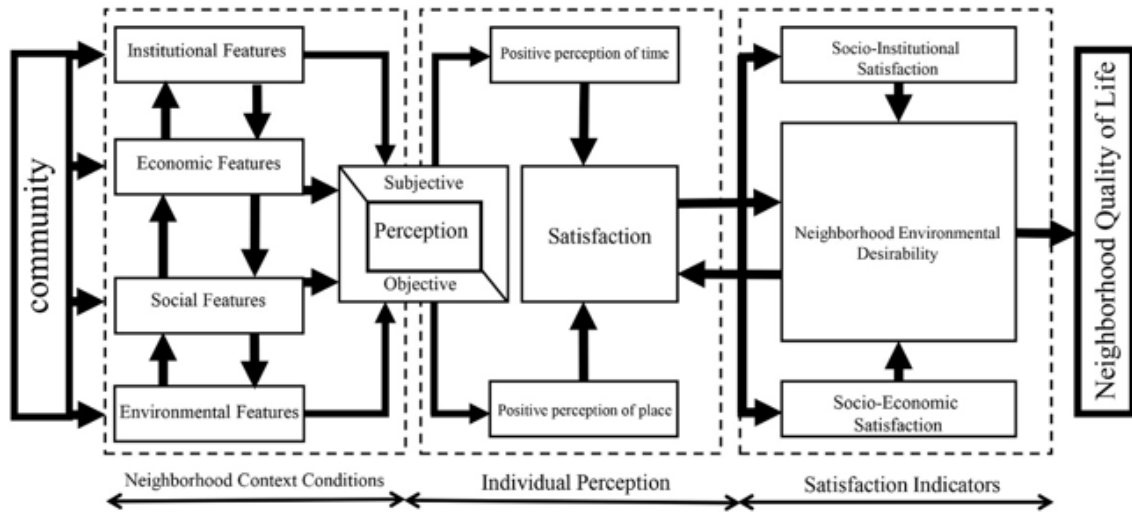
Fig. 1: Conceptual model of research background review

environment in the neighborhood. As mentioned in the first two scales, social satisfaction has been proposed with institutional and economic factors. This is because the quality of life will be promoted through social development and other mentioned factors. However, regarding the third scale, it is worth mentioning that environmental utility. As mentioned in some studies, the quality of the environment will not necessarily lead to quality of life. However, this desirability may be achieved, even with low quality, due to residents' different attitudes, preferences, and evaluations of environmental characteristics and criteria.

In explaining the indicators and quality of life components to measure and evaluate the views of experts, as mentioned in the conceptual model (Figure 1), four components can be mentioned based on the review of the research background. First, Institutional Satisfaction refers to the services of government institutions and organizations and their policy regarding the neighborhood and housing. Second, Economic satisfaction emphasizes the amount of income and expenses of residents, housing prices, job opportunities, and activities in the neighborhood. Third, Social satisfaction deals with indicators such as social interactions (communication between residents in public spaces and daily activities), social participation (participation and decision-making in

Table 2: Components and indicators quality of life-based on research background review

| Indicator | Component | Researcher/s |
|---|---|---|
| Institutional Satisfaction (I1) | services of government institutions and organizations (A1) | Expert |
| | Policy-making and decision-making of organizations and institutions regarding the neighborhood and housing (A2) | |
| Economic satisfaction (I2) | Income and expenses (B1) | (Perlaviciute & Steg, 2012), (Ng et al., 2018), (Sirgy & Cornwell, 2002), (Gandelman et al., 2012), (Soleimani et al., 2014), (Lee & Park, 2010), (Ibrahim & Chung, 2002), (Santos & Martins, 2007), (Salleh & Badarulzama, 2012), (Türksever & Atalik, 2001), (Marans & Stimson, 2011). |
| | Housing price (B2) | (Nakanishi, 2015), (Sirgy & Cornwell, 2002), (Raphael et al., 2001), (Santos & Martins, 2007), (Salleh & Badarulzama, 2012), (McCrea et al., 2006). |
| | Job Opportunity / Job Activity in the Neighborhood (B3) | (Perlaviciute & Steg, 2012), (Ng et al., 2018), (Westaway, 2009), (Nakanishi, 2015), (El Din et al., 2013), (McCrea et al., 2006). |

