

## Article

# Subjective Well-Being of Historical Neighborhood Residents in Beijing: The Impact on the Residential Environment

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**Abstract:** The protection of historical neighborhood blocks is the key to maintaining Beijing's historical and cultural significance. These districts in Beijing carry the history and culture of the city, however, their increasingly crowded environments and lack of infrastructure significantly affects the quality of life for residents. A regression analysis model is constructed in this paper based on data from a 2019 urban physical examination questionnaire deployed in Beijing. Beijing's historical districts are taken as the research unit to analyze current residents' satisfaction with the living environment, supporting further discussion on residents' subjective well-being. Residents report low satisfaction overall with air pollution, service facilities, parking facilities, childcare facilities, daily shopping facilities, and other factors, suggesting that targeted improvements thereto may significantly improve residents' subjective well-being. Analysis of different groups with different attributes reveals that the older residents of these areas tend to have higher education and income levels. It is believed that improvement in various factors of the living environment may improve subjective well-being; further, dissatisfaction with the living environment has a significant negative effect on the subjective well-being of, particularly, women and people with children in the family.

**Keywords:** subjective well-being; historic district; living environment; Beijing



**Citation:** Jiang, Y.; Chen, L.; Xie, Y.; Li, Y.; Li, T. Subjective Well-Being of Historical Neighborhood Residents in Beijing: The Impact on the Residential Environment. *Sustainability* **2023**, *15*, 1847. <https://doi.org/10.3390/su15031847>

Academic Editor: Boris A. Portnov

Received: 2 November 2022

Revised: 31 December 2022

Accepted: 6 January 2023

Published: 18 January 2023



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## 1. Introduction

As global urbanization accelerates and the urban landscape continues to change, historic districts critical to the early stages of urban development have become the focus of scholarly research across various disciplines. Historic districts are often located in the heart of cities, having been founded in the early years of urbanization. A historic area is a microcosm of the early years of urbanization, allowing for an in-depth restoration of the urban landscape from an earlier period in its development. Due to the cultural connotation and material structure carried by historic districts, their preservation is a crucial aspect of the city's culture; this is of interest to scholars, as well as the tourism industry.

The protection of historical and cultural areas began in certain areas abroad prior to domestically in China. Beijing is a key historical and cultural city of China which was first settled many centuries ago. The “old city” of Beijing has a complicated regulatory and architectural history. In the early years of the founding of the country, a large influx of foreign populations occupied the historical buildings and caused some damage to the now historical district, resulting in a persistently high population density and infrastructural issues throughout the old city. Today, as residents' income levels have increased and as citizens increasingly prioritize the pursuit of a better life, they have created more stringent requirements for the living environments of historic districts.

At present, the analysis of the impact of residential environment on residents' subjective well-being mainly focuses on sociology and psychology. The research methods mainly focus on the subjective evaluation of residents' satisfaction. A statistical model was established, and a regression analysis method was used to evaluate subjective well-being. Most scholars study the direct impact of living environment factors on subjective

well-being by analyzing surrounding facilities, community integration and neighborliness, housing conditions and housing quality, and using correlation analysis and regression analysis. There is many research on the impact of living environment on residents' subjective well-being, including sustainable and smart cities [1], community cohesion and social support [2], urban green space [3,4], ethnic composition within the community [5], different genders proportion [6], and age [7] etc. However, there are relatively few studies on special areas such as historic districts. Recent studies on residential issues in historic and cultural districts have extensively investigated issues relevant to neighborhood environments [8], public service facilities [9,10], traffic problems [11], spatial characteristics [12], architectural styles [13–15], and neighborhood relations [16,17]. Settels [18], for example, found that newer communities are perceived to be less safe, accompanied by negative emotional signals such as depression and stress, and socioeconomically disadvantaged compared to older-established communities. Triguero Mas [19] assessed the impact of gentrification on the relationship between the natural outdoor environment (NOE) and the health of disadvantaged groups in the community, where residents of disadvantaged communities were perceived to experience new or improved NOEs.

Sharp [20] broadened contextual environments to more socioeconomically advantageous neighborhoods and highlighted the importance of healthy, “green” activity spaces in neighborhoods; these spaces were found to reduce the risk of diabetes within the surrounding community. Anfal Al-Ali [21] proposed that urban open spaces contribute to the social ability of residents, and that improvements in the quality of the built environment can increase the social capital and neighborhood satisfaction of Abu Dhabi residents. Chun Zhang [22] suggested that the reconstruction of traditional building elements in a historic district may protect said traditional buildings but did not take the residents' satisfaction into account. Shengxiao [11] explored the degree of walking-friendliness in historic districts to examine the impact of perceptions and attitudes towards walking in historic districts in Beijing. Jang [23] investigated changes in the main space of a city's historic district from the perspective of preservation.

