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Assessing the Quality of Urban Life with Vikor Modeling (Case Study: Izeh City)[1]

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Abstract

Background and Objective: The rapid growth of urbanization, large-scale migration, and the transformation of socio-economic structures in recent decades have turned urban quality of life into one of the critical concerns of urban planning. In this context, the city of Izeh faces multiple challenges across economic, social, cultural-service, and physical-environmental dimensions.

Methodology: This study aims to evaluate and rank the indicators of urban quality of life in Izeh using the multi-criteria decision-making VIKOR model. The research is applied in purpose and descriptive-analytical in method. The statistical population included 382 residents of Izeh, selected through simple random sampling. Data were collected via a researcher-made questionnaire and documentary sources. After normalization, indices of utility (S), regret (R), and the VIKOR index (Q) were calculated for each dimension.

Results and Findings: Findings revealed that the physical-environmental dimension ranked first (Q=0.04691), reflecting relative satisfaction with infrastructure, green spaces, and housing. The economic dimension ranked second (Q=0.22093), but showed the necessity for improvements in job opportunities and income equality. The social (Q=0.63780) and cultural-service (Q=1.00000) dimensions were ranked third and fourth, respectively, highlighting weaknesses in social participation, public services, and cultural facilities. These results indicate that while residents are relatively satisfied with the physical-environmental aspects, significant challenges persist in economic, social, and cultural-service dimensions. The study concludes that although the physical-environmental dimension demonstrates relative strength, substantial deficiencies exist in other dimensions. These findings provide a scientific basis for developing urban policies and planning strategies aimed at enhancing the quality of life in Izeh and other similar cities.

Keywords: Multi-criteria decision making, Izeh city, quality of life, VIKOR model.

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EXTENDED ABSTRACT

Introduction

The rapid growth of urbanization in recent decades, particularly in developing countries, has generated broad consequences for urban social, physical, and economic structures. Rising population density, unplanned migration, lack of infrastructure, and weak urban management have weakened social cohesion, reduced equity in access to services, and degraded the urban environment. These conditions have increased inequality, intensified urban poverty and marginalization, and ultimately reduced the overall quality of life for citizens.

Quality of Urban Life (QoUL), as a multidimensional concept, is considered a key indicator for assessing citizens' satisfaction and well-being in social, economic, physical, environmental, and psychological dimensions. Since the 1950s, this concept has received growing attention in urban planning. In Iran, medium-sized cities such as Izeh, due to their geographical conditions, waves of migration, lack of investment, and weak governance, face serious challenges regarding QoUL. Accordingly, this study aims to examine the status of QoUL in Izeh and evaluate its dimensions using the VIKOR multi-criteria decision-making model. The main research question is: Which dimensions of QoUL in Izeh are more favorable, which are weaker, and which urban areas enjoy relatively higher quality of life?

Methodology

This research is applied in purpose and descriptive–analytical in method. Data collection was carried out in two stages: first, through documentary study to review literature and theoretical foundations; and second, through a field survey using a questionnaire distributed among citizens. The statistical population included all residents of Izeh County (about 198,871 people). Using Cochran's formula, the sample size was determined at 382 people. Sampling was random, and questionnaires were distributed among different age and education groups. In total, 233 completed questionnaires were returned, with more than half of respondents aged 18–29.

Data analysis was performed using the VIKOR model. Four main dimensions of QoUL were considered:

-Economic (employment, income, expenditures, investment opportunities, etc.),

-Social (security, place attachment, social interaction, public participation, etc.),

-Cultural–Service (access to education, transport, cultural centers, municipal services, etc.),

-Physical–Environmental (housing, traffic, green space, air and noise pollution, environmental health, etc.).

Based on the decision matrix of VIKOR, scores were calculated for each indicator, and the ranking of dimensions was obtained.

Results and Findings

The results of VIKOR showed significant variation among QoUL dimensions in Izeh:

Physical–Environmental Dimension achieved the best performance (Q=0.046), being closest to the ideal condition. This reflects relatively favorable housing, road networks, and green spaces. Yet problems such as air pollution (PM2.5 and PM10 exceeding standards in central districts) and noise pollution remain. Suggested strategies include strengthening the urban green belt, enhancing pollution monitoring, and traffic management.

Economic Dimension ranked second (Q=0.220). Izeh's location on a transit corridor and its agricultural base provide employment opportunities. However, inequalities in resource distribution, weak support for SMEs, and absence of local financial institutions have widened income gaps. Solutions include supporting small and medium enterprises, creating agricultural and industrial clusters, and promoting fairer income distribution.
Social Dimension ranked third (Q=0.637). While Izeh benefits from cultural richness rooted in the coexistence of tribal and rural traditions and a relatively good sense of security, weak civic institutions and local associations have reduced social capital and public trust. Proposed actions include participatory budgeting, citizen monitoring systems, and greater transparency in urban management.
Cultural–Service Dimension was the weakest (Q=1.000). Lack of public transportation infrastructure, weak bus networks, shortage of cultural centers, sports halls, and libraries significantly lower satisfaction. Suggested solutions are developing public transport lines, creating community cultural houses, and expanding educational and recreational facilities.
Comparative perspective: Similar studies in cities such as Zanjan, Qazvin, and Tabas confirm these findings: cultural–service dimensions are typically weakest, while physical–environmental indicators play a leading role in improving QoUL. The results also align with conflict theory perspectives (Marx, Weber), emphasizing how economic inequality and low social capital shape urban quality of life.

Conclusion

According to the VIKOR analysis, the physical–environmental dimension represents Izeh's main strength, while the cultural–service dimension is the weakest and requires urgent policy attention. The economic dimension holds intermediate potential, particularly through SME development and industrial–agricultural integration. The social dimension remains moderate but fragile due to weak civic engagement and low institutional trust.
Key recommendations:
-Short term (1–2 years): establish pollution monitoring, expand green belts, and upgrade public transport.
-Medium term (3–5 years): support SMEs, build community cultural houses, and develop educational and sports facilities.
-Long term (5+ years): institutionalize participatory governance, strengthen civil society, and ensure transparent urban management.
Overall, improving QoUL in Izeh requires an integrated urban planning strategy that addresses economic, social, cultural–service, and physical–environmental dimensions together. Drawing on national and international experiences, enhancing social capital, and promoting spatial justice are critical for sustainable development and citizen satisfaction.

Declarations

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Authors' Contribution

Authors contributed equally to the conceptualization and writing of the article. All of the authors approved the content of the manuscript and agreed on all aspects of the work declaration of competing interest none.

Conflict of Interest

The authors declare no conflict of interest.

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