

## Article

# Sense of Place Attitudes on Quality of Life during the COVID-19 Pandemic: The Case of Iranian Residents in Hungary

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**Abstract:** Limited research has investigated the impact of immigrants' sense of place (SOP) attitudes on their quality of life (QOL) outcomes, especially during crises such as the COVID-19 pandemic. The present study aimed to fill this gap by examining the effect of SOP attitudes and health-related QOL (HQOL) on 120 Iranian citizens residing in Budapest, Hungary, during the pandemic. Using social media platforms, an online survey was conducted between March and July 2020. The findings of this study revealed that SOP elements, such as connection to sites, location identification, and location reliance, are susceptible to change and rely on QOL during the pandemic. The study also highlighted that Budapest has the potential to become a desirable destination for future immigrants. Overall, this study contributes to the literature on the relationship between SOP attitudes and QOL outcomes among immigrants during a crisis. It provides valuable insights for policymakers and practitioners to improve the SOP and QOL of immigrants living in cities affected by pandemics or other crises. This study provides insights into the influence of a sense of place on the quality of life of Iranian immigrants by presenting a model and highlighting significant results in a selected community.

**Keywords:** sense of place (SOP); quality of life (QOL); place attitudes; immigrant Iranian citizens; COVID-19; Budapest; PLS method



**Citation:** Mousazadeh, H.; Ghorbani, A.; Azadi, H.; Almani, F.A.; Mosazadeh, H.; Zhu, K.; Dávid, L.D. Sense of Place Attitudes on Quality of Life during the COVID-19 Pandemic: The Case of Iranian Residents in Hungary. *Sustainability* **2023**, *15*, 6608. <https://doi.org/10.3390/su15086608>

Academic Editor: Kyle Maurice Woosnam

Received: 4 March 2023

Revised: 6 April 2023

Accepted: 12 April 2023

Published: 13 April 2023



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## 1. Introduction

Cities are diverse environments populated by people with different interests who should be motivated to work together to create a balanced atmosphere and sufficient QOL [1,2]. QOL is one of the basic prerequisites for development and the most important field of study in different countries, which, due to its increasing importance, is an effective tool in managing and planning development issues and urban and regional studies [3]. Quality of life linked to well-being (HQOL) has received worldwide attention in recent years, and several multidimensional classifications of health status have been increasingly used to describe and assess HQOL [4]. Recently, many studies have highlighted that the COVID-19 pandemic has affected people's health, HQOL, well-being, and mental health (for example, [4–10]). In December 2019, the novel COVID-19 pandemic started as a major threat to China and spread far and wide in other countries [11–13]. The World Health Organization (WHO) reported the novel COVID-19 pandemic as a global pandemic on 11

March 2020, with over 32 million infected people and more than 988,496 casualties across 216 countries [14]. Thus far, the crisis has become the most devastating challenge in recent history [15,16]. Furthermore, it taught us that this challenge could not be managed individually at the national level [17,18]. The COVID-19 pandemic has included people from multiple socioeconomic groups, poor and rich, in low-, middle-, and high-income countries alike [19,20], and has impacted personal lives, the economy, scientific communication, and the environment [21]. The coronavirus pandemic may cause a substantial epidemiological and healthcare burden in Hungary [22]. On 3 March 2020, the first recorded case of COVID-19 in Hungary was confirmed [23]. The cumulative number of confirmed persons afflicted with COVID-19 cases in Hungary until 9 November 2020 was 1,147,788 cases (Hungarian governmental center for coronavirus, 2020). On 11 March 2020, Hungary announced a ‘State of Threat,’ a special form of a legal regime [24], as an initial reaction to the emerging COVID-19 pandemic. Hungary used mitigation strategies, such as encouraging social distancing and staying home, to decrease the transmission rate [23]. COVID-19 has spread widely and rapidly with substantial effects on the QOL of people [7,25,26], and the quarantine resulting from it has destroyed our SOP [27]. It means we can no longer go to the places that describe our daily life and create a sense of our identity. The COVID-19 pandemic has directly affected the SOP attitudes, QOL, and well-being outcomes of Iranian residents in Budapest [5].

In the recent decade, a developing amount of research has shown that SOP attitudes are correlated with QOL outcomes (e.g., [28–32]), environmental and natural factors such as urban rivers and parks (e.g., [5,33–36]), inhabitants in rural and metropolitan areas (e.g., [37–42]), and wellness and psychological research (e.g., [29,43–46]).

A major gap is clarified by the lack of experimental studies on the relationships among Iranian residents with characteristics of well-being and HQOL performance. This discrepancy is experienced in the perception of SOP attitudes as avenues of health-related assistance to address the needs of the migrant population for autonomy, identity development, dependency, and social inclusion [47]. SOP is one of the vital concepts in promoting the QOL of citizens in an urban area [40]. This concept finally leads to the creation of high QOL and quality of the environment because of its essential role in initiating interactions among citizens and the urban environment [48]. Field research has shown that many Iranians are interested in Budapest and its attractions, especially in education. Furthermore, they are interested in traveling to Budapest. Much less analytical analysis was undertaken to highlight the aspects of SOP attitudes in relation to QOL outcomes in critical conditions, such as the coronavirus crisis in Europe, particularly among migrant populations, such as Iranian residents. In this study, we examine the impacts of SOP attitudes and HQOL in a sample of Iranian migrants in Budapest (Hungary) during the COVID-19 pandemic era. Our study shows that SOP attitudes based on SOP theory, the positive characteristics, and the atmosphere of the location are important in describing people–environment interactions that are related to HQOL. The aim of this research was to examine the effect of SOP attitudes and health-related quality of life (HQOL) on Iranian citizens residing in Budapest, Hungary, during the pandemic. To achieve this aim, the article has been structured as follows: a review of research literature in the field of sense of place and quality of life, identification of research methods, data collection through questionnaires, use of appropriate models and software for data analysis, discussion, conclusions, and finally, the design of the research model has been formed.

