URBAN SATISFACTION AND QUALITY OF LIFE IN SINGLE-INDUSTRY CITIES: EXPLORING THE ROLE OF MANAGEMENT AND ENVIRONMENTAL FACTORS

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Abstract

This study investigates the influence of urban management and environmental satisfaction on the quality of life (QoL) in Zonguldak, Turkey, a city heavily dependent on coal mining. We surveyed 250 residents to assess how these two factors impact their well-being. Using exploratory factor analysis, two significant dimensions of satisfaction were identified: "Urban Management and Development" and "Urban Life and Environmental Conditions." The results indicate that while satisfaction with urban management has a modest but significant effect on QoL, environmental satisfaction plays a more substantial role. Together, these factors explain 23.4% of the variation in QoL, highlighting the critical importance of environmental conditions in shaping residents' overall well-being. The findings suggest that policymakers should focus on environmental improvements, such as enhancing air quality, expanding public spaces, and upgrading transportation infrastructure, to improve the quality of life in single-industry cities like Zonguldak. Although urban management interventions are valuable, addressing the environmental challenges will likely have a more direct and meaningful impact. The cross-sectional design and focus on a single-industry city may limit the broader applicability of the findings, suggesting the need for further research in diverse urban settings.

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1. Introduction

Monotowns, or single-industry dominant cities, are characterized by a heavy reliance on a singular enterprise that drives employment, economic activity, and even the town's cultural identity. This reliance often makes them resilient in the face of specific economic fluctuations; however, it simultaneously renders them vulnerable to downturns within their core industry, leading to severe consequences such as widespread unemployment, social instability, and environmental degradation (Dirsehan et al. 2023). In Kazakhstan, for instance, single-industry towns are defined by enterprises that contribute over 20% of the town's economic output and employ a similar percentage of the working population, thus illustrating their central role in local economies (Amanbekov 2015).

While the concept of monotowns is well-recognized in countries like Russia and Kazakhstan, single-industry dominant cities also exist in several other countries, including Slovakia, Poland, and Turkey. These cities, though not explicitly labeled as monotowns, share similar characteristics, particularly a heavy dependence on one industry for economic welfare (Blam et al. 2016).

Zonguldak, Turkey, serves as a prominent example. Known as the "black diamond" city of Turkey, its economy, social structure, and cultural identity have long been linked with coal production, illustrating the city's deep dependence on this singular industrial base (Tecer et al. 2009).

Much of the existing literature on monotowns focuses on Russia and Kazakhstan. Researchers like Turgel, Bozhko, and Leskova (2016) have outlined the developmental phases of Russian monotowns since the 1990s, emphasizing the critical need for state support and intervention in mitigating their economic vulnerabilities. Similarly, studies on Kazakh monotowns reveal common challenges, including low economic diversification, dependency on core enterprises, and various social issues, underscoring the complexity of the socio-economic dynamics of these cities (Amanbekov 2015). However, a significant gap remains in understanding the conditions and challenges faced by single-industry dominant cities elsewhere, such as those in Turkey.

Addressing the sustainable development of these towns involves tackling a range of issues. In this regard, Pyzheva (2020) notes that even in regions experiencing economic growth, many single-industry towns struggle with negative genuine savings values, signaling potential environmental and social crises. This observation points to the need for targeted and differentiated policies to foster sustainable urban environments in these cities. Current strategies for supporting monotowns include establishing priority social and economic development areas (PSEDA), economic diversification, and initiatives aimed at improving the quality of life for residents (Trifonov et al. 2017).

This paper aims to contribute to the literature by examining the predictors of quality of life in Zonguldak, a single-industry dominant city in Turkey. By exploring this case, the research seeks to deepen the understanding of the unique dynamics and challenges faced by these cities outside the frequently studied regions, thereby offering a more holistic perspective on sustainability and development within single-industry dominant cities.

2. Literature Review

Single-industry cities, commonly referred to as "monotowns," have drawn considerable academic interest due to their unique economic structures and inherent vulnerabilities (Blam et al., 2016). These cities often rely on one primary industry, which can serve both as a vital economic engine and a source of socio-economic instability when facing downturns or market changes. Much of the literature on monotowns focuses on regions like Russia and Kazakhstan, where these cities are officially recognized and have been extensively studied (Turgel et al., 2016; Amanbekov, 2015). However, the concept of monotowns can also be observed in other countries, including Turkey, which has its own examples of cities heavily reliant on a single industry (Tecer et al., 2009).

Monotowns often face distinct challenges linked to their economic and social fabric. For instance, the collapse or downturn of the primary industry can lead to massive unemployment, economic stagnation, and social distress (Dirsehan et al., 2023). Research in Kazakhstan has shown that monotowns struggle with labor market rigidity due to limited economic diversification (Amanbekov, 2015). Similarly, Russian monotowns exhibit the need for state intervention to mitigate their economic vulnerabilities (Turgel et al., 2016). In addition, the issues in monotowns extend beyond economic factors alone. Pyzheva (2020) notes that even in periods of economic growth, monotowns often suffer from negative social and environmental outcomes, complicating their sustainable development.

