Research Paper: A Measurement Model for Factors Affecting Rural Tourism Resilience Using the Structural Equation Modeling Method (Case Study: Shamshir Tourist village in the West of Iran)

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ABSTRACT

Purpose: The tourism industry is one of the crucial economic sectors deeply affected by the Covid-19 pandemic, especially rural tourism, which has been one of the main sources of income and employment for the local community and residents of the tourist villages. Therefore, this study aims to provide a measurement model for factors affecting rural tourism resilience in the Shamshir tourist village (located in Paveh County).

Methods: The present quantitative and applied study is conducted by the descriptive-analytical method. The statistical population includes all residents of Shamshir village working in the tourism sector. In this study, simple random sampling available for research was used to obtain an ideal sample. And Cochran's modified formula (n = 121) was used to determine the sample size. The tool used in this research is a questionnaire developed by the researcher, whose validity was formally confirmed using experts' opinions. Its reliability was also confirmed by calculating Cronbach's alpha coefficient. Partial least squares structural equation modeling (PLS-SEM) was used for the experimental data analysis, and multigroup analysis (MGA) was used to investigate the heterogeneity of the socio-economic status of the villagers.

Results: The results of structural equation modeling showed that among different factors, the human capital factor ($\beta = 0.636$, sig = 0.000) and financial capital ($\beta = 0.255$, sig = 0.000) have the greatest effect on the resilience of villagers.

Conclusion: Improving literacy levels and providing the necessary platform for earning extra income play a decisive role in improving the level of resilience of people active in the tourism sector. Thus, strengthening them should be on the agenda of policymakers and tourism development planners.

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1. Introduction

Health experts first identified the COVID-19 outbreak in Wuhan, China, in late December 2019 (Abbas et al., 2021). In the first three months, the virus infected more than 750,000 people in 172 countries and caused more than 36,000 deaths (Golets et al., 2021), which led the World Health Organization on March 2020 to declare the novel coronavirus (COVID-19) outbreak a Public Health Emergency and a global pandemic. As of March 15, 2021, this pandemic has infected more than 119 million people, of which more than 2.66 million individuals have died from the lethal infectious disease (Komasi et al., 2022). The COVID-19 pandemic has caused unprecedented global challenges with extreme fear and uncertainty. The pandemic has deeply affected public health, the overall economy, and the social aspects of our lives (Koçak et al., 2022). As a result, all countries were forced to take unprecedented actions such as the closure of schools, travel restrictions, quarantines (Golets et al., 2021), nationwide curfews, and locking of almost all tourism destinations for both national and international travel (Sobaih et al., 2021). Tourism is one of the most vulnerable sectors of the economy. It is sensitive to external shock (Duro et al., 2022), so decline in air traffic, rapid drop in accommodation occupancy, the suspension of personnel, and, in many cases, the bankruptcy of tourism companies (Zouni et al., 2021) caused all tourism businesses deeply affected by the pandemic (Simarangkir et al., 2021; Chai, 2021).

Iran's political situation, weakness in the economy, trade, and business connections due to the US sanctions, and nascent entrepreneurship in tourism has made the tourism sector more vulnerable, leading to massive losses (Javan Amani & Akbari, 20). These losses include decreased visitors, increased unemployment, profits drop, reduced government revenue, etc. (Basouli & Jabbari, 2021). These negative impacts of COVID-19 have been more apparent in rural communities faced with challenges and uncertainties in the current era (Sydaii et al., 2014; Jamini & Jamshidi, 2015; Jamshidi et al., 2015; Riahi & Jamini, 2018; Jamini & Jamshidi, 2021; Bayrak, 2022), especially in areas most dependent on tourism. However, these impacts were less pronounced in areas where the livelihood activities focused on agriculture (Soliku et al., 2021).

Since tourists avoid visiting risky destinations (Rahman et al., 2021), it is essential to consider the resilience issue to reduce the destructive impacts of COVID-19. Because the main goal for resilience systems is achieving perfection even when facing pressure and stress (Eghbali et al., 2021). Considering the multidimensional relationship between resilience and sustainable tourism development (Asadi & Jabbari, 2022), thus, the higher the tourism community's resilience against disasters such as COVID-19, the less the host communities will be affected by the impacts of this disease (Jamini & Dehghani, 2022).

Shamshir tourist village is one of the 50 tourism regions of Kermanshah province in the west of Iran that, in terms of administrative-political divisions, is located in Paveh county. This village is a destination visited by many tourists all year round due to its favorable weather conditions, especially in spring and summer, unique spatial location (located on the slopes of Mount Shaho, located on the main entrance route into Paveh county, and even access to Shushmi and Nosoud border markets), the permanent river along its banks, village's extrovert texture, local customs, etc. The spread of COVID-19 posed many challenges for tourist service providers. Therefore, investigating the local community's resilience against COVID-19 impacts can help future planning for confronting other crises. The drivers and factors affecting resilience must be tailored to the local context and not an adoption of a "one size does not fit all" approach for all urban or rural areas (Soliku et al., 2021). Thus, identifying factors affecting the resilience of tourism activists in the Shamshir sample tourism region is important. According to the mentioned above statements, the main research questions of the current study are as follows:

What are the determiners of tourism resilience against COVID-19 in the Shamshir target tourism village?

What is the socio-demographic heterogeneity in the determiners of tourism resilience against COVID-19 in the Shamshir target tourism village?