## 2. Related Background

### 2.1. Defining the SOP

SOP is a social metric capturing the relative importance of various entities in special locations [33]. History and theoretical background show that SOP consists of three key dimensions: place identity, place attachment, and place dependence related to a specific geographical setting [49,50]. SOP attitudes are closely related to residents’ willingness to participate, the social growth aspirations of residents, happiness, passion for neighbor-

hood development, and support for public facility development [51–53]. Place definitions include an ability to put deep intelligence into the relationships that people have rather than ‘SOP’ with a place, or place attachment, alone [54,55]. Knowing SOP as a general mentality toward a geographical environment seems to affect understanding and a feeling of inclusiveness [56]. Based on Jorgensen and Stedman [49], the multidimensional SOP approach encourages a deeper definition of place in coping with the dynamics involved, along with changes in venue and mobility. The definition of SOP can be separated into three places according to the nature of the attitude: feelings (attachment), values (identity), and behavioral responsibilities (dependence) (e.g., [47,49,50,57–59]). We suggest that SOP is an abstruse affective bond between citizens and the urban environment as part of their QOL and conclude that the research techniques used in this paper offer an outstanding method for analyzing urban environments with such a relevant phenomenon.

### *2.2. Place Attachment*

Place attachment is the strength of the expectations of a person about the relation between himself or herself and the place. To gain their help and participation, the ideals, attitudes, and meanings that urban dwellers assign to positions within the city should be studied, recognized, valued, and maintained [60–63]. The QOL of individuals depends on the environment [64]. Place attachment is often covered using psychometric measures distinguishing among various attitudes, place identification, and place dependency, for example [65]. Place attachment and SOP are practically synonymous in some places and research activities [65], concentrating on the relation of a person to a place and residential satisfaction [66]. Attachment is used as the conceptual framework system of attachment behavior and attachment experiences of individuals in relation to emotion regulation and QOL outcomes [43,67–69].

Place attachment stresses the optimistic and substantive features of interpersonal interaction to satisfy the fundamental needs of individuals and enhance well-being [70]. Moreover, it helps individuals, when negotiating the individual’s QOL, to maintain and enhance optimistic feelings that minimize emotional pain and anxiety [71,72]. Different disciplinary lenses have explored the relations between location, practice, experience, and management, often from the viewpoint of place attachment [35,73–76]. The explanation of attachment ties is based on the understanding of where hypothetical attachment objects are located, such as spatial environments, for their attachment fulfillment [46,77,78]. When people are in critical situations or special circumstances, it can affect their attachment, such as the conditions examined in this study, and it shows that the coronavirus pandemic has affected people’s SOP.

### *2.3. Place Identity*

Place identity describes the emotional connection of a person to a place and refers to a deep symbolic attachment [79]. Place identity may be articulated as the relational equivalence of location dependency. Instead of assessing the reliance on a location to keep an operation or life for its wealth, place identification depends on the place to establish one’s self-identity [80,81]. Place identity is an important predictor of destination loyalty [82,83]. Stobbelaar and Pedroli [84] declared that their theory of ‘personal–existential’ landscape identity recalled the construction of place identity that was established specifically in the field of environmental psychology with regard to the relations between identity and place identity. Place identity is defined as a collection of memories, conceptions, interpretations, and emotions connected to a particular physical environment. Jorgensen and Stedman [49,50] characterized place identity as a cognitive reaction or approach to a place and a sort of self-identification with a place. Urban dwellers will describe the SOP in terms of belonging to a specific place (in this study, Iranians who immigrated to Budapest and interacted with the city). Place identity can be seen as a part of self-identity in this context [47,85]. Local [86], regional [87], and national [88] levels have varied the scope of

the SOP in place identity analysis. The current research, in comparison, focuses on the transnational geographical level, primarily on Iranians living outside their own region.

#### 2.4. Place Dependence

Place dependency is a key functional connection that indicates how specific tasks are assisted by the place [74,89]. This dimension is defined by the connections between a physical setting and the activities that take place within it. Place dependence can be viewed as an antecedent variable for place identity. Vaske and Kobrin [90] verified that place dependence has a positive effect on place identity. Jorgensen and Stedman [49] conceptualized this aspect as the “perceived behavioral advantage” of a position as opposed to other places (p. 238). A highly reliant individual would attribute considerable significance to the availability of a particular condition on a site compared to other sites [65]. People are likely to have experienced place dependence before a place identity is formed; they are attracted to a location based on events, services, or contacts in the community that make up the environment in which they are involved [30].