Given these complexities, scholars have increasingly focused on quality of life (QoL) as a key measure of social welfare in monotowns. In urban settings, QoL generally includes aspects such as subjective well-being, health, economic conditions, social services, and environmental quality (Kozhamkulova et al., 2023). In the context of monotowns, factors like job security, income, social cohesion, and access to urban amenities significantly influence QoL (Trifonov et al., 2017). Studies on Russian and Kazakh monotowns have highlighted state-led initiatives aimed at improving residents' QoL, including efforts to diversify the local economy and enhance social infrastructure (Turgel et al., 2016; Trifonov et al., 2017). Despite these interventions, ongoing challenges related to environmental degradation and social inequities continue to affect residents' overall well-being (Pyzheva, 2020).

Environmental quality, in particular, plays a crucial role in shaping residents' satisfaction and overall QoL in monotowns. The environmental impact of a single industry, especially those focused on natural resource extraction or heavy manufacturing, can significantly affect public health and living conditions (Tecer et al., 2009). Research has identified poor air quality, noise pollution, and a lack of green spaces as recurring concerns in monotowns, contributing to decreased satisfaction and QoL (Pyzheva, 2020). Tecer et al. (2009) further emphasize that urban environmental conditions, such as air quality and cleanliness, are directly related to residents' health outcomes, making environmental improvements essential for enhancing QoL.

In addition to environmental factors, urban management plays a significant role in shaping perceptions of QoL. Urban management involves the provision and maintenance of public services, infrastructure, and the formulation of development policies (Dirsehan et al., 2023). In monotowns, effective urban governance is crucial for addressing socio-economic and environmental challenges (Blam et al., 2016). Research underscores the importance of urban policies that promote economic diversification, social welfare programs, and infrastructure development to improve QoL (Turgel et al., 2016; Trifonov et al., 2017). For example, Russian monotowns have implemented priority social and economic development areas (PSEDA) to stimulate economic growth and diversify employment opportunities (Trifonov et al., 2017). However, challenges persist in ensuring that these urban development initiatives address residents' immediate environmental and social needs.

While the literature offers valuable insights into monotowns' dynamics, most studies have centered on regions such as Russia and Kazakhstan. There remains a gap in understanding how residents in other single-industry cities, like those in Turkey, perceive their quality of life and the factors influencing it. Zonguldak, Turkey, is an example of a city heavily reliant on a single industry, namely coal mining, and mirrors many of the challenges faced by monotowns in other regions (Tecer et al., 2009). Research in the Turkish context could provide a broader understanding of how urban management and environmental factors contribute to QoL in single-industry cities.

This study aims to fill this gap by examining the case of Zonguldak to understand how urban management and environmental satisfaction influence residents' QoL. Previous research has emphasized the importance of environmental conditions, such as air quality and public spaces, in shaping satisfaction in monotowns (Tecer et al., 2009; Pyzheva, 2020). Additionally, the role of governance and policy interventions in improving QoL has been well-documented in Russian and Kazakh contexts (Turgel et al., 2016; Trifonov et al., 2017). By focusing on Zonguldak, this research contributes to the broader literature by offering an empirical assessment of QoL predictors in a single-industry city outside the frequently studied regions.

Recent studies suggest that understanding the predictors of QoL in monotowns requires a multidimensional approach that considers economic, social, and environmental factors (Kozhamkulova et al., 2023). This study adopts such an approach, examining both urban management and environmental conditions as key areas of resident satisfaction. The findings could offer valuable insights for policymakers and urban planners in Turkey and similar regions, emphasizing the need for targeted, context-specific strategies to enhance QoL in single-industry towns.

In summary, while previous research has established the importance of environmental quality and urban management in monotowns, there remains a lack of focused research on how these factors impact QoL in Turkish single-industry cities. This study seeks to bridge this gap by investigating Zonguldak, thus contributing to the literature on monotowns and providing a more comprehensive perspective on urban satisfaction and QoL in these unique urban environments.

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2. Research Method

2.1. Measurement Instrument

To fulfill the research objectives, a detailed measurement instrument was created, taking inspiration from methodologies used in recent studies on single-industry dominant cities, specifically that of Kozhamkulova et al. (2023). For the subjective aspects, the survey used a series of statements evaluated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale is widely recognized in social science research for its straightforwardness and its ability to capture the intensity of respondents' views (Likert 1932).

2.2. Data Collection and Sample

This study's sample was carefully structured to mirror the demographics of Zonguldak, based on data provided by TÜİK (2022). We surveyed 250 participants, equally split between men and women, to ensure balanced representation.