Previous research on historic districts has emphasized the role of governments and the protection of buildings but has largely ignored the interests of residents [24]. The current research on living in historic districts mainly focuses on residents' satisfaction with the living environment and aspects of spatial quality, as well as countermeasures for the long-term protection and utilization of historic districts; there has been relatively little analysis of the impact of living environment elements on the subjective well-being of residents in historic districts.

Using data from a social satisfaction survey, the 2019 Beijing City Health Examination, this paper takes Beijing's historic and cultural districts as typical case areas, integrates built and social environment evaluation indicators based on sociological and geographic perspectives, and analyzes residents' satisfaction with the living environment in historic and cultural districts. The extent to which the living environment impacts residents' subjective well-being is investigated to identify key problem areas, potential conservation and renewal measures, and policy guidelines for Beijing's historic and cultural districts.

## 2. Literature Review and Research Framework

### 2.1. Literature Review

Research on livability often relies on “subjective well-being” as an observed variable, which centers on the needs of residents themselves. The impact of the built-up urban environment, tourism planning, transportation and travel, and family life, among other things, on residents can be determined from their own reports of satisfaction and well-being. Liu Ye [25] investigated the impact of the outdoor natural environment in cities on subjective well-being through streetscape and remote sensing imagery, ultimately concluding that the green space index in high-density cities positively affects residents' subjective satisfaction. Ke Jianglin [26] found that air pollution negatively affects urban residents' subjective well-being. Scholars have also added new variables based on subjective well-being to the

relationship between city size and quality of life by analyzing households with varying levels of mobility [27]. Others have examined the relationship between community cohesion and subjective well-being in older adults to find that mental health is an important influencing factor in addition to the community environment [28]. Subjective well-being can describe individuals in an “in-between” income distribution, as well as those vulnerable to poverty [29].

Most of the existing research on subjective well-being is centered on the classical Campbell model. Thus, research perspectives and findings inherit, complement, or validate the applicability of the Campbell model. Marans [30] argued that the objective characteristics of housing, neighborhood, and community affect individual satisfaction with those three factors through subjective perceptions and evaluations; furthermore, satisfaction with these three factors may interact with satisfaction in other areas affecting the individual's life satisfaction and subjective well-being. Using subjective well-being as a measurement for residents in historic districts can directly reflect the needs of residents, target various symptoms, and ultimately yield accurate conclusions.

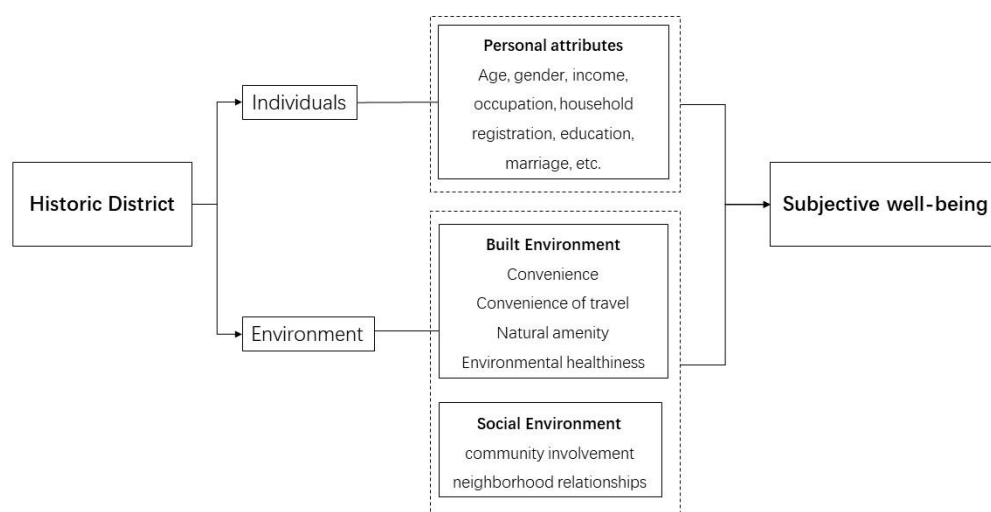
## 2.2. Research Framework

The living environment in a historical and cultural district can be assessed by the unique historical and cultural heritage of the area and the spatial texture of buildings therein. This includes three main factors.

(1) The built environment: in terms of the influence of the physical environment on the subjective well-being of residents, this factor mainly centers on greenery [31], traffic [32], service facilities, and other elements. This paper speculates that in the historical district, the current state of the physical environment influences residents' evaluations of satisfaction and in turn affects their subjective well-being.

(2) The social environment: historical and cultural districts are located in the center of the city, which has a lengthy and storied history and rich social context. Social environmental factors such as community involvement and neighborhood relationships also significantly impact subjective well-being.

(3) Residents' personal attributes: the historic district under analysis here is not only a residential area for local property owners, but also is populated by foreign households and tenants. Attributes of residents' income, occupation, and education can create significant differences in individual subjective well-being. This paper also analyzes the comprehensive effects of these factors on the subjective well-being of residents in historic cultural districts (Figure 1).