#### 2.5. Sense of Place, Quality of Life and COVID-19

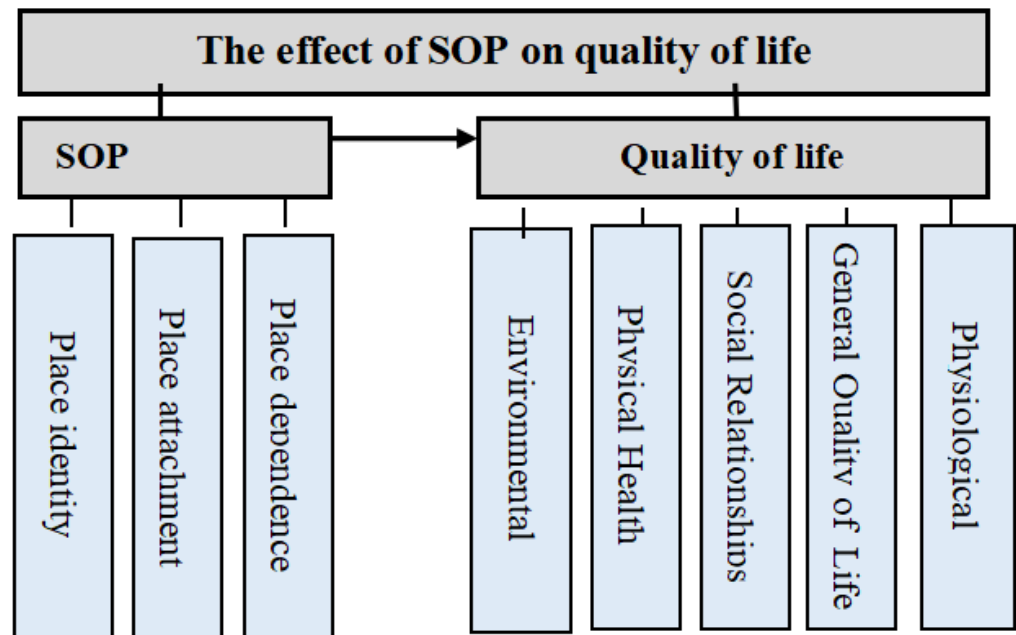
The COVID-19 pandemic has rapidly and extensively spread, significantly impacting people’s sense of place and quality of life [25,26,91]. The pandemic has affected individuals from different socioeconomic backgrounds in both low and high-income countries, impacting personal lives and the environment [19,20,91]. According to Mousazadeh [91], the COVID-19 pandemic and subsequent quarantine measures have caused fear and prevented people from visiting their preferred locations, significantly impacting their quality of life and sense of place. Bissell [92] emphasized that gaining insight into the evolving significance and interpretation of place during the COVID-19 pandemic can aid in comprehending the altered connections and situations. Research has demonstrated that individuals under home quarantine reported heightened anxiety levels and a decline in their health-related quality of life (HRQoL), and those with greater anxiety tended to have lower HRQoL levels. Therefore, prioritizing individuals’ mental health during pandemics or other emergency situations is crucial [93]. Consequently, when implementing initiatives to enhance the quality of life (QOL) of individuals after COVID-19, it is essential to consider the most affected QOL domains and the associated factors [94].

#### 2.6. Place-Sense and Quality of Life

SOP is a social base for personality, dependency, and connection of the position that intercedes with physical features and circumstances [95,96]. Several studies have connected SOP attitudes to QOL outcomes and have shown the relationship between them well (e.g., [43,45,78,97,98]). The rate of SOP attitudes is positively correlated with all HQOL outcomes, according to Counted [30]. In the experience of position connection, Tartaglia [41] associated the consistency of social interactions with essential contextual artifacts as an indispensable part of developing QOL in a community. This outcome is supported by Gattino et al. [99], who recommended that QOL is mainly motivated by one’s sense of culture. Moreover, studies show that socio-demographic factors have an impact on SOP among migrants [100]. Eight hypotheses on the connections between and impacts of SOP results on QOL outcomes among Iranian citizens in Hungary were tested by the conceptual model for the study’s purposes. The hypothesis was set according to the model at this stage. Each of the exogenous variables (SOP) will influence the endogenous variables, as shown in the model (Figure 1) (QOL). Any of them is then known as a hypothesis:

- Place identity has a significant effect on SOP;
- The position connection has a significant influence on the SOP;
- Position reliance has a significant influence on the SOP;
- The environment has a significant effect on QOL;
- Physical health has a significant effect on QOL;
- Social relationships have a significant effect on QOL;

- General QOL has a significant effect on QOL;
- Psychological health has a significant effect on QOL.