The participants had an average age of 44.2 years, with the youngest being 21 and the oldest 77. This wide age range allows us to capture perspectives from both younger and older residents, adding depth to our understanding of the city's population. The almost equal gender distribution also means we get insights from different experiences and viewpoints within the community.

When it comes to how long people have lived in Zonguldak, most participants (about 68.8%) were born in the city and have lived there all their lives. This suggests a community with strong roots and a deep connection to the city. Another group (19.2%) has been in Zonguldak for 21-25 years, pointing to a relatively stable population overall. Only a small fraction (4.4%) reported living in the city for less than 10 years, which hints at a lower rate of recent migration to the area.

Income levels among the respondents varied. A notable share (22.4%) earned between 10,001 and 17,000 TL per month. Interestingly, nearly an equal percentage fell into the lowest income category (10,000 TL or less) or into the 25,001 to 40,000 TL range. Very few participants (just 2.4%) reported monthly earnings above 70,000 TL, indicating a broad economic spread in the city.

Educational attainment in the sample was mixed as well. Most respondents either finished primary/secondary school (31.2%) or high school (29.6%). About 23.2% had a university degree, while a small number (1.6%) held a master's or doctorate degree. This diverse educational background gives us a chance to explore how different levels of education might influence people's views and experiences in Zonguldak.

Overall, the sample provides a varied and balanced snapshot of Zonguldak's residents, making it well-suited for investigating quality of life in a city shaped by a single dominant industry.

Table 1. Descriptive Statistics of the Sample

Category	Variable	Women	Men	Total
Age	N	125 (50%)	125 (50%)	250
	Mean Age	43.9	44.6	44.2
	Standard Deviation of Age	15.6	15.3	15.4
	Minimum Age	21	21	21
	Maximum Age	77	75	77
Duration of Residence in Zonguldak	6-10 years	8 (6.4%)	3 (2.4%)	11 (4.4%)
	11-15 years	7 (5.6%)	2 (1.6%)	9 (3.6%)
	16-20 years	4 (3.2%)	6 (4.8%)	10 (4.0%)
	21-25 years	20 (16.0%)	28 (22.4%)	48 (19.2%)
	Since birth	86 (68.8%)	86 (68.8%)	172 (68.8%)
	Total	*125 (100%)*	*125 (100%)*	*250 (100%)*
Monthly Income	10,000 TL or less	35 (28.0%)	20 (16.0%)	55 (22.0%)
	10,001 – 17,000 TL	35 (28.0%)	21 (16.8%)	56 (22.4%)
	17,001 – 25,000 TL	19 (15.2%)	16 (12.8%)	35 (14.0%)
	25,001 – 40,000 TL	18 (14.4%)	37 (29.6%)	55 (22.0%)
	40,001 – 55,000 TL	14 (11.2%)	25 (20.0%)	39 (15.6%)

	55,001 – 70,000 TL	2 (1.6%)	2 (1.6%)	4 (1.6%)
	70,001 TL or more	2 (1.6%)	4 (3.2%)	6 (2.4%)
	Total	*125 (100%)*	*125 (100%)*	*250 (100%)*
Education Level	Primary/Secondary School	43 (34.4%)	35 (28.0%)	78 (31.2%)
	High School	30 (24.0%)	44 (35.2%)	74 (29.6%)
	Vocational School (2 years)	20 (16.0%)	16 (12.8%)	36 (14.4%)
	University/Bachelor's Degree (4 years)	30 (24.0%)	28 (22.4%)	58 (23.2%)
	Master's/Doctorate Degree	2 (1.6%)	2 (1.6%)	4 (1.6%)
	Total	*125 (100%)*	*125 (100%)*	*250 (100%)*

Source: Prepared based on the authors' own computations

3. Research Findings

3.1. Economic Conditions of the Sample

Regarding the economic conditions, almost one-third (31.2%) of participants reported always having difficulty paying bills. Other details of the economic conditions of the sample are summarized in Table 2.

Even though there seem to be differences in the descriptive statistics for Quality of Life across various demographic and economic categories, ANOVA tests at the 95% significance level found no significant differences between them except for the Additional Income category, where an independent samples t-test showed a significant difference.

The sample's economic conditions show considerable variation, with around one-third of participants (31.2%) reporting that they "always" have difficulty paying their bills. Table 2 provides a detailed breakdown of these conditions.

Regarding additional income, most respondents (80.8%) reported not having any supplementary sources of income. This was more common among women (86.4%) than men (75.2%). Conversely, 19.2% of participants indicated having some form of additional income, with a higher proportion of men (24.8%) than women (13.6%).

When it comes to the difficulty in paying bills, 42% of the participants stated that they "never" face such challenges, while 31.2% reported "always" experiencing difficulties. Differences between genders were observed, as 35.2% of women reported consistently struggling to pay bills compared to 27.2% of men. This suggests variations in financial stress levels across different demographic groups.