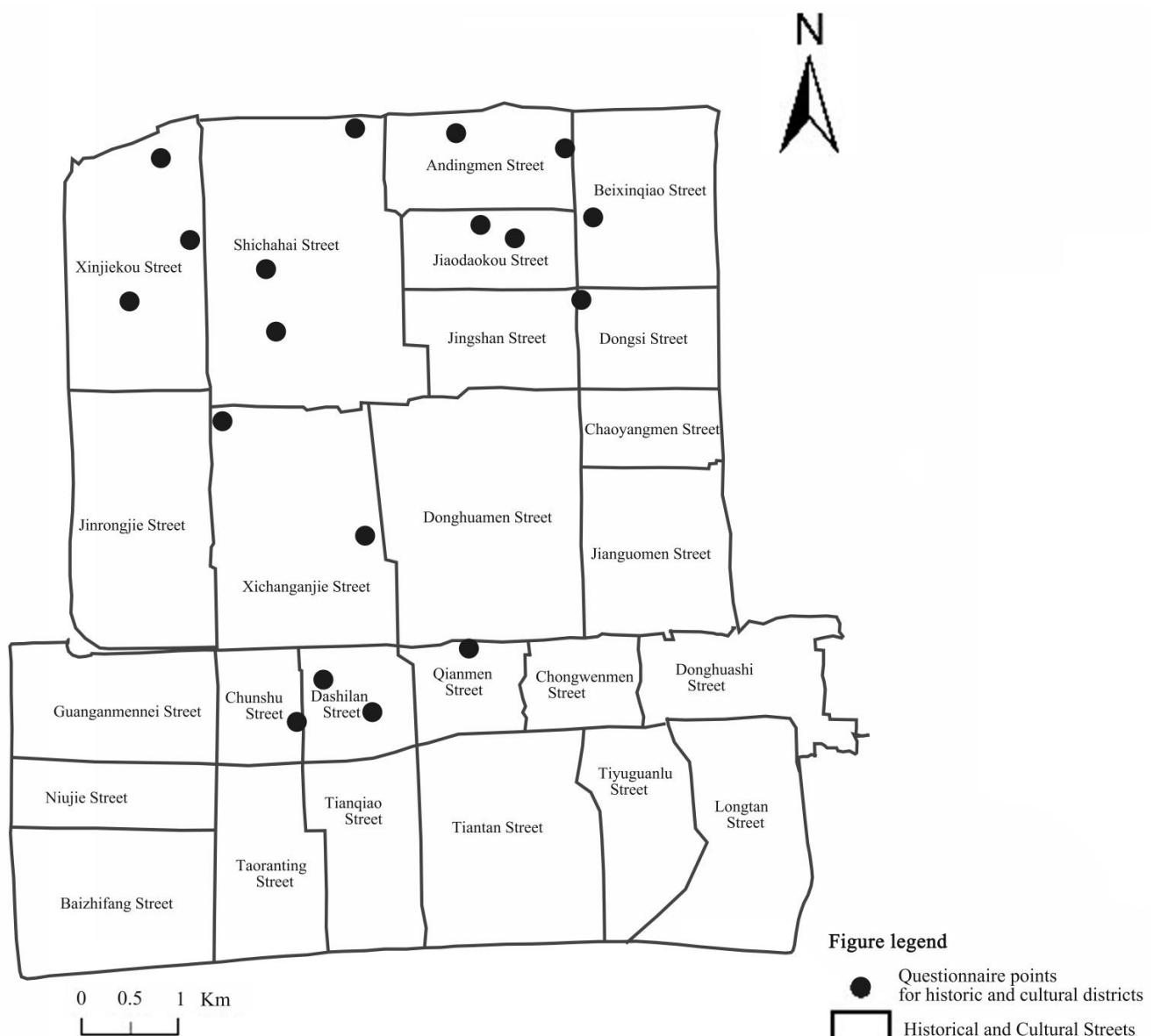


**Figure 1.** Analytical framework.

### 3. Research Design

#### 3.1. Case Area

This paper selects historical and cultural blocks in the Beijing as cases, including Qianmen and Xijiekou, and Shichahai in Beijing's "old city" (Figure 2). The "old city" of Beijing has 33 disparate historical and cultural blocks, spread outward along the direction of the traditional central axis. Distant historical blocks have been transformed into modern city blocks. Blocks such as Shichahai, Nanluogu Xiang, and Dashilan have been transformed into tourism blocks, but they still take on residential function. Planning and policy-wise, priority is given to blocks utilized for residential purposes—however, it is difficult to draw a precise line between business and residential block usage. Development and preservation have been prioritized differently in different parts as well. Arguably, renewal in the historic district has not taken Beijing residents' overall well-being into account properly.



