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Measuring the Objective Quality of Life of Urban Residents in Hohhot: A Multidimensional Empirical Study

Cheligeer Li*, Batbaatar Monkhooroi

National University of Mongolia, Ulaanbaatar13120, Mongolia
**Author to whom correspondence should be addressed.*

Abstract: ***This study takes Hohhot as the research object and conducts a systematic measurement and empirical analysis of the objective dimensions of urban residents' quality of life. Unlike previous studies that focus primarily on subjective satisfaction or single economic indicators, this paper constructs an objective evaluation framework from five dimensions: income and employment, social security and public safety, public services and urban infrastructure, urban ecological environment, and leisure life and leisure time. It aims to provide a more comprehensive understanding of the current conditions and structural characteristics of residents' quality of life in a frontier regional central city. Based on 504 questionnaire responses, the study applies SPSS for data standardization, indicator integration, and comprehensive evaluation to measure the objective quality of life of Hohhot residents and further examines inter-dimensional differences and their influencing characteristics. The results show that the overall objective quality of life of Hohhot residents is at a moderate level, while clear imbalances exist across dimensions. Among them, urban infrastructure performs relatively well, indicating that the city has developed certain advantages in modernization and public resource provision; however, urban ecological governance, the balance of public services, and social security support conditions still require improvement. Overall, the objective quality of life of Hohhot residents shows a pattern of "overall improvement coexisting with structural differentiation," suggesting that the enhancement of urban quality of life depends not only on economic growth, but also on the coordinated optimization of public governance capacity, resource allocation efficiency, and livelihood security systems.***

Keywords: Hohhot; Quality of life; Objective assessment; Indicator system; Multidimensional measurement.

1. Introduction

With the continuous advancement of urbanization, urban residents' quality of life has become an important dimension for evaluating urban development and the effectiveness of social governance, and has therefore attracted growing academic and policy attention (Cummins, R. A., 2000). Existing studies have largely focused on subjective satisfaction or relied on single indicators such as income and employment, while systematic measurement of the objective dimensions of quality of life remains insufficient. As an important central city in China's northern frontier region, Hohhot is characterized by its role as a regional hub, its resource-based transformation, and its ongoing efforts to improve public services, making it a representative case for study (Tian liang, 2025). Accordingly, this paper measures the objective quality of life of Hohhot residents from five dimensions—income and employment, social security and public safety, public services and urban infrastructure, urban ecological environment, and leisure life and leisure time—and seeks to answer three questions: what is the overall level of objective quality of life, what inter-dimensional differences exist, and what structural characteristics do these differences reveal? In doing so, this study contributes to the objective analytical approach to quality-of-

life research in frontier regional central cities.

2. Literature Review

2.1 Quality of Life Studies: The Evolution of the Concept

Quality-of-life research has evolved from a focus on material living conditions and social indicators toward multidimensional and comprehensive evaluation. The World Health Organization defines quality of life as individuals' perceptions of their position in life within specific cultural and value contexts, while related studies further argue that economic, social, and subjective dimensions should be considered within the same analytical framework (Diener & Suh, 1997). This suggests that quality of life is no longer understood as a simple reflection of income or welfare, but as a composite concept covering multiple domains of life.

2.2 Objective vs. Subjective Approaches

Existing studies generally distinguish between subjective and objective approaches to quality-of-life measurement. The former emphasizes satisfaction, happiness, and individual perception, whereas the latter focuses on observable conditions such as income, public services, infrastructure, and the environment (Happiness, 2012). In recent years, some studies have attempted to integrate subjective and objective methods, yet objective measurement remains indispensable for inter-city comparison and policy diagnosis (Маолин, 2000).

2.3 Urban and Resource-based City Studies: the Chinese Frontier Regional Context

In the Chinese context, research on urban residents' quality of life has gradually evolved from general social indicator analysis to multidimensional issues such as urban livability, convenience of daily life, and the quality of the human living environment (Gang, 2010). However, existing studies have focused primarily on large cities in developed regions, general urban samples (Hong, 2022), or quality-of-life issues in central China, while empirical analyses of the objective quality of life in frontier regional central cities—especially cities such as Hohhot—remain relatively limited. Based on the literature reviewed, multidimensional integrated measurement using objective indicators for such cities is still insufficient, which constitutes the main entry point and potential contribution of this study.