The quality of life results show a fairly even split among the 250 participants. About 38% rated their quality of life positively ("Agree" or "Strongly Agree"), while a similar 38.8% viewed it negatively ("Disagree" or "Strongly Disagree"). Interestingly, around 23.2% chose to stay neutral. The overall average score was 3.01, with only slight differences between women and men, who had averages of 3.05 and 2.98, respectively. The responses varied somewhat, as shown by standard deviations of 1.23 for women and 1.30 for men, indicating a mix of experiences among the group. In general, most participants seem to lean toward a neutral or slightly positive view of their quality of life.

Table 2. Descriptive Statistics for Economic Conditions

Category	Variable	Women	Men	Total
Additional Income	No	108 (86.4%)	94 (75.2%)	202 (80.8%)
	Yes	17 (13.6%)	31 (24.8%)	48 (19.2%)
	Total	*125 (100%)*	*125 (100%)*	*250 (100%)*
Difficulty in Paying Bills	Never	45 (36.0%)	60 (48.0%)	105 (42.0%)
	Rarely	7 (5.6%)	10 (8.0%)	17 (6.8%)
	Sometimes	20 (16.0%)	13 (10.4%)	33 (13.2%)
	Often	9 (7.2%)	8 (6.4%)	17 (6.8%)
	Always	44 (35.2%)	34 (27.2%)	78 (31.2%)

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Quality of Life				
	Total	125 (100%)	125 (100%)	250 (100%)
	Strongly Disagree	14 (11.2%)	18 (14.4%)	32 (12.8%)
	Disagree	32 (25.6%)	33 (26.4%)	65 (26.0%)
	Neither Agree nor Disagree	30 (24.0%)	28 (22.4%)	58 (23.2%)
	Agree	32 (25.6%)	26 (20.8%)	58 (23.2%)
	Strongly Agree	17 (13.6%)	20 (16.0%)	37 (14.8%)
	Total	125 (100%)	125 (100%)	250 (100%)
	Mean	3.05	2.98	3.01
	Median	3	3	3.00
	Standard deviation	1.23	1.30	1.27
	Minimum	1	1	1
	Maximum	5	5	5

Source: Prepared based on the authors' own computations

3.2. Importance Ratings of Urban Facilities for Comfortable Living

Participants' quality of life was assessed using a 1 to 10 scale, where they rated various aspects of their urban living experience. The mean ratings for facilities such as healthcare (mean = 9.46, SD = 1.67) and schools (mean = 9.28, SD = 1.82) indicate that these facilities are considered highly important across age groups. Cultural facilities, banks, and sports facilities also received moderately high importance ratings, with slight variations observed across different age groups. For instance, the 20-29 age group rated sports facilities somewhat higher (mean = 8.07) compared to the 50-59 age group (mean = 7.02) (please see Table 3).

However, ANOVA tests for each of these facilities did not reveal any statistically significant differences in importance ratings across age groups (all p-values > 0.05). This suggests that, while there might be some observed variations in the mean ratings, these differences are not strong enough to be considered significant.

Similarly, the ANOVA test for overall quality of life perception across age groups did not show a statistically significant difference (p = 0.087). This indicates that participants' perceived quality of life in this urban context is relatively consistent regardless of their age.

In summary, while there are some minor differences in how various age groups rate the importance of urban facilities, these differences are not statistically significant. The overall quality of life perception appears to be stable across age groups, highlighting a generally shared view of urban living regardless of age.

Table 3. Mean Importance Ratings of City Facilities for Comfortable Urban Living by Age Groups

Facility	20-29	30-39	40-49	50-59	60+	Total
Cultural Facilities	7.81 (2.88)	8.38 (2.52)	7.80 (2.60)	7.40 (3.03)	7.39 (3.47)	7.79 (2.92)
Banks	7.80 (2.75)	8.37 (2.40)	7.03 (2.91)	7.81 (3.07)	8.24 (2.61)	7.92 (2.74)
Sports Facilities	8.07 (2.90)	8.35 (2.63)	7.94 (2.22)	7.02 (3.44)	8.43 (2.59)	8.00 (2.83)
Schools	8.96 (2.16)	9.62 (1.42)	9.34 (1.78)	9.28 (1.86)	9.18 (1.83)	9.28 (1.82)
Healthcare	9.50 (1.45)	9.59 (1.51)	9.86 (0.85)	9.47 (1.67)	9.00 (2.32)	9.46 (1.67)
Quality of Life	7.92 (1.97)	8.34 (1.56)	8.12 (1.74)	7.75 (2.11)	7.88 (1.85)	8.01 (1.85)

Source: Prepared based on the authors' own computations

3.3. Assessment of Participant Satisfaction with PESTEL Factors

In assessing participant satisfaction with various PESTEL factors in urban living, an Exploratory Factor Analysis (EFA) was conducted using the "Maximum Likelihood" extraction method combined with Varimax rotation. The dataset was suitable for factor analysis, as indicated by the Kaiser-Meyer-Olkin (KMO) measure of 0.884 and a significant Bartlett's Test of Sphericity ($\chi^2 = 3560.931$, df = 351, p <

0.001). The analysis identified seven factors with eigenvalues greater than 1, explaining a cumulative variance of 67.67%.