**Figure 2.** Research area.

#### 3.2. Data Sources

Data support for this work comes mainly from the social satisfaction survey of the 2019 Beijing City Health Examination carried by Beijing Municipal Commission of Planning and

Natural Resources, which uses the subjective satisfaction of residents as a measurement scale of urban living environment and is complementary to the traditional evaluation consisting of only physical indicators. The survey contains more than 10,000 valid questionnaires gathered from across the city. Among them, 600 questionnaires were taken from the historical and cultural district of Beijing's old city for the purposes of this study. The main object of the survey is mainly the resident population of individuals over 16 years of age. The main target of this survey is defined as "permanent" Beijing residents, i.e., those who have lived in Beijing for more than six months uninterruptedly. The questionnaire methodology includes sample surveys, community intercepts, and household surveys. Stratified sampling was used in equal proportion to the size of the street population. The questionnaire distribution specifically used a combination of methods including equidistant random sampling, convenience sampling (community intercept and household survey), and cross-control quota (gender, age) sampling.

The survey investigated the respondents' satisfaction level of over 50 indicators, as well as their subjective well-being and personal attributes. Respondents were asked whether they were satisfied with certain indicators. Each answer was measured with a 5-point Likert rating scale from "low satisfaction level", "low-Intermediate satisfaction level", "Intermediate satisfaction level", and "high-Intermediate satisfaction level". In the paper, the answer was assigned a value of 20, 40, 60, 80, and 100, respectively. The answer to the survey questions: "All things considered, how happy are you with your life as a whole?" is used to measure SWB. The responses are recorded on a 3-point Likert scale with "1 = Unhappy", "2 = Fair", and "3 = Happy".

### 3.3. Model and Variables

Hierarchical regression analysis serves to incorporate independent variables into regression models one-by-one to understand their varying effects on the dependent variable during the regression process, and furthermore, to discover the power of the explanatory variables at each stage of the regression.

In this paper, we will analyze the subjective well-being of residents in historical and cultural districts and explore the extent to which satisfaction with the living environment affects subjective well-being. A relatively sophisticated and robust multiple regression analysis model is used, wherein the life satisfaction of residents in historic and cultural districts is the independent variable, the self-evaluated subjective well-being is the dependent variable, and factors of personal demographic attributes are control variables. This model can be expressed as follows:

$$SWB = \beta_0 + \beta_1 PA + \beta_2 PEE + \beta_3 HEE$$

where *SWB* denotes subjective well-being, *PA* is personal socio-economic attributes, *PEE* is built environment elements, *HEE* are social environment elements, and  $\beta_0$ – $\beta_3$  are the respective coefficients. The basic analysis of the variables is shown in Table 1

**Table 1.** Basic analysis of variables.

|                                                                                 | Variable                     | Description                                                                                                             | Mean Value/Proportions |
|---------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>Subjective well-being<br/>Satisfaction of built environment<br/>elements</b> | Happiness                    | Unhappy = 1, Fair = 2, Happy = 3                                                                                        | 2.09                   |
|                                                                                 | Daily shopping facilities    |                                                                                                                         | 73.76                  |
|                                                                                 | Road accessibility           |                                                                                                                         | 72.5                   |
|                                                                                 | Convenience of parking       |                                                                                                                         | 64.88                  |
|                                                                                 | Commuting time               |                                                                                                                         | 71.84                  |
|                                                                                 | Community identity           |                                                                                                                         | 76.38                  |
|                                                                                 | Greenery                     |                                                                                                                         | 75.08                  |
|                                                                                 | Walkable environment         | 20–40 = 1, 40–60 = 2, 60–80 = 3, 80–100 = 4                                                                             | 77.03                  |
|                                                                                 | Public transportation        |                                                                                                                         | 78.1                   |
|                                                                                 | Haze and other air pollution |                                                                                                                         | 71.72                  |
|                                                                                 | Childcare facilities         |                                                                                                                         | 73.53                  |
| <b>Satisfaction of social environment<br/>element</b>                           | Children’s activity space    |                                                                                                                         | 71.5                   |
|                                                                                 | Fire safety                  |                                                                                                                         | 76.64                  |
| <b>Satisfaction of personal<br/>socio-economic attributes</b>                   | Community involvement        |                                                                                                                         | 76.26                  |
|                                                                                 | Neighborhood relationship    |                                                                                                                         | 76.41                  |
|                                                                                 | Age                          |                                                                                                                         |                        |
|                                                                                 | Gender                       | Female = 0; Male = 1                                                                                                    |                        |
|                                                                                 | Marriage                     | Married = 0; Unmarried = 1                                                                                              |                        |
|                                                                                 | Monthly household income     | ≤6.9 million yuan = 1, 7–9.9 million yuan = 2, 10–19.9 million yuan = 3, 19.9–30 million yuan = 4, >30 million yuan = 5 |                        |
|                                                                                 | Unit nature                  | No work (retired, student) = 1; Individuals = 2; Employees = 3; Leaders = 4                                             |                        |
|                                                                                 | Academic qualifications      | Junior high school and below = 1, High School = 2, Senior College = 3, University and above = 4                         |                        |
|                                                                                 | Household registration       | Local household registration = 1, Field of origin has obtained local = 2, Out of town residents = 3,                    |                        |

#### 4. Satisfaction with Living Environment and Its Influence on Subjective Well-Being

##### 4.1. Satisfaction of Living Environment Elements

We selected 14 elements of the living environment for satisfaction analysis (Table 2) based on the unique physical and cultural environment of the study area. Surveyed residents of the historical and cultural district have an overall satisfaction rating of 75.67 points for the living environment. However, the satisfaction scores of parking convenience, road accessibility, commuting time, and daily shopping facility distribution are low. Resident satisfaction with parking has a score of 67.793. Among the social environment elements, residents in the historic district are more satisfied with fire safety, neighborhood relations, and community involvement factors; they are less satisfied with childcare facilities, and space for children’s activities, with scores consistently lower than the average value of 75.67.