2. Literature Review

The concept of resilience was introduced as a descriptive term by the theoretical ecologist Holling in 1973. After that, it has been used in different fields, such as disaster management, ecology, and psychology (Maasompour Samakosh et al., 2021). The importance of resilience has risen in recent years due to increased shocks experienced in tourism and other industries worldwide. As a result, this concept has been adapted to various contexts, including biology, ecology, pedagogy, psychology, sociology, etc. (Gabriel-Campos et al., 2021). On the importance of resilience and sustainable tourism devel-

opment, it can be said that sustainable development is almost impossible unless the system enjoys the necessary resilience against possible changes, disturbances, or damages. Therefore, resilience is essential for sustainable development, and there is no resilience without sustainability. Thus, a community's key dimensions include social, environmental, and economic resilience (Asadi & Jabbari, 2022).

Studies suggest that resilience is recognized as the capacity of a system, community, or society potentially exposed to hazards to adapt by resisting or changing to reach and maintain an acceptable level of functioning and structure (Rezaei et al., 2021). In the tourism literature, resilience has been explored from various angles, including economic, social, and organizational. Overall, several studies have offered several indicators for measuring the resilience of destinations to disasters. Such indicators should be multidimensional and consider the ability of communities to manage risks (Soliku et al., 2021). In this regard, economic, social, cultural, and physical-environmental dimensions are suggested to evaluate resilience (Eghbali et al., 2021). The literature review regarding the dimensions and key indicators of rural tourism resilience indicates scholars' emphasis on resilience measurement based on main rural development dimensions. Despite this, Lew et al., in a field study regarding rural tourism, suggested constructive components as indicators of rural tourism resilience (Lew et al., 2016) (Table 1).

Since COVID-19 has had a tremendous impact on various aspects of life (Simarangkir et al., 2021), including economic sectors (Al-Mughairi et al., 2021), social and public aspects (Koçak et al., 2022) and also the tourism industry (Pashkus et al., 2021), the resilience component takes on great importance in tourism sector and regions. The target tourism villages are no exception to this rule. Target villages are defined as: "tourism region/s based on Article 8 of the law are established and run by non-governmental sectors to provide services for tourists near the cultural, social, religious, and natural attractions" (Islamic Parliament Research Center, 2014). Since these regions are the main tourist destinations, COVID-19 can lead to devastating consequences for them. Thus, investigating resilience issues in this location is of interest in itself.

Studies suggest that many factors were pointed out as factors affecting tourism resilience against crises such as COVID-19. To strengthen adaptive capacity, financial (savings), social (social networks and institutions), physical (ecosystem services and fixed assets), natural (improved irrigation and improved soil quality), and human capitals factors (knowledge and skills) could be used or invested (Bayrak, 2022). Moreover, Local, regional, or national governments revive the tourism industry and increase resilience during COVID by luring investors through tax breaks, lenient land-use rules, technology innovation, local belongingness, consumer and employee confidence, and domestic tourism (Sharma et al., 2021). Various studies assert that social capital (Gabriel-Campos et al., 2021), moving to digital technology to provide tourist services (Abbas et al., 2021), cultural revitalization, collective action, and self-organization are crucial to building resilience in the face of the risks (Bayrak, 2022).

Table 1. Indicators of rural tourism resilience

Component	Resilience indicators
Local Government Budgeting	Building Community Capacity for Change: - Level of infrastructure construction for education/interpretation & resource access - Programs for innovative tourism developments & marketing
Environmental Knowledge	Creating New Environmental Knowledge: - Participation of locals & tourists in environmental education programs - Innovative uses of traditional knowledge by locals
Community Well Being	Improving Living Conditions and Employment: - Rate of unemployment & youth outmigration - Rate of employment in tourism
Social Support Systems	Supporting Social Collaboration: - Rates of participation in religious & other local organizations

Source: Lew et al., 2016

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Several studies, especially foreign ones, have been conducted on the importance of the current research topic, following the result of some of which will be discussed. The findings of Maasompour Samakosh et al. (2021), to evaluate the resilience of rural residents in Kermanshah province in the face of natural disasters, showed that management and social factors can have the maximum effect on improving local communities' resilience against natural disasters. A study by Sobaih et al. (2021) regarding the role of small hospitality enterprises' resilience in sustainable rural tourism in Greater Cairo showed that performance directly, positively, and significantly influences sustainable tourism development. Khodapanah, in a study entitled "Evaluating and measuring the resilience of tourism target villages in the Ardabil region," suggested that the resilience level in residents' opinion has different averages; the highest is 3.42 for the social aspect; the lowest is 1.85 for the economic dimension. Nizamivand Chegini (2022), in a study on the resilience of the tourism industry against COVID-19, indicated that government accountability, technological innovation, local belongingness, and consumer and employee confidence are among the key factors affecting the resilience level.

The findings of Shayegan et al. (2022), to evaluate the tolerance of tourism destinations on the side effects of climate changes in Hamedan province, showed that vulnerability to climate change hurt tourism development sustainability. Azizi and Shekari (2022), in a study, evaluated domestic tourism amidst the covid-19 pandemic emphasizing demographics and travel purposes. The findings suggested that the travel purposes were affected by demographic characteristics such as gender, age group, income, and education level.

Duro et al. (2022), in a study on the resilience of tourism to COVID-19 in Spain, showed that Spain, one of the global tourism power countries, was deeply affected by the pandemic. Moreover, the results suggested that resilience was higher in northern areas, which mainly specialize in nature tourism, and lower in those that usually experience high tourism demand. They found previous specialization in attracting the domestic market (during COVID, fewer tourists visited other countries), population density (less dense territories performed relatively better despite the overall reduction in activity), and disease control accounted for high variance in resilience. The findings of Bayark (2022), to investigate the impacts of indigenous tourism on indigenous resilience to disaster in Taiwan's highlands, showed that involvement in indigenous tourism contributed to better post-disaster recovery and resilience.