The first factor, "Urban Policy and Technology Satisfaction" (Cronbach's alpha: 0.919), reflects satisfaction with urban policies, development, and technological advancements. Items such as "I am satisfied with urban development policies" (P3), "I am satisfied with urban innovative policies" (P4), and "I am satisfied with urban technology policies" (T1) loaded highly on this factor. This indicates that participants' overall satisfaction with the city is heavily influenced by their perceptions of urban management, technological integration, and policy-making.

The second factor, "Public Service and Facility Satisfaction" (Cronbach's alpha: 0.782), captures satisfaction related to various public services and facilities, including "I am satisfied with the sports facilities in the city" (S3) and "I am satisfied with the cultural facilities in the city" (S2). This factor provides insight into how the availability and quality of public services and amenities shape participants' perceptions of urban life.

The third factor, "Environmental Comfort" (Cronbach's alpha: 0.787), comprises items such as "I am satisfied with the noise level in the city" (En3) and "I am satisfied with the natural and climatic conditions of the city" (En5). It emphasizes the importance of a comfortable and healthy environment in urban satisfaction. "I am satisfied with the cleanliness of the city" (En2) also loads strongly on this factor, indicating that environmental aspects significantly influence overall comfort in the city.

The fourth factor, "Urban Living Conditions" (Cronbach's alpha: 0.772), focuses on participants' perceptions of physical infrastructure and living conditions, with items such as "I am satisfied with the condition of streets and buildings in the city" (S6) and "I am satisfied with the environmental regulation in the city" (S8). "I am satisfied with the air quality of the city" (En1) also loads onto this factor, suggesting that air quality contributes to participants' overall view of living conditions in the urban environment.

The fifth factor, "Urban Transportation Satisfaction" (Cronbach's alpha: 0.786), includes items like "I am satisfied with the developments in urban transportation infrastructure" (P6). This factor reflects how participants' views on transportation infrastructure and policies shape their satisfaction with urban mobility.

The sixth factor, "Economic Satisfaction" (Cronbach's alpha: 0.649), relates to the financial aspects of urban life, such as "I am satisfied with the economic situation of SMEs in the city" (E2) and "I am satisfied with my family's financial situation" (E1). Although this factor has a slightly lower Cronbach's alpha, it still captures important economic dimensions of satisfaction in the urban context. Its inclusion ensures that economic factors are adequately represented in the study, recognizing that the slightly lower internal consistency may be due to the diverse nature of economic satisfaction elements.

The seventh factor, "Safety Perception", includes only one item, "There is no safety issue in the city" (P1), with a high loading. Since it does not group with other items, it is treated as an individual factor. This isolated factor could be considered for removal in future analyses to streamline the interpretation, although its importance in assessing urban safety cannot be ignored.

As summarized in Table 4, the EFA identified six robust factors and one isolated factor that reflect various dimensions of participant satisfaction with PESTEL elements of urban living. The inclusion of technological aspects within the primary factor ("Urban Policy and Technology Satisfaction") underscores the importance of technology in shaping residents' overall perceptions of urban policy effectiveness. While En1 and En2 showed some cross-loading, they were retained based on their conceptual relevance to their respective factors.

In the comprehensive analysis, the Economic Satisfaction factor is retained despite a Cronbach's alpha of 0.649, as it captures key aspects of urban economic conditions relevant to participant satisfaction.

Table 4. Factor Loadings

Factor 1: Urban Policy and Technology Satisfaction (Cronbach's alpha: 0.919)	Factor Loadings
P3. I am satisfied with urban development policies.	0.876
P4. I am satisfied with urban innovative policies.	0.863
T1. I am satisfied with urban technology policies.	0.797
P2. I am satisfied with urban development efforts.	0.781
P9. I am generally satisfied with urban policies.	0.729
P8. I am satisfied with urban planning policies.	0.678