Continiue of Table 2: Components and indicators quality of life-based on research background review

| Indicator | Component | Researcher/s |
|---|---|---|
| Social satisfaction (I3) | Social interaction (C1) | (Perlaviciute & Steg, 2012), (El Din et al., 2013), (Sirgy & Cornwell, 2002), (Soleimani et al., 2014), (Chen & Davey, 2009), (Gobbens et al., 2017), (Komalawati & Lim, 2020), (Salleh & Badarulzama, 2012), (McCrea et al., 2006), (Türkoğlu et al, 2011), (Mridha & Moore, 2011), (McCrea et al., 2011 a). |
| | Social participation (C2) | (El Din et al., 2013), (Santos & Martins, 2007), (Marans & Stimson, 2011), (Türkoğlu et al., 2011). |
| | Rate of crime ( C3) | (Nakanishi, 2015), (Sirgy & Cornwell, 2002), (Soleimani et al., 2014), (Orhan et al., 2020), (Santos & Martins, 2007), (Gobbens et al., 2017), (Yang, 2008), (Salleh & Badarulzama, 2012), (Kowaltowski et al., 2006), (McCrea et al., 2006), (Marans & Stimson, 2011), (Türkoğlu et al., 2011),  (Mridha & Moore, 2011), (McCrea et al., 2011 a). |
| Environmental Satisfaction (I4) | (Physical and mental security (D1 | (Perlaviciute & Steg, 2012),( Ng  et al., 2018), (El Din et al., 2013), (Orhan et al., 2020), (Ibrahim & Chung, 2002), (Kowaltowski et al., 2006). |
| | Housing characteristics (classification and density)-(D2) | (Westaway, 2009), (Ng et al., 2018), (Sirgy & Cornwell, 2002), (Orhan et al., 2020), (Yang, 2008), (McCrea et al., 2006), (Marans & Stimson, 2011). |
| | Physical quality of housing (D3) | (Türkoğlu et al., 2011), (Mridha & Moore, 2011), (Kowaltowski et al., 2006), (Salleh & Badarulzama, 2012). |
| | Quality of environment (D4) | (Perlaviciute & Steg, 2012), (Ng  et al., 2018), (Nakanishi, 2015), ( El Din et al., 2013), (Sirgy & Cornwell, 2002),  (Gandelman et al., 2012), (Soleimani et al., 2014), (Orhan et al., 2020), (Lee & Park, 2010), (Ibrahim & Chung, 2003), (Santos & Martins, 2007), (Gobbens et al, 2017), (Komalawati & Lim, 2020), (Kowaltowski et al., 2006), (McCrea et al., 2006), (Marans & Stimson, 2011),  (Mridha & Moore, 2011), (Raphael et al., 2001), (Salleh & Badarulzama, 2012), (Türksever &Atalik, 2001), (Türkoğlu et al., 2011). |
| | Access to health facilities and services (D5) | (Perlaviciute & Steg, 2012), (Westaway, 2009), ( Nakanishi, 2015), (Soleimani et al., 2014), (Raphael et al., 2001), (Santos & Martins, 2007), (Salleh & Badarulzama, 2012), (McCrea et al., 2006), (Türkoğlu et al., 2011), (McCrea et al., 2011 b). |
| | Access to welfare, recreational and cultural facilities and services (D6) | (Perlaviciute & Steg, 2012), (Nakanishi, 2015), (Soleimani et al., 2014), (Orhan et al., 2020), (Raphael et al., 2001), (Ibrahim & Chung, 2003), (Santos & Martins, 2007), (Gobbens et al., 2017), (Salleh & Badarulzama, 2012), (McCrea et al, 2006), (Marans & Stimson, 2011), (Türkoğlu et al., 2011), (Mridha & Moore, 2011). |
| | Access to educational facilities and services (D7) | (Perlaviciute & Steg, 2012), (Westaway, 2009), (Nakanishi, 2015), (Salleh & Badarulzama, 2012) (Soleimani et al., 2014), (Orhan et al., 2020), (Raphael et al., 2001), (Santos & Martins, 2007), (McCrea et al., 2006), (Türksever &Atalik, 2001), (Türkoğlu et al., 2011), (McCrea et al., 2011 b). |
| | Place identity / Place belonging / Place attachment (D8) | (El Din et al., 2013), (Perlaviciute & Steg, 2012), (Soleimani et al., 2014), (Orhan et al., 2020), (Tabernero et al., 2010). |
| | Access to public transportation (D9) | (Ng  et al., 2018),  (Westaway, 2009), (Nakanishi, 2015), (El Din et al., 2013), (Orhan et al, 2020), (Raphael et al, 2001), (Ibrahim & Chung, 2003), (Komalawati & Lim, 2020), (Salleh & Badarulzama, 2012), (Türksever & Atalik, 2001), (Marans & Stimson, 2011), (Türkoğlu et al., 2011), (McCrea et al., 2011a), (McCrea et al., 2011 b). |

neighborhood issues and activities, and activities in collective events), and crime rate. Four, Environmental Satisfaction is associated with the physical and mental security of residents, housing characteristics (classification and density), physical quality of housing, quality of neighborhood environment (cleanliness, noise pollution, amount of green and open space.), residents' access to neighborhood infrastructure facilities and services, environmental and psychological issues such as identity, attachment and belonging to the place, as well as access to public transportation. Components are expressed as

an integrated approach involving both objective and mental to quality of life. It should be noted that the components and indicators mentioned are listed separately concerning the research conducted in Table 2.

