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Original Article

Modeling the Impacts and Consequences of Climate Change on Sustainable Livelihood of Rural Communities (Case study: Rural Households in Mashhad County)

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Abstract

Purpose- Climate change has negative effects on the economic, social, and environmental aspects of rural households. Given the importance of the impact of climate change on the livelihoods of rural people, this study was conducted with the aim of reducing vulnerability and increasing resilience and adaptation to these conditions in Mashhad Township.

Design/methodology/approach- The statistical population of the study is 11,706 rural households in Mashhad Township, out of which 372 households were selected proportionally by multistage stratified random sampling based on Cochran's formula. The main tool of the research was a questionnaire whose validity was examined through content validity, structural validity, and reliability by composite reliability and Cronbach's alpha (a= 0.9). The data were analyzed using SPSS and LISREL software. To examine the fit of the measurement model of the effects of climate change on sustainable livelihoods, the collected data were analyzed using second-order confirmatory factor analysis with LISREL software.

Findings- The results of the study showed that the greatest impact of climate change was on financial capital, including income reduction, increased costs and increased product prices, reduced productivity and employment. In addition, the greatest effects of climate change on social capital include were on reduced sense of belonging and increased dependence on government support; on human capital include a were on reduced health levels and quality of life; and on natural capital include a were on reduced land resources and pressure and occurrence of hazards; and on physical capital were on reduced services and facilities for people. The research findings also showed that the goodness-of-fit indices (AGFI=0.91, GFI=0.91), (NNFI=0.91, CFI= 0.92), and (RMSEA= 0.073, X2/df= 2.97) confirmed an excellent fit of the measurement model of the effects of climate change on sustainable livelihoods with observed data. In addition, the results of structural equation modeling showed that the greatest impacts of climate change among livelihood capitals were respectively related to physical, financial, natural, social and human capitals.

Keyword: Vulnerability, Sustainable Livelihood, Sustainable Development, Structural Equation Modeling (SEM), Mashhad Township

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1. Introduction

During the past few years, the world has witnessed significant climate changes such as changes in rainfall patterns, temperature changes, and rising sea levels. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) predicted that these changes will become more severe and serious soon (Khan et al., 2021). Climate change is considered one of the biggest challenges facing human societies (Mekuriaw et al., 2019), posing a potential threat to natural ecosystems and sustainable human development (Zhao et al., 2019). This phenomenon has significant social-economic and environmental impacts (Mekuriaw et al., 2019). Climate change has a great impact on local or global natural resources and causes floods, droughts, and conflicts among resource users (Ikhuoso et al., 2020). also reduces water resources and access to drinking water (Nyiwul, 2021) and unstable weather and rapid melting of glaciers increase the risk of extinction of many plant and animal species (Shaffril et al., 2018). In addition, climate change reduces agricultural productivity and increases water consumption in this sector (Zareian & Eslamian, 2019). Climate change and associated stressors influence human development through their support or destabilization of the livelihood systems of the poorest and most vulnerable people (Chitongo, 2019). Although various factors affect rural livelihoods, recent studies show that climate change can double the vulnerability of rural communities (Shahraki et al., 2022). The impact of climate change is extensive and has negative effects on various aspects of rural livelihoods. Those impacts can be observed through increased and uncertain hydrological functioning, depletion of water sources, decrease in soil productivity, ecological degradation, and increased disaster risk, resulting in the reduction of land productivity and economic performance. Agriculture-based communities in rural areas are most affected by the effects of climate change (Aryal et al., 2019); Why do rural households have a high dependence on agriculture, natural resources, and animal husbandry (Poudel et al., 2020; Priyadarshi et al., 2019). while having less ability to cope with and adapt to natural hazards (De Silva & Kawasaki, 2018). Therefore, the agricultural sector has the highest sensitivity to changes in weather conditions (Menike & Arachchi, 2016). Climate change can lead to reduced economic growth and the creation or expansion of poverty (Bauer et al., 2022). Some believe that climate change can not only bring new inequalities and challenges but also the shock and stress it causes will have a significant impact on the vulnerability of rural livelihoods (Shahraki et al., 2022). Livelihood vulnerability is concentrated on exposure, sensitivity as well as the adaptive capacity of an individual's livelihood or a community's livelihood in the face of natural disasters (Sarker et al., 2019). In addition to affecting the agricultural production of farmers, climate change also endangers their household welfare and food security (Jamshidi et al., 2019). Vulnerable livelihoods will certainly lead to food insecurity. Since livelihoods are obtained in various sectors, climate change cannot be considered as the only effective factor in food insecurity (Gautam, 2017). Climate change with increasing natural hazards not only affects the livelihood capital of local communities but also has long-term effects on their income and occupation (Aggarwal & Singh, 2010; Wei et al., 2014). In this way, climate change is a major threat to rural livelihoods (Mashizha et al., 2017). Therefore climate change exacerbates some of the challenges for rural livelihoods arising from urban expansion, population growth, land degradation, and unsustainable agricultural systems. This reduces the resilience of rural livelihood strategies that are difficult to use for protection against shocks and stresses in the face of harsh weather conditions (Chitongo, 2019).

Livelihood should be sustainable in the rural livable environment; meaning that it can adapt to stresses and shocks and improve its capabilities and assets now and in the future without weakening the natural resource base. This interpretation of livelihood sustainability, with an emphasis on coping with stresses and shocks, is strongly related to resilience (Carr, 2020). This happens when in addition to the desirability of livelihood assets, the institutions, structures, environmental conditions, and livelihood strategies that provide rural livelihoods are also mutually satisfactory in interaction and mutual relationship. Also, household livelihoods should be resilient so that they can be sustainable; because increasing the resilience of livelihoods

improves the level of adaptability and coping power and consequently reduces vulnerability among local communities. One of the efforts to implement sustainability is to focus on livelihoods and enhance their resilience as a means of achieving quality of life and well-being and ensuring it against external shocks. Livelihood is not just a means of survival but a process through which resources are provided so that people can improve their lives (Morse & McNamara, 2013). Livelihood is sustainable or flexible when it can cope with stresses and shocks, recover from them, and maintain its capabilities and assets (Gong et al., 2021). Livelihood resilience refers to households' ability to maintain and improve their livelihoods so that they can cope with environmental, economic, social, and political imbalances and improve them (Wang et al., 2021). Resilience is a key component of sustainable livelihoods and vice versa (Awazi & Quandt, 2021). Ensuring rural livelihoods and more importantly, sustaining livelihood systems as a fundamental principle in the dominant approach to rural development planning in the present era has been accepted (Babae et al., 2021). Understanding what creates and improves livelihood resilience against climate change is essential because livelihood systems must be compatible with global and local changes (Quandt et al., 2019). Therefore, livelihood resilience emphasizes empowering communities to maintain these assets against the effects of hazards and recover and restore them to normal after risk-taking (Sadeghlo & Khirabadi, 2020). Understanding how affected people response to life-threatening disasters, especially a thorough describing how they adapt to a new natural phenomenon, would help them to shape appropriate strategies. Such an understanding would provide a better picture of the key elements including resilience characteristics which enable individuals to establish resilience to relevant organizations in addressing the individual perquisites to cope with disasters, even prior to occurrence of those events (Nasrnia & Ashktorab, 2021).

In Iran, climate change events have become more frequent and severe in recent decades. Mashhad is an example of regions where climate change, especially reduced precipitation, changes in precipitation patterns, consecutive droughts, and warming temperatures, are well observable (Regional Water Company of Khorasan Razavi, 2023). Given that Khorasan Razavi province has little rainfall and vast desert areas that are struggling with water scarcity, it is more affected by the effects of climate change. The livelihood of most rural households in this area is based on income from agriculture, handicrafts, and small-scale conversion industries, whose inputs are provided by agricultural, horticultural, and animal husbandry activities. The dependence of the livelihoods of rural communities in the township on agriculture and natural resources has led to less flexibility in the face of short-term weather fluctuations, destruction of environmental resources, the vulnerability of rural economies and instability of income sources, changes in occupation, weakening of rural economies, rural migration and marginalization and increase Problems have become urban. The main issue of this research is how climate change has affected the sustainability of rural livelihoods in Mashhad Township and what effects and consequences it has had. Understanding these effects and consequences will be necessary for developing practical programs and effective strategies for managing climate change. Therefore, given the importance of the impact of climate change on local rural livelihoods, this study was conducted to reduce vulnerability and increase resilience and adaptation to these conditions in Mashhad Township. Awareness of the consequences of climate change and how to deal with it can lead to sustainable livelihoods and increased local community resilience against the consequences of climate change in these areas. In this regard, this study seeks to answer the question of what impact climate change and its consequences (such as prolonged droughts, severe reduction of surface and groundwater resources, reduced crop yields, etc.) have had on the sustainability of rural livelihoods in the study area.

2. Research Theoretical Literature

Livelihood is a way of life that people individually or collectively adopt to meet their economic needs or respond to new economic opportunities (Sina et al., 2019). This method includes individuals and capacities, assets, and activities that are necessary for life (Chen et al.,

2020; Saxena et al., 2016; Shekari et al., 2022) and focuses on the relationship between people's assets and livelihood decisions other than income (Li & Shi, 2022). The livelihood sustainability of individuals or households refers to optimized livelihood capital, increased capacity, improved stakeholder rights, and increased social stability (Zhang & Fang, 2020). According to studies conducted in many parts of the world, rural livelihoods mainly consist of family farms that are involved in agricultural activities such as aquaculture, social forestry, agriculture, and fish farming. Rural livelihoods rely heavily on natural resources and ecosystem services and are vulnerable to shocks and stressors (Pelletier et al., 2016). In rural areas, their livelihood is an interface between social and natural systems through resource use management (Wang et al., 2021). Livelihood characteristics such as production activities and assets are important factors that determine how resilient or adaptable livelihoods are too extreme weather events (Bauer et al., 2022). Essentially, sustainable rural livelihoods address how the poor in rural areas can overcome stress shocks (such as severe weather conditions) to improve their lives (Amoah & Simatele, 2021). Based on the sustainable livelihood approach, livelihood tools should be based on people's access to capital assets so that people can earn a living by combining and growing these assets through interaction with actors and institutions (Nasrnia & Ashktorab, 2021). Within the framework of sustainable livelihoods with a people-centered approach, five components of sustainable livelihoods including human capital, social capital, financial capital, natural capital, and physical capital have been emphasized. These five components are interdependent and each can complement other assets (Nasrnia & Ashktorab, 2021; Pandey et al., 2017; Quandt et al., 2017; Shakoori & Bahrami, 2014). In the following, the interpretation of each component of sustainable livelihoods is discussed below:

A) Human capital: is an inherent and acquired asset of an individual that includes a person's skills, abilities, and capabilities (Quandt, 2018). This capital refers to the population characteristics of individuals such as education, skills, knowledge, work ability, health status, good nutrition, work capacity, and people's adaptability that enable individuals to pursue various livelihood strategies to achieve their livelihood goals (Mkuna et al., 2020; Sahneh & Sadin, 2022). Therefore, this capital refers to the human capacity to understand risk and adopt adaptive strategies against climate change (Pagnani et al., 2021). B) Physical capital: includes basic infrastructure (transportation, shelter, water, energy, and communications) and production equipment that enables people to pursue their livelihoods (Mkuna et al., 2020). C) Social capital: is focused on social networks and communications between members of society, norms, social laws, and institutions. In addition, dependence or membership in groups, associations, and official organizations creates mutual trust and people can use them to solve common problems that ultimately increase knowledge, information, skills, and access to resources for better livelihoods. These are resources and assets that individuals and communities can access through special communication with each other (Sahneh & Sadin, 2022). D) Financial capital: includes financial resources available to people (including savings, credit or installment payments and retirement benefits, remittances, and wages) in addition to providing different livelihood options for them (Mkuna et al., 2020). Natural capital represents the resources that can be used at any time to provide a livelihood. Natural capital includes access to environmental services and resources (Nasrnia & Ashktorab, 2021). E) Natural capital: is especially important for those who derive all or part of their livelihoods from natural resource-based activities. It includes resources such as land, water, minerals, livestock, and other natural resources. Natural capital and vulnerability have close relationships with each other because many destructive shocks to livelihoods such as fires, floods, earthquakes, etc., are natural processes that reduce natural capital (Sharafi et al., 2018).

The mentioned framework is based on 5 key components including the concept of vulnerability, livelihood assets, transformative structures and processes, livelihood strategies, and livelihood outcomes and impacts (Wang et al., 2016). Transformative structures and processes refer to institutions, organizations, policies, and laws that shape livelihoods. Livelihood strategies are a combination of activities chosen by people to achieve their livelihood goals and ultimately livelihood

outcomes, achievements, and outputs of livelihood interventions. Also, according to the sustainable livelihood framework, vulnerability is one of the fundamental concepts that takes shape based on the existence of deleterious fields (Seyed Akhlaghi Shal, 2019). The vulnerability context may have a direct or indirect effect on the five dimensions of livelihood assets (Liu & Xu, 2016). In the field of climate stressors, vulnerability arises due to the lack of coping power and incompatibility capacity and consequently low resilience (Bhattacharjee & Behera, 2018). Therefore, vulnerability is one of the most important determinants of the sustainable livelihood framework that is mainly based on livelihood assets and directly affects institutional processes, livelihood strategies, and their impacts to enhance local community resilience (Jacquet et al., 2018; Sarker, Wu, Alam, & Shouse, 2020). A resilient community and environment confront threats as soon as possible and adapt to them so that they return to their previous desirable state with minimal changes and negative consequences. The compatibility of livelihood systems is the key to their resilience (Kien, 2011) and depends on how local people and the livelihood system respond to stressors and damages (Mohammadi & Manoochehri, 2019).

2.1 Review of Literature

Many studies have been conducted on climate change Karim & Thiel (2017), the vulnerability and resilience of livelihoods to climate change Sarker et al., (2019), and adaptation to climate change Chen, et al., (2018); Masud et al., (2017). In their study, Nagasha, Mugisha, Kaase-Bwanga, Onyuth, & Ocaido (2019) found that river erosion and destruction due to floods caused by climate change have caused residents to migrate and have had a significant impact on employment status, access to food and health services. The results of the study by Kuang et al., (2019) in rural households in Wushen Banner, China indicate that the amount of agricultural livelihood capital plays an important role in adopting adaptation strategies for climate change. Specifically, natural capital and social capital have a positive impact on farmers' decisions regarding adaptation and resilience strategies to climate change, while human capital and physical capital are placed in the next stage. Harvey et al., (2018) Found in their research in Central America that more than 90% of farmers in Central America have experienced climate change and most of them believed that although the impact of temperature and precipitation increase is unpredictable, it has had a significant impact on crop yield, pest and disease outbreaks, and people's income. The results of the study in Rajasthan, India Chand & Kumar (2018) showed that reduced household income, reduced water for irrigation, and reduced crop yields were among the most important livelihood impacts of climate change. In addition, increased livestock mortality, increased weed growth, and new pest and disease outbreaks are among other negative impacts of climate change on local communities' livelihoods. In their research, Hua et al., (2017) examined the role of livelihood assets in appropriate livelihood strategies. Their findings showed that human, natural, and financial assets have a significant impact on livelihood strategies and that the choice of livelihood strategy varies depending on livelihood assets. Fang et al., (2014) Conducted a study to measure the sensitivity of livelihood strategies to livelihood capital in the upper reaches of the Minjiang River in China's mountainous areas. Their results showed that natural and human capital had a positive correlation with farm livelihood strategies, while financial and social capital accelerated activities outside the farm. Shah et al., (2013) Studied the development and testing of the livelihood vulnerability index for agriculture and resource-dependent communities in developing countries. The results showed that Nariva community was more vulnerable than other communities, especially in relation to social population, health and water security, natural disaster and climate change. On the other hand, Caroni was more vulnerable than other livelihood vulnerability indices except for food security. Motsholapheko et al., (2011) Studied rural livelihoods and household resilience to floods in Botswana's Okavango Delta. Their findings showed that people generally had high access to natural capital but low access to four types of capital: financial, physical, human, and social. Shahraki et al., (2021) Examined rural people's awareness of climate change indicators and their relationship with sustainable livelihoods in Oghan watershed area of Golestan province. They found that there

was a direct relationship between people's awareness of climate change indicators and their livelihood changes. Sharafi et al., (2018) Examined the status of livelihood assets and their sustainability and found that among the five livelihood assets, social, human, and physical capital were moderately sustainable while financial and natural capital were potentially unstable (weak).

3. Research Methodology

3.1 Geographical Scope of the Recsearch

Mashhad Township is one of the counties of Khorasan Razavi Province in northeastern Iran, with its center in Mashhad. This Township is located at the longitude of 59° 03′ to 60° 35′ and latitude of 35° 42′ to 36°59′ and in between the Binalud and Hezar Masjed mountain ranges in the Kashaf Rud basin (Figure 1). According to the 2016 census, it has three districts, 11 rural districts, and 379 villages with a population of 360,498 people and 103,657 households. Due to its location in the Binalud and Hezar Masjed mountains, Mashhad Township has a Mediterranean climate that is hot and dry. This Township has an annual evaporation rate of between 1300 and 2800 millimeters. The total annual rainfall in Mashhad Township is 249.42 millimeters and the average monthly rainfall is 20.78 millimeters. The maximum rainfall during the period (1951-2017) was related to June with 54.83 millimeters and the minimum rainfall was also related to November with 0.74 millimeters (Regional Water Company of Khorasan Razavi, 2018).

In this Township, agriculture is considered the main livelihood activity of rural households. The livelihood of most rural households in this area is based on income from agriculture and small-scale handicrafts and processing, the inputs of which are provided by agricultural activities such as farming, horticulture, and animal husbandry. Agriculture in this area depends on the amount and distribution of rainfall. The sudden decrease in rainfall in recent years in the villages of this Township has led to successive droughts in this area. According to the Standardized Precipitation Evapotranspiration Index (SPEI), during the ten years until the end of January 2021, the study area has been in a state of moderate to severe drought, and 89.8% of the area of the Township has been affected by drought (General Meteorological Department of Khorasan Razavi, 2022).

Drought and water scarcity are one of the most important climate changes that Mashhad Township has been dealing with for several years, which in addition to destructive changes on the ecosystem of Khorasan Razavi province and Mashhad Township, has caused significant damage to agriculture, rangelands, and water resources of the Township and as a result agricultural production, livestock, and rural income have decreased. The livelihoods of residents of rural areas of the Township have been threatened by droughts over the past two decades due to a decrease in surface and groundwater resources and the drying up of canals. Water resource constraints and droughts in recent decades and as a result drying up of canals and declining water tables have led to an increase in unauthorized well digging in some villages and as a result severe depletion of groundwater reserves. On the other hand, a lack of precise control and supervision over the desirable use of water resources has created conditions for any exploitative behavior and competitive use of scarce resources especially water in some villages (Ghasemi et al., 2021). Therefore, natural hazards and climate change have increased its vulnerability to disasters in rural areas of Mashhad Township.