**Figure 1.** The conceptual model framework of research designed based on research variables (SOPQOL model) [5].

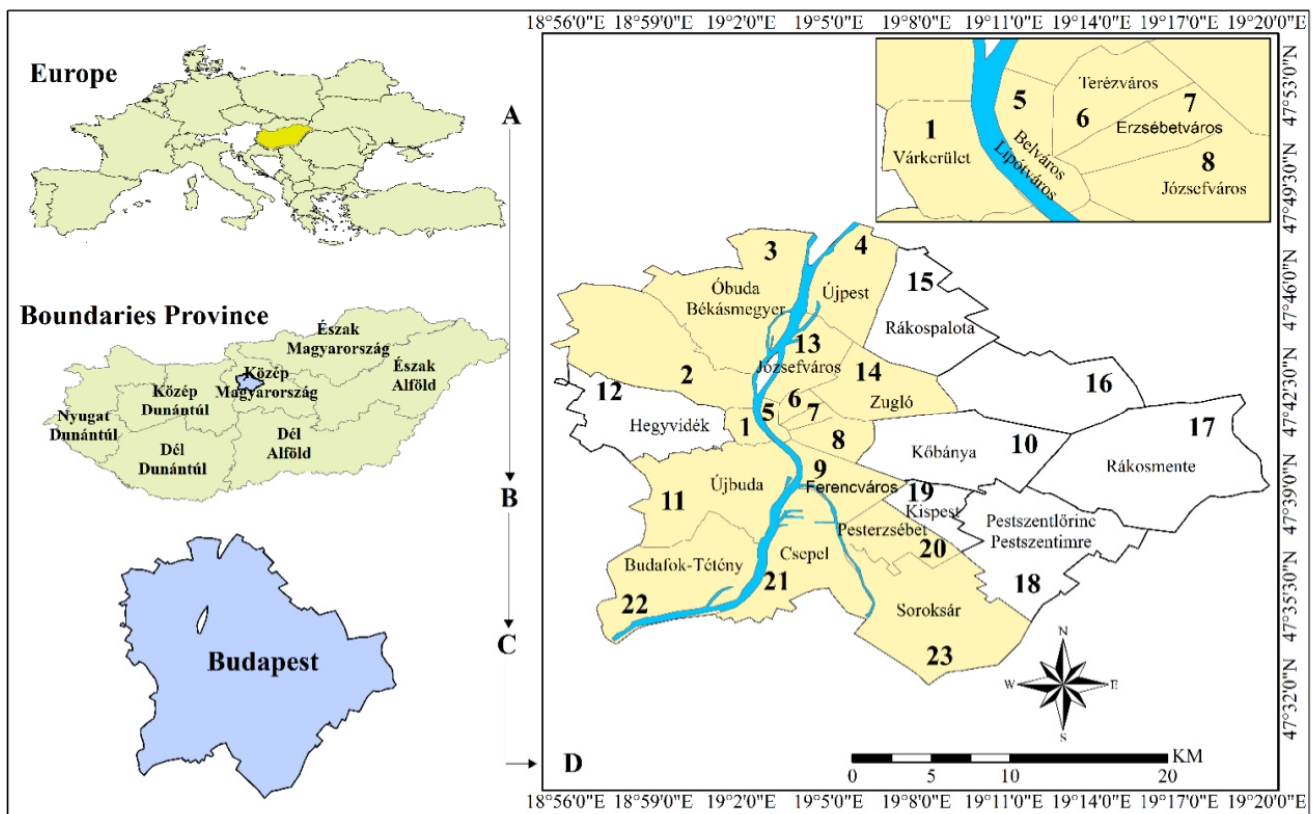
### 3. Materials and Method

#### 3.1. Study Area

Hungary has seven regions, among which Budapest is the most populous and immigrant-friendly county [5]. Budapest is the capital of Hungary and is located between 47.613437° and 47.349269° northern latitude and 18.926381° and 19.334538° eastern longitude in central Hungary. The altitude of the city ranges from approximately 95 m to 520 m [101]. Budapest is located along the Danube River with substantially different districts on both the western (Buda) and eastern (Pest) sides; many of the city districts are found on the eastern side [102]. Budapest has 23 districts (see Figure 2, the author draws based on Arcgis), each with its own municipal government; the 7th district, compared to its size, is the most densely populated district of Budapest [103].

#### 3.2. Participants

The SOP attitudes and QOL outcomes of migrants who live outside of their own country may be decreased, removed, repaired, or even strengthened during a crisis such as a coronavirus. Based on statistical reports, Budapest hosts the largest population of Iranians in Hungary [5]. To examine the present study hypotheses, we reviewed data from a sample of 120 Iranian residents in Budapest, Hungary (N = 1850), who lived in Budapest during the coronavirus pandemic. Because the statistical population of the study was not precisely known and was not available, the initial statistical sample was asked to introduce the other samples. Thus, the selection of the statistical sample started with an initial number of people; then, they were asked to introduce those who they thought were suitable for this study. The participants were Iranian migrants between 18 and 65 (average age = 30; standard deviation [SD] = 15; mean [M] = 48%; F = 52%).



**Figure 2.** The study area. Location of Hungary on European map (A), the location of Budapest in Hungary (B), Budapest map (C), and Budapest districts ((D), 23 districts).

### 3.3. Procedure

Due to the lack of face-to-face visits to complete the questionnaire, the data were collected using social media during the coronavirus pandemic and quarantine in Hungary (March–July 2020). For the collection of data, a snowball sampling design was adopted. This nonprobability sampling methodology was suggested for the analysis of transient and hard-to-reach communities [104–106] because it is focused on the recruitment of respondents from the established group. A snowball approach is a nonprobability sampling approach focused on the recruitment of test participants from established group systems and among their acquaintances [107]. The research questionnaire consists of three parts. The first part was related to demographic questions and general information about individuals. In the second part, the QOL outcomes (e.g., physical well-being, mental health, nature of social interactions, the health of the community, and general QOL) were measured, and in the third part, SOP attitudes were examined in relation to the research hypotheses. This research is an abstract postmodern study on a link between regional–urban, psychological, and environmental studies on critical conditions such as the coronavirus crisis, and the basis is an understanding and insight into immigrants. Finally, 120 migrants from the statistical community sent completed online questionnaires, and details were entered into SPSS and Smart PLS software after screening for preliminary analyses.

## 4. Results

### 4.1. Socio-demographic Factors

To better understand the relationship between attitudes toward SOP and findings from QOL between Iranian residents in Hungary during the coronavirus pandemic, socio-demographic factors were examined. The demographic information of the participants is presented in Table 1.

**Table 1.** Socio-demographic factors of participants.

<b>Gender</b>	Male		Female		
	53.8%		46.2%		
<b>Accepted the new place (Budapest) as the second home</b>	Yes			No	
	83.9%			16.1%	
<b>Marital status</b>	Married	Single	Divorced/widowed/separated		
	42.4%	50.8%	6.8%		
<b>Length of residence</b>	Less than five years	5–10 years	More than 10 years		
	60%	26.1%	13.9%		
<b>Income/month</b>	Low income	Middle income	Upper income		
	46.1%	52.2%	1.7%		
<b>Region of origin</b>	Central Iran	Northern Iran	Southern Iran	Eastern Iran	Western Iran
	32.2%	18.6%	14.4%	17.8%	17%

Note: As mentioned earlier, the majority of the Iranian immigrant population in Budapest is students due to the quality of universities and scholarship programs between the two countries.