## MATERIALS AND METHODS

The strategy of the present study is correlated with a descriptive-analytical approach, and the data were collected using information sources and a questionnaire (closed questions of comparative type). The present manuscript consists of three parts. The first part, which was mentioned initially, was a review of research on the concept of quality of life, particularly in residential neighborhoods, trying to create a logical framework. Also, the indicators that improve the quality of life in residential neighborhoods have been identified at this stage. The second part analyzes and evaluates the evaluations made by experts based on the combined technique of Dematel and Analytic Network Process (DANP). Finally, based on the prioritization of components and indicators, several policies and strategies are addressed to improve the quality of life in residential neighborhoods.

As mentioned in the literature review, numerous studies have examined the quality of life in residential neighborhoods based on residents' evaluations. No research has been conducted to evaluate and prioritize indicators and components from the perspective of experts as a decision-making factor in residential neighborhoods; Moreover, given the mastery of experts over the full dimensions of the problem, addressing their views, when the dimensions of the problem are different and complex, and prioritizing as well as questioning the causal and structural relationships between indicators and components can be of prime significance. Therefore, to collect the data for the present study, a questionnaire was developed based on the components and quality of life indicators, which consisted of a survey matrix of 17 *17. Then, the questionnaire was distributed among 22 selected experts in various fields as architecture, landscape architecture, planning, and urban design, all living in Shiraz. The questionnaire was provided to the respondents within one month. The experts were asked to evaluate the effect of each row index on each column index on the Likert scale, from 0 (Without impact) up to 4 (very high impact).

It should be noted that the criteria for selecting specialists based on their experience and expertise in the field of residential complexes in Shiraz and also the scientific rank of experts have been effective in this selection. In this study, about 68% of the specialists are women, and 32% are men. In addition, 5% of the respondents have an associate degree, 45% are assistant professors, 36% are Ph.D. candidates, and 14% are lecturers in specialized fields.

The method used to analyze the data in this research technique is Multiple Criteria Decision Making (DANP). DANP is a combination of the Dematel method and the Analytical Network Process (ANP), which is used to prioritize and determine the exact weight of each indicator (Hsu et al., 2012;

Liu et al., 2013). The advantage of this method over other similar methods is its feasibility in determining the causal relationships between indicators (Kuo et al., 2015); In other words, the technique (DANP) can be considered as one of the appropriate methods that express the "interaction" and "dependence" of the indicators with each other, thus bringing the analyses closer to reality (Chiu et al., 2013).

## RESULTS AND DISCUSSIONS

Data analysis has been done based on the formulas mentioned in the studies of Hsu et al. (2012) as well as Chiu et al. (2013) and in ten steps, each of which will be mentioned below.

**Step 1:** The data extracted from each questionnaire are entered into Excel software to create a single matrix or direct relation matrix with the Geometric mean of the data (Table 3). In addition to the items listed in this stage of the process to advance computational research, it is needed to verify the reliability of the questionnaire. The reliability is verified if the coefficient inconsistency rate is less than 0.05, and it is not accepted if it is more than the number reported in the calculations. In this study, the data inconsistency rate coefficient is equal to 0.0042.

**Step 2:** In this step, the direct relation of the sum of rows and columns from the matrix is calculated, the most significant number from the obtained numbers, which is (46.21), is selected, and then the numbers in the direct relation matrix are divided by this number to obtain a normalized direct relation matrix.

**Step 3:** In the third step, the total relation matrix of the components is calculated. First, we create the unit matrix and direct the generated matrix minus the normalized direct relation matrix. Then we invert the resulting matrix. Following this, the normalized direct relation matrix is multiplied by the inverse matrix created. We show that the final matrix obtained is the total relation matrix of the components (Table 4).

**Step 4:** This step deals with the total relation matrix of indicators and the calculation of the intensity and direction of the effect. In this step, the total relation matrix of components is used to obtain the total relation matrix of indicators by averaging the numbers at the intersection of each indicator, which is specified in the matrix of Table (4). Putting these numbers together creates a total relation matrix of the indicators (Table 5). Now, to calculate the intensity and direction of the matrix's row and column sum effect, we calculate the relationship of the indicators. Numbers obtained from the sum of rows are shown by the abbreviation (R) and those obtained from the sum of the columns by the symbol (C). To calculate the intensity and direction of the effect, we need (R + C - indicator of the intensity of the effect) and (R-C - indicator of the direction of the effect).