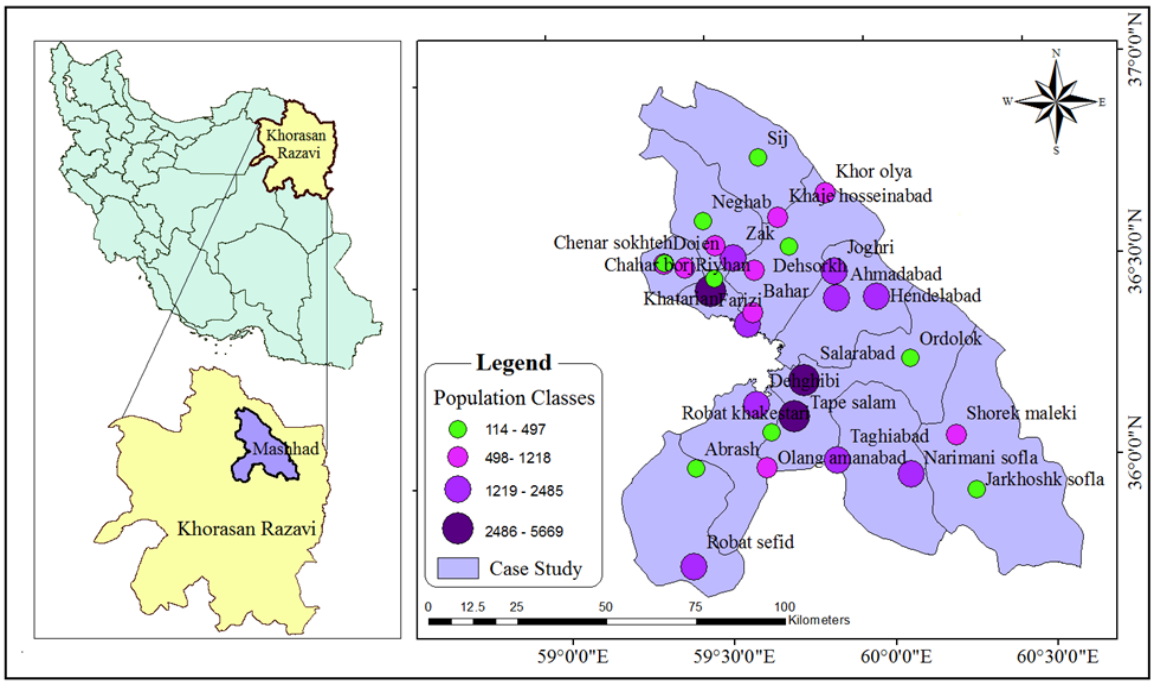

Figure 1. The geographical location of sample villages in the study area

3.2 Research Method

Since the main objective of this research was to reduce the vulnerability and increase the resilience and adaptability of rural households in Mashhad Township against climate change, an attempt has been made to achieve this goal using a descriptive-analytical method and using quantitative methods. In this study, the document method (books, articles, and reports) and field survey (questionnaire and observation) were used to collect information and data. In the library method, with the help of available documents, the theoretical issue was explained. Finally, after extracting a list of research indices and variables (Table 1), in the field study phase, using a questionnaire at the household level in the studied villages within the framework of Likert and in a five-spectrum [very low (1), low (2), medium (3), high (4), very high (5)] was operationalized. The statistical population of this study consists of 11,706 rural households residing in Mashhad Township, which according to the 1395 census of Iran's Statistical Center has a population of 360498 people and 103657 households in rural points and 379 villages with a population, of which 359 villages have more than 3 households and 20 villages have less than 3 households (Statistical Center of Iran, 2016). Due to the vastness and abundance of the number of villages under study, as well as the high costs, 8% or 30 villages were selected for distribution and completion of the questionnaire; and finally, using Cochran's formula, 372 households were selected as the sample size. Sampling from the desired population was done in a multi-stage method. Given that the study area is divided into two groups (plain and mountainous) in terms of location and topography, for this purpose, the frequency of villages in these two groups has been determined through stratified random sampling. Then, using simple random sampling, 15 villages were selected from among plain villages, and 15 villages were selected from among mountainous villages. In the next step, the selected villages from both groups are classified into four small, medium, large, and very large categories, and their share is allocated to them according to the percentage of each share. This means that each of the villages was placed in a class based on population distribution and based on this method, the sample size within each of these classes (villages) was selected. The validity (formal and content) of the questionnaire has been confirmed by a group of specialists in geography and rural planning who had previous experience in similar studies. Also, structural validity and Average Variance Extracted (AVE) index calculation were used. This index shares the average variance between each structure and its

own indices. In simpler terms, the extracted average variance index indicates the correlation between a structure and its own indices, which means that the higher this correlation is, the better the fit is. A pilot study was conducted in the statistical community with 30 questionnaires and using Cronbach's alpha formula, the overall reliability of the questionnaire was obtained as 0.975. Also, composite reliability has been used which according to both reliability statistics had an acceptable value (Table 5). SPSS software and Lisrel (structural equation modeling) were used for data analysis.

Table 1. The indicators of measuring rural livelihood assets

Dimension	Component	Index	Refrence
Financial Capacity	Income	Decrease in income from agriculture, decrease in agricultural income, decrease in income satisfaction, increase in poverty, decrease in income and purchasing power	Alam et al., 2017; Azhdarpoor, 2016; Davoodpur, 2017; Ghayeni Sabegh, 2017
	Employment	Reduced youth employment and job creation, seasonal and permanent unemployment, changing jobs to other jobs or losing jobs, turning to non-traditional jobs (false)	Azhdarpoor, 2016; Davoodpur, 2017; Ghayeni Sabegh, 2017
	Increasing costs and prices of products	decreasing productivity, decreasing the area under cultivation of products, decreasing the performance of agricultural products, decreasing efficiency and production efficiency, declining agricultural farm performance, increasing the price of agricultural production inputs (seeds, fertilizers, etc.), increasing agricultural production costs (buying water, etc.), increasing the price of livestock and agricultural products, increasing animal feed costs, increasing land prices, cost of machinery in production, increasing the price of food production	Azhdarpoor, 2016; Davoodpur, 2017; Ghayeni Sabegh, 2017; Hajian, 2017
	Savings	Reduction of personal savings and reduced satisfaction with savings	Davoodpur, 2017
	Financial resources	Reduced financial capacity to repay loans, delay in repayment of bank loans, reduction in the value of farmers' assets, increase in debt (agricultural loans of farmers) to banks	Davoodpur, 2017; Ghayeni Sabegh, 2017; Hajian, 2017
	Supply, demand, and welfare	Reduced demand for (farmer, livestock or orchardist) daily needs, reduced supply of intermediaries for rural daily needs, impact on rural welfare, increased demand for (farmer, livestock or orchardist) loans and bank facilities from the government	Moradi, 2014
	Investment	Reduced investment in the agriculture sector, reduced investment in the livestock sector, investment in non-agricultural sectors, reduced motivation and tendency of private sector investment in rural areas	Davoodpur, 2017; Ghayeni Sabegh, 2017; Hajian, 2017
Social Capacity	Locality	Reduction of the rural population, evacuation of villages, escape of young people, temporary job migration, seasonal migration for work, permanent migration to the city	khatibi, 2017;Shahraki et al., 2021
	Social participation	Participation and cooperation of people in rural affairs, cohesion and interaction between villages, and solidarity among villagers to protect basic resources such as water and soil	khatibi, 2017; Venot et al., 2010; Davoodpur, 2017
	Social trust	Creating pessimism and dissatisfaction with government organizations	Shahraki et al., 2021
	Social security	Increase in crime due to climate change (floods, droughts, etc.), increase in conflict and differences between local people, conflict and dispute with rural people, crime and insecurity among families	Shahraki et al., 2021; Davoodpur, 2017
	Mental health	Occurrence of mental stress (anxiety, despair) affected by climate change, despair from agricultural activities	Azhdarpoor, 2016; Davoodpur, 2017
	Dependency	Increased dependence of farmers on government support, increase in the population covered by the Relief Committee	Shahraki et al., 2021
Human	Knowledge and	The knowledge and awareness of rural people about the causes of	Davoodpur, 2017

Dimension	Component	Index	Refrence
Capacity	awareness	climate change, knowledge about measures to reduce the effects of climate change, knowledge and awareness of rural people about organizations related to climate change management, awareness of aid agencies and assistance to people in the occurrence of climate change	
	Skill	The skill of rural people in preparing for climate change and its damages, the skill of rural people in managing and behaving properly to cope with climate change and its damages	Davoodpur, 2017
	Education	Dropout and leaving the school of children	Azhdarpoor, 2016
	Health issues and quality of life	Increase and prevalence of various diseases, decrease in quality of life and its impact on health, decrease in health and nutrition level, increase in mortality	Azhdarpoor, 2016; Davoodpur, 2017
Natural Capacity	Land resources	Reduction of farmers' lands, land use change and orchards, lowering groundwater levels, reduction of rangeland and forest vegetation cover, reduction of plant and wildlife biodiversity due to temperature increase, reduction of water flow, the disappearance of the natural beauty of the environment (wetlands), soil quality reduction, the disappearance of wells, reduction in quantity and quality of water	Alam et al., 2017; Stoutenborough & Vedlitz, 2014; Azhdarpoor, 2016; Davoodpur, 2017
	Natural hazards	Flooding in the region, landslides, erosion due to rainfall, drought due to extreme heat, increase in flowing sands	Shahraki et al., 2021; Ghayeni Sabegh, 2017;
	Environmental pollution	Water pollution and salinization of groundwater, soil pollution, and salinization, increase in dust and air pollution	Shahraki et al., 2021
Physical Capacity	Services and facilities	Status of rural roads, electricity lines, telephone, healthy drinking water, public institutions, transportation facilities, access to the market, health facilities	Shahraki et al., 2021
	Housing	Family housing quality, destruction of infrastructure and housing	Shahraki et al., 2021

4. Research Findings

4.1. Demographic Characteristics

Descriptive characteristics of the study sample indicate that out of 372 respondents, 81.7% were men and 18.3% were women. The highest frequency (28.5%) is in the age group of 41 to 50 years. In terms of education level, the highest frequency (29%) of education level was related to respondents with guidance school education. 7.5% of respondents are illiterate, 26.9% are elementary school graduates, 19.9% are diploma holders, and 16.7% have higher education degrees or above. The examination of economic characteristics shows that most of the households under study (50.8%) are simultaneously farmers, gardeners, and livestock breeders as their main occupation. Also, out of all respondents, 69.6% have one to four agricultural land plots. 65.3% of the agricultural lands of the respondents are owned by them. The examination of social characteristics indicates that the average number of household members in the studied rural areas is between five and six people (40.9%).

4.2. Prioritizing the effects of climate change on sustainable livelihood components

To prioritize the effects of climate change on sustainable livelihoods in financial, social, human, natural, and financial livelihoods, the coefficient of changes has been used as a statistic. The results of this section are presented in (Table 2). As the results of the table show, the most significant impact on income and cost increase, product price increase, reduced productivity (production efficiency), and employment has been in financial capital. In social capital, climate change has had an impact on reducing local attachment and increasing dependence on government support; in human capital, it has affected health issues; in natural capital, it has had an impact on reducing and putting pressure on land resources and the occurrence of hazards (floods, landslides, droughts, etc.), and in physical capital, it has had an impact on reducing people's services and facilities.

Table 2. Prioritization of the effects and consequences of climate change on sustainable livelihood indicators
Source: Research findings, 2022

Dimension	Component	Mean	Standard deviation	Coefficient of Variation
Financial Capacity	Income	3.98	0.185	0.74
	Employment	3.90	0.192	0.75
	Increasing costs and Increasing prices of products	3.86	0.189	0.73
	Savings	3.82	0.259	0.99
	Financial resources	3.76	0.244	0.92
	Supply, demand, and welfare	3.75	0.258	0.97
	Investment	3.93	0.226	0.89
Social Capacity	Locality	3.96	0.246	0.97
	Social participation	3.39	0.262	0.89
	Social trust	3.28	0.289	0.95
	Social security	3.49	0.252	0.88
	Mental health	3.88	0.247	0.96
	Dependency	3.73	0.284	1.06
Human Capacity	Knowledge and awareness	3.28	0.289	0.95
	Skill	3.26	0.296	0.72
	Education	2.08	0.346	0.72
	Health issues and quality of life	3.27	0.360	1.18
Natural Capacity	Land resources	4.02	0.174	0.70
	Natural hazards	3.19	0.241	0.77
	Environmental pollution	3.50	0.308	1.08
Physical Capacity	Services and facilities	3.98	0.183	0.73
	Housing	2.96	0.253	0.75

4.3. Analysis of factors affecting the sustainability of rural livelihoods

To examine the validity of the questionnaire structure and the fit of the measurement model related to the structure "The effects of climate change on sustainable livelihoods of rural communities in Mashhad Township", the data collected using Lisrel software were analyzed by confirmatory factor analysis. This method aims to determine whether the number of measured factors is consistent with what was expected based on theoretical and theoretical models. In other words, it tests the degree of conformity and harmony between the variables that make up the empirical research structure and factors. In this stage, second-order factor analysis was used to evaluate the effects of climate change on the sustainable livelihoods of rural communities. Based on the results obtained in (Table 3), the t-values obtained for all variables studied were greater than 1.96, and as a result, the relationships between these variables and their corresponding factors became significant. In other words, the findings of this section show that all selected indicators for measuring the effects of climate change on sustainable livelihoods of rural communities in Mashhad Township have sufficient and necessary accuracy; therefore, it can be said that the indices used to show acceptable conformity with the theoretical basis of research.

Table 3. Factor Loadings of indicators and structural effects of climate change on sustainable rural livelihoods in the form of a measurement model
Source: Research findings, 2022

Dimension	Component	Mean	Factor Loadings	t-value	R^2
Financial Capacity	Income	F1	0.77	-	0.59
	Employment	F2	0.77	15.84	0.60
	Increasing costs and increasing prices of products	F3	0.87	18.22	0.75
	Savings	F4	0.76	15.64	0.58
	Financial resources	F5	0.77	15.73	0.59
	Supply, demand, and welfare	F6	0.76	15.46	0.57

Dimension	Component	Mean	Factor Loadings	t-value	R^2
	Investment	F7	0.72	14.63	0.52
Social Capacity	Locality	SO1	0.98	-	0.96
	Social participation	SO2	0.40	8.21	0.16
	Social trust	SO3	0.40	8.36	0.16
	Social security	SO4	0.57	13.01	0.32
	Mental health	SO5	0.98	15.09	0.96
	Dependency	SO6	0.51	11.19	0.26
Human Capacity	Knowledge and awareness	H1	0.44	-	0.19
	Skill	H2	0.34	3.29	0.18
	Education	H3	0.44	3.79	0.59
	Health issues and quality of life	H4	0.43	5.76	0.19
Natural Capacity	Land resources	N1	0.85	-	0.72
	Natural hazards	N2	0.76	15.82	0.58
	Environmental pollution	N3	0.74	15.28	0.55
Physical Capacity	Services and facilities	P1	0.78	-	0.61
	Housing	P2	0.41	7.88	0.17

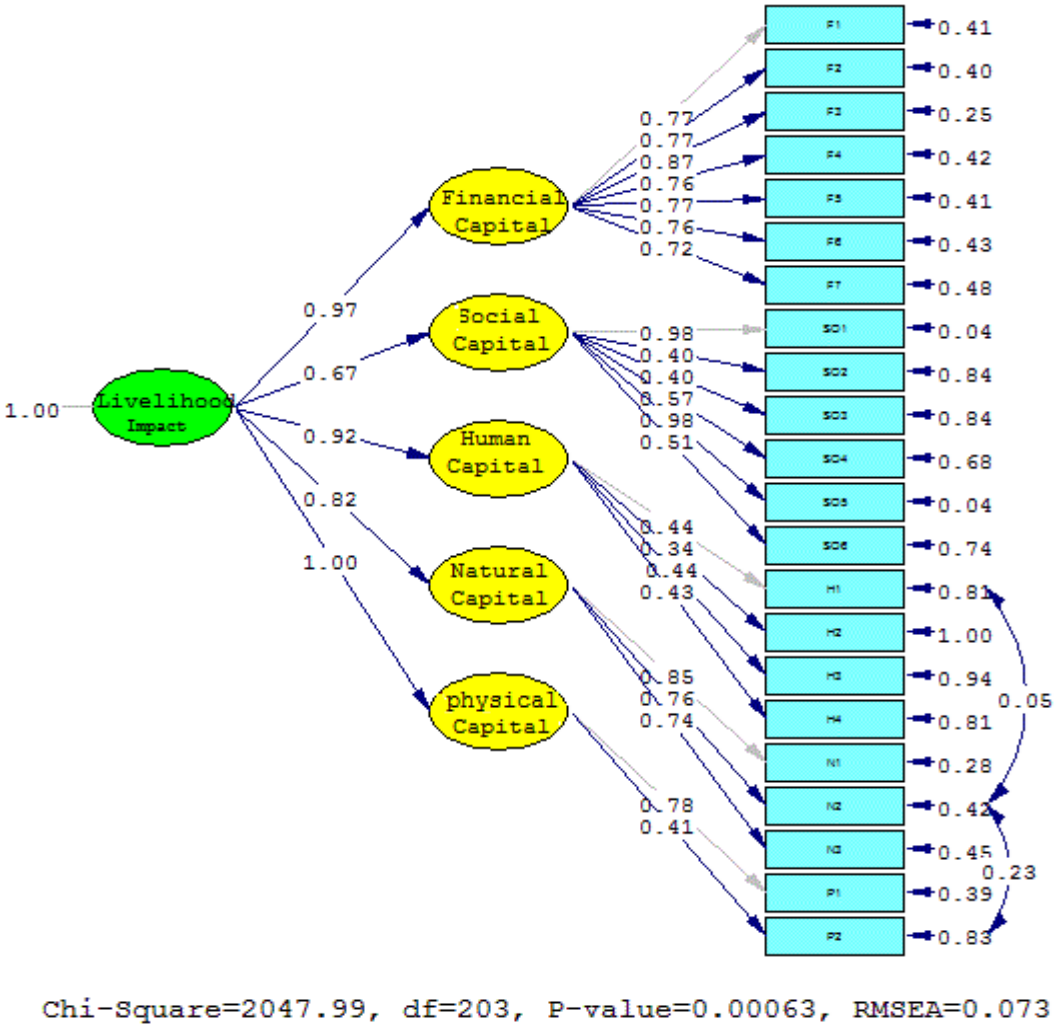

Figure 2. Standardized coefficients of the measurement model components of the effects of climate change on sustainable livelihoods in the standard state

Source: Research findings, 2022

Also, according to the fitness indices shown in the (table 4), it can be stated that the measurement model of the effects of climate change on sustainable livelihoods of rural communities in Mashhad city (Figure 2) is valid and acceptable for fitting the relationships between the indices and their related indicators.

Table 4. Fitness indices of the measurement model of the effects of climate change on sustainable livelihoods of rural communities

Source: Research findings, 2022

Index	X^2/df	RMR	NFI	NNFI	CFI	IFI	GFI	AGFI	RMSEA
Proposed criterion	≤3	≤5	≤0.90	≤0.90	≤0.90	≤0.90	≤0.90	≤0.90	0.08≤
Reported criterion	2.79	0.048	0.91	0.91	0.92	0.92	0.91	0.91	0.073

According to the results obtained from (Table 4), one of the model fitting indices is the Root Mean Square Error of Approximation (RMSEA). The proposed criterion for this index is less than or equal to 0.08. In the present model, this index is equal to 0.073, which indicates a good fit of the study model with the observed data. Another index is Goodness-of-Fit Index (GFI) and the Adjusted Goodness-of-Fit Index (AGFI). The closer these indices are to one, the better the fit of the model is, which in this case is 0.91. Also, the ratio of chi-square to degrees of freedom (X2/df= 2.79) is less than 3, indicating an excellent fit of the measurement model with the observed data. Other fitting indices also indicate a good and excellent fit of the model. Therefore, according to the results obtained, it can be said that the overall fit of the measurement model is desirable and compatible with the data used. In other words, the quality of the overall fit of the measurement model is desirable. As shown in (Figure 3) and (Table 5), the significant part of the coefficients and parameters obtained shows the measurement model of climate change effects on sustainable livelihoods of rural communities in Mashhad city. If a significant number is greater than 1.96 or less than -1.96, then there will be a significant relationship in the research model. Figure 4 shows that all relationships are significant and all hypotheses are confirmed. Therefore, it can be said that climate change components explain a significant part of the structure of sustainable rural livelihoods studied and prioritize first to fifth in explaining this structure.