#### 4.2. Smart Partial Least Squares (Smart PLS)

The present study is a quantitative method based on PLS. The main idea for using Smart PLS is its capacity to assess associations among endogenous and exogenous variables, even in the case of small samples [108], which can ensure the high internal consistency of the measures [109]. Once the questionnaire was finalized, due to the lack of face-to-face visits and to maintain the health conditions of the research community, data were collected from Google Forms via an online questionnaire from 120 Iranian residents in Budapest (Hungary) during the COVID-19 pandemic. We suggest that social media and online questionnaires such as Google Forms can be a good way to collect data, especially in critical situations such as coronavirus, since the analysis method needs fewer respondents. Therefore, when we have reconciled our everyday lives with the coronavirus, research methods must be changed and adapted to it. To enter and analyze the primary information, SPSS software V. 28 was used. The saved SPSS file was then moved to the Smart PLS software, and all the data were analyzed in the Smart PLS software. Finally, to investigate the hypothesized connections between latent variables, a structural model was operated.

#### 4.3. Correlation of Research Variables

As an accepted methodology, a survey approach was chosen because it offers several benefits, including allowing uniform data to be gathered and allowing researchers to satisfy the study objective [110–112], namely, the same thing that forms the purpose of the present study. Initially, with the application of SEM research methodology to develop the model and propose the hypotheses based on it, the researchers first undertook a vast library study. Pearson correlation for the impact of SOP attitudes on QOL outcomes was calculated. The results showed a high correlation (more than 0.5). A correlation above 0.5 indicates a high correlation for research variables [113]. The results of the correlation analysis are presented in Table 2.

#### 4.4. Compound Reliability (CR)

To claim that a metric is internally compatible, a score of at least 0.7 is required [114]. The composite durability is more acceptable than Cronbach's alpha for PLS modeling [115]. Consequently, researchers can use composite reliability to sub the Cronbach's alpha coefficient [116]. Convergent validity exists when the CR is greater than 0.7. CR must also be larger than AVE. In this case, there will be a convergent narrative condition. In short, the following relationships must be established for convergent validity [117].

- CR > 0.5
- CR > AVE
- AVE > 0.5
- (SOP = 0.715, QOL = 0.864)

**Table 2.** Correlation analysis of the structures and indices.

	A11	A12	A13	A21	A22	A23	A24	A25	A1	A2
A11	1	0.555	0.666	0.611	0.711	0.432	0.421	0.655	0.429	0.651
A12		1	0.604	0.348	0.653	0.742	0.432	0.654	0.432	0.623
A13			1	0.762	0.391	0.512	0.512	0.563	0.594	0.587
A21				1	0.341	0.421	0.438	0.776	0.438	0.724
A22					1	0.625	0.625	0.653	0.439	0.68
A23						1	0.432	0.352	0.432	0.334
A24							1	0.655	0.765	0.655
A25								1	0.798	0.388
A1									1	0.444
A2										1

The details of the convergent analysis are presented in Table 3:

**Table 3.** Convergent Validity.

Variable	Cronbach's Alpha	AVE	CR
A11	0.822	0.555	0.763
A12	0.849	0.654	0.715
A13	0.833	0.656	0.777
A21	0.764	0.631	0.888
A22	0.834	0.644	0.866
A23	0.832	0.611	0.781
A24	0.722	0.537	0.841
A25	0.823	0.561	0.766
A1	0.888	0.666	0.715
A2	0.764	0.555	0.864

#### 4.5. Validity Divergent (DV)

Discriminant validity is illustrated by proof that, in practice, measurements of constructs that may not logically be closely linked to each other are not found to be highly correlated. Divergent validity should, in principle, be smaller in magnitude than convergent coefficients of validity. According to Aghmiuni et al. [118], in divergent validity, the difference between the structure indices and other structural indices is contrasted in the model. Comparing the square root of AVE in each structure with the correlation coefficients between the structures, this work is determined. A matrix in which the key diameter is the AVE square root value for each structure must be defined to do this, and the coefficients of correlation between each structure and other structures are the lower and upper main diameter values. As seen in Table 4, each structure's AVE root is greater than the structure's correlation coefficients with other structures, showing the acceptability of the structures' divergent validity.

#### 4.6. Factor Loading (FL)

The intensity of the relation of the loading factor between the factor (latent variable) and the observed variable is seen [118]. Factor loading indicates the relationship between visible and hidden variables. FL is always between zero and one. The relationship is regarded as weak when the FL is less than 0.3, and the relationship is desirable when the FL is higher than 0.6 [117]. According to Table 3, the level of FL is appropriate. The FL analysis is as follows:



- Weak:  $FL < 0.3$
- Acceptable:  $0.3 \leq FL \leq 0.6$
- Desirable:  $0.6 \leq FL$

**Table 4.** Divergent validity (DV).

	A11	A12	A13	A14	A21	A22	A23	A24	A25	A1	A2
A11	<b>0.61</b>										
A12	0.31	<b>0.74</b>									
A13	0.41	0.45	<b>0.79</b>								
A14	0.31	0.33	0.39	<b>0.88</b>							
A21	0.21	0.22	0.35	0.51	<b>0.73</b>						
A22	0.25	0.56	0.22	0.5	0.51	<b>0.63</b>					
A23	0.26	0.28	0.4	0.17	0.24	0.14	<b>0.71</b>				
A24	0.11	0.23	0.25	0.39	0.27	0.15	0.34	<b>0.76</b>			
A25	0.41	0.30	0.20	0.19	0.24	0.45	0.31	0.40	<b>0.77</b>		
A1	0.42	0.250	0.55	0.15	0.67	0.69	0.28	0.40	0.56	<b>0.67</b>	
A2	0.26	0.28	0.41	0.16	0.33	0.14	0.44	0.28	0.7	0.17	<b>0.79</b>

Table 4 indicates the coefficients of FL for the queries. Both the factor loadings can be shown to be greater than 0.5, which confirms that the calculation model’s efficiency is appropriate. The results of the factor loading analysis are presented in Table 5.