If the number (R-C) is positive, the component is practical, and if negative, it is impressible (Table 5). To determine the causal relationship between the indicators, we compare the numbers in the total relation matrix table of components with the threshold (mean of all numbers in the total- relation matrix

Table 3: Direct Relation Matrix

| | A1 | A2 | B1 | B2 | B3 | C1 | C2 | C3 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0 | 3/19 | 1/89 | 2/45 | 2/88 | 2/15 | 2/57 | 2/71 | 3/01 | 2/33 | 2/33 | 2/87 | 2/88 | 2/57 | 2/71 | 1/64 | 3/19 |
| A2 | 2/98 | 0 | 2/17 | 2/98 | 2/73 | 2/70 | 2/82 | 2/98 | 2/76 | 3/04 | 2/65 | 3/00 | 2/94 | 2/79 | 2/66 | 2/34 | 2/93 |
| B1 | 1/74 | 2/32 | 0 | 3/25 | 2/38 | 1/89 | 1/69 | 2/82 | 2/85 | 2/85 | 3/52 | 3/26 | 2/62 | 2/79 | 2/75 | 1/92 | 2/01 |
| B2 | 2/45 | 2/84 | 3/12 | 0 | 2/27 | 1/76 | 1/73 | 2/51 | 2/37 | 3/19 | 3/56 | 3/08 | 2/74 | 2/68 | 2/25 | 2/08 | 2/28 |
| B3 | 2/63 | 2/75 | 2/68 | 2/42 | 0 | 2/51 | 2/37 | 2/59 | 2/54 | 1/83 | 1/86 | 2/32 | 1/88 | 2/07 | 1/88 | 2/06 | 1/91 |
| C1 | 1/90 | 2/26 | 1/84 | 1/74 | 2/13 | 0 | 3/63 | 3/30 | 3/28 | 1/98 | 1/95 | 2/84 | 1/77 | 2/36 | 1/83 | 3/40 | 1/89 |
| C2 | 1/97 | 2/68 | 1/87 | 1/85 | 2/14 | 3/41 | 0 | 3/34 | 3/34 | 1/83 | 1/82 | 2/76 | 1/65 | 2/32 | 1/88 | 3/40 | 1/90 |
| C3 | 2/25 | 2/74 | 2/68 | 2/52 | 2/57 | 2/97 | 2/97 | 0 | 3/85 | 2/23 | 2/31 | 3/31 | 1/78 | 2/30 | 2/27 | 2/84 | 2/01 |
| D1 | 2/18 | 2/71 | 2/77 | 2/68 | 2/57 | 3/24 | 3/19 | 3/80 | 0 | 2/09 | 2/15 | 3/19 | 2/01 | 2/39 | 2/21 | 3/04 | 2/12 |
| D2 | 2/34 | 2/79 | 2/28 | 3/49 | 1/95 | 2/45 | 2/26 | 2/39 | 2/53 | 0 | 2/96 | 3/11 | 2/10 | 2/27 | 2/02 | 2/79 | 1/83 |
| D3 | 2/32 | 2/54 | 3/02 | 3/61 | 1/75 | 2/01 | 1/90 | 2/37 | 2/23 | 3/06 | 0 | 3/19 | 1/77 | 2/08 | 1/91 | 2/88 | 1/83 |
| D4 | 2/80 | 2/97 | 2/81 | 3/41 | 2/68 | 2/71 | 2/87 | 3/07 | 3/22 | 2/88 | 2/78 | 0 | 2/51 | 2/74 | 2/57 | 3/34 | 2/69 |
| D5 | 2/63 | 3/02 | 2/26 | 2/66 | 1/73 | 1/63 | 1/63 | 1/74 | 2/05 | 1/70 | 1/50 | 2/41 | 0 | 1/74 | 1/72 | 2/09 | 2/07 |
| D6 | 2/57 | 2/84 | 2/51 | 2/73 | 2/10 | 2/47 | 2/43 | 2/33 | 2/23 | 1/99 | 1/74 | 2/52 | 1/81 | 0 | 2/11 | 2/80 | 2/28 |
| D7 | 2/52 | 3/06 | 2/42 | 2/66 | 1/95 | 1/87 | 1/90 | 2/10 | 2/03 | 1/82 | 1/65 | 2/20 | 1/58 | 1/75 | 0 | 2/32 | 2/29 |
| D8 | 1/91 | 2/26 | 2/08 | 2/26 | 2/13 | 3/22 | 3/43 | 2/59 | 2/85 | 2/37 | 2/55 | 3/34 | 2/04 | 2/51 | 2/18 | 0 | 1/73 |
| D9 | 2/85 | 2/80 | 2/30 | 2/34 | 2/07 | 1/77 | 1/87 | 1/56 | 2/20 | 1/79 | 1/86 | 2/80 | 2/59 | 2/71 | 2/82 | 1/87 | 0 |