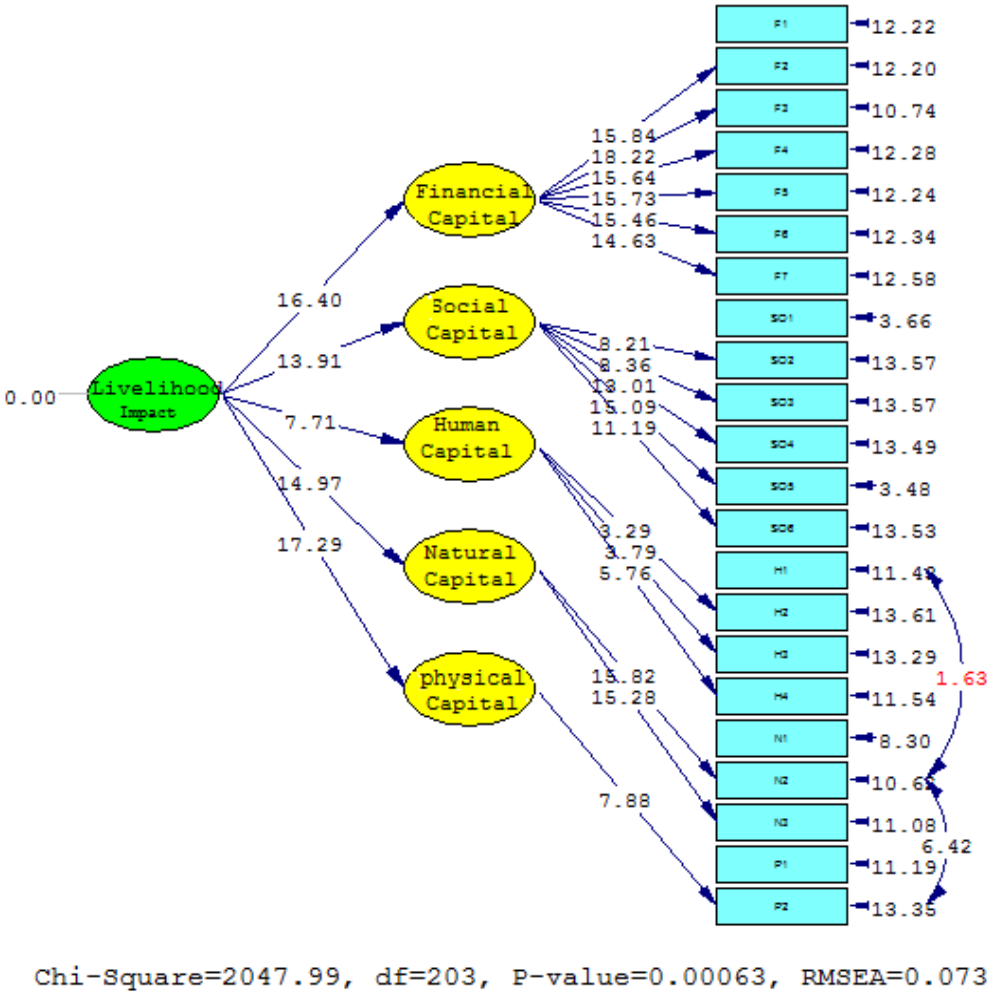

Figure 3. Measurement model of the components of the effects of climate change on sustainable livelihoods of rural communities in a significant state
Source: Research findings, 2022

In (Table 5), the standardized loading value of the effect indicators and their significance level are shown based on the t-value in the second-order confirmatory factor analysis. According to the results presented in (Table 5), it can be seen that all indicators (indices) have a t-value higher than 1.96. Also, the results of this table show that for the structure of effects, indices a, CR, and AVE have an appropriate and acceptable values. Therefore, it can be stated that all selected indices for measuring the effects of climate change on sustainable livelihoods are accurate enough and have sufficient validity and reliability.

Table 5. Standardized factor loading values and significance level of effect indicators.
Source: Research findings, 2022

Structure	Index	Standard coefficient	T	R^2	A	CR	AVE
Effects	Financial Capital	0.97	**16.40	0.94	0.95	0.98	0.71
	Social Capital	0.67	**13.91	0.46	0.92	0.95	0.61
	Human Capital	0.92	**7.71	0.84	0.71	0.74	0.56
	Natural Capital	0.82	**14.97	0.67	0.92	0.96	0.66
	Physical Capital	1.00	**17.29	1.00	0.74	0.78	0.70

5. Discussion and conclusion

Sustainable livelihoods is a new approach to rural development that examines the factors and relationships that affect rural livelihoods. This approach helps individuals cope with the stresses, shocks, and damages caused by climate change, which vary in different regions. Climate change as a background for damaging the sustainability of regional livelihoods weakens an asset or capital such as financial assets and provides the conditions for weakening other capital and assets of rural households in the region as well. This research was conducted with the main objective of explaining the effects and consequences of climate change on rural households' livelihoods and in addition to achieving this important goal, expanding theoretical knowledge and using it to analyze the level of sustainability of rural residents' livelihoods in Mashhad Township in the face of climate change, it achieved the following results.

The occurrence of climate change has affected the livelihood assets of rural people as the main core of livelihood sustainability. The results of this study indicate that climate change has had effects on the financial, social, human, natural, and physical capital of local communities. According to the statistics of the coefficient of climate change in financial capital, it has had the greatest impact on income and cost increases and product prices, reduced productivity, and employment. Climate change harms social capital by reducing spatial attachment and increasing dependence on government support, on human capital by health issues, on natural capital by reducing and putting pressure on land resources and the occurrence of hazards (floods, landslides, droughts, etc.), and on physical capital by reducing services and facilities for people. Climate change has led to a shortage of water resources for rural people in the region whose livelihoods depend on agriculture and animal husbandry; therefore, the reduction of water resources in this area has had a significant negative impact on agricultural production. With the reduction in agricultural production due to various reasons such as (changes in precipitation patterns, cold patterns, etc., water scarcity and droughts, and prevalence and spread of various pests and diseases), household income and savings, as well as an investment, have also decreased. In addition, it has led to an increase in demand for receiving credits and loans. In this process, households that receive loans are unable to pay monthly installments and become indebted households. This has led many rural households to face food insecurity and household heads are forced to engage in false activities and employment to meet their livelihoods and living expenses. These cases lead to greater dissatisfaction and harder living conditions for rural people and as a result, their temporary and permanent migration to cities increases which itself causes more problems in cities such as marginalization. Therefore, with the reduction of income and power, and production capacity in rural areas, the motivation for permanent migration to other areas or seasonal migration has increased more and some villages are practically dormitories and others are not producers. Because villages have been transformed from places of production to places of dormitory or consumption. On the other hand, due to various problems that threaten the production, life, income, and economy of rural people, each individual is looking for a solution to their problem and pays less attention to group work and solving rural problems cooperatively, and individualism has prevailed over group work.

In the field of natural capital, the occurrence of hazards such as floods and successive droughts in this area has led to a decrease in soil quality, soil erosion, and consequently, the destruction of pastures and a decrease in plant and animal diversity. Therefore, the reduction of vegetation cover leads to an increase in fine particles (which harms agricultural production), soil erosion, and a decrease in rainfall retention and its conversion into floods and the destruction of agricultural lands, production, and income. In addition, cultivated lands are now left uncultivated due to climate change (drought, water scarcity, etc.) without use, and the area under cultivation has decreased. These factors and the above factors have disrupted the education of children and the decline and cessation of students' education, the prevalence of child labor, and disruption of access to health and educational services, etc. in rural areas of this region; These factors have in turn led to a decrease in the quality of life in the studied villages. In other words, with the reduction of income, healthy nutrition, and health care are also seriously threatened by various diseases that

reduce human productivity. Riahi & Pashazadeh (2014) have stated that the economic damages caused by reduced income and savings, changes in rural employment structure, increased tendency to migrate, and reduced livestock and agricultural production are among the economic damages caused by reduced rainfall and drought.

According to the results obtained, it can be said that the overall fit of the model for measuring the effects and consequences of climate change on the livelihoods of rural people was desirable and compatible with the data used; In other words, the overall fit of the research measurement model is desirable. As observed, the results of the study showed that based on the values of factor analysis indices obtained from field data among the indices examined, although climate change has had an impact on all five dimensions of rural livelihoods; but among them, physical capital and then financial and natural capital were the most affected. Natural capital is the main source for creating livelihoods in rural societies, which can maintain their livelihoods. This finding is consistent with part of the results of the study Ahmadi & Manoochehri (2020)**.** The results Timalsina (2007) showed that physical capital enables households to have quick access to markets and makes it possible to improve their livelihoods. Educational and health services reduce rural costs and eliminate the need to go to urban areas. Sojasi Ghidari et al., (2016) Also, believe that physical capital is one of the most important resources for creating community capacity for sustainable livelihood development. Physical infrastructure such as roads, bridges, dams, and anchors along with communication and transportation systems are necessary to create proper structures in society, especially in facilitating the process of using capacities and other assets available in rural environments. The lack of physical infrastructure or vital facilities may negatively affect the capacity to use other livelihood assets. Financial capital enables people to continue their livelihoods. Usually, tangible financial assets are considered the most tangible assets of local communities, and any damage to them should be considered important. Accordingly, one of the most important aspects affecting the sustainability of rural livelihoods is their access to financial capital, which has affected their livelihoods in various dimensions and its absence can lead to instability in rural livelihoods, which results in increased vulnerability and poverty in rural communities. Shahraki et al., (2021) In their research, they found that the greatest change in sustainable livelihoods was related to financial and physical capital, and the least change was related to social and natural capital Badko et al., (2020) They also found that due to vulnerability in various fields in recent years, physical, financial and natural assets have decreased and human and social assets have increased.

In addition, Zacarias (2018) found in his research that the impact of local community livelihoods of climate change is more related to financial, physical, and social capital. Economic and physical assets have a greater impact on the sustainable livelihoods of rural residents. This is while according to the findings, natural and social capital have also been affected by climate. The recent finding is that research Ghorbani et al., (2019) and Sojasi Ghidari et al., (2016) have shown that social capital has the greatest impact on the livelihood adaptation of watershed residents compared to other assets. Because a significant portion of rural livelihoods are affected by social dependencies, social unity, social cohesion, social security, social participation, etc., which directly and indirectly affect rural livelihoods; And a rural area that lacks social capital does not have a conceptual financial asset or adequate security for operation and use. In addition, Mitra (2008) believes that social capital is the most important livelihood capital and without it, access to other resources is almost impossible. The findings of this study also indicate that climate change had the least impact on the human capital of the households studied. In rural areas, human resources give identity and vitality to rural environments and provide their livelihoods in rural areas through methods of land use that are commensurate with the integration of indigenous and modern knowledge. The method, type, and intensity of human exploitation of other assets and their combination are indicative of the sustainability or unsustainability of livelihoods in rural environments. This finding is consistent with the results of Shahraki et al., (2022) and Sojasi Ghidari et al., (2016)**.** According to the findings of this study, it is recommended that planners and policymakers pay special attention to the relationship between the economic situation of rural households and meteorological parameters to

improve, upgrade, and sustain the livelihoods of rural communities. To improve and restore the livelihoods of rural households and make their livelihoods compatible with climate change, priority should be given to those livelihood assets that have been most affected by climate change. Climate change has led to a decrease in the physical, financial, and natural capital of rural residents in the region, which has lowered their level of livelihood sustainability. Therefore, measures should be taken to provide the necessary financial resources for rural residents and protect the environment. Additionally, to enhance the economic capacity and increase the financial power of rural residents, production cooperatives such as carpet weaving workshops and handicraft industries should be established in the region.

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Authors' contributions

The authors equally contributed to the preparation of this article.

Conflict of interest

The authors declare no conflict of interest.

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Original Article

مدل‌سازی اثرات و پیامدهای تغییر اقلیم بر معیشت پایدار جوامع روستایی (مطالعه موردی: خانوارهای روستایی شهرستان مشهد)

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چکیده مبسوط

۱. مقدمه

طی چند سال گذشته، جهان شاهد یک سری تغییرات مهم آب و هوایی مانند تغییر الگوهای بارندگی، تغییرات دما و افزایش سطح آب دریاها بوده است. تغییرات اقلیمی به عنوان یکی از بزرگترین چالش‌های جوامع بشری قادر است آسیب‌پذیری معیشت روستاییان را دو چندان کند. تأثیر تغییرات اقلیمی گسترده است و تأثیرات منفی بر جنبه‌های مختلف از معیشت روستایی دارد. این تأثیرات را می‌توان از طریق افزایش و عدم قطعیت بر عملکرد هیدرولوژیکی، کاهش منابع آب، کاهش حاصلخیزی خاک، تخریب اکولوژیکی، افزایش خطر ریسک و در نتیجه کاهش بهره‌وری زمین و عملکرد اقتصادی مشاهده کرد. جوامع مبتنی بر کشاورزی در مناطق روستایی بیشترین آسیب را از اثرات تغییرات اقلیم دیده‌اند؛ چرا که خانوارهای روستایی به کشاورزی، منابع‌طبیعی و دامداری وابستگی زیادی دارند و در عین حال توانایی کمتری برای مقابله و سازگاری در برابر مخاطرات طبیعی دارند. اخیراً روستاهای شهرستان مشهد نیز شاهد مخاطرات ناشی از تغییرات اقلیمی بوده است. در این شهرستان کشاورزی به عنوان فعالیت اصلی معیشت خانوارهای روستایی محسوب می‌شود. تأمین معیشت اکثر خانواراهای روستایی این منطقه برپایه درآمد حاصل از کشاورزی و صنایع دستی و تبدیلی کوچک مقیاس می‌باشد که نهاده‌های آن‌ها از فعالیت‌های زراعی، باغداری و دامداری تأمین می‌شوند. مسئله‌ی اصلی پژوهش حاضر این مطلب است که تغییرات اقلیمی بر روی پایداری معیشت روستاییان شهرستان مشهد چه تأثیرات و پیامدهایی داشته است، شناخت این تأثیرات و پیامدها، لازمه تدوین برنامه های کاربردی و راهبردهای مؤثر در جهت مدیریت تغییرات اقلیمی خواهد بود. آگاهی از پیامدهای تغییرات اقلیمی و چگونگی مواجه با آن می‌تواند منجر به پایداری معیشت و افزایش تاب‌آوری جوامع محلی در برابر پیامدهای تغییر اقلیم در این نواحی گردد.

۲. مبانی نظری

معیشت روشی است که مردم برای تأمین نیازها و فرصت‌های اقتصادی خود انتخاب می‌کنند. معیشت شامل افراد، دارایی‌ها و فعالیت‌هایی است که برای زندگی لازم هستند. معیشت روستایی بیشتر به کشاورزی و منابع طبیعی وابسته است و در برابر شوک‌ها و استرس‌ها آسیب‌پذیر است. معیشت پایدار بهبود زندگی مردم در برابر شوک‌ها را هدف قرار می‌دهد. معیشت پایدار از پنج سرمایه انسانی، اجتماعی، مالی، طبیعی و فیزیکی تشکیل شده است که با یکدیگر در ارتباط هستند. چارچوب معیشت پایدار بر پنج عنصر اصلی شامل آسیب‌پذیری، سرمایه‌های معیشتی، تغییرات نهادی، راهبردهای معیشتی و نتایج معیشتی بنا شده است. تغییر ساختارها و فرآیندها دلالت بر نهادها، سازمان‌ها، سیاست‌ها و قوانین شکل دهنده به معیشت هستند. راهبردهای معیشتی ترکیبی از فعالیت

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های انتخاب شده توسط مردم برای دستیابی به هدف امرار معاش می‌باشند و در نهایت پیامدهای معیشتی، دستاوردها و خروجی‌های اقدامات معیشتی است. در زمینه تنش‌های آب و هوایی آسیب پذیری به دلیل فقدان قدرت مقابله و ظرفیت ناسازگاری و در نتیجه تاب‌آوری اندک حاصل می‌آید. آسیب‌پذیری، یکی از مهم‌ترین عوامل تعیین‌کنندهٔ چارچوب معیشت پایدار است که عمدتاً مبتنی بر سرمایه‌های معیشتی بوده و مستقیما بر فرایندهای نهادی، استراتژی‌های معیشتی و پیامدهای آن با هدف ارتقای تاب‌آوری جوامع محلی تأثیر می‌گذارد. برخورداری از سرمایه‌های معیشتی با دخالت نقش واسط نهادها و فرایندهای موجود در نظام معیشت روستایی منجر به اتخاذ راهبرد یا راهبردهای معیشتی مشخص از سوی خانوار در مواجهه با شرایط شوک یا بحران می‌شود.

۳. روش تحقیق

روش مورد استفاده در پژوهش حاضر از نوع توصیفی-تحلیلی می باشد. جهت گردآوری اطاعات و داده‌ها از روش اسنادی و پیمایش میدانی استفاده شده است. در شیوه کتابخانه‌ای به کمک اسناد موجود به بسط و تبیین نظری مسئله پرداخته شد. در نهایت پس از استخراج فهرستی از شاخص‌ها و متغیرهای پژوهش، در مرحله‌ی مطالعه‌ی میدانی به کمک پرسشنامه در سطح خانوار روستاهای مورد مطالعه در چارچوب لیکرت و به صورت پنج طیفی عملیاتی شد. بررسی روایی پرسشنامه توسط گروهی از متخصصین که سابقه مطالعات مشابه داشتند مورد تأیید قرارگرفته است. همچنین از روایی سازه و محاسبه شاخص متوسط واریانس استخراج شده بهره گرفته شده است. مطالعه آزمایشی در منطقه جامعه آماری با تعداد ۳۰ پرسشنامه صورت گرفت و با استفاده از فرمول آلفای کرونباخ، پایایی کل پرسشنامه ۰/۹۷۵ به دست آمد. همچنین از پایایی ترکیبی نیز استفاده گردیده است که بر اساس هر دو آماره پایایی متغیرها از مقدار قابل قبولی برخوردار بوده است. جهت تجزیه و تحلیل داده‌ها از نرم افزار Spss و Lisrel استفاده شده است.

۴. یافته‌های تحقیق

نتایج به دست آمده در این پژوهش بیانگر آن است که تغییرات اقلیمی اثراتی را در سرمایه‌های مالی، اجتماعی، انسانی، طبیعی و فیزیکی جوامع محلی داشته‌اند. نتایج پژوهش نشان‌دهنده بیشترین تأثیر تغییر اقلیم بر سرمایه مالی شامل کاهش درآمد، افزایش هزینه‌ها، افزایش قیمت محصولات، کاهش بهره‌وری و اشتغال بوده است. به علاوه بیشترین اثرهای تغییر اقلیم بر سرمایه اجتماعی شامل کاهش تعلق مکانی و افزایش وابستگی به حمایت‌های دولتی، بر سرمایه انسانی شامل کاهش سطح بهداشت و کیفیت زندگی، و بر سرمایه طبیعی ،کاهش و فشار بر منابع سرزمین و وقوع مخاطرات و بیشترین تاثیر تغییر اقلیم برسرمایه فیزیکی ،کاهش خدمات و امکانات مردم تأثیر گذار بوده است. همچنین نتایج پژوهش نشان داد که براساس مقادیر شاخص‌های تحلیل عاملی تاییدی به دست آمده از داده‌های میدانی در میان شاخص‌های بررسی شده، هر چند که تغییرات اقلیمی بر تمامی ابعاد پنج‌گانه‌ی سرمایه‌های معیشتی روستاییان شهرستان مشهد تأثیر گذار بوده است؛ اما در میان آن‌ها سرمایه‌های فیزیکی و سپس سرمایه‌های مالی و طبیعی دارای بیشترین اثرپذیری بودند. مسلم است کاهش سرمایه‌های فیزیکی، مالی و طبیعی که بسترساز و تأمین کننده سایر سرمایه‌ها در روستاها هستند، می‌تواند ضربه‌ای جبران ناپذیر بر حیات روستاها و سایر سرمایه‌ها مانند سرمایه‌های انسانی و اجتماعی وارد کند.

۵. نتیجه‌گیری

براساس یافته‌های پژوهش حاضر به منظور بهبود و ارتقا و پایدار نمودن معیشت جامعه روستایی به برنامه‌ریزان و سیاست‌گذاران پیشنهاد می‌شود در بررسی وضعیت معیشتی خانوارهای روستایی به ارتباط آن با پارامترهای آب و هوایی اهمیت ویژه داده شود. در بهبود و ترمیم معیشت خانوارهای روستایی و سازگار کردن معیشت آنان با تغییرات اقلیمی، اولویت به آن دسته از سرمایه‌های معیشتی داده شود که بیشترین آسیب را از تغییر اقلیم دیده‌اند. جهت توانمندی اقتصادی و افزایش توان مالی روستاییان کارگاه‌ها و واحدهای تعاونی تولیدی مانند کارگاه‌های قالی بافی، صنایع دستی و ... در منطقه ایجاد گردد.

کلیدواژه‌ها: آسیب‌پذیری، معیشت پایدار، توسعه پایدار، مدلسازی معادلات ساختاری، شهرستان مشهد

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Original Article

Investigating Barriers to Participation of Rural Women from the Perspective of the Community-Oriented Approach (Case Study: Rural Women of Lasht Nesha District)

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Abstract

Purpose-Women's participation in decision-making processes is a prerequisite for achieving sustainable development in local communities. However, despite the importance and necessity of involving all members of society in various aspects of development, unfortunately, due to various reasons (economic, social, cultural, and institutional), insufficient attention has been given to this matter. Consequently, the role of women's participation in rural development is significantly weak. Therefore, one crucial aspect of rural development planning is to focus on the participation of rural women and examine the obstacles they face.

Design/methodology/approach -This research is descriptive-analytical in terms of its practical purpose and methodology. The data collection tools consisted of questionnaires and interviews conducted with a sample of 378 women from the villages of Lasht Nesha district in Rasht city. Descriptive statistics and exploratory factor analysis were used to analyze the data.