3. Research Design and Methods

3.1 Standardization Process of the Quantitative Indicator System

Reliability Analysis: Prior to formal data analysis, a reliability test was performed on the 504 collected questionnaires to ensure the robustness of the measurement scale. The analysis focused on the satisfaction scales across five indicator dimensions, and Cronbach's α was employed to evaluate internal consistency within each dimension. All coefficients were above 0.70, demonstrating that the scales possessed good internal consistency and reliable measurement properties. These findings establish a solid methodological foundation for subsequent analyses, including factor analysis, comparative analysis, and model building. In addition, SPSS was used to test the reliability of 49 core quantitative items and to assess missing data patterns. The valid response rate was 99.8%, indicating minimal data loss and strong overall data quality. Detailed results are presented in Table 1.

Table 1: Reliability of the Satisfaction Measurement across Six Indicator Dimensions

Dimension	Corrected Item–Total Correlation (CITC)	Cronbach's Alpha if Item Deleted	Split-Half Reliability Coefficient	Cronbach's Alpha Coefficient
Education, Science, and Technology	0.86	0.871	0.981	0.864
Public Health	0.77	0.885	—	—
Urban Environmental Quality	0.97	0.84	—	—
Level of Urban Infrastructure	0.968	0.772	—	—
Living Consumption Level	0.918	0.813	—	—
Social Security and Safety	0.893	0.825	—	—

Note: Standardized Cronbach's alpha coefficient = 0.786.

According to the analysis results, the overall Cronbach's alpha coefficient of the questionnaire is 0.864, and the standardized Cronbach's alpha coefficient is 0.787, both of which exceed the threshold of 0.7 for high reliability (see Table 6). This indicates that the overall design of the questionnaire is scientifically sound and that the internal consistency among the items is strong. The measurement results are highly reliable and stable, and they can effectively reflect the actual quality of life of residents in Hohhot.

Table 2: Summary of Overall Questionnaire Reliability and Missing Sample Data

Test Indicator	Result	Evaluation Standard	Conclusion
Number of questionnaire items	123	—	—
Total sample size	504	—	—
Number of valid samples	503	—	—
Proportion of valid samples	0.998	> 95% = high-quality data	High-quality data
Number of invalid samples excluded	1	< 1% = acceptable range	Meets the requirement
Cronbach's alpha coefficient	0.787	> 0.7 = high reliability	Acceptable

To further examine the internal consistency of items within each dimension, reliability analysis was conducted separately for all six dimensions. Item quality was evaluated mainly by the Corrected Item–Total Correlation (CITC) and Cronbach's alpha coefficient if the item was deleted, and items that failed to meet the reliability requirements were removed. The detailed results are presented in Table 3.

Table 3: Reliability Test Results for the Measurement Scale

Dimension	Number of Items	Cronbach's Alpha Coefficient	Reliability Evaluation
Economic Conditions	4	0.785	Acceptable
Living Environment	6	0.812	High reliability
Public Services	7	0.836	High reliability
Environmental Perception	5	0.769	Acceptable
Social Participation	3	0.728	Acceptable
Satisfaction	5	0.793	Acceptable
Total Items	30	0.787	Acceptable

4. Analysis of the Current Objective Quality of Life of Residents in Hohhot

4.1 Economic Factors: Income and Employment Security

Income and employment security are core dimensions of residents' objective quality of life. Employment provides not only income, but also opportunities for social participation and recognition. The survey shows that salary and benefits (60.12%), job content (51.59%), and job location (45.04%) are the most important factors in job choice, suggesting a shift from a purely income-based preference toward a broader concern with development and stability. At the same time, major constraints remain: 49.21% of respondents reported a shortage of suitable jobs, 48.02% identified high work pressure, and 39.68% considered wages too low. In addition, 56.55% hoped to increase income through employment,

while 46.43% expected a better work–life balance. These findings indicate that although Hohhot has a basic foundation in employment and income security, job structure, income growth, and work–life balance remain key factors shaping residents' objective quality of life.