**Table 2.** Satisfaction of living environment elements.

| Environment Element Satisfaction | Satisfaction Evaluation | Environment Element Satisfaction | Satisfaction Evaluation |
|----------------------------------|-------------------------|----------------------------------|-------------------------|
| Public transportation            | 78.514                  | Fire safety                      | 77.117                  |
| Walkability                      | 78.288                  | Neighborhood relationships       | 76.441                  |
| Greenery                         | 78.153                  | Community involvement            | 76.441                  |
| Sense of community identity      | 77.432                  | Childcare facilities             | 74.550                  |
| Daily shopping facilities        | 74.730                  | Air pollution                    | 73.423                  |
| Commuting time                   | 73.829                  | Children’s activity space        | 72.568                  |
| Road accessibility               | 73.063                  | Convenience of parking           | 67.793                  |

According to the satisfaction score in the table, traffic problems such as parking convenience, road accessibility, and commuting time appear to be highly problematic for residents of the historic and cultural district. The original street texture of the historic district creates parking problems. The district has limited space across its streets and alleys, relatively little public space, a chaotic parking situation, and prevalent traffic jams.

Throughout decentralization of the capital's functions and reorganization of the old city, traffic management and planning have focused on adjustable and conditional expansion areas rather than targeted solutions to these actual problems.

Residents also reported dissatisfaction with the space for children's activities. The narrowness of streets in the historical and cultural district does not allow for large-scale activity facilities or any abundance of public places. Existing public fitness and recreation facilities are mostly oriented to adult groups, with less attention given to children.

Environmental remediation in downtown Beijing has long been plagued by air pollution problems. The historical and cultural district is located in the core of the city, which has poor spatial openness and a dense population, making it difficult to effectively diffuse pollutants; this has become a major factor of the living environment.

#### 4.2. Satisfaction with Living Environment Elements Affecting Well-Being

Table 3 shows the influence of the independent variable, built environment elements, on residents' subjective well-being. Most variables in the model are significant. Among them, the residents of the historic district appear to be more optimistic about the current situation of the built environment, but the role of enhancing different elements of the living environment varies. Greenery, walkability, and neighborhood relationships have the most significant influence on residents' subjective well-being with coefficients higher than 0.17; commuting time, primary and secondary schools, and other facilities have a less significant role in enhancing subjective well-being, with coefficients below 0.095.

Satisfaction with greenery significantly impacts residents' subjective well-being with a coefficient of 0.179. Landscape greening can satisfy the need for a livable, aesthetically pleasing environment and thus increase feelings of happiness [33]. In recent years, the city of Beijing has gradually carried out deconstruction and remediation projects including the greening of its historical and cultural districts; residents are now more likely to see green spaces in their neighborhoods and have pleasant views from the windows of their homes.

Walkability (or "satisfaction with the walking environment") has the most significant impact on residents' subjective well-being among the factors we tested. Residents of the historic and cultural district have relied mainly on walking for transportation throughout history; rapid economic development of the core area has led to a prominent contradiction between pedestrians and vehicles. The spaciousness and safety of the walking environment for residents of the district are important aspects of daily life.

Interestingly, shortening commuting time does not appear to significantly improve the subjective well-being of residents with a coefficient of 0.09. Current research on commuting time affecting residents' subjective well-being is mainly focused on the difference between residential location and household registration variables. For example, citizens with foreign household registration or living far from the city center are more likely to rent apartments due to the restrictions of household registration and income. However, renting is relatively flexible; a shorter commuting time has a more significant effect on their subjective well-being than it does on residents who own their homes. Their choice of living location is less flexible, so the effect of commuting time on well-being is fairly weak.

We also find that the social environment plays a critical role in residents' self-reported happiness and well-being. Residents of the historical and cultural district believe that strong relations across their neighborhood give them a sense of achievement. Several studies have shown that neighborhood relations and social cohesion positively affect all dimensions of individual subjective well-being [29]. Historical and cultural neighborhoods, due to the special characteristics of their living spaces and their high population density, feature similar living habits and frequent daily interactions among residents; when relations are strong, residents have a stronger sense of identity and belonging to the living space.