**Table 5.** Factor loading analysis.

Row	Structure	Index	FL	Row	Structure	Index	FL	
1	A11	PI 1	0.81	5	A21	E1	0.87	
		PI 2	0.92			E2	0.91	
		PI 3	0.76			E3	0.78	
		PI 4	0.78			E4	0.89	
		PI 5	0.71			E5	0.80	
		PI 6	0.63			E6	0.86	
		PA 1	0.67			PH1	0.66	
		PA 2	0.62			PH2	0.84	
		PA 3	0.73			PH3	0.88	
		PA 4	0.92			PH4	0.98	
2	A12	PA5	0.88	6	A22	PH5	0.77	
		PA6	0.98			PH6	0.97	
						PH7	0.87	
						SR1	0.71	
						SR2	0.82	
						SR3	0.69	
3	A13	PD1	0.81	8	A24	GQOL1	0.77	
		PD2	0.86					
		PD3	0.64					
		PD4	0.84					
		PD5	0.88				GQOL2	0.99
		PD6	0.91					
		PD7	0.77					
9	A25			9	A25	P1	0.71	
						P2	0.99	
						P3	0.75	
						P4	0.67	
						P5	0.98	
						P6	0.82	

Note: Place identity (PI), environmental (E), place attachment (PA), physical health (PH), social relationships (SR), place dependence (PD), general quality of life (GQOL), physiological (P).

#### 4.7. Check of Model Goodness of Fit (GOF)

Calculating the goodness of fit (GOF) of the model is the final step of structural equation simulation (SEM). It measures the overall goodness of fit for both the structural and measurement models collectively [119]. The GOF is calculated with the following formula:

$$\text{GOF} = \sqrt{\text{Avg}(\text{Communalities}) \times R^2}$$

GOF interpretation:

- Weak:  $\text{GOF} \leq 0.10$
- Acceptable:  $0.10 \leq \text{GOF} \leq 0.25$
- Desirable:  $\text{GOF} \geq 0.36$
- If:  $\text{Avg}(\text{Communalities}) = 0.738$
- $R^2: 0.542$

Therefore:  $\text{GOF} = \sqrt{0.738 \times 0.542} = 0.632$

#### 4.8. Hypothesis Testing

The present study explicitly aimed to analyze the effects of SOP attitudes and HQOL in a Budapest survey of 120 Iranian people (Hungary) during the COVID-19 pandemic period. Eight theories were originally suggested for this reason. The hypothesis was set according to the model at this stage. Each of the exogenous variables (SOP) will influence the endogenous variables as defined in the model (see Figure 1 and Appendix A, Tables A1–A3) (QOL). Any of them is then known as a hypothesis due to earlier studies (e.g., [5,30,41,45,98,120]) that highlighted the relationship of SOP attitude with QOL outcomes. In the present study, it was awaited that SOP attitude indicators would be linked to and affect QOL outcomes. After the review of the results, they were accepted in the end (see Table 6). SOP impacts the QOLL according to the table of hypothesis checking of Iranian residents in Budapest (Hungary) during the COVID-19 pandemic.

**Table 6.** Hypothesis testing.

	H	f	T	p	Result
The main hypothesis	SOP affected QOL among Iranian residents in Hungary	0.755	5.81	$p < 0.05$	✓
H1	Place identity has a significant effect on the SOP.	0.581	3.77	$p < 0.05$	✓
H2	Place attachment has a significant effect on the SOP.	0.601	3.14	$p < 0.05$	✓
H3	Place dependence has a significant effect on the SOP.	0.890	3.18	$p < 0.05$	✓
H4	Environmental conditions have an important influence on QOL.	0.522	3.28	$p < 0.05$	✓
H5	Physical health has an important influence on QOL.	0.645	3.88	$p < 0.05$	✓
H6	Social relationships have a considerable influence on QOL.	0.811	5.22	$p < 0.05$	✓
H7	Common QOL has a big influence on QOL.	0.617	4.91	$p < 0.05$	✓
H8	Physiological effects on the QOL are significant.	0.481	3.14	$p < 0.05$	✓

#### 4.9. Designing the Final Research Model

According to the results of the research and after the final review of the goodness of fit of the initial model, the final model of the research is presented in Figure 3:

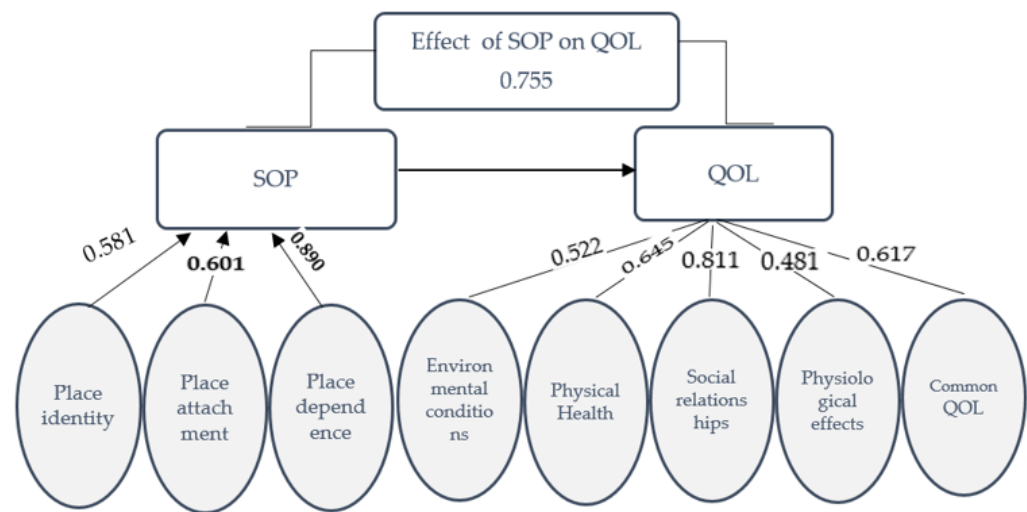


Figure 3. Final model.