Findings-The test results revealed that five categories of factors constitute the primary obstacles to rural women's participation in the villages of Lesht-nesha district. These categories include: the status of social capital, education, health, and social characteristics, explaining a variance value of 17.32% motivation, self-awareness, and cognitive characteristics, explaining a variance value of 16.83% financial and economic status and characteristics, explaining a variance of 12.43% beliefs, community customs, and cultural characteristics, explaining 8.86% of the variance; and justice, gender equality, and institutional-political characteristics, explaining 8.55% of the total variance.

Originality/value - Overall, the results indicate that the barriers related to the social capital status, education, health, and social characteristics are more relevant to the participation of rural women.

Keywords: Women's participation, Community-oriented, Lasht Nesha, Exploratory factor analysis.

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1.Introduction

Today, rural areas are again presented as the key to economic and social development (Hajinejad & Mozafari, 2015) and one of the issues of interest among all rural development thinkers is the development and improvement of suitable conditions for the life of rural residents and infrastructure development. It is for the empathy and companionship of all the social groups living in the village in the processes related to rural development, which is according to the new approaches of rural development and specifically through the accepted community-oriented approach based on a participatory approach and the participation of all members of the society. Rural areas have been emphasized in development processes because one of the most important reasons for the failure of development plans is the lack of attention to local and popular participation (Hajinejad et al., 2014). Based on this, the issue of participation as a key point is trusted and agreed upon by many thinkers in this field and they believe that the achievement of socio-economic development largely depends on the maximum participation of people, both men and women. Consequently, the participation of women in decision-making, through gender-sensitive policies, is crucial for achieving sustainable development in local communities in developing countries (Saidul Huq, 2016). Empowering women and promoting gender equality are integral to the 17 Sustainable Development Goals and serve as effective means to accelerate sustainable development (Djufry et al., 2022). Increased women's participation in decision-making can enhance their bargaining power and yield improved development outcomes for women and their families, as well as facilitate faster economic growth, reduced social inequalities, and decreased environmental degradation worldwide (Qanti et al., 2021).

In order to encourage greater participation in development activities and community welfare initiatives, policymakers and development institutions strive to foster stronger cohesion and coordination within local communities compared to the past (Woolcock, 2019). Applying participatory approaches in implementing social development projects in rural areas is vital to ensure they meet the needs of the people (Tantoh et al., 2020). Such approaches are collaborative, deriving from the desires and opinions of stakeholders, and receive their support. Conversely, when projects are implemented without coordination and input from stakeholders, they fail to seek support from these groups and often clash with their cultural values and norms (Breuer, 2002). In other words, to garner support for development projects from the target audience (Breuer, 2002), community organizers must incorporate genuine participation of local people in decision-making, planning, and project implementation. In general, community participation involves identifying people's felt needs, defining stakeholder responsibilities, establishing trust, and fostering support and collaboration (Gyan, 2013; Gyan & Ampomah, 2016; Gyan & Baffoe, 2014).

However, despite the significance and necessity of involving all members of society in various aspects of development, insufficient attention has been devoted to this matter due to various reasons (economic, social, cultural, and institutional). As a result, women's participation in rural societies' development efforts remains significantly weak. In Iran, cultural, social, and political structures, along with existing limitations for different social groups, particularly women, pose obstacles to women's participation in all development activities in rural communities. Identifying these obstacles can facilitate women's participation in rural development processes. In the rural areas of Gilan province, despite the active involvement of women in economic activities within rural households, particularly in the agricultural sector, they do not effectively contribute to various economic, social, and cultural aspects of rural development and decision-making. Their participation is limited. Therefore, the main goal of rural women's participation in the process of rural development, as investigated in this research, is to diagnose the obstacles that hinder their engagement despite their active involvement in household economic activities. The article aims to shed light on the factors that limit women's participation from the perspective of community development. By identifying these barriers, the research aims to facilitate and enhance rural women's participation in various aspects of rural development, thereby promoting gender equality, empowering women, and achieving sustainable development in rural communities.

2. Research Theoretical Literature

2.1. Literature Review

A review of the conducted studies shows the penetration of research on the barriers to women's participation in various activities, but at the same time, studies related to the role of women's participation in local or rural communities have been more limited from the point of view of the community-oriented approach. Gyan & Kartiyoub (2021) in a descriptive research conducted with a qualitative method and a phenomenological interpretative approach, and the indicators that inhibit women's participation are financial restrictions and poverty; Existence of gender discrimination in society, low self-esteem; household responsibilities; Western intervention - capitalism and neoliberalism; Colonization through education; and have considered patriarchal relations. They have identified the most important obstacles for the participation of rural women as the influence of the West and the structural factors of society. Wulandari & Viliano (2021) In a qualitative study, they analyzed the driving factors and limitations of women's participation in mixed livestock and palm cultivation. They divided the factors driving women's participation into three groups: personal factors (including education level, experiences, perception, entrepreneurial skills), economic factors (including home farm size, household income, income from non-agricultural activities, employment/doing any kind of work with rights, access to property) and social factors (including access to credit, services, access to technology, social capital). The results showed that the many limitations faced by women's participation include lack of knowledge, lack of entrepreneurial skills, limited access to assets, lack of access to credit, limited access to expansion, lack of access to technology and limited network. Qanti et al. (2021) in a study entitled "Social norms and perceptions guide women's participation in agricultural decisions in West Java, Indonesia" addressed the role of social norms and contexts in women's participation. In this study, the participation rate of men and women was discussed according to the following indicators: age, education, membership in agricultural organization, off-farm activities, difference between husband and wife, number of children under 5 years of age, sex ratio of society, land size., household assets index, etc. Their results state that the social norms consider men as the head of the household and the main decision makers, therefore, governmental organizations and non-governmental organizations that promote women's empowerment in agriculture are encouraged to design interventions to promote the collective awareness of the role of women in agriculture and the value of their participation in agricultural activities in the society and at the national level. Syedal Huq (2016) in a study titled "Women's participation in local governments: a tool for sustainable development of Bangladesh" has discussed women's participation in local governments. The indicators examined in this study include: protective laws, supporting institutions, access to resources and information, cooperation between men and women, level of education and freedom in decision making. The result of this study showed that meaningful development is not possible without the participation of women at the grassroots level and it was statistically proven that there is a significant relationship between the strengthening of local government and the empowerment and participation of women with one-way variance analysis and therefore the status of women's participation is vital and It deserves special attention to empower them, otherwise sustainable and cooperative development cannot be guaranteed. Atmis et al. (2007) in a study entitled "Effective factors on women's participation in forestry in Turkey" analyzed women's participation in forestry in Bartin Province, located in the Western Black Sea region of Turkey, and analyzed indicators such as socio-economic characteristics (I.e. age. marital status, education level, number of families, number of pregnancies, income), the share of women's labor force in the family economy, decision-making, types of work by women were used. They concluded that age, marital status, population growth rate and wealth are important variables to explain variation in participation levels. Toulabinejad et al. (2023) analyzed the challenges of rural women's participation in agricultural entrepreneurship activities in Khorram Abad city in a qualitative study. The purpose of their study was to identify the challenges of participation of rural women in entrepreneurial activities. The results of their research showed that four general challenges can be identified in the participation of rural women, which were economic/financial, cultural-social, personal-psychological and institutional structural challenges; Among these four challenges, financial, economic, social, and cultural, there has been more adaptation to the business situation of rural women.

In a study entitled "Analysis of the Challenges of Women's Participation in the Management of Rural Areas", Faraji Sabokbar et al.(2021) have identified and analyzed the most important obstacles and

challenges facing women's participation in the management of villages in the small Lavasan district. The indicators used in this study include 1) individual characteristics (not having enough motivation for activity, lack of interest in the village and geographical limitations (geographical isolation), disruption in household affairs, lack of intellectual independence, too many preoccupations related to household affairs, weakness and limitations Physical, lower literacy level, less knowledge and awareness, less management ability and skill, lack of experience, lack of self-confidence, lack of risk taking, fear of failure, lack of ability and skill to face difficult situations, lack of bargaining power, weakness in social relations, less familiarity with new technologies), 2) Social indicators (restriction in trips outside the countryside, less access to means of communication, the need for men's permission, men's fear of women's participation, the traditional and unfavorable view of the family, the traditional and unfavorable view of the society, the existence of biased norms and prejudices Women's activity, society's lack of trust in women's capabilities, lack of support for women, women's mistrust of each other, male selection approach, lack of recognition by men in the work environment, lack of a suitable and safe space in the context of society, lack of health in the work environment , less access to formal and informal education, less access to information and communication technologies, less opportunities for education) and 3) economic indicators (lack of independence and financial ability, lack of ownership, less access to credits and facilities, low level wages, women's poor access to production resources such as capital, less access to the market, low status of agricultural jobs for women, less access for women to high-paying jobs) Have used. The findings show eight factors; Social structures, women's individual characteristics, lack of sufficient skills and knowledge, limited access, culture and tradition, inequality in opportunities, limited mobility and deterrence and dependence have been identified as the most important obstacles and challenges of women's participation in the rural management of Lavasan Kochuk Dehstan. Atai et al. (2021) in a study entitled "Evaluation of socio-economic factors affecting the participation of rural women in creating home businesses in Kermanshah province" investigated the level of participation of rural women in creating home businesses based on socio-economic variables. They are economic indicators (cost reduction, income level, job creation, access to facilities) and social indicators (social cohesion, social dignity, social awareness, communication and information channels, social base, confidence in individual ability and skills, participation in educational programs) used. The findings showed that among social and economic variables, respectively, social base, social status and income had a high power in differentiating the levels of women's participation in household jobs. Aghahi et al. (2017), in a study entitled "Investigation of personal and family barriers to women's participation in political and social affairs of the village" investigated the personal and family barriers to women's political and social participation. The indicators used by them include family obstacles (including acceptance of dominated positions by women, involvement in girls' education, lack of experience in political and administrative affairs, inability to communicate with others, physical problems and weakness, illiteracy and lack of sufficient literacy, old age Women's unwillingness to manage, celibacy, lack of self-confidence in women, large amount of activity in the agriculture and animal husbandry sector, lack of desire to progress, women's unsuccessful experiences in doing village affairs, women's belief in their inability to do things political) and personal obstacles (including the large amount of women's activities inside the home, the time-consuming nature of raising children, the dissatisfaction of father and husband, the number of family members, lack of support and support from father and husband, early marriage). The results showed that in order of importance, women's belief in their inability to do political affairs, inability to communicate with others, physical problems and weakness, large amount of women's activity inside the home, large amount of activity in agriculture and animal husbandry sector, acceptance of authority Under domination, lack of experience in political and administrative affairs and women's unwillingness to manage compared to men were the main obstacles to women's political and social participation. Ghaffari & Turki Harchgani (2011) investigated these factors in a study titled "Investigation of factors affecting the participation of women and girls in the development of rural areas of Chaharmahal and Bakhtiari province". They use socio-cultural indicators such as literacy level, marital status, social base, peer group, the introversion of villagers, the use of mass media, the expansion of the relationship between the village and the city, the desire of women and girls, the awareness of women and girls and economic indicators such as the situation Occupation, income and household income have found that the factor of increasing the level of literacy has a positive effect on the

participation of rural women in development affairs. Also, there was a significant relationship between the introversion of villagers and the decrease in participation. A significant relationship was also seen between the employment status, income increase, women's awareness of participation and willingness of rural women and girls with the participation rate of rural women. Mousavi et al. (2010), in a study entitled "Investigation of barriers to rural women's participation in agricultural production activities" investigated the barriers to women's participation. They use indicators of social structure (lack of access to promotional publications and media, housework, lack of organization or organization to support women, long distance from home to farm, lack of participation in symbolic events such as Jihad Keshavarzi Week, lack of membership in organizations , cooperatives, etc., non-participation in gatherings, upbringing and education of children, ignorance of the social consequences of participation, lack of access to service centers and agricultural jihad)/cultural structure (village customs and traditions, lack of consultation with women before implementing plans, lack of trust of the family man towards women's management, class inequality between men and women, past absurd ideas regarding women's work being worthless, not valuing women's local experiences and knowledge) / economic obstacles (uneconomical participation, lack of material motivation for Action to participate, low wages of temporary and seasonal jobs, work related to animal husbandry and handicrafts) / educational obstacles (lack of attention to educational needs, lack of necessary promotional and educational classes, lack of sufficient literacy, weakness of promoters and experts) / the structure of agricultural land Lack of land ownership, small land plots, scattered land plots) showed that social and cultural barriers are the most important factors in the non-participation of rural women in agricultural production activities.

2.2. Theoretical aspects

Community-oriented development has always existed at the heart of society since the beginning of human civilization, but it was officially introduced in the 1930s in America as part of a policy to encourage community participation in rural planning (Ajayi & Otuya, 2005). This type of development does not take place through force and command, but rather when all actors participate equally and share their ideas, views, and responsibilities to guide and implement development projects that reflect the needs and aspirations of the community or village. It is a development approach that is by the people and for the people, ensuring that all stakeholders, particularly women, have the opportunity to participate in decision-making processes (Gyan, 2021).

In other words, the community-oriented approach aims to create sustainable rural development by providing equal opportunities for all members of the local community, including both men and women, to make decisions and shape the future of their community (Ajayi & Otuya, 2005). One key aspect emphasized in the community-oriented approach is the need for an equal and gender-inclusive perspective, allowing for equal participation opportunities for both men and women. The unique contributions of women in collaborative activities should be recognized. Therefore, a community-oriented approach with a gender-adjusted view and principles of equality and justice is essential for effective cooperation with the community at all stages. This approach recognizes and utilizes the capacities, skills, and resources of the people involved, relying on them to protect and provide solutions, and supporting community goals.

The community-oriented approach is not limited to a specific function or sector, but rather it should guide everyone involved. This requires an understanding and consideration of the political and social context, gender roles, community dynamics, as well as the risks, concerns, and priorities of the community. By doing so, this approach serves as a protective framework. It empowers societies to address the problems that arise by fostering direct action from within the community, rather than relying solely on external actors. The goals of the community-oriented approach are to strengthen the dignity and self-esteem of individuals and empower all members of society to work collaboratively in supporting each other to exercise and enjoy their human rights (UNHCR, 2008). Therefore, in this approach, participation is considered an important indicator that requires the principle of equality to ensure that individuals who lack equal access to natural resources, economic opportunities, and social benefits can protect their interests (Orapin, 1996). Local participation is seen not only as a solution to promote improvement, especially in the context of poverty alleviation (Boakye-Agyei, 2009), but also as a prerequisite and catalyst for sustainable socio-economic development and overall community well-being. It is believed that local people themselves possess a better understanding of their economic and social environment and have insights that can contribute to shaping plans that truly benefit them.

It is emphasized that comprehensive and inclusive development of society cannot be easily achieved if all stakeholders, especially women, do not participate in decision-making processes. Despite the undeniable impact of community participation, women face specific challenges and limitations in their level of involvement. These challenges have the potential to reinforce existing gender prejudices and power dynamics. Recognizing the importance of gender and gender relations is crucial for the development of an inclusive society, as men and women are affected differently by societal structures and norms (Gyan et al., 2021). Considering that women and men bring different experiences, knowledge, skills, perspectives, and concerns, their active participation is essential for ensuring well-rounded development. Therefore, planners and researchers should incorporate gender concepts to promote balanced growth in the field of rural development (Mukta). In fact, the goals of community-oriented sustainable development, such as "participation," "gender equality, and women's empowerment," can be better achieved by ensuring the active participation of rural women in both agricultural and non-agricultural production activities (Nishi et al., 2019). However, it is evident that the role of women in rural development is not adequately recognized, and there are numerous barriers to their participation that span various domains, including institutional, socio-cultural, technical, and logistical (Botes & Rensburg, 2000). These obstacles are influenced by the specific conditions and context of the society and can arise both internally and externally. For instance, internal barriers may arise from conflicts among local community members over their interests, while external barriers can be linked to the role of development specialists and government policies in promoting participation. In many cases, a combination of internal and external barriers may exist. Moreover, communities may be reluctant to participate due to previous experiences where their expectations were not met (Botes & Rensburg, 2000).

To address these challenges, opportunities must be created for the active participation of rural women in productive activities and the provision of rural services (Sarkar & Devi, 2014). In a patriarchal and underdeveloped society, women often face the greatest hardships. Consequently, different approaches have been introduced to enhance women's participation. The concepts of "Women in Development (WID)" and "Women and Development (WAD)" emerged in the 1970s. The WID perspective focuses on women's roles in education, development, employment, and health services, with the belief that gender roles will change through equal opportunities for women. Active participation of women is seen as efficient and effective for development (AusAID, 1997). On the other hand, the WAD approach emphasizes the importance of social class and exploitation in the third world, arguing that institutions must be transformed to increase women's participation. However, this approach does not fully address the subordination of women and undervalues the work women do within the household (Chitthalth, 2006). Considering the structure and conditions of our society, as well as the range of gender approaches and the neoliberal perspective on women's contribution to participation, rural development, and overall development, it appears that a gender-adjusted approach within the framework of community-oriented planning is appropriate. Based on this understanding, a conceptual model for the research has been developed and presented in Figure (1).

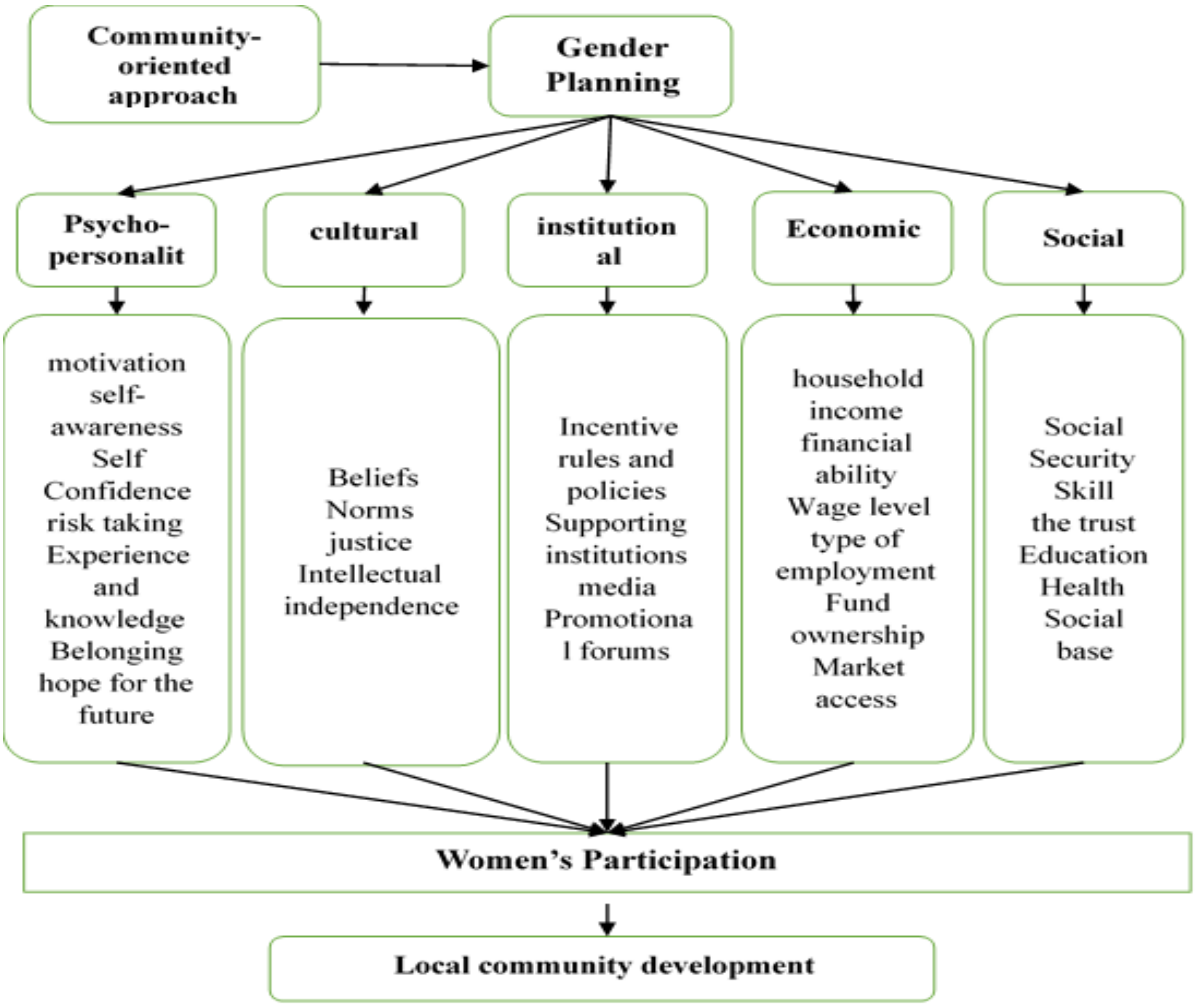

Figure 1. Conceptual model of the study

3. Research Methodology

3.1 Geographical Scope of the Research

The study focuses on the three main region with several villages of Lashte Nesha district, which is subdivision of Rasht city. Lesht Nesha district spans an area of 162 square kilometers and is situated 18 meters above sea level. It is a fertile district located 25 kilometers northeast of Rasht city. The district comprises three main regions: Jirahande, Aliabad, and Gafshe, and is home to a total of 45 inhabited villages. According to the 2015 census data, Lasht Nesha has a population of 42,212 rural residents, consisting of 20,678 women and 21,534 men. The location of the study area is depicted in Figure (2).