According to studies on this topic, the tourism communities have been severely affected by the COVID-19 epidemic. Nevertheless, the resilience of tourism communities can reduce its adverse impact. Moreover, several factors affect the increase of the tourism resilience level. These factors vary due to the geographical locations and the scholars' objectives. It should also be noted that very few studies have been conducted on the impacts of COVID-19 and the factors affecting it. Thus, the current study seeks to analyze the resilience of activist communities of sample tourism regions in the face of COVID-19 and the factors affecting it.

3. Methodology

Shamshir is a beautiful village in the central district of Paveh County in Kermanshah Province. The longitude of this village is 46° 25′ E, and the latitude is 24° 59′ N (General Department of Cultural Heritage, Tourism and Handicrafts of Kermanshah Province, 2022). According to the latest population and housing census, in Shamshir village, the center of Shamshir Rural District, in the Central District of Paveh County, the statistical population was 2222 people and 639 households, including 1092 men and 1130 women (Statistical Center of Iran, 2016). This village, due to its proper link and spatial location, beautiful landscape, extroverted texture, and also suitable climatic conditions, is one of the sample tourism regions of Kermanshah province (General Department of Cultural Heritage, Tourism and Handicrafts of Kermanshah Province, 2022). This study is quantitative in terms of the method and applied and descriptive-analytical in terms of purpose. The library method was used for the theoretical foundation of this research, and field study was used to collect data. The statistical population includes all residents of Shamshir sample tourism region (located in Paveh county) working in the tourism sector. In this study, simple random sampling available for research was used to obtain an ideal sample. Cochran's formula was used to determine the sample size. Notably, Cochran's modified formula was used since the size of the population was unknown.

$$n=\frac{t^2 \times S^2}{d^2}=\frac{1.96^2 \times 0.28^2}{0.05^2}=121$$

A pre-test was conducted to estimate the sample size the 20 initial questionnaires were completed. The results of the primary extracted data showed that the variance is 0.28. Thus, the sample size with a margin error of 5% was determined to be 121 people. The research tool is a questionnaire consisting of three main parts. The first part consists of demographic characteristics (age, gender, employment status, education level, Underlying medical

conditions of the individuals or among family members). The second part consists of the Connor-Davidson Resilience Scale (2003), comprised of 25 items, and of the 5-point Likert Scale from zero (very untrue) to four (always true). The first factor of the 5-point Likert Scale reflects having high standards, tenacity, and competence (8 items). The second factor indicates handling negative emotions, trusting one's instincts, and perceived benefits of stress (7 items). The third one shows having a positive attitude to change and secure relationships (5 items). The fourth one reflects perceived control (3 items), and the fifth factor reflects spirituality (2 items) (Connor & Davidson, 2003). The reliability of the resilience questionnaire was confirmed in Iranian research, and Cronbach's alpha coefficient was obtained at 0.84 (Momeni & Alikhani, 2013; Nasirzadeh et al., 2020). The third part of the questionnaire consists of components affecting resilience which are: human capital (7 items), financial capital (6 items), natural capital (6 items), and social capital (9 items), and the basis of their application relies on the studies of Gholami et al. (2021), Basouli and Jabbari (2021), Babazadeh Khameneh et al. (2022), Asadi and Jabbari (2022), Haghi and Heidarzadeh (2022). Notably, these factors were measured on the 5-point Likert scale.

The validity of the research tool was confirmed from convergence and based on the opinion of experts and professors. The composite reliability and Cronbach's alpha coefficient (greater than 0.7) were used to measure the reliability, and the acceptable coefficient indicates the required reliability. As seen in Table 3, the composite reliability and Cronbach's alpha of the factors are good, ensuring the tools' reliability. Two methods of descriptive statics (frequency, frequency percentage, mean, standard deviation) and inferential statics (correlation analysis and structural equation model) were used to analyze data. The partial least squares (PLS) model is one of the statistical methods used in structural equation modeling. Software that uses PLS on this statistical method basis is adaptable to multicollinearity, non-normal data, and small sample size (Haenlein & Kaplan, 2004). Thus, SPSS and Smart PLS software was used to analyze data.

Almost all data are used to explain the model in applying the PLS structural equation. In such a case, it is assumed (albeit indirect proof) that all the information is extracted from a homogeneous population, although it seems to be an unrealistic assumption; because there are differences (in behavior, attitudes, etc.) in those under study. A mediator variable is a variable that intervenes between two other related constructs. When moderation is present, the strength or direction of a relationship between two constructs depends on a third variable. As such, moderation can (and should) be seen as a means to account for heterogeneity in the data (Hair et al., 2017).

In most cases, researchers use a moderator variable to split the data set into two or more groups and estimate the models separately for each data group. Running a multigroup analysis enables the identification of model relationships that differ significantly between the groups. We also deal with unobserved heterogeneity, which, if neglected, threatens the validity of the results (Shahangian & Sourati Jabloo, 2020). Research has proposed many approaches called latent class techniques to identify and treat unobserved heterogeneity. Researchers use these observable characteristics to partition the data into separate groups of observations and carry out group-specific PLS-SEM analyses. The path coefficient estimates for the separate group models are almost always numerically different. But these differences should statistically be significant. In this study, the data are divided into groups of gender (men and women), age (above 50 years and below 50 years), work experience (below 30 years and above 30 years), percentage of primary job salary (higher than 50 percent and less than 50 percent), literacy levels (literate and illiterate), source of income (one source, two sources, or more).