## 5. Discussion

The conclusions of the current thesis are focused on the philosophical model of science and resource-based theory (SOPQOL model), which confirms the main research hypotheses. The geographical location of Budapest, the tourist capacity of the city that increased rapidly, the climate, and the existence of prestigious scholarships and universities, especially in the field of medicine, are important factors in this claim. On the other hand, the results obtained from the QOL results, such as better income than the country of origin, access to health care, high protection, better emotions, physical environment efficiency, transportation satisfaction, and leisure activities, can be important factors for the confirmation of satisfaction with the QOL of Iranian residents in Hungary during the COVID-19 epidemic era. As reported, 83.9% of the respondents approved of the new location (Budapest) as their second home.

Our findings support previous studies describing the connection and effects of SOP and HQOL outcomes [30,39,45,99,121–123]. The findings of the current study explain the importance of SOP attitude theory and highlight its significance for environmental management, psychological and health studies, urban–regional planning, and negotiating HQOL during crisis periods. In addition, it describes how SOP attitudes among Iranian migrants will foster HQOL in host communities. Furthermore, the findings affirm the relevance of socio-demographic process variables as major determinants of attitudes toward SOP. SOP was profoundly felt by Iranians living in Hungary for more than ten years relative to those living in Hungary for less than five years during the pandemic of coronavirus. This might be due to several factors, such as the experience of older residents in finding the sanitary wares needed in the pandemic period, the fact that most respondents and immigrants are students, the fact that health insurance and health care (TAJ card) are mandatory and free of charge (especially for a student who has a scholarship), the launch of the online system and round-the-clock response and health care by the Hungarian government with the onset of the coronavirus epidemic in Hungary, and the accessibility of the Hungarian healthcare system.

Another effective factor of the research that makes SOP affect the QOL of people in the statistical population could be prestigious universities, especially in the fields of medicine and government scholarships (the most important of these scholarships is the Stipendium Hungaricum Scholarship, which annually attracts several thousand students from all over the world to Hungary, especially Budapest). This, in turn, has created a kind of educational tourism [117]. The study findings also demonstrate that relative to other Iranian inhabitants, Central Iranians are more likely to retain and develop SOP attitudes. The study results in a history of education showing high-place attitudes among educated Iranian migrants relative to Iranians in high school or lower levels. In several reports,

an increased interest in educational resources has also been correlated with the level of schooling as a person-related indicator that can influence QOL [124] and high levels of position dependency [125]. Place attachment has many documented favorable connections, including the acceptance of education spending schemes [126], such as Iranian scholarship opportunity programs in Hungary.

## 6. Conclusions, Limitations, and Recommendations

The results of this research provide us with information on SOP attitudes based on HQOL outcomes among Iranians living in Hungary during the coronavirus pandemic. Accordingly, all three SOP attitudes have a direct effect on the QOL of Iranian migrants in Budapest during the COVID-19 pandemic period. Due to the difficult conditions during the COVID-19 pandemic, problems at the time of arrival, and health stress and its coincidence with the quarantines in Hungary, most Iranians preferred to stay in Hungary. The results highlighted that despite these rules and protocols, Iranian immigrants had reported an acceptable and good SOP, which has had a direct and positive impact on their QOL. Among Iranian migrant studies in Europe, we believe that these contributions can provide the basis for the creation of an interdisciplinary field that explores the intersection of place (SOP) and health (QOL) as a significant investigative construct.

Several limitations need to be acknowledged in this research. Firstly, due to the first case of COVID-19 in Hungary being an Iranian student in Budapest and a significant percentage of participants being students, skepticism towards Iranians was a concern, and some participants were uncooperative in data collection, making the process time-consuming. Secondly, the outcomes of this study suggest that SOP perceptions are likely to be influenced by other unexplored factors that are often mediated or moderated by the impact of Iranian migrants' HQOL, particularly in critical situations, which should be considered in future research. Moreover, this analysis was conducted during the early stages of the pandemic, which is a rapidly evolving and critical event that significantly impacts people's sense of place and quality of life. Researchers theorize that the influence of the pandemic and quarantine on SOP and QOL may become more pronounced with time. Additionally, this study focused on Iranian residents in Hungary, and the results may not be generalizable to other cultural groups. It is essential to consider cultural factors when interpreting the findings and applying them to other populations. The literature review in this article indicates that there may be gaps in the understanding of the experiences of Iranian residents in Hungary during the pandemic. The absence of theoretical foundations may limit the understanding of the factors that contribute to the quality of life of Iranian residents in Hungary during the pandemic. Furthermore, the lack of studies on Iranians in European societies during crises like the COVID-19 pandemic limits the generalizability of the findings and makes it difficult to compare the experiences of Iranians in Hungary with those in other European countries. Future research should address these gaps to provide a more comprehensive understanding of the experiences of Iranians in Hungary and other European countries during the pandemic.

According to the research findings, it is suggested that the Iranian community in Hungary be formed, and through this training, suggestions, protocols, news, etc., be shared during crises such as coronavirus. Guidance and counseling centers for new immigrants should be established. We suggest that in future research, the causes of such migrations be investigated and, on the other hand, the SOP and QOL of these people in the destination countries be analyzed. Moreover, we believe that this outlook on science may be of great concern to policymakers in the field of urban–regional planning, immigration, psychological and health services, and environmental health management. It is clear that if SOP attitudes and QOL outcomes are in a relationship and connected by socio-demographic factors, this could be considered in future planning. Accordingly, policies should be customized to the unique needs and circumstances of life during crises such as coronavirus. It is suggested that researchers in future studies focus on Tourism Management Compatible with COVID-19 [127]. Therefore, when we have accustomed our everyday lives

to coronavirus, research methods must be changed and adapted to it. Although quantitative methods are appropriate to identify the relationship between research variables in humanities, social sciences, urban and regional studies, and the environment, future studies can examine research-related models based on qualitative studies. Finally, we hope the current thesis will motivate and stimulate prospective researchers to validate our conceptual analysis model (SOPQOL model) in different contexts and pave the way for future research directions.