4.2 Social Security and Public Safety Conditions

Social security and public safety are important institutional dimensions of residents' objective quality of life. The survey indicates that Hohhot's overall public safety environment is relatively stable, with 68.65% of respondents reporting no experience of theft, fraud, violent conflict, or traffic accidents in the past year. However, traffic accidents (40.87%), interpersonal conflicts (30.56%), and fraud (20.44%) remain notable risks. In terms of social security, coverage rates are relatively high, including medical insurance (63.69%), pension insurance (59.33%), housing provident funds (50.99%), and unemployment insurance (48.41%). Yet respondents still reported complex procedures (52.58%), low service efficiency (46.83%), and difficulties in understanding policies (44.84%). This suggests that the main challenge lies not in formal coverage, but in accessibility and service effectiveness. Overall, while Hohhot has established a relatively solid institutional foundation, further improvements in governance quality, administrative efficiency, and policy accessibility are still needed.

4.3 Public Services and Urban Infrastructure Conditions

Public services and urban infrastructure are key external determinants of residents' objective quality of life and important indicators of urban modernization and governance capacity. In Hohhot, daily travel is relatively diversified: cycling, public transport, and private car use account for 69.64%, 68.45%, and 52.38%, respectively. However, traffic congestion remains a major issue. Respondents mainly attributed it to excessive vehicle numbers (67.26%), inadequate road planning (61.31%), and insufficient public transport services (46.23%). This suggests that transportation problems directly affect travel efficiency, time costs, and daily convenience.

Healthcare services also show clear shortcomings. Specifically, 55.16% of respondents reported difficulties in registration and long waiting times, 53.57% perceived unequal distribution of medical resources, 50.20% considered the number of doctors insufficient, and 44.05% found medical costs relatively high. These results indicate that healthcare provision in Hohhot still faces challenges in accessibility, equity, and affordability.

Overall, although Hohhot has established a basic foundation in public services and urban infrastructure, further improvements are needed in transport efficiency and the balanced provision of healthcare resources to enhance residents' objective quality of life.

4.4 Urban Ecological Environment Quality

Urban ecological conditions are a key dimension of residents' objective quality of life and an important indicator of environmental governance. In Hohhot, residents identified vehicle emissions (52.58%), construction dust (47.82%), and industrial emissions (47.22%) as the main sources of air pollution, while 60.71% reported noticeable fluctuations in air quality over time. This suggests that environmental pressure is driven by multiple sources and that ecological conditions remain unstable.

Residents also emphasized stricter industrial regulation (55.36%), stronger public environmental awareness (52.98%), and tighter control of high-pollution vehicles (51.19%). Overall, Hohhot's ecological challenges reflect multiple pollution sources and uneven governance outcomes. Further improvement

requires more regular, targeted, and systematic environmental management.

4.5 Leisure and Free-Time Conditions

Leisure time and free-time activities are important supplementary dimensions of residents' objective quality of life. In Hohhot, leisure time is generally moderate: 28.37% of residents reported less than 5 hours per week, 34.72% reported 5–10 hours, and 36.91% reported more than 10 hours, indicating that basic leisure conditions exist despite group differences in time allocation. Leisure activities mainly include watching films and television (44.84%), social gatherings (43.85%), reading and learning (42.46%), and physical exercise (34.33%), showing a mix of entertainment, social interaction, and self-development. Moreover, 73.6% of respondents believed that leisure activities significantly improved their well-being and happiness. Overall, while Hohhot residents have a basic foundation for leisure life, improvements are still needed in both leisure time availability and activity quality.

5. Overall Evaluation of Objective Quality of Life

Based on the five dimensions, the objective quality of life of residents in Hohhot has reached a relatively stable level, but notable structural gaps remain when compared with the pace of urban socioeconomic development and residents' rising expectations. The findings show that income and employment security, social security and public safety, public services and urban infrastructure, ecological environment quality, and leisure conditions are the major factors shaping residents' objective quality of life.

Among these dimensions, income and employment security provide the material foundation of quality of life, yet job supply, wage levels, and work pressure still constrain life stability. Social security and public safety offer basic institutional support, but service efficiency, procedural complexity, and risk governance still require improvement. Public services and urban infrastructure have developed to a certain extent, although transportation efficiency and healthcare resource allocation remain problematic. Ecological environment quality directly affects living comfort and health risks, with multiple pollution sources and clear environmental fluctuations. Leisure and free-time conditions have become an important component of quality of life, but further improvement is still needed in time availability and activity quality.