Table 4: Total relation matrix of components

| | A1 | A2 | B1 | B2 | B3 | C1 | C2 | C3 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0/30 | 0/41 | 0/35 | 0/39 | 0/35 | 0/35 | 0/36 | 0/39 | 0/40 | 0/34 | 0/34 | 0/42 | 0/33 | 0/35 | 0/34 | 0/36 | 0/34 |
| A2 | 0/38 | 0/37 | 0/37 | 0/42 | 0/36 | 0/38 | 0/39 | 0/42 | 0/42 | 0/38 | 0/37 | 0/45 | 0/36 | 0/38 | 0/36 | 0/39 | 0/36 |
| B1 | 0/33 | 0/39 | 0/30 | 0/40 | 0/33 | 0/34 | 0/34 | 0/39 | 0/39 | 0/35 | 0/36 | 0/42 | 0/33 | 0/35 | 0/34 | 0/36 | 0/32 |
| B2 | 0/35 | 0/40 | 0/37 | 0/34 | 0/33 | 0/34 | 0/35 | 0/38 | 0/39 | 0/36 | 0/37 | 0/42 | 0/33 | 0/35 | 0/33 | 0/36 | 0/32 |
| B3 | 0/32 | 0/36 | 0/33 | 0/35 | 0/26 | 0/33 | 0/33 | 0/35 | 0/36 | 0/30 | 0/30 | 0/37 | 0/28 | 0/31 | 0/29 | 0/33 | 0/29 |
| C1 | 0/32 | 0/37 | 0/32 | 0/35 | 0/31 | 0/29 | 0/37 | 0/38 | 0/39 | 0/31 | 0/32 | 0/40 | 0/29 | 0/33 | 0/30 | 0/37 | 0/30 |
| C2 | 0/32 | 0/37 | 0/32 | 0/35 | 0/31 | 0/36 | 0/29 | 0/38 | 0/39 | 0/31 | 0/31 | 0/40 | 0/29 | 0/33 | 0/30 | 0/37 | 0/30 |
| C3 | 0/35 | 0/40 | 0/37 | 0/39 | 0/34 | 0/37 | 0/38 | 0/34 | 0/42 | 0/34 | 0/35 | 0/43 | 0/32 | 0/35 | 0/33 | 0/39 | 0/32 |
| D1 | 0/35 | 0/41 | 0/37 | 0/40 | 0/35 | 0/38 | 0/39 | 0/42 | 0/35 | 0/35 | 0/35 | 0/44 | 0/32 | 0/36 | 0/34 | 0/39 | 0/33 |
| D2 | 0/34 | 0/39 | 0/34 | 0/40 | 0/32 | 0/35 | 0/35 | 0/37 | 0/38 | 0/29 | 0/35 | 0/41 | 0/31 | 0/34 | 0/32 | 0/37 | 0/31 |
| D3 | 0/33 | 0/37 | 0/35 | 0/39 | 0/31 | 0/33 | 0/33 | 0/36 | 0/37 | 0/34 | 0/28 | 0/41 | 0/30 | 0/33 | 0/31 | 0/36 | 0/30 |
| D4 | 0/39 | 0/44 | 0/40 | 0/44 | 0/37 | 0/40 | 0/41 | 0/43 | 0/44 | 0/39 | 0/39 | 0/40 | 0/36 | 0/39 | 0/37 | 0/43 | 0/36 |
| D5 | 0/30 | 0/34 | 0/29 | 0/33 | 0/27 | 0/28 | 0/28 | 0/30 | 0/32 | 0/27 | 0/27 | 0/34 | 0/22 | 0/28 | 0/26 | 0/30 | 0/27 |
| D6 | 0/33 | 0/37 | 0/33 | 0/36 | 0/31 | 0/33 | 0/34 | 0/35 | 0/36 | 0/31 | 0/31 | 0/38 | 0/29 | 0/28 | 0/30 | 0/35 | 0/30 |
| D7 | 0/30 | 0/35 | 0/31 | 0/34 | 0/28 | 0/30 | 0/30 | 0/32 | 0/33 | 0/29 | 0/28 | 0/35 | 0/27 | 0/29 | 0/24 | 0/32 | 0/28 |
| D8 | 0/33 | 0/38 | 0/34 | 0/37 | 0/32 | 0/36 | 0/37 | 0/38 | 0/39 | 0/33 | 0/34 | 0/42 | 0/31 | 0/34 | 0/32 | 0/31 | 0/30 |
| D9 | 0/32 | 0/36 | 0/32 | 0/35 | 0/30 | 0/31 | 0/31 | 0/33 | 0/35 | 0/30 | 0/30 | 0/38 | 0/30 | 0/32 | 0/31 | 0/32 | 0/25 |

of components, which is calculated as 0.35. If the number in a matrix is larger than the threshold, the components have a relationship. According to the results, institutional satisfaction is the most effective indicator (Figure 2).