Future studies may present the characteristics of these additional factors, such as mental health, well-being, education, and economic factors, among the Iranian migrant population in Hungary and Europe. Specifically, conducting such interdisciplinary research can identify the relationship between QOL outcomes and SOP and can recognize immigrants' barriers and problems. This can help governments plan at the macro and international levels. Immigration to Hungary, especially Budapest, has peaked in recent years. With the introduction of the quality of Hungarian universities and colleges and scholarship programs in Hungary (e.g., Stipendium Hungaricum Scholarship), this population is gradually increasing. This has seriously created a kind of educational tourism in Hungary, especially in Budapest. Given that educational tourism in Hungary can be one of the factors attracting people from other countries, and on the other hand, the discussion about it cannot be included in this article, it is suggested that researchers address this issue in future research.

**Author Contributions:** Conceptualization, H.M. (Hossein Mousazadeh), K.Z. and L.D.D.; methodology, H.M. (Hossein Mousazadeh), A.G., H.A., F.A.A. and H.M. (Hasan Mosazadeh); software, H.M. (Hossein Mousazadeh), A.G., H.A., F.A.A. and H.M. (Hasan Mosazadeh); validation, H.M. (Hossein Mousazadeh), A.G., H.A., F.A.A. and H.M. (Hasan Mosazadeh); formal analysis, H.M. (Hossein Mousazadeh), A.G., H.A., F.A.A. and H.M. (Hasan Mosazadeh); investigation, H.M. (Hossein Mousazadeh), A.G., H.A., F.A.A. and H.M. (Hasan Mosazadeh); resources, K.Z.; data curation, H.M. (Hossein Mousazadeh); writing—original draft preparation, H.M. (Hossein Mousazadeh); writing—review and editing, K.Z.; visualization, K.Z. and L.D.D.; supervision, K.Z.; project administration, K.Z. and L.D.D.; funding acquisition, K.Z. and L.D.D. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Data developed in this study will be made available upon request to the corresponding authors.

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

## Abbreviations

Abbreviation	Full Name
COVID-19	Corona Virus Disease 2019
SOP	Sense of place
QOL	Quality of life
WHO	World Health Organization
HQOL	Health-related quality of life

## Appendix A

**Table A1.** Endogenous and Exogenous variables.

Endogenous Variables		Exogenous Variables
QOL		SOP
Row	Subtheme	Subtheme
1	Environmental	Place identity
2	Physical Health	Place attachment
3	Social Relationships	Place dependence
4	General QOL	
5	Physiological	

**Table A2.** Variables: subvariables, and measures of the research model.

Measures	Index	V
Individual's emotional attachment to a place		
Deep symbolic attachment		
Covering those dimensions of the self that define the individual's personal identity in relation to the physical environment	Place identity (A11)	
Means of a complex pattern of conscious and unconscious ideas relevant to the environment		SOP (A1)
Beliefs, preferences, feelings, values, goals, and behavioral tendencies and skills relevant to the environment		
Intensity of an individual's perceptions		
Connection between himself or herself and the place	Place attachment (A12)	
The emotional bond between person and place		
The main concept in environmental psychology		
Primary functional attachment		
Highlighting how the place supports specific activities		
Connections between a physical setting and the activities	Place dependence (A13)	
Antecedent variable for place identity		
Positive effect on place identity		
Freedom, physical safety, and security		
Home environment		
Financial resources		
Health and social care: accessibility and quality	Environmental (A21)	
Opportunities for acquiring new information and skills		
Participation in and opportunities for recreation/leisure activities		
Physical environment (pollution/noise/traffic/climate)		QOL (A2)
Transport		
Pain and discomfort		
Sleep and rest		
Energy and fatigue		
Mobility	Physical Health (A22)	
Activities of daily living		
Dependence on medicinal substances and medical aids		
Work capacity		
Personal relationships		
Social support	Social Relationships (A23)	
Sexual activity		
QOL satisfaction		
Health satisfaction	General QOL (A24)	
Positive feelings		
Thinking, learning, memory, and concentration		
Self-esteem	Physiological (A25)	
Bodily image and appearance		
Negative feelings		
Spirituality/religion/personal beliefs		

Note: WHO QOL-BREF domains of quality of life: overall quality of life and general health.

Table A3. Quality of life.

Category	Project
Physical health	Do you have enough energy for everyday life? How well are you able to get around? How satisfied are you with your sleep? How satisfied are you with your ability to perform your daily living activities? How satisfied are you with your capacity for work? How much do you enjoy your life?
Psychological health	To what extent do you feel your life to be meaningful? How well are you able to concentrate? Are you able to accept your bodily appearance? How satisfied are you with yourself? How often do you have negative feelings? How satisfied are you with your personal relationships? How satisfied are you with your sex life?
Social relationships	How satisfied are you with the support you get from your friends? How safe do you feel in your daily life?
Environment	How healthy is your physical environment? Have you enough money to meet your needs? How available to you is the information that you need in your day-to-day life? To what extent do you have the opportunity for leisure activities? How satisfied are you with the conditions of your living place? How satisfied are you with your access to health services?
General QOL	How satisfied are you with your transport? How would you rate your QOL? How satisfied are you with your health?

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