4. Findings

The findings of this study regarding respondents' residential history in the studied area showed that the average was 31.5 years, and their average age was 36.8 years. The youngest respondent was 18 years old, and the oldest was 59 years old. According to the results, the index of household size was 4.2 persons. Further, the results regarding the respondents' education level indicated that about 2% of respondents were illiterate, 6% had elementary school education, 16% had secondary education, 33% had high school education, and 43% had higher education (university students and graduates). Notably, 38% of respondents in terms of job status were inactive (student, university student, housewife), 14 % were unemployed, 22% were government employees, and 26% were freelancers (salesman, shopkeeper, driver, etc.). The results also indicated that 52% of respondents owned property, and about 86% had no membership in non-governmental organizations or associations.

Table 2. Demographic characteristics of the study sample

Variable	Frequency	Percentage	Variable	Frequency	Percentage
Age			**Gender**		
Above 50 years	45	39.8	Female	26	23
Below 50 years	68	60.2	Male	87	77
Work experience			Literacy level		
Below 30 years	65	57.5	Literate	80	70.8
Above 30 years	48	42.5	Illiterate	33	29.2
percentage of primary job salary			Source of income		
Higher than 50 percent	100	88.5	One source	49	43.4
Less than 50 percent	13	11.5	Two sources or more	64	56.6

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The results of assessing measurement models showed the significance level of the reliability and validity of the constructed measurement models. The composite reliability value for all structures was higher than 0.8 (Hair et al., 2017). The factor loadings shown in Table 1 are considered acceptable (since they are higher than 0.7). Moreover, the variance inflation factor (VIF) for every variable was less than 3.5, which indicates a successful multicollinearity test in this model (Table 3).

The validity of each measurement model was examined in terms of discriminate and convergent validity.

Table 3. Calculating the reliability and validity of the main concepts used in the research

Variable	Variable title	Variables/dimensions	Loading factor	VIF	Composite reliability (>0.7)	Cronbach's alpha (>0.7)	Average variance (>0.5)
Independent	Human capital	High literacy (academic and professional literacies)	0.898	2.54	0.929	0.904	0.723
		Knowledge (of attracting tourists in crises)	0.839	2.41			
		Having skills (using virtual reality training to improve skills)	0.85	2.59			
		Social networks (marketing and tourism advertising in cyberspace)	0.842	2.47			
		Media literacies (in advertising)	0.819	2.3			
	Social capital	Participation (social, collective, and local)	0.92	2.93	0.939	0.913	0.793
		Awareness (in using technology and modern advertising methods)	0.901	2.09			
		Sense of responsibility (in crises to help neighbors and communities)	0.903	2.05			
		Trust (in governments and neighbors)	0.837	2.48			
	Financial capital	Insurance coverage (different types of coverage)	0.825	1.18	0.922	0.894	0.703
		Enough savings	0.812	2.51			
		Different sources of income	0.859	2.16			
		Receiving Covid-related tourism facilities and obtaining technology-related fees for trip safety	0.81	2.09			
	Natural capital	Access (water, land, pasture)	0.948	2.11	0.95	0.921	0.863
		Farmland use and ownership	0.919	2.19			
		The number of fruit tree seedlings	0.92	2.26			
Dependent	Resilience	Individual competence	0.807	3.14	0.877	0.825	0.59
		Trust in institutions to bear negative emotions	0.81	1.98			
		Accepting positive change and secure relationship	0.703	2.05			
		Control scale	0.795	1.43			
		Impacts of spirituality	0.717	1.5			

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The average variance extracted (AVE) for each structure was higher than 0.5 demonstrating an acceptable level of convergent validity. Furthermore, the Fornell-Larcker and Heterotrait-Monotrait (HTMT) ratio of every measurement model was lower than the threshold value (Henseler et al., 2015), ensuring high reliability for measurement models (Table 4).

The structural model results showed that human capital had the highest effect on villagers' resilience in the sample tourism regions concerning the COVID-19 pandemic (sig=0.000, β= 0.636). Accordingly, people with higher academic and media literacies who had the skill and knowledge to attract tourists were more capable than others in using cyberspace and social networks for marketing. Thus, they increased their resilience level. Another achieved result in Table 5 and Figures 1 and 2 suggested that financial capital is placed in the second rank regarding the effect on villagers' resilience in the tourism target villages respecting the issue of the COVID-19 pandemic (sig=0.000, β= 0.255). In other words, the results demonstrate that those who predicted unexpected events (such as insurance, having different sources of income and savings) could plan better in confronting such crises.

Further results from the structural model indicate the significant influence of the natural capital on resilience (sig=0.034, β= 0.228). Arguably, people who had other side jobs (working in fields of agriculture, horticulture, animal husbandry, etc.) besides their primary job (tourism) have been able to cope with the COVID-19 impacts through other sources of income. According to Table 5, social capital significantly affected villagers' resilience concerning the COVID-19 pandemic (sig=0.034, β= 0.203). Therefore, it can be said that despite enjoying the social capital benefits, the studied villagers enhanced their resilience level against COVID-19 through key social capital factors such as maintaining social distance and awareness-raising.