**Table 3.** Satisfaction with built environment elements on residents' subjective well-being.

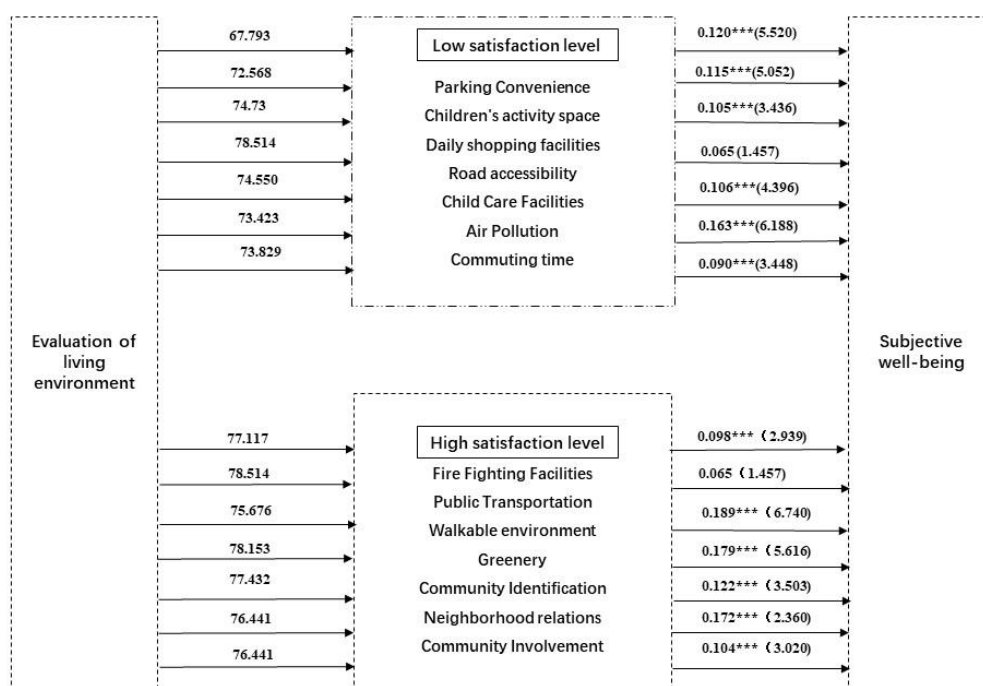
|                              | (1)        | (2)        | (3)        | (4)        | (5)        | (6)        | (7)        | (8)        | (9)        | (10)       | (11)       | (12)       | (13)      | (14)       |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|
| Daily shopping facilities    |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Childcare facilities         | 0.105 ***  | 0.106 ***  | 0.115 ***  |            |            |            |            |            |            |            |            |            |           |            |
| Children's activity space    |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Road accessibility           |            |            |            | 0.096 ***  |            |            |            |            |            |            |            |            |           |            |
| Convenience of parking       |            |            |            |            | 0.120 ***  |            |            |            |            |            |            |            |           |            |
| Commuting time               |            |            |            |            |            | 0.090 ***  | 0.098 ***  |            |            |            |            |            |           |            |
| Fire safety                  |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Community identity           |            |            |            |            |            |            |            | 0.122 ***  |            |            |            |            |           |            |
| Greenery                     |            |            |            |            |            |            |            |            | 0.179 ***  |            |            |            |           |            |
| Walkable environment         |            |            |            |            |            |            |            |            |            | 0.195 ***  |            |            |           |            |
| Public transportation        |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Community involvement        |            |            |            |            |            |            |            |            |            |            | 0.065      | 0.104 ***  | 0.172 *** | 0.163 ***  |
| Neighborhood relationships   |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Haze and other air pollution |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
| Age                          | 0.048 ***  | 0.056 ***  | 0.049 ***  | 0.051 ***  | 0.054 ***  | 0.054 ***  | 0.051 ***  | 0.045 **   | 0.052 ***  | 0.044 **   | 0.049 ***  | 0.045 **   | 0.048 *** | 0.049 ***  |
| Female                       | −0.101 *** | −0.111 *** | −0.114 *** | −0.113 *** | −0.123 *** | −0.106 *** | −0.114 *** | −0.106 *** | −0.111 *** | −0.112 *** | −0.111 *** | −0.105 *** | −0.093 ** | −0.116 *** |
| Unmarried                    | 0.064      | 0.078      | 0.049      | 0.067      | 0.069      | 0.075      | 0.075      | 0.065      | 0.063      | 0.059      | 0.069      | 0.051      | 0.075     | 0.047      |
| Education                    | 0.046 **   | 0.046 **   | 0.044 *    | 0.052 **   | 0.054 **   | 0.042 *    | 0.050 **   | 0.045 **   | 0.046 **   | 0.041 *    | 0.048 **   | 0.047 **   | 0.047 **  | 0.056 **   |
| Occupation                   | −0.008     | −0.003     | −0.007     | −0.007     | −0.006     | −0.009     | −0.006     | −0.009     | −0.004     | −0.006     | −0.006     | −0.008     | −0.005    | −0.007     |
| Income                       | 0.041 **   | 0.046 **   | 0.047 **   | 0.040 **   | 0.040 **   | 0.042 **   | 0.039 **   | 0.040 **   | 0.044 **   | 0.035 *    | 0.042 **   | 0.040 **   | 0.039 **  | 0.040 **   |
| Household registration       | 0.011      | 0.005      | 0.007      | 0.01       | 0.009      | 0.01       | 0.009      | 0.009      | 0.018      | 0.016      | 0.006      | 0.002      | 0.014     | 0.014      |
| With children                | −0.159 **  | −0.174 **  | −0.163 **  | −0.146 **  | −0.145 **  | −0.167 **  | −0.157 **  | −0.158 **  | −0.166 **  | −0.125 *   | −0.170 **  | −0.178 *** | −0.143 ** | −0.285 *** |
| _cons                        | 2.146 ***  | 2.113 ***  | 2.151 ***  | 2.151 ***  | 2.120 ***  | 2.181 ***  | 2.139 ***  | 2.115 ***  | 1.889 ***  | 1.907 ***  | 2.232 ***  | 2.186 ***  | 1.927 *** | 1.983 ***  |
| N                            | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600        | 600       | 600        |
| r2_adjust                    | 0.071      | 0.082      | 0.092      | 0.071      | 0.099      | 0.071      | 0.066      | 0.071      | 0.100      | 0.100      | 0.055      | 0.071      | 0.072     | 0.11       |