P7. I am satisfied with urban social life policies.	0.591
P10. I am generally satisfied with local government activities.	0.520
Factor 2: Public Service and Facility Satisfaction	
(Cronbach's alpha: 0.782)	
S3. I am satisfied with the sports facilities in the city.	0.784
S2. I am satisfied with the cultural facilities in the city.	0.701
S5. I am satisfied with the shopping places in the city.	0.629
S4. I am satisfied with public transportation in the city.	0.600
S1. I am satisfied with the quality of healthcare institutions in the city.	0.529
Factor 3: Environmental Comfort	
(Cronbach's alpha: 0.787)	
En3. I am satisfied with the noise level in the city.	0.753
En5. I am satisfied with the natural and climatic conditions of the city.	0.750
En4. I am satisfied with the comfort of the city.	0.709
En2. I am satisfied with the cleanliness of the city.	0.633
Factor 4: Urban Living Conditions	
(Cronbach's alpha: 0.772)	
S6. I am satisfied with the condition of streets and buildings in the city.	0.665
S8. I am satisfied with the environmental regulation in the city.	0.657
S7. I am satisfied with the working conditions in the city.	0.649
En1. I am satisfied with the air quality of the city.	0.590
Factor 5: Urban Transportation Satisfaction	
(Cronbach's alpha: 0.786)	
P6. I am satisfied with the developments in urban transportation infrastructure.	0.760
P5. I am satisfied with urban transportation infrastructure policies.	0.691
Factor 6: Economic Satisfaction	
(Cronbach's alpha: 0.649)	
E2. I am satisfied with the economic situation of SMEs in the city.	0.806
E1. I am satisfied with my family's financial situation.	0.804
Factor 7: Safety Perception	
(Cronbach's alpha: N/A)	
P1. There is no safety issue in the city.	0.861

Note. 'Maximum likelihood' extraction method was used in combination with a 'varimax' rotation

Source: Prepared based on the authors' own computations

3.4. Relationship Between Urban Satisfaction Factors and Quality of Life

To understand how satisfaction with different aspects of urban living relates to overall quality of life, we conducted a correlation analysis. This approach allowed us to identify the strength and direction of relationships between quality of life and various factors, such as satisfaction with urban policy, public services, environmental conditions, and economic situations. The findings offer insights into which aspects of urban life have the most significant associations with overall quality of life.

As indicated in Figure 1, Urban Policy and Technology Satisfaction shows a positive correlation with quality of life ($r = 0.22$, $p < 0.01$), indicating that increased satisfaction in this domain is associated with a higher quality of life. Similarly, Public Service and Facility Satisfaction correlates positively with quality of life ($r = 0.20$, $p < 0.01$), suggesting that satisfaction with services like healthcare and cultural facilities contributes to an individual's perceived quality of life.

Environmental Comfort is positively correlated with quality of life ($r = 0.18$, $p < 0.01$). This suggests that factors such as noise levels, cleanliness, and climate conditions in the city play a role in enhancing life quality. Urban Living Conditions has the strongest positive correlation with quality of life ($r = 0.26$, $p < 0.01$), indicating that aspects like street maintenance and air quality significantly impact the perceived quality of life.

Urban Transportation Satisfaction shows a moderate positive correlation with quality of life ($r = 0.13$, $p < 0.05$), pointing to a smaller yet noteworthy relationship. Economic Satisfaction is also positively correlated with quality of life ($r = 0.19$, $p < 0.01$), highlighting the importance of financial status in shaping life quality.

Figure 1: The results of the main analysis metrics in the matrix of correlation of satisfaction factors and quality of life in the monotowns Zonguldak