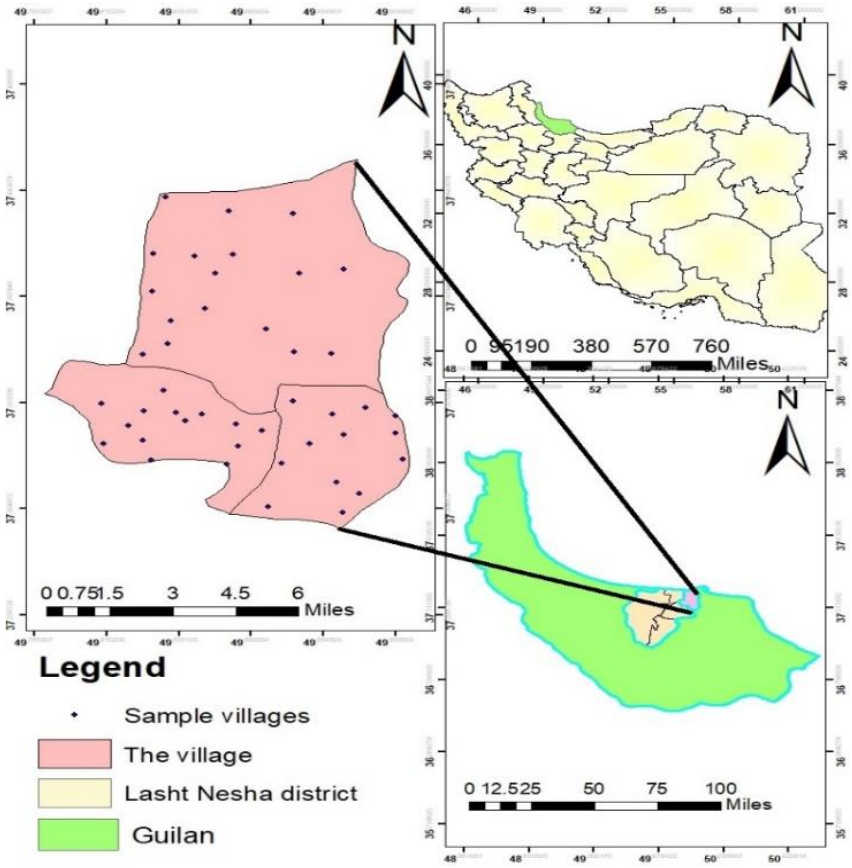

Figure 2. Location of the studied area, authors, 2023

3.2. Methodology

The current research is applied in terms of purpose and its method is descriptive-analytical. Theoretical studies using the library method, field data were also collected through questionnaires with a Likert scale and interviews with rural women. The statistical population is rural women in Rasht city, Lasht-nesha district in Gilan province (N=20678) and 378 rural women were selected using the Cochran formula. Table 1).

Table 1. Demographic characteristics and number of samples of the studied rural areas

Region	District	Number of villages	Number of households	Number of women	number of samples
Lashte Nesha	Aliabad	12	5398	7354	134
	Jirhande	16	4226	5716	104
	Gafshe	17	5670	7608	140
	total	45	15294	20678	378

Source: Iran Statistics Center, 2016 and research findings, 2023

Statistical methods (descriptive and inferential) were used to analyze the data. Exploratory factor analysis was used to analyze inferential statistics. The validity of the questionnaire was confirmed by several experts in this field using content validity. To measure the reliability, a pre-test sample of 30 questionnaires was taken and the reliability coefficient was calculated using Cronbach's alpha method. The total validity was 0.92 and higher than 0.70 and it can be said that it has an acceptable reliability scale. Table (2).

Table 2. The amount of alpha calculated for women's participation factors

Dimensions	Number of items	Cronbach's alpha
Economic	11	0/96
Social	17	0/94
Institutional-management	9	0/92
Cultural	10	0/89
Personality-psychology	16	0/96
Total	63	0/92

4. Research Findings

The distribution of personal and professional characteristics of the respondents showed that the most frequent age group is 31 to 40 years with 39.9%. In terms of education, 39.6% had a diploma. 50.3% of the respondents were married and 90% of the respondents stated that they own their own housing (Table 3).

Table 3. Frequency distribution of the studied population

Profile of the respondent	Most responsive	Number	percent
Age	40 - 31	148	39/9
Education	Diploma degree	147	39/6
Marital status	married	186	50/3
Home ownership	Personal	334	90

In order to examine and describe the data obtained from the respondents, central and dispersion indices were used (Table 4). Based on the results obtained in this table, considering the minimum score of 1 and the maximum score of 5, the obtained averages are higher than 3; And this result shows the situation above the average level of the research variables, from the point of view of the respondents regarding the barriers to women's participation. As can be seen in table (4), the highest average related to the variable of beliefs, customs and cultural characteristics with an average of 4.03 and a deviation of 1.07 and the lowest average to the variable of status and financial and economic characteristics with an average of 20 3.0 and the standard deviation is 1.27.

Table 4. Mean and standard deviation of each research variable

Variable	frequency	Mean	standard deviation	Min and Max
Financial and economic status and characteristics	378	3/20	1/27	5-1
Social capital, health status, education and social characteristics	378	3/49	1/13	5-1
Gender justice and equality and institutional-political characteristics	378	3/64	1/02	5-1
Motivation and self-awareness and cognitive characteristics	378	3/73	1/12	5-1
Beliefs and customs and cultural characteristics	378	4/03	1/07	5-1

Also, in order to investigate the barriers to the participation of rural women, exploratory factor analysis was performed on the responses of 371 subjects in the sample, using principal component analysis and varimax rotation. This method pursues two main goals, first, identifying the underlying

factors or underlying variables; In this regard, the common factor of the variables is identified according to the common variance and then named by the researcher. The second goal of factor analysis is to identify the relationships between new variables (factors) that are less considered. Despite the ability of this method in data analysis, it is not possible to use it in every situation. Because data are suitable for factor analysis that have the necessary competence for this work; And before using this method, it is necessary to ensure that the correlation coefficients of the scores between the questionnaire questions are high. For this purpose, Bartlett's test and KMO coefficient are used. If the value of KMO is higher than 0.5, factor analysis can be used with confidence. In this study, for this purpose, the sampling adequacy indices of Kyers, Mayer and Olkin (KMO) and Bartlett's sphericity test were investigated (Table 5).

Table 5. Results of sampling adequacy and Bartlett's sphericity tests

KMO	Bartlett's sphericity	df	sig
0/868	23692/714	2016	0/000

Table 5 shows KMO and Bartlett's sphericity tests to check sampling adequacy. As can be seen, the value of the KMO index is 0.868, which is an acceptable figure for this index; Acceptable value for KMO is more than 0.6. Also, the chi-square statistic value for Bartlett's sphericity test is 23692/714 and with 2016 degree of freedom is significant (P≤0.000). Therefore, it can be said that the sufficiency of sampling has been observed for conducting exploratory factor analysis and it can be concluded that conducting factor analysis is justified.

After making sure that the data were suitable for factor analysis, this analysis was performed using the principal components method and using varimax rotation, on the subjects' answers to 63 questions of the questionnaire. The extracted sharing values of no question were less than 0.5, so no question was excluded from the analysis. After observing the results, eigenvalues higher than 2 were considered as selection criteria for extracting the factors.

The results of the analysis led to the creation of 5 factors that explained 63.95% of the total variance of the questionnaire. Therefore, considering that the value of variance is usually more than 60% as a criterion for determining the number of components, the number 5 was considered as the final number of factors.

In Table (6), the extracted factors, the percentage of explained variance and the compressed variance explained for each of these factors, before and after Varimax rotation, are given. As can be seen in this table, the final factor analysis led to the extraction of 5 factors, which explain a total of 63.9% of the variance related to the barriers to the participation of rural women in Lashtnesha section of Rasht city.

Table 6. Components extracted from the factor analysis of rural women's participation barriers questionnaire

Component	Primary extraction			Extraction after varimax		
	total	Percentage of variance	Density percentage	total	Percentage of variance	Density percentage
Social capital, health status, education and social characteristics (factor 1)	12/68	19/82	19/82	11/03	17/23	17/23
motivation and self-awareness and cognitive characteristics (factor 2)	9/86	15/41	35/24	10/77	16/83	34/06
Financial and economic status and characteristics (factor 3)	7/79	12/18	47/42	7/95	12/43	46/50
Beliefs and customs and cultural characteristics (factor 4)	5/55	8/67	56/10	5/69	8/89	55/40
Gender justice and equality and institutional-political characteristics (factor 5)	5/02	7/85	63/95	5/47	8/55	63/95

Each of the aforementioned factors is composed of several variables. In Table 7, the factor loadings of each of the questions of the questionnaire of barriers to the participation of rural women are

presented; To assign each question to a component, factor loadings higher than 0.5 have been considered.

After determining the extracted factors, each factor was named according to the content of the questions (Table 7).

Table 7. Variables related to each of the factors and the amount of factor loadings obtained from the rotated matrix

Factor	Variable	
Social capital, health status, education and social characteristics (factor 1)	Satisfaction with the business environment	0/847
	Satisfaction with living space	0/846
	The amount of freedom of movement outside the village	0/803
	The amount of freedom of movement at different hours of the day and night	0/836
	Theft occurred	0/834
	Occurrence of ethnic conflicts	0/814
	The amount of communication with neighbors	0/739
	The degree of willingness to accept responsibility in the village	0/630
	The level of cooperation and solidarity between the villagers	0/695
	The level of trust people have in each other	0/711
	The level of people's trust in local institutions	0/858
	The level of access to education and skill training of women in the village	0/868
	There are various gatherings and meetings in the village	0/754
	The level of satisfaction with your physical health and the role of your physical health in participation	0/866
	Having a physically or mentally disabled member in the family	0/776
	A member of a family belonging to a trusted tribe and family in the village	0/818
Motivation, self-awareness and cognitive characteristics (factor 2)	The level of motivation to attend the community	0/790
	Motivation to create personal income	0/800
	Awareness of your abilities	0/872
	Awareness of the impact of women's role in society	0/831
	Ability to provide logical solutions to problems	0/757
	Self-confidence in decisions, management and participation in society	0/832
	Risk tolerance in insurance and investment	0/839
	Knowledge and experience in village economic activities	0/818
	The experience of attending associations and organizations	0/835
	Skill and experience in handicrafts	0/756
	Skill and experience in growing agricultural products	0/782
	Skill and experience in animal husbandry and animal products processing	0/889
	Interest in the place of residence	0/693
	Desire to migrate to another place	0/808
	Optimism for the future	0/827

Factor	Variable	
	Security of mind from the future	0/837
Financial and economic status and characteristics (factor 3)	Satisfaction with income	0/880
	Satisfaction with the place of business	0/878
	Enjoying various jobs in the village	0/798
	financial independence	0/891
	Ability to buy new land, machinery and housing	0/859
	Investment power	0/828
	Ownership of house and land	0/824
	Access to local markets	0/885
	Product transportation facilities to the market	0/906
	Having shares in various industries	0/828
	The amount of savings	0/716
The state of beliefs, customs and cultural characteristics (factor 4)	Adherence to religious and traditional beliefs	0/710
	The past beliefs regarding women's work as worthless	0/820
	acceptance of the patriarchal system in the society	0/712
	Lack of intellectual independence	0/688
	Not valuing women's experiences and knowledge	0/724
	The lack of trust of the man of the family towards the management of women	0/769
	Putting women in the second place by society	0/725
	Lack of independence in decision making	0/796
	Consultation with women before implementing plans and programs	0/769
	Class inequality between men and women	0/742
Gender justice and equality and institutional-political characteristics (factor 5)	Prominence of gender in laws and policies	0/798
	Providing rural services and Islamic councils equally to men and women	0/871
	Involving women in making decisions or implementing village development plans	0/832
	Membership of women in cooperative companies and use of facilities	0/631
	Satisfaction with the support of handicrafts and workshops	0/814
	The existence of institutions supporting women's rights	0/713
	The existence of skill training forums	0/821
	The existence of women's awareness associations	0/650
	The difference in payment of facilities between women and men	0/767

The first factor: the state of social capital, education, health and social characteristics- According to table 6, satisfaction with the living and business environment, the degree of freedom in commuting outside the village and at different hours of the day and night, the occurrence of theft in the village as well as ethnic conflicts, communication with neighbors and trust in them, people's trust in Each other and local institutions, educational access, health status of self and family

and social base are among the variables that make up this factor. This factor alone explains 17.23% of the total variance, to put it simply, 17.23% of rural women's participation barriers are related to the status of social capital, education, health and their social characteristics.

The second factor: motivation, self-awareness and cognitive characteristics- As Table 6 shows, this factor (motivation, self-awareness and cognitive characteristics) explains 16.83% of the total variance; In other words, 16.83 percent of rural women's participation barriers are related to motivational barriers, self-awareness and their cognitive characteristics. The level of motivation to be in the community and create personal income, awareness of one's ability and the impact of women's role in society, the ability to provide logical solutions to solve problems, self-confidence in decision-making, management and participation in society, the level of risk-taking. knowledge and experience, skill, Tughlaq Khat and optimism and hope for the future are among the variables that make up this factor.

The third factor: financial and economic status and characteristics- Based on the data in Table 6, the factor of financial and economic status and characteristics alone explains 12.43% of the total variance. In other words, 12.43 percent of women's participation barriers are related to their financial and economic issues. Among the variables included in this factor are satisfaction with the business and life environment, variety of jobs in the village, savings, ownership of houses and land and machinery, having shares and the possibility of investment, transportation facilities and Transportation and access to local markets mentioned.

The fourth factor: the state of beliefs, beliefs, customs of society and cultural characteristics- The variables included in the fourth factor are: adherence to religious and traditional beliefs, past beliefs regarding women's work being worthless, acceptance of the patriarchal system, lack of intellectual independence, not valuing women's experiences and knowledge, lack of trust in men. the family towards women's management, placing women in the second position, independence in decision-making, consulting with women before implementing plans and programs, and class inequality between men and women; As shown in Table 6, its variance is equal to 8.86% and it shows that this factor explains 8.86% of the total variance of the variables under investigation.

The fifth factor: justice, gender equality and institutional-political characteristics- As shown in Table 6, the factor of justice, gender equality and institutional-political characteristics explains 8.55% of the total variance. In other words, 8.55% of the barriers to rural women's participation are related to problems related to justice and gender equality and the lack of support from institutions, laws and policies for women.

5. Discussion and Conclusion

Through the community-oriented approach, participation of all members of the rural community in development processes is emphasized and participation is considered as a key point in this approach; Thus, promoting the presence and participation of women in various economic, social, cultural and institutional fields is a necessary condition for sustainable development. Therefore, women's participation through specific gender-sensitive policies is a prerequisite for achieving sustainable development of local communities in any developing country. At the same time, women, especially rural women who make up half of the population of rural society, have always faced many obstacles and problems to participate in various activities. Therefore, in this research, barriers to rural women's participation were investigated, and in this way, the exploratory factor analysis method was used.

Based on the results, 5 categories of factors were identified and categorized as barriers to the participation of rural women, which include the status of social capital, education, health and social characteristics, which are the first and most important factor with a variance of 17.32%. is identified; Motivation, self-awareness, and cognitive characteristics are the second most important factors in rural women's participation barriers, with a variance value of 16.83%; Financial and economic status and characteristics, which ranked third after social and cognitive factors, with a variance of 12.43; The state of beliefs, beliefs, community customs and cultural characteristics with a variance of 8.86% was the fourth factor identified in this research; and finally, justice, gender equality and institutional-political characteristics with a variance of 8.55% were the fifth factor. Identified in relation to the barriers of participation of rural women. If the more detailed

results showed that rural women always face more social restrictions than men to participate in rural activities, restrictions such as lack of equal access to skill training, business environment security, The lack of trust in women's management and the lack of trust between people and local institutions, which lead to women's lack of motivation to participate in various village activities, have been identified as social barriers to women's participation. Also, in the rural areas of Lasht Nesha district of Rasht city, women's lack of awareness of their abilities, which is the result of lack of self-confidence, and such a low level of risk-taking, despite having the motivation to be in the community and earn personal income, cause the emergence of cognitive barriers for rural women to participate in rural activities. On the other hand, rural women usually have little initial capital and are less financially capable than men, so even though these things can be used as an incentive and motivation for women to participate in rural activities, but the difference in wages and not having adequate initial capital shows as an obstacle to participation. In addition to the obstacles mentioned for the participation of rural women in the study area, there are some cultural obstacles such as religious and traditional beliefs, devaluing women's work, lack of intellectual independence, lack of consultation with women to carry out plans, and also institutional obstacles such as the absence of laws and Supportive and non-gender policies, lack of holding classes and educational associations for women, lack of institutions supporting women's rights have caused many rural women in the region to have a lot of knowledge about participation and the impact of women's role in participating in rural activities. Do not have. This, if realized, can cause the prosperity and sustainable development of local communities in addition to removing the obstacles facing women's participation.

In order to investigate the barriers to rural women's participation and after identifying the most important barriers, strategies for increasing women's participation were examined in the form of a proposal, which is to realize the real participation of rural women in rural activities in line with the development of local communities from the perspective of experts and women themselves. Village is used. To investigate this, interviews with 15 women were used, and after identifying the important strategies of women's participation based on the opinions of the interviewees, a score between 1 and 5 was given to the opinions and each strategy, and the average opinions of each interviewee about each strategy were added together. The average score of each strategy was calculated and presented in the form of a radar model. Based on this, the findings of the research showed that eight major categories of strategies were identified for the realization of women's participation in rural activities in line with the development of local communities, which include planning based on the individual and contextual characteristics of women, planning Planning based on women's cultural and social issues, planning for the development of education and eliminating discrimination between women and men, using media and information and communication technology, forming special women's groups and networking and connecting women with On the other hand, access to financial and credit resources for women, the possibility of participating in microcredit projects, and paying attention to the financial independence of women, and paying attention to the macro policies of the government and the performance of organizations to improve the status of women and increase their participation. The prioritization of strategies to realize women's participation in rural development projects is different in the mentioned stages, and the score of each of these strategies is given in figure (3) and the radar model.