Table 4. Discriminate validity of the studied variables based on the Fornell-Larcker matrix and HTMT ratio results

Variables	1	2	3	4	5
Social capital	0.768				
Human capital	0.697 (0.801)	0.89			
Resilience	0.85 (0.843)	0.821 (0.843)	0.85		
Natural capital	0.799 (0.727)	0.787 (0.771)	0.869 (0.843)	0.929	
Financial capital	0.71 (0.771)	0.776 (0.687)	0.714 (0.764)	0.696 (0.722)	0.839

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Table 5. The results of Bootstrapping for the structural model evaluation

Paths	t	Significance level	Path coefficient	Standard deviation	lowest confidence interval (2.5%)	Highest confidence interval (97.5%)
Social capital -> resilience	2.13	0.034	0.203	0.095	0.18	0.366
Human capital -> resilience	5.12	0.000	0.636	0.123	0.394	0.886
Natural capital -> resilience	2.128	0.034	0.228	0.107	0.005	0.417
Financial capital -> resilience	3.086	0.002	0.255	0.083	0.09	0.426

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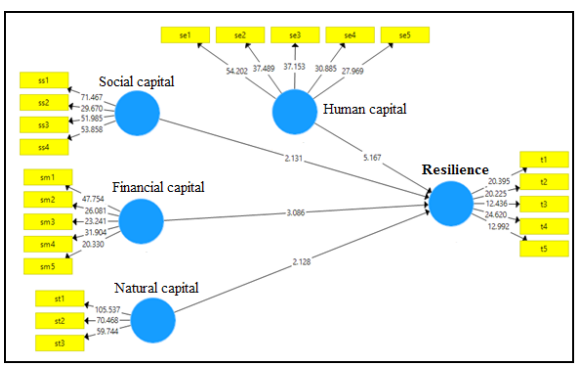

Figure 1. Research structural model with t-values and significance level of main structures

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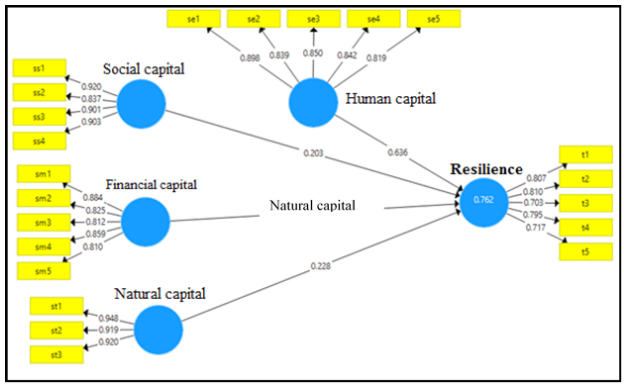

Figure 2. Research structural model with factor loadings coefficient and determination coefficient of the main structures

In this part, the differences in estimations of the target groups have been investigated. Thus, multigroup analysis was used. In this method, the null hypothesis (H0) was based on the absence of significant differences between the two groups; and the research hypothesis (H1) was based on the statistical difference between the said group.

The multigroup analysis was initially conducted using the permutation test (Khani Jazni et al., 2019). The homogeneity measurement was assessed using a permutation test with measurement invariance of the composites approach (Kock & Hadaya, 2018). When conducting a multigroup analysis, the fundamental concern is to ensure measurement invariance. Measurement invariance ensures that group differences in model estimates are not due to distinctive meanings or different interpretations of the latent variables across groups. A lack of measurement invariance is a misleading source of measurement error (discrepancies between what is intended to be measured and what is actually measured). In the following, the measurement invariance is examined, then the path coefficients of the structural model are discussed.

MICOM test is one of the steps in testing the measurement invariance model by assessing the difference in the indicators' weight and is performed through the permutation. The MICOM procedure comprises three steps: (1) configural invariance, (2) compositional invariance, and (3) the quality of composite mean values and variances.

Step 1 establishes the configural invariance since equal composites (e.g., replacing missing values with the mean) were used for the two groups. Step 2 investigates the compositional invariance by establishing equal composites' scores in the said group (Kock & Hadaya, 2018). Hence, permutation analysis was used by 5000 sampling in the software. Compositional invariance is assumed since the correlation between the composite scores in the studied group is equal to or larger than the five percent of the empirical distribution of correlation between the groups' composite scores (Table 6). Step 3 investigates the equality of the composites' mean values and variances; the third step will also be verified if the difference in mean values and variances of any indicators is between the confidence interval. Therefore, according to the results (Table 6), this three-step procedure is verified; in other words, the differences among the target groups can be investigated regarding the indicators affecting the resilience respecting COVID in the tourism target regions. It should be made clear that due to the extension of the three-step MICOM procedure, only one of the five categorized indicators is discussed as a sample of the permutation test in Table 6.

According to MICOM results, a sub-group divided based on gender, age, percentage of primary job salary, literacy, and source of income variable, has estimated the required criteria. Furthermore, it also allows multigroup analysis. The final results of those variables in the heterogeneity of resilience using the MGA test are shown in Table 7. Concerning the age variable, in which 50 years is considered the threshold of group division, the effects of human capital -> resilience, social capital -> resilience, and financial capital -> resilience have been significant. However, it should be noted that in the path of human capital -> resilience, a significant difference was observed between the two groups above and below 50 years. Put differently, people below 50 years had more tourism resilience; moreover, the results of the gender test showed that all the suggested assumptions (intended paths) for men were significant and confirmed. In the women group, only the natural capital -> resilience path was not verified, which can be attributed to the traditional status of the region in women's access to

resources. It can be confirmed regarding the significant results of the difference between groups of men and women and the higher significance coefficients of men compared to women. Concerning the literacy variable, it was observed that in the social capital -> resilience and financial capital -> resilience paths, it had a strong effect; and its intensity was toward the literate group.

Accordingly, the villagers were classified as more than 50 percent and less than 50 percent based on the percentage of their primary job salary. The results of Table 7 show that the two natural capital -> resilience and financial capital -> resilience hypotheses or paths have been confirmed. In other words, the group with less than 50 percent of income from the primary job has more effect on tourism resilience. These results were also obtained from the source of income variable. The study of the target groups based on the variable of the source of income suggested that natural capital -> resilience and financial capital -> resilience paths were acceptable for the group of two or more sources of income. The statistically significant difference between the two groups in these paths has been approved.