Source: Prepared based on the authors' own computations
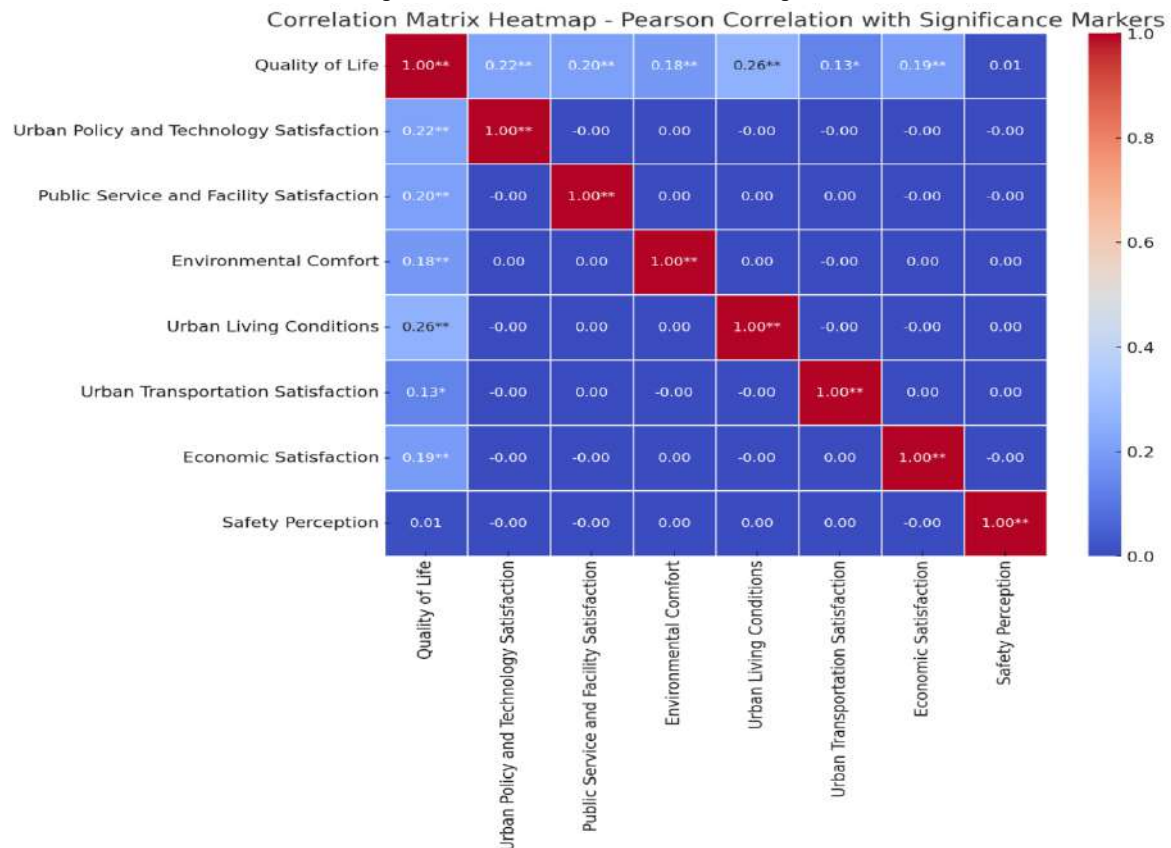
The analysis further reveals that inter-correlations among these factors, such as between urban policy satisfaction and public service satisfaction or between environmental comfort and economic conditions, are generally weak or not statistically significant. This suggests that these factors contribute independently to quality of life rather than functioning as a closely interrelated system. Consequently, interventions aimed at improving quality of life may need to address each factor individually rather than assuming that improvements in one area will automatically affect others. This independence also implies that each factor can be distinctly evaluated in multivariate analyses without concerns of multicollinearity, allowing for a clearer understanding of their unique contributions to overall quality of life.

Next, we ran a regression analysis to delve deeper into how these factors might predict overall quality of life. The linear regression model used the factors such as Urban Policy and Technology Satisfaction, Public Service and Facility Satisfaction, Environmental Comfort, Urban Living Conditions, Urban Transportation Satisfaction, Economic Satisfaction, and Safety Perception as predictors of the dependent variable, Quality of Life.

The analysis produced several key results. The intercept has an estimate of 3.012 ($p < 0.001$), indicating the baseline level of quality of life when all predictor variables are held at zero. Among the predictors, Urban Living Conditions had the highest coefficient (Estimate = 0.331, $p < 0.001$), suggesting it is the most influential factor in predicting quality of life. This result indicates that improvements in aspects such as street maintenance and air quality are associated with significant increases in overall quality of life. Urban Policy and Technology Satisfaction also showed a positive relationship with quality of life (Estimate = 0.277, $p < 0.001$), meaning that higher satisfaction with urban policies and technological developments is significantly associated with a higher quality of life. Public Service and Facility Satisfaction had a coefficient of 0.258 ($p < 0.001$), suggesting that satisfaction with public services, including healthcare, cultural facilities, and shopping, positively contributes to quality of life.

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Economic Satisfaction also demonstrated a significant role in predicting quality of life, with an estimate of 0.244 (p < 0.001), indicating that financial satisfaction, both personal and at the SME level, is an important factor. Environmental Comfort showed a coefficient of 0.233 (p = 0.001), which, although smaller than some other predictors, remains significant. This suggests that factors such as noise levels, cleanliness, and climate conditions in the city play a meaningful role in enhancing life quality. Urban Transportation Satisfaction had a coefficient of 0.165 (p = 0.020), showing a moderate positive effect on quality of life. While its impact is smaller compared to other factors, satisfaction with transportation infrastructure is still a noteworthy contributor. On the other hand, Safety Perception showed a near-zero coefficient (Estimate = 0.010, p = 0.883), indicating that perceptions of safety do not have a statistically significant impact on quality of life in this model.

The model diagnostics revealed no multicollinearity issues, as the Variance Inflation Factor (VIF) values for all predictors were 1.00. Tolerance values were also at 1.00, supporting the independence of each predictor in the model. Furthermore, the Shapiro-Wilk test for normality of residuals returned a p-value of 0.101, indicating that the residuals are normally distributed. This satisfies one of the key assumptions of linear regression and enhances the reliability of the model's results.

In summary, the regression analysis indicates that Urban Living Conditions, Urban Policy and Technology Satisfaction, Public Service and Facility Satisfaction, and Economic Satisfaction are the strongest predictors of quality of life. The coefficients provide insight into the relative importance of each factor, with Urban Living Conditions having the largest impact. Conversely, Safety Perception does not significantly predict quality of life in this model. Overall, the results suggest that improvements in specific aspects of urban life, particularly living conditions, policy satisfaction, public services, and economic status, are likely to have the most substantial effects on enhancing the quality of life (please see Table 5).