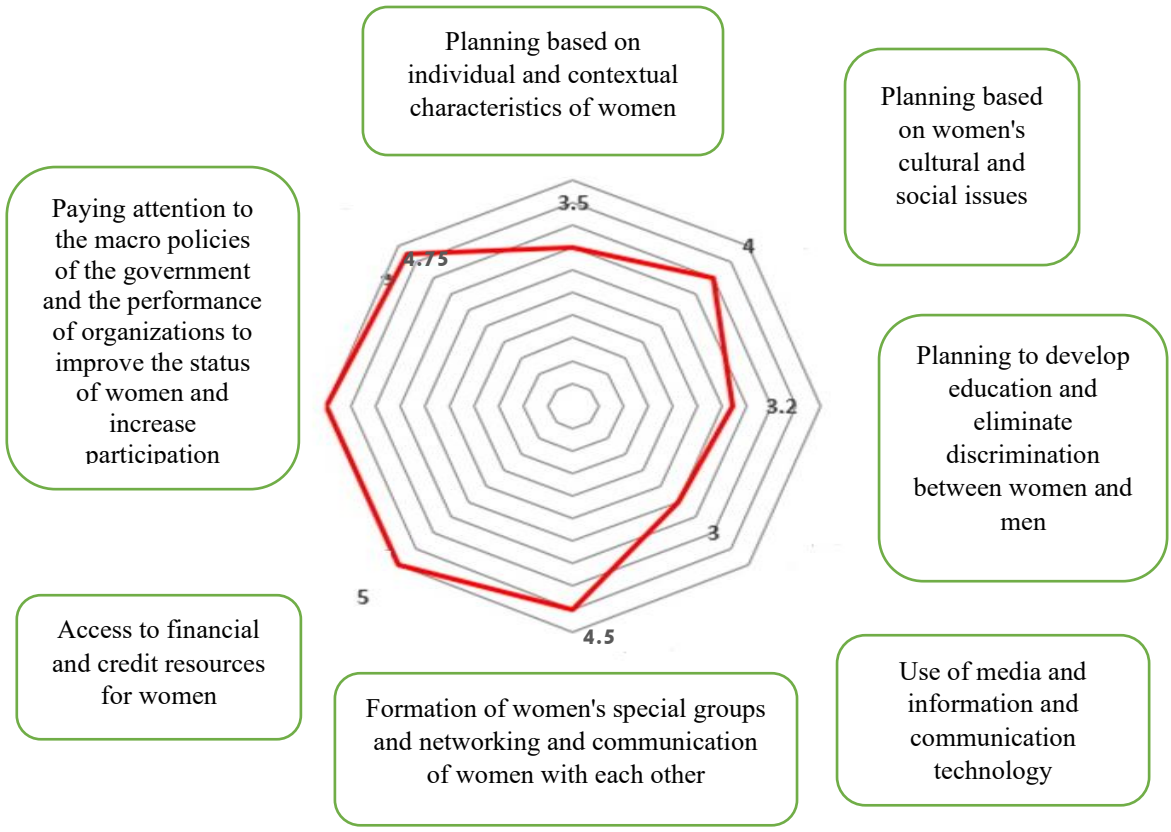

Figure 3. Radar model of strategies to increase women's participation

The findings of this research in the field of social barriers to women's participation are in line with the results of Wulandari & Viliano (2021), Tulabinejad et al. (2023) and Atai et al. (2021). In the field of cultural barriers, it has been aligned with the results of Faraji Sabokbar et al. (2021). In the field of economic barriers, it has been in line with the results of Wulandari & Villiano (2021) and Tulabinejad (2023), and in the field of personal and institutional barriers, with the results of Saidal Houk (2016), Wulandari & Villiano (2021), Tulabinejad et al. (2023) and Faraji Sobokbar et al. (2021).

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Authors' contributions
The authors equally contributed to the preparation of this article.

Conflict of interest
The authors declare no conflict of interest.

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Original Article

بررسی موانع مشارکت زنان روستایی از منظر رویکرد اجتماع‌محور (مورد مطالعه: زنان روستایی بخش لشت نشا)

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چکیده مبسوط

۱.مقدمه

امروزه یکی از مسایل مورد توجه در میان تمام اندیشمندان توسعه روستایی مقوله توسعه و ارتقای شرایط مناسب برای زیست ساکنان روستایی و بسترسازی برای همدلی و همراهی تمامی گروه‌های اجتماعی ساکن در روستا در فرایندهای مرتبط با توسعه روستایی است که این امر با توجه به رویکردهای نوین توسعه روستایی و به طور مشخص از رهگذر رویکرد پذیرفته شده اجتماع محور مبتنی بر نگاه مشارکتی و سهیم کردن تمامی آحاد جامعه روستایی در فرایندهای توسعه مورد تاکید قرار گرفته است. بر این اساس مساله مشارکت به عنوان یک نکته کلیدی مورد وثوق و توافق بسیاری از اندیشمندان این حوزه می‌باشد و معتقدند دستیابی به توسعه اجتماعی- اقتصادی تا حد زیادی به مشارکت حداکثری از مردم، اعم از زن و مرد بستگی دارد. لذا مشارکت زنان در فرآیند تصمیم‌گیری از طریق سیاست‌های خاص حساس به جنسیت، پیش‌نیاز دستیابی به توسعه پایدار اجتماعات محلی در هر کشور در حال توسعه‌ای است.

۲.مبانی نظری تحقیق

توسعه اجتماع‌محور از آغاز تمدن بشری همواره در بطن جامعه وجود داشته است اما به طور رسمی از دهه ۱۹۳۰ در امریکا به عنوان بخشی از سیاست برای تشویق مشارکت جامعه در برنامه‌ریزی روستایی معرفی شد. این نوع از توسعه با اجبار و بصورت آمرانه صورت نمی‌گیرد، بلکه زمانی اتفاق می‌افتد که همه بازیگران به طور مساوی مشارکت کنند و ایده‌ها، دیدگاه‌ها و مسئولیت‌های خود را برای هدایت و اجرای پروژه‌های توسعه جامعه یا روستا را بیان کنند؛ توسعه ای برای مردم و با مردم که تمام ذینعان به ویژه زنان در آن تصمیمات مشارکت داشته باشند. به عبارتی این رویکرد در پی ایجاد توسعه پایدار روستایی از طریق فرصت دادن برابر به تمام افراد جامعه محلی اعم از زن و مرد برای تصمیم‌گیری و برنامه‌ریزی آینده جامعه خویش است و یکی از وجوه مورد تاکید در رویکرد اجتماع‌محور این است که می‌باید نگاه برابر و رویکرد جنسیتی به شکلی باشد که فرصت مشارکت برای هر دو گروه زن و مرد به شکل برابر وجود داشته باشد و در واقع سهم زنان در فعالیت‌های مشارکتی به شکل ویژه دیده شود. بنابراین رویکرد اجتماع‌محور با نگاه جنسیتی تعدیل شده و برابری و عدالت، روشی برای همکاری با افراد مورد نظر در تمام مراحل است؛ و تاب‌آوری، ظرفیت‌ها، مهارت‌ها و منابع افراد مورد نظر را تشخیص می‌دهد، بر این موارد برای حفاظت و ارائه راه‌حل‌ها تکیه می‌کند و از اهداف جامعه حمایت می‌کند. در واقع، اهداف رویکرد اجتماع محور، تقویت کرامت و عزت نفس افراد و توانمند ساختن همه اعضا جامعه برای همکاری با یکدیگر برای حمایت از اعضای مختلف جامعه در اعمال و برخورداری از حقوق انسانی خود است

۳. روش تحقیق

پژوهش حاضر از نظر هدف، کاربردی و روش انجام آن توصیفی- تحلیلی می‌باشد. مطالعات نظریه‌ای با استفاده از روش کتابخانه‌ای، داده‌های میدانی نیز از طریق پرسشنامه با طیف لیکرت و مصاحبه با زنان روستایی جمع‌آوری گردید.

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جامعه آماری، زنان روستایی شهرستان رشت، بخش لشت‌نشا در استان گیلان می‌باشد (N=۲۰۶۷۸) و ۳۷۸ زن روستایی با استفاده از فرمول کوکران انتخاب شد. برای تحلیل داده‌ها از روش‌های آماری(توصیفی و استنباطی) استفاده گردید. برای تحلیل آمار استنباطی از آزمون تحلیل عاملی اکتشافی استفاده شد. روایی پرسشنامه با استفاده از روایی محتوا ، توسط چند تن از اساتید متخصص در این حوزه مورد تایید قرار گرفت. برای سنجش پایایی ابتدا از ۳۰ پرسشنامه نمونه پیش آزمون گرفته و ضریب اعتماد با روش آلفای کرونباخ محاسبه شد. روایی کل ۰/۹۲ و بالاتر از ۰/۷۰ بود و می‌توان گفت که از مقیاس پایایی قابل قبولی برخوردار می‌باشد.

۴.یافته‌های تحقیق

جهت بررسی و توصیف داده‌های به دست آمده از پاسخگویان، از شاخص‌های مرکزی و پراکندگی استفاده گردید. براساس نتایج بدست آمده در این جدول با در نظر گرفتن حداقل نمره ۱ و حداکثر نمره ۵، میانگین‌های بدست آمده بالاتر از ۳ بدست آمده است؛ و این نتیجه نشان‌دهنده وضعیت بالاتر از سطح متوسط متغیرهای تحقیق، از دیدگاه پاسخگویان در خصوص موانع مشارکت زنان است. براین اساس بالاترین میانگین مربوط به متغیر باورها، عرف و ویژگی‌های فرهنگی با میانگین ۴/۰۳ و انحراف ۱/۰۷ و پایین ترین میانگین به متغیر وضعیت و ویژگی‌های مالی و اقتصادی با میانگین ۳/۲۰ و انحراف معیار ۱/۲۷ تعلق دارد. همچنین جهت بررسی موانع مشارکت زنان روستایی، تحلیل عاملی اکتشافی، روی پاسخ‌های ۳۷۱ آزمودنی حاضر در نمونه، با روش تجزیه مولفه‌های اصلی و چرخش واریماکس انجام گرفت. نتایج تحلیل به ایجاد ۵ عامل منجر شد که در مجموع، ۶۳/۹۵ درصد واریانس کل پرسشنامه را تبیین می‌کردند. تحلیل عاملی نهایی به استخراج ۵ عامل انجامید که در مجموع مقدار ۶۳/۹ درصد از واریانس مربوط به موانع مشارکت زنان روستایی بخش لشت نشا شهرستان رشت را تبیین می‌نمایند. این عوامل عبارتند از: سرمایه اجتماعی، وضعیت بهداشت، آموزش و ویژگی های اجتماعی(عامل ۱)؛ انگیزه و خودآگاهی و ویژگی‌های شناختی(عامل ۲)؛ وضعیت و ویژگی های مالی و اقتصادی(عامل ۳)؛ باورها و عرف و ویژگی های فرهنگی (عامل ۴) ؛ عدالت و برابری جنسیتی و ویژگی های نهادی – سیاستی (عامل ۵)

۵. بحث و نتیجه گیری

مشارکت زنان از طریق سیاست‌های خاص حساس به جنسیت، پیش نیاز دستیابی به توسعه پایدار اجتماعات محلی در هر کشور در حال توسعه‌ای محسوب می‌گردد. در عین حال زنان به ویژه زنان روستایی که نیمی از جمعیت جامعه روستایی را تشکیل می‌دهند، همواره جهت مشارکت در فعالیتهای مختلف با موانع و مشکلات زیادی روبرو بوده‌اند. براساس نتایج بدست آمده، ۵ دسته عامل به عنوان موانع مشارکت زنان روستایی شناسایی و دسته‌بندی شدند که عبارتند از وضعیت سرمایه اجتماعی، آموزش، بهداشت و ویژگی‌های اجتماعی که به عنوان عامل نخست و مهمترین عامل با مقدار واریانس ۱۷/۳۲ درصد شناسایی شد؛ انگیزه، خودآگاهی و ویژگی‌های شناختی دومین عامل مهم در جهت موانع مشارکت زنان روستایی با مقدار واریانس ۱۶/۸۳درصد ؛ وضعیت و ویژگی‌های مالی و اقتصادی که پس از عوامل اجتماعی و شناختی، با واریانس ۱۲/۴۳ در رتبه سوم قرار گرفت؛ وضعیت اعتقادات، باورها، عرف جامعه و ویژگی‌های فرهنگی با واریانس ۸/۸۶ درصد چهارمین عامل شناسایی شده این پژوهش بوده است ؛و در نهایت عدالت، برابری جنسیتی و ویژگی‌های نهادی- سیاستی با واریانس ۸/۵۵ درصدبه عنوان پنجمین عامل شناسایی شده در رابطه با موانع مشارکت زنان روستایی قرار گرفت.

کلیدواژه‌ها: مشارکت زنان، اجتماع‌محور، لشت نشا، تحلیل عاملی اکتشافی.

تشکر و قدردانی: پژوهش حاضر حامی مالی نداشته و حاصل فعالیت علمی نویسندگان است.

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Original Article

Identifying and Analyzing the Obstacles of Developing Tourism Entrepreneurship among Rural Women (Case Study: Oraman District of Sarvabad County)

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Abstract

Purpose- The purpose of this research is to identify and analyze the obstacles of developing tourism entrepreneurship among rural women in Oraman District of Sarvabad County, considered as one of the important poles of rural tourism in the country.

Design/Method/Approach- This study is applied in terms of purpose; descriptive-analytical in terms of method, and mixed in terms of data gathering as a combination of two methods namely documentary (library) and survey based on observation, interview and questionnaire. The statistical population of this research includes rural women of Oraman District, and key informative and experts in rural development. The sample size was 97 samples among rural women occupying in the field of rural tourism in Oraman District and 50 ones of key informative and experts in rural development selected by snowball sampling method.

Findings- The data analysis employing inferential statistics (chi-square, one-sample t-test and correlation) showed that, legal obstacles and weakness in policy making and planning with a mean score of 4.96, weakness in tourism infrastructure, services and facilities with a mean score of 4.53 and social and cultural obstacles with a mean score of 4.48 have higher priority, respectively whereas financial obstacles have the lowest calculated mean score (3.78) among the studied indicators. Also, the results of the correlation test revealed that rural women with a better and more favorable situation in terms of personality and background, i.e. with a higher education level and occupying in the field of rural tourism and more purposeful in life, have more tendency to enter the field of rural tourism and entrepreneurship. In addition, there is a negative relationship between the desirability of personality and background variables with the effect of identified obstacles on women entrepreneurship, which means that the better the personality and background variables are, the less the effect of the identified obstacles on women's entry into the field of tourism and entrepreneurship and innovation.

Practical implications- The government as well as government institutions responsible for development in the area should first improve the tourism development environment in the studied rural areas and provide the conditions for the development of rural tourism in the area and prevent the region from moving towards stagnation in tourism, and then in the next stage entering more women into the field of tourism, make an attempt to direct them towards entrepreneurial activities.

Original/value- There are many obstacles in front of rural women in the direction of turning to entrepreneurial activities in the field of rural tourism. Obviating these obstacles, firstly, requires identifying them and then applicable planning pertinent to each obstacle.

Key words- Entrepreneurship, Tourism, Rural women, Villages of Oraman District.

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1. Introduction

Nowadays, entrepreneurship in the field of tourism is considered as the most important strategy in its sustainability (Lordkipanidze, 2002). Undoubtedly, the integration of tourism and entrepreneurship not only can respond to the needs of villagers, but also guarantee safe tourism for tourists (Ghanian et al., 2012). The expansion and sustainability of tourism as a system with different actors placed in two sub-systems namely supply and demand (Sharpley, 2009; Ghasemi Khozani, 2012) firstly depends on the favorable conditions of the supply dimension of the tourism system (Kazemi, 2011; Jafari, 2002). Providing new services and products to tourists, entrepreneurship can appropriately promote the most important elements of this sector, namely the service situation, the quantity and quality of attractions, transportation, advertising and marketing (Jafari, 2002). Furthermore, in the demand dimension, creating new demands and responding to the various needs and demands of the market, entrepreneurship can lead to advancing the wheel of tourism development in the destination and reducing the effects of disordered and unbridled tourism (Nongsiej & Shimray, 2017; Lordkipanidze, 2002; Karimi, 2015). The spread of entrepreneurship in rural areas is as an intervention in order to accelerate and move towards achieving rural development (Imedashvili, 2013). The request to increase entrepreneurial initiatives in rural areas is due to the need to diversify the rural economy, as a basic principle in achieving a sustainable livelihood for villagers. Meanwhile, increasing their capabilities and bringing positive economic and social consequences, the development of entrepreneurship among rural women leads to improving personal abilities, increasing decision-making power, financial independence, eliminating gender inequalities, improving the quality of life, increasing their happiness, strengthening families and rural society and its development (Sathiabama, 2010; Wube, 2010). Rural women can be active more in jobs that require neither a lot of capital nor education and have little risk (Ghanian & Fotovati, 2013). In the meantime, the ease of employment due to not requiring a lot of capital and expertise as well as the compatibility of the nature of tourism jobs with women's abilities to perform traditional jobs (production of local agricultural and livestock products, handicrafts and local foods, etc.), rural women participation in tourism activities can bring many benefits to them in order to improve their quality of life by empowering and creating gender equality (Mrema, 2015; International Labor Organization, 2016). Investigating the existing conditions indicates the fact that despite the existence of abundant capacities and capabilities in rural areas and the ability of rural women to take advantage of these capacities in the field of entrepreneurship, women's capabilities have not been appropriately tapped due to some restrictions. (Hosseininia et al., 2014). Living in rural communities, women taste discrimination and experience deprivation since they are responsible for those economic activities that do not lead to tangible income, and this causes the situation in which they have a low socio-economic status, their access and ownership of resources is limited, and the control of their life and income is in the men's hands (Amini & Taheri, 2017). Hence, it is necessary to create self-awareness, guide women's economic and social abilities, and plan to attract their participation in various activities (Bashirahsan & Ghorbaninejad, 2017) in order to empower rural women. In general, the strategy of developing entrepreneurship in rural areas is a solution to improving the villagers' quality of life, increasing their self-confidence, particularly among women, attracting and retaining skilled population in villages, and finally marketing, connecting and being able to compete with global markets (Dinis, 2011). Nonetheless entrepreneurs in rural areas confront many limitations, such as limited access to large markets, few opportunities for networking and communication, lack of knowledge about new technologies, and problems related to rising costs owing to the lack of necessary infrastructures (Jurdana et al., 2015). In addition to these general problems, there are also personal and special problems for women including the traditional division of labor between men and women and social and cultural barriers which cause limitations and challenges for women's presence in the economic environments of the villages and hinder rural women's role in the economic development of the villages through creating and prospering small businesses. Therefore, obviating these obstacles and problems, the possibility of women's successful presence in the field of entrepreneurship should be created. As a result, gender equality, improving the level of rural women's happiness and their objective and mental well-being, the stability of the family

system and rural communities, and ultimately solving the problem of poverty and unemployment as the most important obstacles to the realization of sustainable rural development would be achieved. Furthermore, in the field of rural tourism entrepreneurship, as a greatly welcomed activity by visitors in recent years, it seems essential for women to turn to entrepreneurial activities and set up small and productive enterprise since women can play a prominent role in its development due to the characteristics of rural tourism activities. Better services to tourists will be provided and the rural tourism attraction will be diversified by becoming rural women entrepreneurs in the field of rural tourism. Consequently, by creating jobs and stable income, rural tourism will be removed from seasonality, which is considered as the main problem of all the target villages for tourism in the country and consequently tourism activities will be welcomed by the local people. Reducing the pressure on the natural resources of the villages, sustainable tourism will be achieved on account of the satisfaction of the local community and tourists as well as the protection of the natural environment. Accordingly, the main goal of this research is to identify and analyze the obstacles of developing tourism entrepreneurship among rural women in Oraman District of Sarvabad County. The results can pave the way for planning to remove the obstacles and problems and subsequently moving the tourism on the path of sustainability through the role of women entrepreneurs. Therefore, the main questions of the research are as follows:

1.What are the most important obstacles in the weakness of women entrepreneurship in the field of rural tourism in the study area?

2. Do personality and background variables including age, education level, the number of women participating in the field of rural tourism, having friends, acquaintances or family members active in the economic field of tourism and being purposeful in life affect the tendency of rural women in the region to carry out entrepreneurial activities?

2. Research Theoretical Literature

2.1. Research background

Different studies have been carried out by researchers either inside or outside Iran, some of which are in the following:

Bouzarjmehri et al. (2016) investigated the financial and marketing obstacles and challenges of rural women's entrepreneurship in Sarchehan village, Bavanat County. The findings of this research showed that, according to the experts, in the financial dimension, the indicators of administrative bureaucracy and obtaining a license with the weight of 0.309 and 0.232, and in the marketing dimension, the indicators of the existence of middlemen and brokers and lack of transportation facilities with the weight of 0.237 and 0.200 are as the most important obstacles and challenges facing women for the development of entrepreneurship in rural areas, respectively.

Shirmohammadi & Mavouni (2021) conducted a research titled "Designing a rural women entrepreneurship model in agricultural tourism using a mixed approach". The results indicated that the causal conditions affecting agricultural tourism include: the intention to implement entrepreneurship in agricultural tourism, perceived self-efficacy, perceived opportunity and capability, and planned behavior. Intervening conditions include increasing awareness, financial and educational support, initiative and effort of the owners of tourism farms, and background conditions include improving the entrepreneurial environment in rural communities, increasing knowledge and skills, and facilities and participation of authorities.