Table 6. Homogeneity measurement results using the permutation test (for gender variable)

Structures	Step 1 Configural invariance	Step 2 Compositional invariance			Step 3: (female) Equal mean values and variances		Step 3: (male) Equal mean values and variances	
		5%	Correlation	Verification	Difference	Confidence level	Difference	Confidence level
capital Social	✓	0.907	0.924	✓	0.23	(-0.35, 0.35)	-0.28	(-0.64, 0.69)
Human capital	✓	0.971	0.986	✓	0.26	(-0.36, 0.35)	-0.044	(-0.56, 0.6)
Natural capital	✓	0.659	0.853	✓	0.16	(-0.34, 0.35)	-0.14	(-0.55, 0.58)
Resilience	✓	0.797	0.908	✓	0.049	(-0.18, 0.19)	-0.009	(-0.25, 0.26)
Financial capital	✓	0.365	0.819	✓	0.054	(-0.18, 0.18)	-0.034	(-0.26, 0.25)

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Table 7. The results of the estimates of the heterogeneity coefficients of the demographic variables in the resilience model using the MGA test

	Age			Gender			Percentage of primary job salary			Literacy			Source of income		
	Above 50 years	Below 50 years	Difference	Male	Female	Difference	Higher than 50 percent	Less than 50 percent	Difference	Literate	Illiterate	Difference	One source	Two sources or more	Difference
social capital -> resilience	0.114**	0.227**	0.114**	0.25**	0.102**	0.112*	0.05	0.041	0.005	0.146**	0.061	0.109**	0.13**	0.046	0.006
human capital -> resilience	0.168**	0.093**	0.073	0.214**	0.128**	0.123**	0.038	0.051	0.007	0.189**	0.076**	0.116**	0.123	0.123	0.123
natural capital -> resilience	0.045	0.065	0.008	0.148**	0.05	0.109*	0.101**	0.129**	0.116**	0.005	0.007	0.004	0.023	0.129**	0.107**
financial capital -> resilience	0.146**	0.157**	0.009	0.625**	0.451**	0.182**	0.249**	0.378**	0.131**	0.18**	0.141**	0.12**	0.005	0.131**	0.116**

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5. Discussion

The studies of resilience and vulnerability of tourism destinations in specialized literature started in 2020 and have remained the research focus due to the massive shock of the COVID-19 outbreak on the tourism sector. The decreased numbers of domestic and international tourism from the pandemic have been unprecedented in recent years. The sudden breakout of the global tourism crisis due to the COVID-19 pandemic affected all tourism destinations. Thus, it is of utmost importance to investigate the factors affecting the resilience of tourism host communities in reducing its negative impacts, especially in the target regions where its residents' livelihood is directly or indirectly dependent on the tourism industry. After all, the present study is conducted to measure the indicators of tourism resilience in tourism target villages (Shamshir village in Paveh county) confronting COVID-19 and to assess the heterogeneity of economic-social factors. Thus, at first, resilience determinants in Shamshir village were investigated, then heterogeneity coefficients of demographic variables in the resilience model were studied using the MGA test.

The results of the structural model demonstrated that the four factors of human capital, financial capital, natural capital, and social capital have a statistical significance on villagers' resilience. Nevertheless, the first two factors had the most impact on rural tourism resilience, and in the following, the two key factors (human capital and financial capital) are discussed. According to the results, the human capital factor has the highest effect on villagers' resilience. The human capital factor comprises variables such as literacy level, familiarity with media advertising, knowledge of using different tourism methods in crises such as the COVID-19 outbreak, and skill in using modern tools such as the Internet to attract more tourists. Accordingly, people with higher literacies level and people who were acquainted with media advertisement and marketing during the COVID-19 pandemic could manage to increase their resilience level by improving their skills in advertising and marketing. For instance, learning the new observation methods of health principles or disinfection of tourist centers, marketing, providing booking services through cyberspace, and local and traditional products delivery). One of the most accepted criteria was the results of the MGA test indicating that literacy in the human capital -> resilience path had a significant effect. The result of this study is in line with the ones conducted by Nizamivand Chegini (2022) and Duro et al. (2022).

Other results show that financial capital is another factor affecting the villagers' resilience. This study investigated financial capital in terms of insurance, savings, and different sources of income variables. Farsighted people have tried to maintain their businesses sustainably and have used methods such as insurance and savings in crises. In this regard, the MGA test results showed that people with less than 50 percent of income from their primary job (people with a second income who have not depended on the tourism sector only) had more resilience. Furthermore, people with different sources of income and savings managed to provide safe tourism facilities following health standards by spending money on implementing health interventions. The result of this study is in line with the ones conducted by Basouli and Jabbari (2021), Azizi and Shekari (2022), and Asadi and Jabbbari (2022).

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Conflict of Interest

The authors declared no conflicts of interest.

References

Abbas, J., Mubeen, R., Iorember, P.T., & Raza, S. (2021). Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry. Current Research in Behavioral Sciences 2, 100033, https://doi.org/10.1016/j.crbeha.2021.100033.

Al-Mughairi, H.M.S., Bhaskar, P., & Alazri, A.K.H. (2021). The economic and social impact of COVID-19 on tourism and hospitality industry: A case study from Oman. J Public Affairs, 2021;e2786, DOI: 10.1002/pa.2786.