Note: The figure in brackets is the standard coefficient of the influence, \*\*\*, \*\*, \*, represent *p* values were significant at the levels of 0.01, 0.05 and 0.10.

With an increase in age, the residents surveyed for this study appear to more strongly believe that the living environment enhances subjective well-being. The negative effect of subjective well-being evaluation in residents with children at home is significant and the subjective well-being of women is lower compared with that of men. The positive effect of subjective well-being grows more prominent as education and income levels increase. In effect, though the current physical and social environment of the historic district does enhance the well-being of its residents overall, females and those with children at home do not show as strong a sense of attainment as other demographic groups.

## 5. Discussion

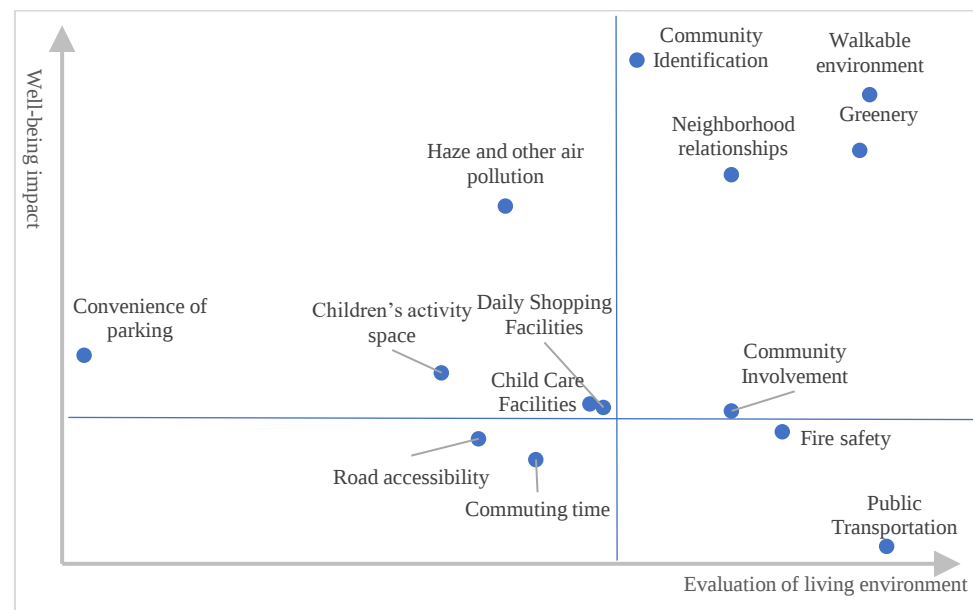
We next sorted the factors and paths of living environment satisfaction affecting well-being by their respective scores. As shown Figure 3, most influencing factors are significant and the model functions effectively on the whole.



**Figure 3.** Influencing factors of living environment on subjective well-being. Note: \*\*\*, represent p values were significant at the levels of 0.01, 0.05 and 0.10.

As shown in Figure 4, we divided satisfaction with the elements of the living environment and the analysis of the variability of the impact on subjective well-being into four-dimensional groups.

As shown in Table 4, the walkable environment, greenery, neighborhood relationships, public participation, and community identity elements in the first group are currently highly satisfactory and have a significant role in improving residents' well-being. Walkability and greenery are fairly strong, likely due to the orderly promotion of initiatives for the protection and utilization of the districts in recent years. These elements should be carefully maintained so that they remain advantageous to residents' subjective well-being.