Table 5. Regression Coefficients for Urban Satisfaction Factors

Predictor	Estimate	SE	t	p
Intercept	3.012	0.0705	42.71	< 0.001
Urban Policy and Technology Satisfaction	0.277	0.0707	3.92	< 0.001
Public Service and Facility Satisfaction	0.258	0.0707	3.65	< 0.001
Environmental Comfort	0.233	0.0707	3.30	0.001
Urban Living Conditions	0.331	0.0707	4.68	< 0.001
Urban Transportation Satisfaction	0.165	0.0707	2.33	0.020
Economic Satisfaction	0.244	0.0707	3.46	< 0.001
Safety Perception	0.010	0.0707	0.15	0.883

4. Conclusion

In the present study, we examined the association between satisfaction with different aspects of urban life, such as urban management and environmental factors, and quality of life among Zonguldak residents. Our analysis identified several key factors; among them, Urban Living Conditions emerged as the strongest predictor of quality of life. In addition, Urban Policy and Technology Satisfaction, Public Service and Facility Satisfaction, and Economic Satisfaction also showed positive relationships with residents' perceived quality of life. Each may act independently, but they all play a role in how residents experience their city, with the physical environment having the most direct impact.

The correlation analysis indicated that Urban Living Conditions showed the highest positive relation with quality of life, with a coefficient of 0.26 (p < 0.01), suggesting that aspects like street maintenance and air quality highly influence residents' perceptions. Other variables, such as Urban Policy and Technology Satisfaction, Public Service and Facility Satisfaction, and Economic Satisfaction, also contribute positively to quality of life, with coefficients of 0.277, 0.258, and 0.244, respectively (all p < 0.001) in the regression model. Safety Perception did not reach statistical significance. The regression model confirms these findings, showing that these predictors collectively account for a significant amount of variation in quality of life scores. Model diagnostics indicated no multicollinearity issues, and the residuals are normally distributed, further adding to the reliability of the results.

These findings are of practical importance for city planners and policymakers. The results suggest that focusing on tangible improvements to the urban environment, such as enhancing air quality, expanding

public spaces, and investing in transportation infrastructure, can have a direct and noticeable impact on residents' quality of life. While urban management and policy development are undoubtedly important, they are less effective without real changes to physical conditions. For example, stricter regulations on industrial emissions can address air quality, while enhancing public spaces can foster community well-being. Improving public transportation not only facilitates mobility but can also alleviate traffic congestion and reduce pollution, contributing to a more positive urban living experience. These targeted interventions can lead to significant improvements in how residents perceive their quality of life.

From an academic perspective, this study contributes to the literature on urban satisfaction in single-industry cities by offering a localized perspective from Turkey. It extends the discussion beyond the often-studied Russian and Kazakh contexts and confirms the importance of urban management and environmental factors in shaping residents' quality of life. The findings align with previous research emphasizing the need for state support in monotown development and addressing economic vulnerabilities (Turgel et al., 2016; Amanbekov, 2015). By examining these dynamics within the Turkish context, this study broadens the understanding of the universal challenges faced by cities reliant on a single industry and provides insights valuable for both academic discourse and practical policy-making.

However, the study has its own limitations. The cross-sectional design limits the possibility of drawing causal inferences between urban satisfaction factors and quality of life since it reflects residents' perceptions at one point in time. Furthermore, the focus on Zonguldak, a single-industry city, means that its findings cannot be directly generalized to cities with different economic structures or cultural contexts. The assessment of quality of life centered mainly on satisfaction with economic conditions and some PESTEL variables, potentially overlooking other important dimensions such as access to healthcare, educational opportunities, and housing quality.

To build on these findings, future research could adopt a longitudinal design to explore how changes in urban management and environmental conditions affect residents' quality of life over time. Expanding the framework to include additional quality of life indicators, such as healthcare, education, and housing, would provide a more comprehensive picture of urban satisfaction in single-industry cities. Comparative studies examining cities with diverse economic bases could also shed light on whether the patterns observed in Zonguldak are context-specific or applicable to a broader range of urban environments. Moreover, incorporating more demographic factors, such as income, education, and age, in future research could offer a more nuanced understanding of how quality of life experiences differ across various segments of the population.

In simpler terms, both urban management and environmental satisfaction are crucial in shaping residents' quality of life, with the latter seemingly having a more substantial impact. This study enriches the academic debate by focusing on practical aspects of city living and provides actionable insights for policymakers aiming to enhance the quality of life in single-industry cities. Further research in different contexts and with more comprehensive measures will help refine these findings and inform more targeted, evidence-based policy interventions.

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