Asadi, M.M., & Jabbari, G. (2022). Factors Affecting the Resilience of Rural Tourism Community in Terms of Sustainable Development (Case Study: Tourism Target Villages of Hamadan County). Journal of Rural Research. 12(4), 684-699, doi:10.22059/JRUR.2021.325604.1646. (In Persian)

Azizi, F., & Shekari, F. (2022). Domestic tourism amidst the covid-19 pandemic: Investigating socio-demographics and travel purposes. journal of urban tourism, 9(1), 103-117. (In Persian)

Babazadeh Khameneh, S., Danehkar, A., & Alam Baigi, A. (2022). Providing Scenarios for The Development Resilience Tourism Based on The Local Community with A Furfures

Studies Approach: A Study of Fereydunkenar International Wetland. Iranian Journal of Agricultural Economics and Development. 52 (4), 909 - 922. (In Persian)

Basouli, M., & Jabbari, G. (2021). The relationship between crisis management and community resilience in tourism destinations at Corona crisis (Case study: Hamedan city). Journal of urban tourism, 8 (1), 33-48. (In Persian)

Bayrak, M.M. (2022). Does Indigenous tourism contribute to Indigenous resilience to disasters? A case study on Taiwan's highlands. Progress in Disaster Science 14, 100220, http://dx.doi.org/10.1016/j.pdisas.2022.100220.

Chai, Y. (2021). Analysis of the Impact of COVID-19 on the Tourism Stock Market ---Taking Caissa Touristic as an Example, Advances in Economics, Business and Management Research. volume 166, 487-492. https://doi.org/10.2991/aebmr.k.210319.089.

Connor, KM., & Davidson, J.R. (2003). Development of a new resilience scale: The Connor–Davidson resilience scale (CD–RISC). Depression Anxiety, 18(2), 76-82.

Duro, J.A., Perez-Laborda. A., & Fernandez, M. (2022). Territorial tourism resilience in the COVID-19 summer. Annals of Tourism Research Empirical Insights 3, 100039, https://doi.org/10.1016/j.annale.2022.100039.

Eghbali, M., Motavali, S., Janbaz Ghobadi, G., & Gholami, S. (2021). Investigating the Effect of Social Dimensions of Urban Resilience on Sustainable Tourism Development Case Study: Mahmudabad City. journal of urban tourism. 8 (3), 1-16. (In Persian)

Gabriel-Campos, E., Werner-Masters, K., & Cordova-Buiza, F. (2021). Community eco-tourism in rural Peru: Resilience and adaptive capacities to the Covid-19 pandemic and climate change. Journal of Hospitality and Tourism Management, 48, 416–427, https://doi.org/10.1016/j.jhtm.2021.07.016.

General Department of Cultural Heritage, Tourism and Handicrafts of Kermanshah Province. (2022). Model tourism areas, Available at: https://kermanshah.mcth.ir. (In Persian)

Gholami, H., Panahi, A., & Ahmadzadeh, H. (2021). Future study of urban settlements resilience against environmental hazards with emphasis on corona pandemic (Case study: Tabriz metropolis). Journal of Geography and Environmental Hazards, 9(4), 179-199. (In Persian)

Golets, A., Farias, J., Pilati, R., & Costa, H. (2021). COVID-19 pandemic and tourism: The impact of health risk perception and intolerance of uncertainty on travel intentions. Current Psychology, https://doi.org/10.1007/s12144-021-02282-6.

Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares (PLS) analysis. Understanding Statistics, 3, 283-297. doi:10.1207/s15328031us0304_4.

Haghi, M.R., & Heidarzadeh, E. (2022). An Analysis of Urban Resilience Against the Covid-19 Pandemic (Case Study: Kermanshah). Motaleate Shahri. 11(42), 3-16. (In Persian)

Hair J.J.F., Hult, C., Ringle, G.T.M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM)., 2nd Ed., Sage Publications.

Henseler, J., Ringle, C.M., & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-based Structural Equation Modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.

Islamic Parliament Research Center. (2014). Executive regulations on how to form and manage tourism sample areas, https://rc.majlis.ir/fa/law/show/124733. (In Persian)

Jamini, D., & Dehghani, A. (2022). Evaluation and Analysis of Resilience of Rural Tourism and Identification of Key Drivers Affecting It in The Face of The Covid-19 Pandemic in Iran. Journal of Research and Rural Planning, 11(4), 99-116. doi: 10.22067/jrrp.v11i4.2208.1056

Jamini, D., & Jamshidi, A. (2015). Analysis of the factors that explain the social stability in rural areas (Case study: Chardavol township). Journal of Spatial Planning. 4(4): 147-65. (In Persian)

Jamini, D., & Jamshidi, A. (2021). Modeling the Factors Affecting the Development of Entrepreneurship Indicators in Rural Areas of Iran (Case study: Owramanat Region, Kermanshah Province). Journal of Spatial Planning. 11 (42), 73-94. (In Persian)

Jamshidi, A., Jamini, D., Ghanbari, U., Toosi, R., & Pesaraklo, M. (2015). Factors affecting the entrepreneurship development in agricultural production cooperatives Minodasht Township. Geographical Planning of Space. 5 (15): 211-225. (In Persian)

Javan Amani, V., & Akbari, H. (2021). The Competitiveness Status of Iranian Tourism during COVID-19 using Structural Analysis Method (Host community: Ramsar Residents). Journal of Tourism Space.10(39), 35-52. (In Persian)

Khani Jazni, R., Vaziri, M.H., Barkhordari, A., & Gheisvandi, H. (2019). Multigroup Analysis of Workers in the Steel Production Industry Using Partial Least Squares Approach (PLS-MGA in Occupational Accidents). Journal of ccupational Hygiene and Health Promotion. 3(1), 1-15. (In Persian)

Khodapanah, K. (2022). Evaluation and measurement of resilience of tourism target villages (Case study: Ardabil region). Journal of Geography and Planning. 26(80), 117-131. (In Persian)

Koçak, E., Dogru, T., Shehzad, K., & Bulut, U. (2022). The economic implications of the COVID-19 outbreak on tourism industry: Empirical evidence from Turkey. Tourism Economics. 0(0), 1–17, DOI: 10.1177/13548166211067188.

Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS -SEM: The inverse. Square root and gamma –exponential methods. Information Systems Journal, 28(1), 227 -61.

Komasi, H., Hashemkhani Zolfani, S., & Cavallaro, F. (2022). The COVID-19 Pandemic and Nature-Based Tourism, Scenario Planning Approach (Case Study of Nature-Based Tourism in Iran). Sustainability. 14, no. 7: 3954. https://doi.org/10.3390/su14073954.

Lew, A.A., Ng., P.T., Ni, C-C., & Wu, T-C. (2016). Community Sustainability and Resilience: Similarities, Differences and Indicators. Tourism Geographies 18(1), 18-27, DOI: 10.1080/14616688.2015.1122664.

Maasompour Samakosh, J., Azmi, A., Ramezanzadeh Lesbouei, M., & Nouri, M. (2021). Associate Professor of Geography and Rural Planning, Department of Tourism Management, Mazandaran Un M, Nouri M. Evaluation of resilience of rural residents in Kermanshah province in the face of natural disas-

ters. Journal of Disaster Prevention and Management Knowledge. 11 (1), 24-37. (In Persian)

Momeni, K., & Alikhani, M. (2013). The Relationship between Family Functioning, Differentiation of Self and Resiliency with Stress, Anxiety and Depression in the Married Women Kermanshah city. Family Counseling and Psychotherapy. 3(2), 297-329. (In Persian)

Nasirzadeh, M., Akhondi, M., Jamalizadeh Nooq, A., & Khorramnia, S. (2020). A Survey on Stress, Anxiety, Depression and Resilience due to the Prevalence of COVID-19 among Anar City Households in 2020: A Short Report. Journal of Rafsanjan University of Medical Sciences. 19 (8), 889-898. (In Persian)

Nizamivand Chegini, A. (2022). The crisis of the tourism industry and resilience of this industry due to covid 19, The fourth international conference on knowledge and technology of the third millennium of Iran's economy, management and accounting, Tehran https://civilica.com/doc/1236657. (In Persian)

Pashkus, V., Pashkus, N., & Asadulaev, A. (2021). Impact of COVID-19 on the Global Tourism Industry and Ways to Ensure High Competitiveness of the Territory in the Global Tourism Market after the Pandemic. SHS Web of Conferences 92. 010 (2021), https://doi.org/10.1051/shsconf/20219201041.

Rahman, MK., Gazi, M.AI., Bhuiyan, M.A., & Rahaman, M.A. (2021). Effect of Covid-19 pandemic on tourist travel risk and management perceptions. PLoS ONE 16(9), e0256486, https://doi.org/10.1371/journal.pone.0256486.

Rezaei, E., Pirahesh, N.S., & Badi, M. (2021). Assessing the livelihood resilience of tourism target villages in the face of drought (Case study: Qaleh Now village). South Khorasan Police Science Quarterly. 9(36), 46-66. (In Persian)

Riahi, V., & Jamini, D. (2018). A study on the villagers' semantic understanding of functional challenges in rural settlements (Case study: Centeral District of Ravansar County). Journal of Research & Rural Planning, 7(2), 1-23.

Shahangian, R., & Sourati Jabloo, M.R. (2020). Assessing the Effects of Service Quality and Perceived Value on Satisfaction of Metro Passengers and the Effect of Gender Heterogeneity, using Structural Equation Modeling. Journal of Transportation Engineering. 11(3), 611-637. (In Persian)

Sharma, G.D., Thomas, A., & Paul, J. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework. Tourism Management Perspectives 37. 100786, https://doi.org/10.1016/j.tmp.2020.100786.

Shayegan, M., Ranjbar, M., Borna, R., & Arbaby, A. (2022). Toleration of tourism destination on the side effects of climate changes (studied by Hamedan province). Physical Geography Quarterly. 15(56), 1-15. (In Persian)

Simarangkir, O.R., Tawang, F., Irwan, I., Utami, P.B., Nani, N., & Kodiran, T. (2021). Impact of the COVID-19 Pandemic on Marine Tourism, Derawan Island, Berau Regency, East Kalimantan Province, IOP Conf. Series: Earth and Environmental Science 934 (2021) 012040, doi:10.1088/1755-1315/934/1/012040.

Sobaih, A.E.E., Elshaer, I., Hasanein, A.M., & Abdelaziz, A. (2021). Responses to COVID-19: The role of performance in the relationship between small hospitality enterprises' resilience and sustainable tourism development. International Journal of Hospitality Management 94, 102824, https://doi.org/10.1016/j.ijhm.2020.102824.

Soliku, O., Kyiire, B., Mahama, A., & Kubio, C. (2021). Tourism amid COVID-19 pandemic: impacts and implications for building resilience in the eco-tourism sector in Ghana's Savannah region. Heliyon 7, e07892, https://doi.org/10.1016/j.heliyon.2021.e07892.

Statistical Center of Iran. (2016). The results of the general population and housing census. Tehran. (In Persian)

Sydaii, S.E., Jamini, D & Jamshidi, A. (2014). An analysis on the status of health-therapeutic indexes in the provinces of Kermanshah using TOPSIS, AHP and cluster analysis models. Spatial Planning. 4(1): 43-64. (In Persian)

Zouni, G., Paraskevi-Myrsini, N., Georgaki, I., & Kapetanaki, E. (2021). COVID-19 impact on tourism: Measuring similarities and differences on tourists and tourism businesses' perceptions. Tourism & Heritage Journal. Vol.3, DOI: 10.1344/THJ.2021.3.6.