**Step 5:** In this step, the intensity and direction of the effect of each of the components are determined. This way, by using the original diameter of the matrix (meaning the primary diameter of the intersection of each indicator with itself), we achieve complete causal relationships between the components. The fourth step is performed to determine each component (Table 6) and establish their relationships (Figure 3). Institutional satisfaction and social satisfaction components, as can be seen

Table 5: Total relation matrix of indicators

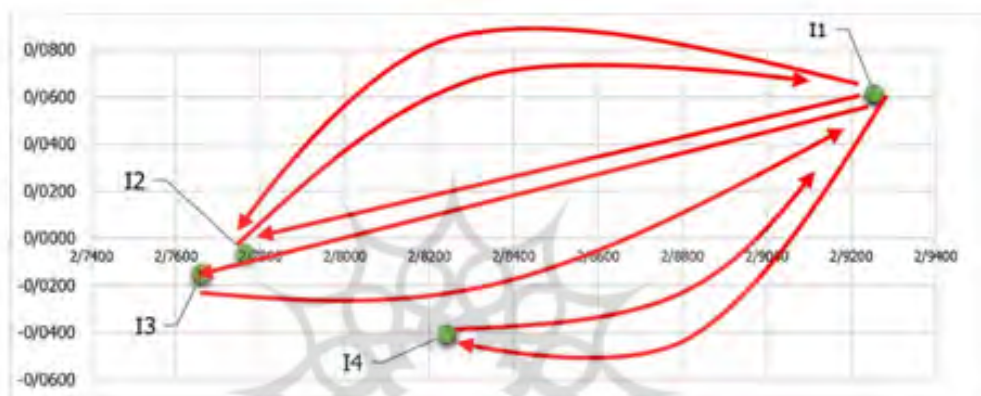| Indicator | I1 | I2 | I3 | I4 | R | C | R+C | R-C |
|-----------|------|------|------|------|------|------|------|------|
| I1 | 0/3645 | 0/3731 | 0/3836 | 0/3724 | 1/4935 | 1/4320 | 2/9255 | 0/0615 |
| I2 | 0/3576 | 0/3338 | 0/3495 | 0/3442 | 1/3852 | 1/3913 | 2/7764 | -0/0061 |
| I3 | 0/3550 | 0/3420 | 0/3512 | 0/3436 | 1/3918 | 1/4324 | 2/8242 | -0/0406 |
| I4 | 0/3549 | 0/3424 | 0/3481 | 0/3302 | 1/3757 | 1/3905 | 2/7662 | -0/0148 |



Fig. 2: Causal relationships of indicator

Table 6: Intensity and direction matrix of the effect of components

| Components | R | C | R+C | R-C |
|------------|--------|--------|--------|---------|
| A1 | 0/7087 | 0/6830 | 1/3917 | 0/0258 |
| A2 | 0/7491 | 0/7749 | 1/5240 | -0/0258 |
| B1 | 1/0356 | 0/9978 | 2/0334 | 0/0377 |
| B2 | 1/0369 | 1/0880 | 2/1249 | -0/0510 |
| C1 | 0/9321 | 0/9188 | 1/8509 | 0/0133 |
| C2 | 1/0344 | 1/0217 | 2/0560 | 0/0127 |
| C3 | 1/0334 | 1/0380 | 2/0713 | -0/0046 |
| D1 | 1/0929 | 1/1010 | 2/1939 | -0/0081 |
| D2 | 3/2324 | 3/2875 | 6/5199 | -0/0551 |
| D3 | 3/0700 | 2/8575 | 5/9275 | 0/2125 |
| D4 | 2/9962 | 2/8643 | 5/8606 | 0/1319 |
| D5 | 3/5260 | 3/5262 | 7/0522 | -0/0003 |
| D6 | 2/5349 | 2/6704 | 5/2053 | -0/1355 |
| D7 | 2/8845 | 2/9266 | 5/8111 | -0/0421 |
| D8 | 2/6406 | 2/7615 | 5/4021 | -0/1209 |
| D9 | 3/0510 | 3/1597 | 6/2107 | -0/1087 |
| D10 | 2/8141 | 2/6959 | 5/5100 | 0/1181 |

in Figure 3, interact with each other. It should also be noted that physical quality has the most significant impact on other factors in environmental satisfaction, and reports on access to health and education services have the most negligible impact.

**Step 6:** To achieve the indicator's priority, we first complete the normalization of the indicators. Using the total relation matrix of the components, the sum of each row is calculated, and each number is divided by the sum of the corresponding row numbers. Then we move the rows and columns in the resulting matrix. Now, to achieve the rank of each indicator, the lines are averaged separately. The indicator of institutional satisfaction (0.2538) has been evaluated as the priority and that of environmental satisfaction (0.2462) as the last priority (Table 7).