Karimzadeh (2019) in a research titled "The obstacles of entrepreneurship for Baluch women in Saravan District" found out that personality-cultural obstacles are the most effective obstacles to Baluch women's entrepreneurship in Saravan County. Economic obstacles, support obstacles, educational obstacles and infrastructural obstacles are the next priorities. The results also indicated that cultural restrictions in the region, such as prejudices and discriminations, have the highest priority among the personality-cultural obstacles as the most important obstacle facing the women of the county.

Moradi & Ahmadvand (2021) analyzed the effects of tourism on the development of rural women's agriculture employment in Boyer Ahmad County. The findings revealed that the most obvious effects of tourism on rural women's agricultural employment are categorized into six factors, which can explain 59.27% of the total variance. According to the content of the items, these six factors are named production, economic, capital, service, welfare, and social. Among these factors, the largest contribution is related to the production factor, which could explain 22.82% of the total variance, and the lowest effect is related to the social factor, which accounts for 4.47% of the variance of the factors.

Hosseinpour Niazi et al. (2023) investigated the role of rural women entrepreneurship in the development of food tourism (case study: Servlet village located in Guilan province). The results showed that among the individual characteristics, the factor of risk-taking in rural women entrepreneurship has the greatest effect on the development of food tourism in this village. Then, creativity, innovation and responsibility have been effective, respectively. Also, the indicator of husband's income showed the least effect on the development of food tourism. Afterwards, dissatisfaction with the previous job and future outlook has the least effect, respectively. Also, there is a significant relationship between the individual characteristics of rural women entrepreneurs and the development of food tourism.

Sharif & Lonik (2014) in research titled "Entrepreneurship as a catalyst for rural tourism development", pointed out that in the entrepreneurship context, local participation is significant not only as an entrepreneur and labor and complementary sectors of the others, but they can also encourage the other residents' involvement to join together and develop the entrepreneurial activity. In addition, through tourism development, the rural community has the opportunity to offer services or sell products to the both local and foreign tourists.

Jurdana et al. (2015) conducted research titled "Entrepreneurship in tourism as a factor of rural development". The results indicated that at the national level independent entrepreneurial activities are carried out by people of a mature age with certain work experience, and mostly with secondary school or higher education qualifications, while the youth rarely choose this independent activity. For the most part, entrepreneurs initiate their own businesses out of economic necessity or are driven by inquisitiveness in identifying business opportunities.

Seal (2016) in a qualitative study titled "Rural tourism entrepreneurship as a mechanism for rural development: a case study on Anegundi, Karnataka" found out that tourism entrepreneurship creates new opportunities for income generation and employment for the villagers and their empowerment.

Kumari & Shankar (2020) in research titled "Rural women entrepreneurship in tourism sector: findings from case studies" pointed out that the development of rural women entrepreneurship is essential for the true development of India's economy. Nevertheless, the problems encountered by the rural women entrepreneurs are totally different from those of their urban counterparts. Tourism sector can provide lots of chances for the rural women development via entrepreneurship.

Rao et al. (2022) in a study titled "The improvement of women's entrepreneurial competence in rural tourism: An action learning perspective" noted that rural tourism is particularly appealing to women entrepreneurs. Managing rural tourism businesses requires complex abilities. Rural women in most cases, however, are impoverished, poorly educated with scarce resources which restricts their opportunities to independently develop comprehensive abilities.

In general, abundant studies have been conducted by researchers either inside or outside Iran regarding the obstacles of developing tourism entrepreneurship in rural areas. Nonetheless, on the one hand, few of these studies are related to women entrepreneurship in the tourism sector, and on the other hand, the studies conducted about women entrepreneurship in the tourism sector, have mostly limited themselves to mentioning the obstacles to women entrepreneurship and in fact have not addressed the main causes of the situation in the study area. The present study, in addition to identifying the obstacles of women entrepreneurship in the tourism sector, it attempts to explain the factors related to the occurrence of such a situation in the study area, these two aspects differentiate it from other research.

2.2. Theoretical Literature

Contrary to the traditional theories of rural development that ignored the importance of local people and their participation in rural development, in the theory of sustainable rural development, local people are the potential source of rural development, these capitals should be made real and productive through activities such as entrepreneurship (Gulumser et al., 2012). Since the first capital in any country to achieve development is human capital, and as entrepreneurship focuses on human capital, it can be considered as one of the components of national development. Consequently, in order to develop and increase the share of women as half of the country's human capital in the national economy and to deal with their unemployment, it is necessary to provide the necessary conditions for the development and entrepreneurship of women in the society (Alidoust et al., 2012). Female labor is now considered essential in rural areas. It is required in order to initiate new business activities as part of the production diversification process, to raise labor force participation rates, to create new jobs and generally to spur new development strategies effectively in the

rural environment (Talón Ballestero et al., 2014). Nowadays, strengthening the entrepreneurship of rural women is of paramount importance due to being reasonable, humane and compatible with the environment. In developing countries, women are the first hope for the advancement of families and the growth and development of their society. The success of women in these societies not only brings economic benefits to the country, but also creates social and cultural benefits (Shaterian et al., 2017).

Entrepreneurial obstacles can be considered as any type of economic, social, cultural, environmental, infrastructural, technical and personal phenomena and features that permanently and temporarily affect the establishment and successful performance of businesses resulting from entrepreneurship which act as an inhibitor. One of the dilemmas facing the development of entrepreneurship is the introduction of entrepreneurship and its resulting businesses as a completely risky activity with no support and certainty, while an entrepreneur must meticulously calculate the amount of its risk and reward and perform based on it (Heaton, 2005). It can be said that the lack of prosperity of entrepreneurship is not merely due to economic conditions, a set of economic, social, cultural and organizational conditions in developing countries can also play a role as obstacles to the favorable development of entrepreneurship (Toghraee et al., 2015). Culture, education and quality of life are fundamental for a strong climate for entrepreneurs. The entrepreneurial support includes direct private and public initiatives and programs intended to help entrepreneurs which should be in the direction of removing and eliminating the obstacles and challenges of the entrepreneurs' optimal performance (Figure 1) (Lordkipanidze, 2002).

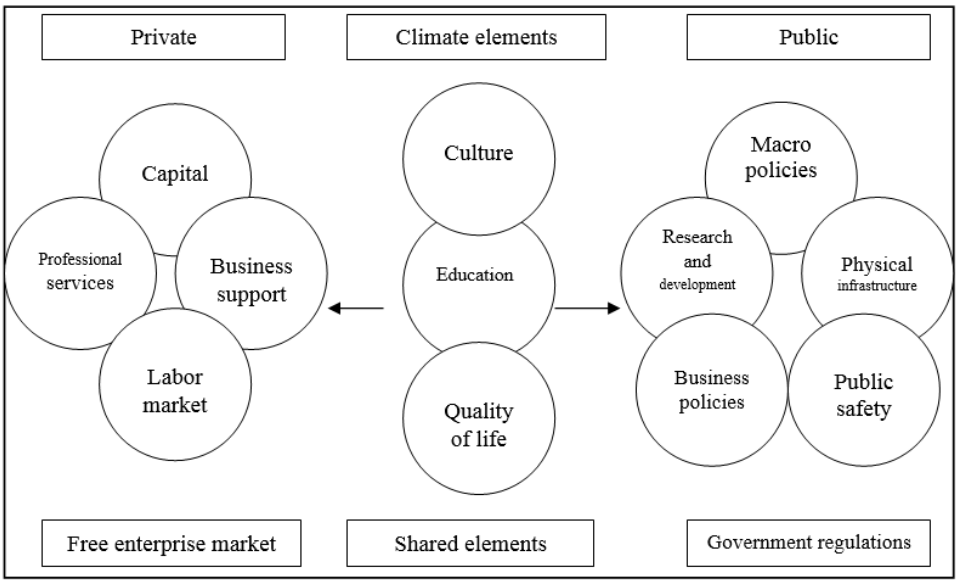

Figure 1. The effective elements for entrepreneurship development
Source: Lordkipanidze, 2002

The rural environment will create challenges and opportunities that affect the efforts of entrepreneurs. The success of entrepreneurs in rural environments is in the group of favorable environmental conditions and related elements. An entrepreneur in a rural environment, in addition to livelihood, also requires a sales market. As a result, the rural environment, besides the living environment, becomes a work environment and a market, that is, the formation of a production and consumption environment. The social environment of the villages should be coordinated and developed with the market system that includes the sale and consumption stage in the villages as new customers and markets are attracted and created. In this case, the concept of consolidation is proposed, which refers to the connection, dependence and influence of the social environment as a broader and upstream structure on economic activities. Subsequently, a new rural economic-social environment is formed in the villages due to the continuous connection of

the social and livelihood structure with the expanding markets owing to the prosperity of entrepreneurship in the village environment (Figure 2) (Imedashvili, 2013)

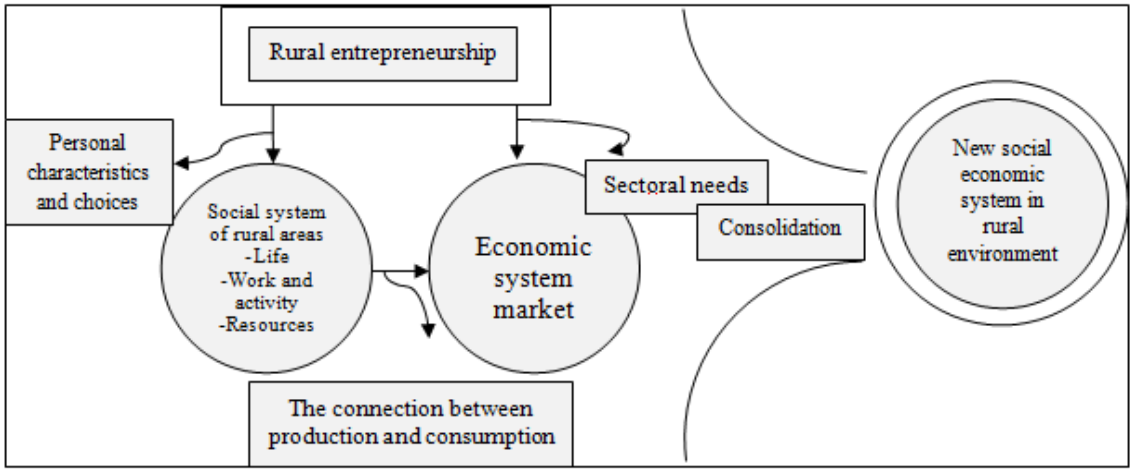

Figure 2. The role of rural entrepreneurship in the formation of a new social-economic system in villages
Source: Imedashvili, 2013

In terms of the obstacles to women entrepreneurship in general, two categories of obstacles can be identified. The first category is general and cause problems for either men or women, and the second category is obstacles specific to women and are more severe for female entrepreneurs due to the family, social and legal conditions.

In the field of tourism, the most important obstacles to the women's presence in the field of tourism entrepreneurship, similar to general problems of other entrepreneurs, especially in rural areas, are lack of financial resources, uncertainty and credibility of women in society, lack of providing necessary training, lack of public and private support of women entrepreneurs from families, society and the government (Twining-Ward, 2010). Therefore, in addition to the various restrictions encountering entrepreneurs or the creators and developers of economic enterprises, women and some groups of society must overcome other limitations, which are sometimes insurmountable. The cause of these restrictions is often the various discriminations fixed deeply due to dominant cultural behaviors in societies. Female entrepreneurs form the largest population group suffering from such discriminatory occupational and commercial practices (Salehi, 2010). Because of strong gender stereotypes, rural female entrepreneurs are pressed to cut down on the hours worked by the extensive family members. Rural women usually prefer to engage in new on-farm activities rather than salaried employment since they can combine domestic duties and the work on the farm. Even though rural women have low level of education and working skills, it has given them the advantage of flexibility in terms of employment and the facility to render professional the role of housewife, permitting them to take commercial initiatives primarily on a co-operative basis (Petridou & Glaveli, 2008).

Cultural conditions meaning a set of beliefs and ideas have an important effect on the status of women's entrepreneurship. In China, the general culture tends to production and families are the first supporters of their children in production and entrepreneurship. On the contrary, in the general culture of sub-Saharan African countries believing in witchcraft, people turn to witches for their or others' business failure or prosperity. In this region, the cultural conditions have had a very negative effect on the lack of entrepreneurs and the presence of women in the society and economy. In this culture, women are not allowed to work freely in economic and social fields. In Morocco and Saudi Arabia, the existence of negative cultural stereotypes and the traditional division of labor are the main obstacles to the presence of women in economic fields and the establishment of entrepreneurial businesses. Thus, in order to remove the environmental obstacles facing women entrepreneurs and their strong presence, the cultural conditions must be changed first, which will provide the possibility for removing other obstacles (Fallatah, 2012).

2.3. Tourism entrepreneurship and its role in sustainable tourism and rural development

In recent years, entrepreneurship in the field of tourism has become increasingly important and is a driving force of this industry (Karimi, 2015). The expansion of tourism in rural areas can lead to economic growth and improvement of the quality of life in rural areas (Lordkipanidze, 2002). Koh & Hatten (2014) emphasizing the significance of entrepreneurship in tourism development, believe that the birth of touristic business is not an act of nature but an act of the tourism entrepreneur. Tourism produces a great deal of benefit as the fastest growing sector in the world (Nongsiej & Shimray, 2017). In the global economy, small businesses play an important role in reducing unemployment, penetrating new markets, and overall national economic growth, while tourism is an activity that many of its activities are created in the form of small businesses. (Taskov et al., 2011). Meanwhile, the increase of connection between small businesses, called networking, plays a significant role in the success of small businesses resulting from tourism. These small businesses in rural areas make women empowered and gender inequalities which are due to the traditional division of labor between women and men are vanished. Therefore, tourism is a factor for creating gender equality in communities (Twining-Ward, 2010). The growing significance of rural tourism and above all the powerful growth of rural tourist establishments have provided an appropriate opportunity for women to join the job market and recognize their economic independence and professional status (Talón Ballestero, 2014). Entrepreneurship in the field of tourism is one of the suitable solutions in order to realize the sustainability of tourism as the main goal of tourism destinations. In terms of social dimension, entrepreneurship in rural tourism destinations causes gender inequalities to disappear. Furthermore, social justice and equality are achieved due to the access of different classes to the benefits of tourism, cultural and social communication and interaction are achieved, traditions and indigenous ceremonies in rural areas are preserved as an effective opportunity and a popular attraction, more services and facilities are absorbed by villages, the local people's involvement and participation in tourism and rural development are achieved, and finally many social harms of the youth are obviated through empowering and increasing capital. Hence, according to the favorable effects of entrepreneurship in the field of tourism, the local people's quality of life is also improved. Accordingly, entrepreneurship keeps the local people's support for tourism alive. In this regard, tourism activities as an accepted economic sector in the destination requires entrepreneurial activities. Various models have been presented by researchers in the field of tourism, the most important of these models are Butler's Tourism Area Life Cycle model and Doxey's Irridex Model (Figure 3). In these models, it is believed that initially, favorable changes in the residents' quality of life occur due to the expansion of tourism in the destination. However, when capacity of the environment or the changes reach the threshold, adversary changes due to the development of tourism occur and the residents' quality of life declines (Ghadami et al., 2011). At this stage, tourism in the tourist destination in the Butler model is faced with stagnation and in the Doxey model with residents' antagonism, and unfavorable conditions appear, where two scenarios are possible: the decline and fall of tourism in the destination, innovation and its rejuvenation. If it continues to decline, the number of tourists will fall down, investors will leave and the economic profit will decrease. Another scenario is rejuvenation and recovery, where the destination tries to seek its position in the tourism market with new management and planning (Chai, 2009; keovilay, 2012). In this regard, one of the solutions that leads to innovation and restoration of the tourist destination and can revive the tourist destination due to the positive effects mentioned in terms of demand and supply aspect, is carrying out entrepreneurial activities (Figure 3).

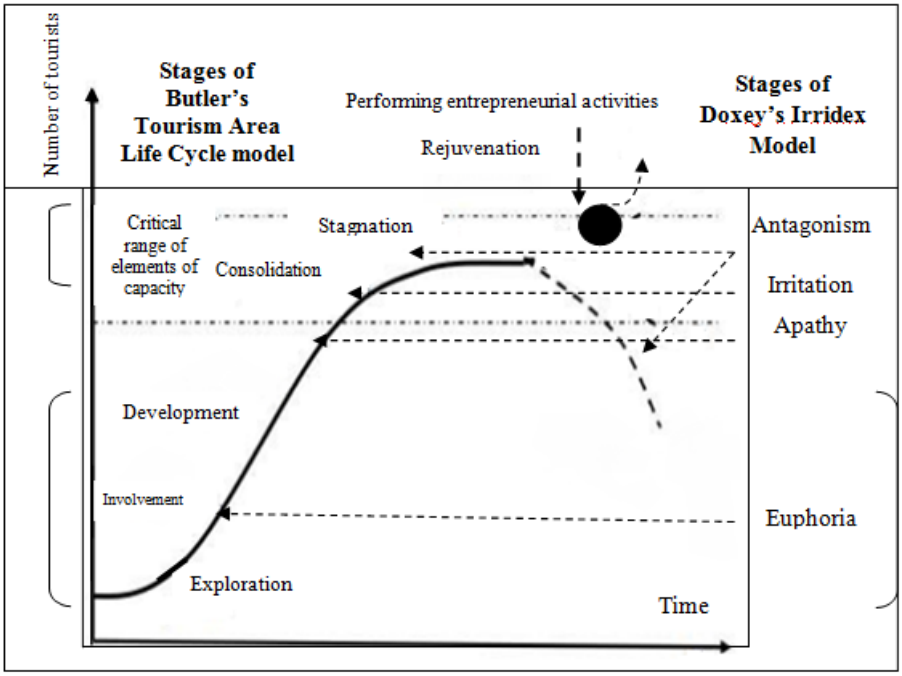

Figure 3. The role of entrepreneurship in the rejuvenation of the tourist destination in the integrated Butler's Tourism Area Life Cycle model and Doxey's Irridex Model
Source: Research findings, 2024

Finally, according to the variables, indicators and dimensions identified as obstacles to rural women entrepreneurship in tourism activities, which is a combination of the results of previous studies and its adaptation to local conditions in the study area, the identified obstacles to entrepreneurship rural women in the field of tourism in the rural areas of Oraman District and their connections are theoretically illustrated in the conceptual model of the research in Figure 4.

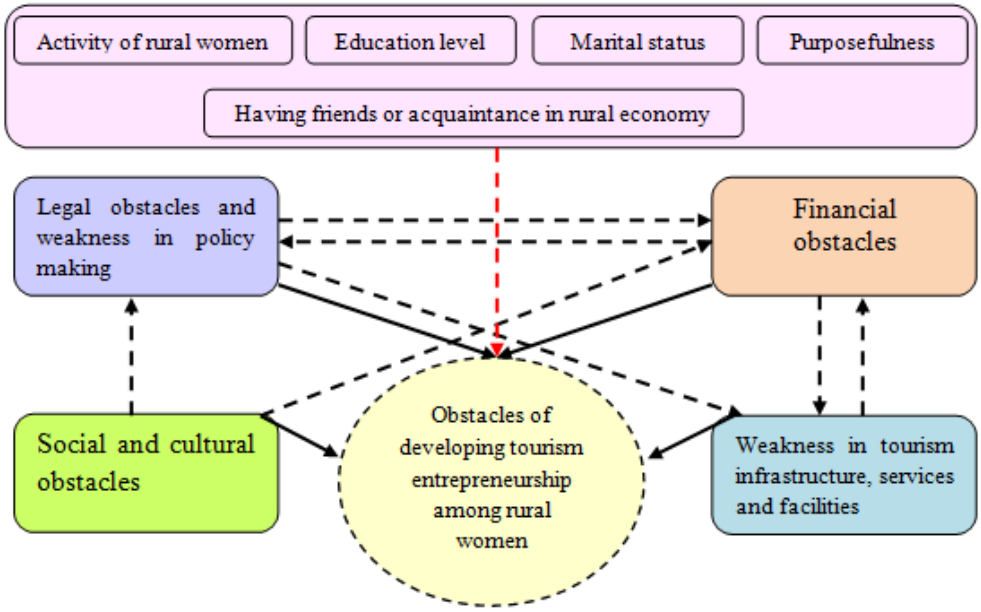

Figure 4. Conceptual model of the research

3. Research Methodology

3.1. Geographical Scope of the Research

Oraman District with 14 villages, 3707 households and approximately 14269 population, belongs to Sarovabad County located 75 km southeast of Marivan County and 170 km southwest of Sanandaj County (Figure 5) (Statistical Center of Iran, 2015). This district has two sub-districts named Oraman Takht and Shalyar, where agricultural activities form the dominant occupation of the people in this region. Nonetheless, the lack of land due to the topography of the region (located in the high Zagros) and the lack of industrial sites owing to the lack of sufficient government support, are reasons leading many villagers to outside the region for employment (seasonal employment). In the meantime, due to the numerous potentials of this region as well as increasing acceptance of rural tourism, the tourism boom is considered as a desirable supplement and a reliable solution for the employment and economic diversity of the region.