Overall, residents' objective quality of life in Hohhot is shaped by the interaction of economic, institutional, environmental, and lifestyle factors. Although the city has established a basic developmental foundation, continued improvement is still needed in infrastructure, public services, environmental governance, and employment structure in order to achieve sustained enhancement of objective quality of life.

This figure illustrates a multi-level causal mechanism in which urban residents' quality of life (QoL) is shaped not only by the direct influence of objective factors, but also through the mediation of subjective perceptions. Specifically, positive objective factors such as income growth, improved public services, and strengthened social security enhance quality of life by increasing subjective satisfaction, happiness, and feelings of security. In contrast, negative factors such as environmental pollution and employment instability weaken these subjective evaluations and, in turn, exert a negative effect on quality of life. Therefore, the model suggests that quality of life is a complex systemic phenomenon based on the interaction between objective conditions and subjective perceptions.

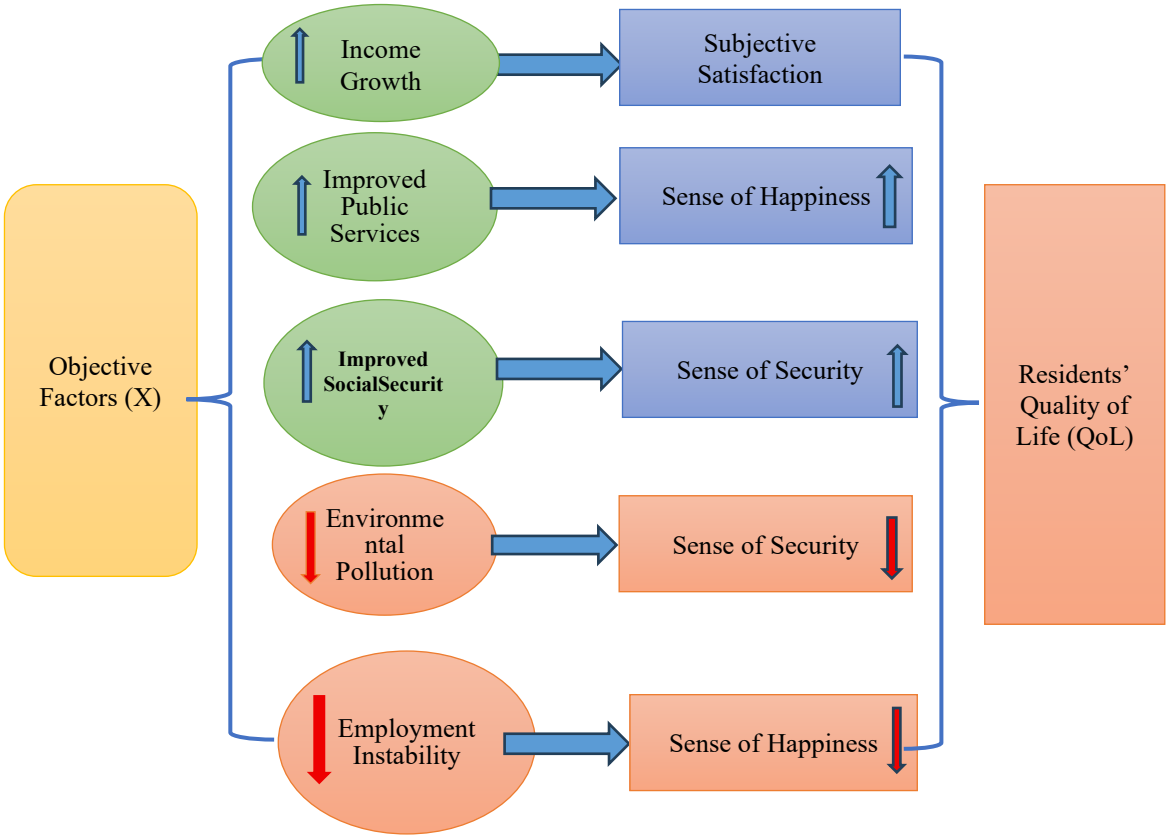

Figure 1: Causal Diagram of Objective Quality of Life

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