**Step 7:** This has to do with the normalized total relation matrix of the component. This step is done according to each indicator expressed in the total relation matrix of components by considering the numbers in each indicator (block) and adding the row numbers in the same indicator. Then we divide the numbers in the same line by the sum of the rows. The

resulting matrix is then normalized as the total relation matrix of the components.

**Step 8:** In this step, which is the formation of an unweighted supermatrix, we transpose the normalized matrix of the previous step to obtain an unweighted supermatrix.

**Step 9:** Step nine is the formation of a weighted supermatrix. We multiply the normalized total relation matrix of the indicators in the unweighted supermatrix to achieve this supermatrix.

**Step 10:** We multiply the weighted supermatrix by itself so that the supermatrix converges or, in other words, achieves stability. The output of this step will be the weights of the components and their ranking (Table 8). The first component ranked is the policy and decision-making of organizations and institutions regarding the neighborhood and housing (0.13524) and the institutional services and government (0.11851) and housing prices (0.08904), respectively, are located in the following prioritization. In addition, access to health facilities and services (0.02468) is ranked as the last component among the quality of life components in residential neighborhoods.
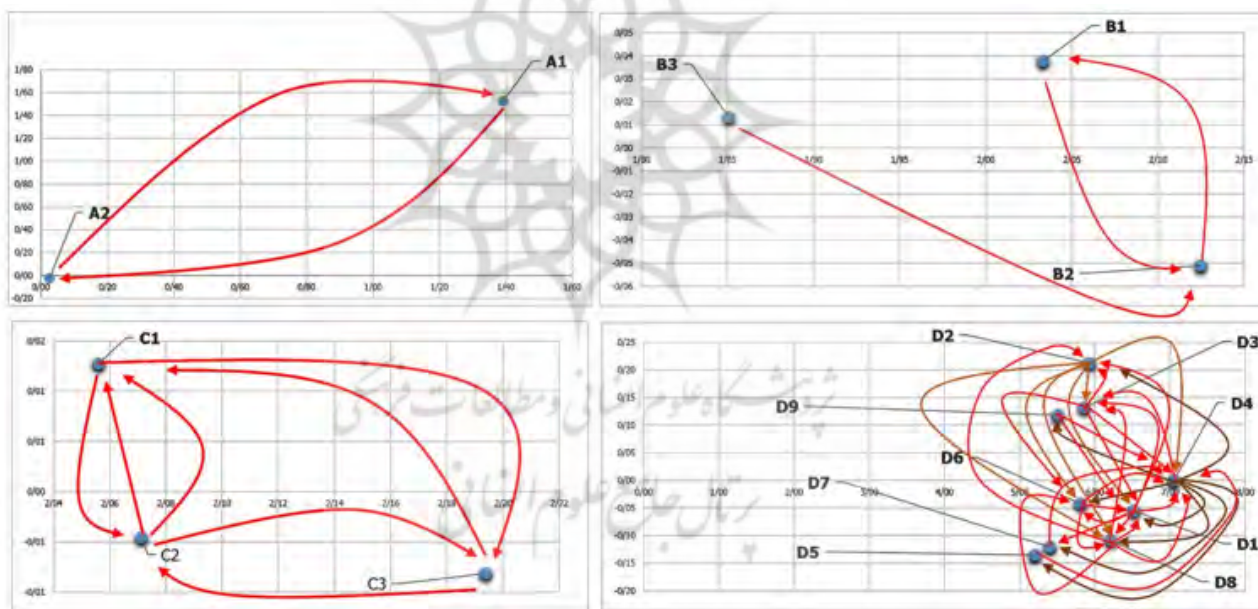


Fig. 3: Causal relationships of components

Table 7: indicators ranking matrix

| Indicators | Institutional Satisfaction | Economic satisfaction | Social satisfaction | Environmental Satisfaction | Rank |
|---|---|---|---|---|---|
| Institutional Satisfaction | 0/2440 | 0/2582 | 0/2551 | 0/2580 | 0/2538 |
| Economic satisfaction | 0/2498 | 0/2410 | 0/2457 | 0/2489 | 0/2463 |
| Social satisfaction | 0/2568 | 0/2523 | 0/2523 | 0/2531 | 0/2536 |
| Environmental Satisfaction | 0/2494 | 0/2485 | 0/2469 | 0/2401 | 0/2462 |