**Figure 4.** Satisfaction-subjective well-being dimension analysis.

**Table 4.** Classification of satisfaction-subjective well-being dimensions.

| Types                                                       | Elements of Living Environment                                                                                 |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| High level of satisfaction, high degree of happiness impact | Walkable environment, greenery, neighborhood relationships, community involvement, community identity          |
| Low level of satisfaction, high degree of happiness         | Air pollution, parking convenience, childcare facilities, daily shopping facilities, children's activity areas |
| Low level of satisfaction, low degree of happiness          | Road accessibility, commuting time                                                                             |
| High level of satisfaction, low degree of happiness impact  | Public transportation, fire safety                                                                             |

In the second group, elements including air pollution, parking convenience, childcare facilities, daily shopping facilities, and children's activity spaces emerged as key areas for improvement. Though open-wall holes have been mediated to preserve the historical and cultural district, the manner in which they affect the daily lives of the residents remains problematic. The complex street texture of the district also concentrates most facilities in the peripheral areas of the community, where residents of internal structures may not have convenient access to them.

In the third group, the smoothness of roads and commuting time are secondary improvement areas in the living environment of the historical and cultural district; the degree of satisfaction with these elements is relatively low. The structural, spatial, and architectural peculiarities of the district render it difficult to substantially improve these elements; only partial improvements can be obtained through relevant management and traffic decongestion.

In the fourth group, public transportation and fire safety elements are more satisfactory but have relatively little impact on enhancing subjective well-being. The study district is located in the core of Beijing, which has dense and well-equipped public transportation stations and fire safety facilities in place with which residents are already generally satisfied. However, private construction inside homes in the district is fairly problematic in terms of safety. Furthermore, the excessive population density creates safety hazards. Improvement measures targeting these elements should be tailored carefully to both the area itself and to its residents' demands.

## 6. Conclusions

A historical and cultural district in Beijing, China was taken as a study object to investigate residents' self-reported satisfaction with various elements of the environment and its impact on subjective well-being. The main problems of the current living environment were analyzed accordingly in order to propose improvements and potential renovations to the district.

(1) Traffic problems in historical and cultural districts are prominent, and child-friendly facilities need to be improved or newly constructed

Residents report dissatisfaction with parking convenience, access to smooth roads, and commuting time in the study area, indicating that resolving traffic problems may significantly improve the quality of the living environment. This issue falls at an intersection between urban planning, construction, and economic development. Cultural relics in the district must be carefully preserved, so urban planning is restricted to micro-circulation improvement methods; residents tend to have low expectations regarding the effects of these efforts. The lack of children's recreational facilities and childcare facilities also seriously affects the daily lives of residents, especially those with children at home, resulting in a lower subjective well-being evaluation. The district has, in recent years, begun to improve fitness facilities and spaces for public interactions, but they are more oriented to adult groups than young people. This is an area with significant room for improvement by relevant planning and policy organizations.

(2) Housing environment elements significantly impact residents' subjective well-being on the whole, though the degree of influence varies across different elements

Due to the unique properties of the historic district itself—including the sheer length of its history as a developed residential space—its residents experience unique advantages, as well as disadvantages inherent to the living environment. While new residential communities are often equipped with functional or even highly sophisticated infrastructure, the limited space and lack of unified property management in historic districts, as well as the need to lay pipelines for many services in advance, may impede renewal projects and therefore seriously affect the subjective well-being of residents. Narrow traffic passageways in the historic district make it impossible to effectively divide pedestrians and vehicles. Certain neighborhoods have no defined areas for parking whatsoever, which degrades walkability. There is existing greenery in the area, including plant life established long ago, but the spatial structure of the district makes it difficult to plant new trees or green existing spaces. The overall coverage of green spaces in the historic district is high but unevenly distributed, existing mostly as a single independent park, thus failing to satisfy the majority of residents.

In the future, the renovation and renewal of historic districts should be targeted to residents' self-reported needs. Age-appropriate public service facilities should be constructed in suitable places, traffic problems (e.g., parking) should be carefully resolved, and green spaces in front of residents' homes should be created for the purposes of fostering a more livable community environment. Paying attention to the subjective well-being of residents is an important step toward sustainably maintaining historic and cultural districts.

**Author Contributions:** Conceptualization, Y.J.; methodology, L.C.; software, Y.X.; validation, Y.J., L.C. and Y.X.; formal analysis, Y.J., Y.L. and T.L.; investigation, Y.J. and Y.X.; resources, L.C.; data curation, L.C.; writing—original draft preparation, Y.J.; writing—review and editing, Y.J.; visualization, Y.X.; supervision, L.C.; project administration, L.C.; funding acquisition, L.C. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by National Natural Science Foundation of China, grant number 42071215 and Supporting Plan for Cultivating High Level Teachers in Colleges and Universities in Beijing, grant number CIT&TCD201904075. The APC was funded by Natural Science Foundation of China.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of Beijing union university (20221207).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** As for the data in the article, we only have the right to use the data and cannot share the research data.

**Conflicts of Interest:** The authors declare no conflict of interest.

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