Table 8: Convergent matrix

|  | A1 | A2 | B1 | B2 | B3 | C1 | C2 | C3 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 | 0/11851 |
| A2 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 | 0/13524 |
| B1 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 | 0/08082 |
| B2 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 | 0/08904 |
| B3 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 | 0/07651 |
| C1 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 | 0/08173 |
| C2 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 | 0/08290 |
| C3 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 | 0/08902 |
| D1 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 | 0/03065 |
| D2 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 | 0/02632 |
| D3 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 | 0/02650 |
| D4 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 | 0/03228 |
| D5 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 | 0/02468 |
| D6 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 | 0/02696 |
| D7 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 | 0/02533 |
| D8 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 | 0/02863 |
| D9 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 | 0/02488 |

## CONCLUSION

Satisfaction of residents with institutional, economic, social, and environmental indicators and the interrelation among the components listed can strengthen the quality of life in terms of subjective perception and improve the objective indicators in residential neighborhoods. It seems that as the quality of life improves, the communication of residents with the neighborhood increases. As a result, the stability of the neighborhood can be considered a goal. Based on the studies conducted, four components explain the quality of life in residential neighborhoods: a) institutional satisfaction, b) economic satisfaction, c) social satisfaction, and d) environmental satisfaction. From the perspective of experts, the research results indicate that the institutional indicator has the most significant impact on improving residents' quality of life, with social, economic, and environmental satisfaction being next on the list. It should be noted that the present study is in line with previous studies in that the indicator of environmental satisfaction, as compared to other factors, has a relatively more minor effect on improving the quality of life. According to the prioritization of the components and quality of life indicators (by experts), effective strategies can be separately proposed in the planning and design of a residential complex.

**Institutional Satisfaction:** The decision of organizations and institutions regarding the design and planning of neighborhoods should be made to provide a basis for strengthening infrastructure, services, and social facilities. Institutional satisfaction as a critical factor directly impacts other components, and more decisions should be made in line with residents' satisfaction. Therefore, decision-making on the part of institutions and organizations regarding services and facilities should be based on the evaluation, preferences, and expectations of neighborhood residents. This refers to the establishment of a two-way approach and communication between residents and decision-makers, and planners.

**Social satisfaction:** All the three factors proposed for social satisfaction; that is, the rate of crime, participation, and social interactions, are directly related to each other based on what has been found in the research findings so that the use of an appropriate strategy can increase the rate of participation and social interactions. What" s more, it leads to a decrease in the level of criminality in the neighborhood. Strengthening the participation of residents can be considered by involving residents' opinions on the decisions that are made in the direction of management and planning of neighborhoods. Creating opportunities for social interactions in the design and planning of neighborhoods can depend on the strengthening and quality of public realms in which residents' daily communication and activities occur. Also, the amount of crime at the neighborhood level, the fourth adequate criterion in the findings, can be reduced by creating a presence and community in public spaces at the neighborhood level. In addition, the definition of activities and uses that occur around the clock in the micro socio-cultural and especially economic spheres of neighborhoods can effectively reduce crime.

**Economic satisfaction**: According to the experts' perspectives, the housing price criterion is affected by the amount of income and expenses and job opportunities and activities in the neighborhood. Providing participatory housing facilities is an efficient strategy that can be proposed against the cost of owning and renting a house in the planning and decision-making of institutions and organizations. Moreover, housing prices can be affected by making residential spaces flexible and using sustainable technologies in neighborhood design. However, another strategy that can be offered in economic satisfaction to increase job opportunities and activities is physical planning and micro-economic uses. The residents themselves participate in their management or exploitation.

**Environmental satisfaction:** Among the indicators in the environmental satisfaction component, environmental quality has been identified as the most effective and efficient criterion, which can be strengthened by proposing an open and green space development policy, as well as adopting a pedestrianization strategy and eliminating the predominant form of riding in the neighborhood. In addition, the issues raised in environmental quality such as reducing noise pollution, clean air. It will also increase the extent of social interactions. Another important indicator is physical and mental security, for which the empowerment of social and public environments can be expressed as a responsive strategy. From the experts" point of view, however, another criterion that plays an essential role in environmental satisfaction is identity, attachment, and belonging to a place that requires the consolidation and support of each of these indicators, which are influenced by the temporal and spatial process. However, in the scale of design and planning of residential neighborhoods, attention to residents' lifestyle and maintaining and strengthening valuable features in social (events, rituals, and religious ceremonies) and physical (historical monuments) dimensions can be the basis of policies.

What is needed to conclude is that all the indicators and components of quality of life in residential neighborhoods are interconnected in a coherent and interconnected manner. It seems that the promotion or degradation of each of them changes the level of quality of life in the neighborhoods. Due to the issues raised and the broad expansion of the concept of quality of life, for future studies, it is suggested that the components and the indicators mentioned in this study be studied and evaluated from the perspective of residents according to the context. In addition, the assessment can be extended to experts or other specialized areas such as sociologists, economists, and city managers to study the concept of quality of life and its promotion in residential neighborhoods.

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