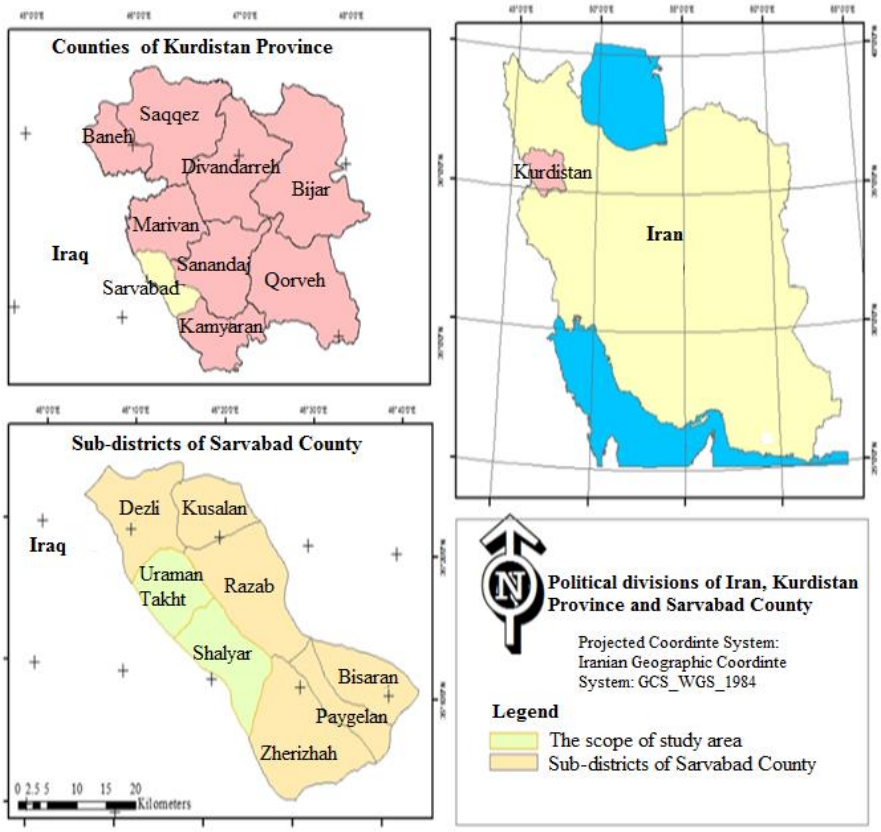

Figure 5. The location of the study area

3.2. Methodology

This study is applied in terms of purpose; descriptive-analytical in terms of method, and mixed in terms of data gathering as a combination of two methods namely library (books, articles, journals, reports and statistics, searching on the internet and using basic maps as well as using the resources available in organizations) and survey based on observation, interview and questionnaire. Face and content validity of the questionnaires, after its preparation, was confirmed by its initial control of university professors. Conducting a pre-test and distributing 30 questionnaires among the villagers, the reliability of the questionnaires was confirmed by calculating Cronbach's alpha acquired 0.77. The statistical population of this research includes women occupying in the field of tourism in the villages of Oraman District, local managers, officials and a number of experts in the field of development informant of the conditions of the study area. In order to determine the sample size in the group of rural women, considering the limitations of the region and

the main characteristics of respondents to be active women in the field of tourism or in economic activities, 97 women were identified. Conducting census, the questionnaires were distributed among all of them. In the group of local experts, specialists and officials in the field of rural development in the region, 50 ones were identified by snowball method and questionnaires were distributed among them (Table 1).

Table 1. Distribution of samples among statistical communities

Distribution of questionnaires among rural women		Sample size in the group of key informative and experts	
Village	**Number of questionnaire (Women active in economic activities)**	**Respondents' characteristics in the group of key informative and experts**	**Number of distributed questionnaires**
Oraman	24	Councils and rural municipality administrations	5
Daraki	35	Employees of related government offices (District, governor of county, Cultural Heritage and Tourism Organization, Natural Resources)	12
Selin	7	Experts in the field of development (geography and rural planning, sociology of rural development, management and entrepreneurship management)	20
Dezli	17	Owners of tourism business in the region	8
Belber	14	Trustees and educated people in the villages	5
Total	97	Total	50

In order to analyze the data, chi-square, one-sample t-test and correlation coefficient were employed. Based on numerous previous studies and the conditions of the study area, the most important effective obstacles to the desirable entrepreneurship of rural women were identified in the form of 8 indicators including 51 variables (Table 2). The independent variable of this research is the obstacles and problems affecting rural women entrepreneurship in the field of tourism in the region, and the dependent variable is entrepreneurial activities in the field of tourism by rural women.

Table 2. Variables and indicators affecting rural women entrepreneurship

Indicators	Variables
Financial obstacles	Lack of personal capital, lack of access to capital and private investors, increase in daily production costs, lack of the private sectors and credit and financial institutions' trust towards rural women entrepreneurs
Legal obstacles and weakness in policy making	Lack of a specific and active trustee supporting women entrepreneurship in the field of tourism in the villages of the region, not recognizing the multiple roles of women in planning and allocating credits, lack of valid guarantor and collateral to borrow public loans, unfamiliarity of the rural development officials with the concept of entrepreneurship and the women's role in its development in the field of rural tourism, lack of coordination among various rural development organizations and administrations of the region for tourism development, weakness of insurance in the field of tourism entrepreneurship for rural women, lack of comprehensive plan for tourism and rural development in the region emphasizing on the rural women entrepreneurship, high interest of bank loans, low level of rural municipality administrations' and councils' activity in cooperation with religious officials of villages in order to create opportunities for women's participation in the economic activity of rural tourism, high rate of poverty among villagers particularly rural women
Social and cultural obstacles	Multiplicity of women's duties in rural households, lack of non-public organizations supporting women entrepreneurship, interference of husband in matters related to women's economic activities, local norms based on the non-acceptance of women in the labor market, lack of women's access to trained and competent workforce, rural women's dependence on men in doing daily tasks, lack of cooperative culture and women's production cooperatives in the village, lack of family support for women and girls entrepreneurs
Weakness in tourism infrastructure, services and facilities	Destruction of the natural environment and landscape of the region as the most important attraction of the villages, weakness of the public infrastructure (transportation, energy, etc.), lack of access to appropriate spaces for initiating businesses, lack of facilities for tourism development in the villages.

4. Research Findings

Since the initial responses were given in a five-point Likert scale and ordinal scale, the chi-square test was applied to test the respondents' agreement with the identified obstacles and problems, and the findings are in four dimensions including financial obstacles, legal obstacles and weakness in policy making, social and cultural obstacles and weakness in tourism infrastructure, services and facilities as follows:

4.1. Financial obstacles

Financial resources are considered as a significant catalyst and accelerator in the creation and survival of entrepreneurial activities, as it has been mentioned in the literature review, generally, both in the national and international arena, entrepreneurs confront with financial obstacles and they have difficulty providing financial resources. Meanwhile, rural women are a group financially dependent on men due to the traditional division of labor in these areas and the responsibility of financial resources and outside employment is assigned to men, which means they have little strength and major weakness in providing financial resources for their businesses. Investigating the responses provided by the respondents shows that at a significance level of 0.01 and with a calculated mean score of 3.63, they believe in the lack of financial capital of rural women occupying in the field of tourism in order to initiate new and independent business, it is assessed at a high and very high level by 58% of respondents. In this situation, one of the solutions employed in different areas and in the leading countries in the field of entrepreneurship is to provide financial resources in two ways; banks and private sector capitals. It shows that from the respondents' point of view and with a calculated mean score of 3.39, rural women occupying in the field of rural tourism do not have access to the capital of private investors. In fact, networking and the first link of the tourism production process, which is the connection between investors and idea owners, has not been established. Also, another obstacle is the lack of the private sectors and credit and financial institutions' trust towards women occupying in the field of rural tourism in the study area, with a mean score of 3.25 at a significance level of 0.01. Many rural women occupying in the field of tourism pointed out that they did not have the necessary capital to develop their business and they cannot provide their financial resources due to social restrictions, not having valid collateral to provide to banks, unfamiliarity with administrative bureaucracy and its complexity. As a result, they have not implemented many of the activities and ideas that they intend to develop their business. They stated that one must be male in terms of gender in order to be able to benefit from public and private financial resources, because the assurance to women's economic effectiveness is very limited and low. These results are shown in table 3.

Table 3. The responses regarding the financial obstacles of developing tourism entrepreneurship among rural women

		Variables	Very low	Low	Average	High	Very high	Mean	Chi-square	Sig.	Result
Financial obstacles	1	Lack of personal capital	12	14	36	38	47	3.63	32.89	0.000	Confirmed
	2	Lack of access to capital and private investors	19	17	31	46	34	3.39	19.08	0.001	Confirmed
	3	Increase in daily production costs	22	18	46	38	23	3.14	19.56	0.003	Confirmed
	4	Lack of the private sectors and credit and financial institutions' trust towards rural women entrepreneurs	17	21	40	45	24	3.25	20.72	0.000	Confirmed

4.2. Legal obstacles and weakness in policy making

Investigating the performance of government institutions in order to create an entrepreneurial environment for rural women indicates that at a significance level of 0.05 and with a calculated mean score of 3.20, the respondents believe in the lack of a specific and active trustee supporting women entrepreneurship in the field of tourism in the villages of the region. In fact, considering the importance of entrepreneurship in the sustainable tourism and rural development, an institution or workgroup with executive power and appropriate decision-making should specifically work in the field of tourism entrepreneurship in the region with emphasis on women. The significance is felt

more as the tourism and its entrepreneurship activity is multifaceted and depends on different organizations and institutions in the field of rural development. Admittedly, their different opinions or parallel work can create many obstacles and challenges for tourism entrepreneurship in the villages of the region. This is reflected in the responses as the variable of lack of coordination among various rural development organizations and administrations of the region for tourism development is assessed high and very high by 76 respondents (52%) with a calculated mean score of 3.46 at a significance level of 0.01.

Furthermore, at a significance level of 0.01, 58% of respondents highly and very highly believe in the unfamiliarity of the rural development officials with the concept of entrepreneurship and the women's role in its development in the field of rural tourism. Therefore, it is deduced that not only are the concept of entrepreneurship and its implementation process unfamiliar to rural women and local people, but the regional development officials are also not familiar with this new approach in the field of rural development.

One of the obstacles which has penetrated into planning and legislation as well is not recognizing the multiple roles of women in planning and allocating credits which obtained a mean score of 3.59 at a significance level of 0.01 and a majority of respondent noted that the government has no plan for tourism and rural development in the region emphasizing the women's presence and role.

In addition, the respondents believe in the high interest of bank loans with a mean score of 3.32 and the lack of valid guarantor and collateral to provide to banks with a mean score of 3.10. In fact, providing financial resources to rural entrepreneurs, particularly women, requires special attention and more facilitation than other groups since poverty and deprivation are the obvious manifestation of rural areas and especially women residing there. The government should create certainty and trust to the future for entrepreneurial businesses. Undoubtedly, one of the most effective solutions is to ensure entrepreneurial businesses, which is of paramount importance in the rural areas as well as the study area where the financial foundations are weak and there is social limitation for the economic participation of rural women. The results indicated the weakness of insurance in the field of women tourism entrepreneurship with a mean score of 3.26 and 50% responses of high and very high. Considering the weak self-confidence, hope for the future and the low risk-taking of the studied women, ensuring their fledgling businesses in the field of tourism can lead to their sustainability, attracting more women to this field and creating new opportunities in the field of tourism development.

One of the main rural development obstacles which challenge and fail the launch, creation and effect of any development activity in rural areas is the high poverty among the villagers. Due to the interaction between poverty and the level of vulnerability, the level of villagers' resilience against natural and human threats is low which results in economic and social stagnation in rural areas. Moreover, economic poverty causes cultural and social poverty and ultimately in a vicious circle, it leads to the lack of development of rural areas and the failure of economic activities. In the studied rural areas, the findings show that at a significance level of 0.01 and with a calculated mean score of 3.59 and 63% respondents noted a high and very high level of poverty among rural women in the target tourism villages. Inevitably, the economic poverty of the studied rural women, in terms of psychological and motivational characteristics, such as taking risk and enduring initial difficulties, on the one hand and in terms of finances, as one the main conditions for setting up and tending to entrepreneurial activity, on the other hand, causes rural women occupying in the field of tourism, even with innovative ideas and identifying opportunities, confront with failure and unwilling to undertake the risk and entrepreneurship activities. Furthermore, in terms of local management, the low level of rural municipality administrations' and councils' activity in cooperation with religious officials of villages in order to create opportunities for women's participation in the economic activity of rural tourism has been confirmed with a calculated mean score of 3.43. All these findings are illustrated in table 4.

Table 4. The responses regarding the legal obstacles and weakness in the policymaking of developing tourism entrepreneurship among rural women

		Variables	Very low	Low	Average	High	Very high	Mean	Chi-square	Sig.	Result
Legal obstacles and weakness in the policymaking	1	Lack of a specific and active trustee supporting women entrepreneurship in the field of tourism in the villages of the region	23	19	39	39	27	3.20	11.53	0.004	Confirmed
	2	Not recognizing the multiple roles of women in planning and allocating credits	12	13	33	52	37	3.59	39.22	0.000	Confirmed
	3	Lack of valid guarantor and collateral to borrow public loans	25	18	48	30	26	3.10	17.52	0.002	Confirmed
	4	Unfamiliarity of the rural development officials with the concept of entrepreneurship and the women's role in its development in the field of rural tourism	21	15	26	45	40	3.46	21.94	0.000	Confirmed
	5	Lack of coordination among various rural development organizations and administrations of the region for tourism development	12	19	40	45	31	3.43	26.16	0.000	Confirmed
	6	Weakness of insurance in the field of tourism entrepreneurship for rural women	27	20	26	35	39	3.26	8.89	0.043	Confirmed
	7	Lack of comprehensive plan for tourism and rural development in the region emphasizing on the rural women entrepreneurship	13	15	20	46	53	3.75	47.52	0.000	Confirmed
	8	High interest of bank loans	18	22	34	42	31	3.32	12.49	0.011	Confirmed
	9	Low level of rural municipality administrations' and councils' activity in cooperation with religious officials of villages in order to create opportunities for women's participation in the economic activity of rural tourism	21	19	23	43	41	3.43	18.34	0.001	Confirmed
	10	High rate of poverty among villagers particularly rural women	11	16	27	60	33	3.59	50.10	0.000	Confirmed

4.3. Social and cultural obstacles

One of the main dimensions of the entrepreneurial environment, which is emphasized in the behavioral approach as one of the new approaches of entrepreneurship investigation, is the social and cultural conditions of the entrepreneurial environment. Admittedly, provided that the social and cultural conditions of the environment are favorable and supportive of entrepreneurial activities, more entrepreneurs will emerge and the survival of start-up businesses will increase. The findings revealed that at a significance level of 0.01 and with a calculated mean score of 3.64, the multiplicity of women's duties in rural households is as an obstacle for women occupying in the field of tourism entrepreneurship. This is a reflection of the traditional beliefs in the studied villages, forming traditional division of labor between men and women in the rural environment of the region, which does not consider employment outside the home as part of women's duties, and if women are employed, they should still perform all housework duties, which definitely creates a difficult situation for occupied women. This issue is confirmed as the variable of local norms based on the non-acceptance of women in the labor market obtained with a mean score of 3.80 and significant at 0.01 level. Furthermore, the lack of family support for women and girls entrepreneurs with a calculated mean score of 3.42 is an obstacle which 67% responded it as high and very high. Therefore, it can be deduced that the culture of women entrepreneurship and employment is not accepted as the official labor force of the family in the studied rural communities. The consequence of this situation can be observed in variables including rural women's dependence on men in doing daily tasks with a mean score of 3.48 and the lack of cooperative culture and women's production cooperatives in the village with a mean

score of 3.25. Rural women's dependence on men leads not to developing women's independence and self-efficacy, and the production cooperatives, which are a form of networking in economic affairs and are able to lead to the entrepreneurship of rural women occupying in the field of tourism by sufficient support and creating opportunities, will not be formed. In addition, this traditional division of labor and the non-acceptance of women in the economic environment has caused social insecurity for women occupying in the rural areas of the region which confirmed by the respondents with a mean score of 3.27. These results are depicted in table 5.

Table 5. The responses regarding social and cultural obstacles of developing tourism entrepreneurship among rural women

		Variables	Very low	Low	Average	High	Very high	Mean	Chi-square	Sig.	Result
Social and cultural obstacles	1	Multiplicity of women's duties in rural households	16	21	15	42	53	3.64	39.90	0.000	Confirmed
	2	Lack of non-public organizations supporting women entrepreneurship	17	21	38	36	35	3.34	12.69	0.013	Confirmed
	3	Interference of husband in matters related to women's economic activities	17	13	48	52	17	3.26	48.74	0.000	Confirmed
	4	Local norms based on the non-acceptance of women in the labor market	12	22	12	38	63	3.80	63.37	0.000	Confirmed
	5	Lack of women's access to trained and competent workforce	18	28	51	35	15	3.02	28.47	0.000	Confirmed
	6	Rural women's dependence on men in doing daily tasks	20	15	17	63	32	3.48	53.91	0.000	Confirmed
	7	Social insecurity for women occupying in the isolated rural areas	19	11	48	49	20	3.27	47.03	0.000	Confirmed
	8	Lack of cooperative culture and women's production cooperatives in the village	20	25	30	42	30	3.25	10.08	0.043	Confirmed
	9	Lack of family support for women and girls entrepreneurs	16	22	11	79	19	3.42	106.4	0.000	Confirmed

4.4. Weakness in tourism infrastructure, services and facilities

One of the major obstacles in the creation and survival of tourism activities is the weakness in infrastructures, services and facilities. Doubtlessly, when a destination is in distress in terms of basic infrastructure and services, the development and expansion of tourism has not taken place and it cannot be expected that women perform entrepreneurial activities in the field of tourism after acquiring practical experience and motivational and financial conditions. The result of the chi-square test reveals that the respondents believe in the destruction of the natural environment and landscape of the region which is the most important attraction of the villages. This item is significant at 0.01 level with a maximum (60 percent) responses of high and very high. Field observations also showed that in the target villages of tourism, the indiscriminate construction of tourist and residential buildings and the increase in pollution due to the arrival of too many tourists, which are all signs of unorganized tourism, have caused natural landscape deterioration in the region. The continuation of this trend leads to a decrease in the tourists' satisfaction and pleasure and consequently causes tourism stagnation in the region. Respondents pointed out the weakness of the public infrastructure of tourism in their villages with a calculated mean score of 3.17 at a significance level of 0.05. The field observations also indicated that transportation roads to the tourism target villages are not satisfactory. Furthermore, the villagers stated that there are disruptions in energy supply in their villages, especially in the cold season. Other welfare facilities and infrastructure acquired for tourism are also facing many restrictions in the villages.

Considering the social restrictions in rural areas related to women's employment, appropriate spaces for initiating their businesses in rural areas

should be constructed in order to provide their psychological security. The respondents noted the lack of appropriate spaces for initiating women businesses with a calculated mean score of 3.46 which is significant at 0.01 level. Rural women stated that it is very difficult to gain access to socially and psychologically suitable workshops or shops in the villages. These findings are demonstrated in table 6.

Table 6. The responses regarding the weakness in tourism infrastructure, services and facilities of developing tourism entrepreneurship among rural women

		Variables	Very Low	Low	Average	High	Very High	Mean	Chi-Square	Sig.	Result
Weakness in tourism infrastructure, services and facilities	1	Destruction of the natural environment and landscape of the region as the most important attraction of the villages	12	23	26	47	39	3.53	25.73	0.000	Confirmed
	2	Weakness of the public infrastructure (transportation, energy, etc.)	21	23	36	43	24	3.17	12.55	0.014	Confirmed
	3	Lack of access to appropriate spaces for initiating businesses	16	20	22	57	32	3.46	37.11	0.000	Confirmed
	4	Lack of facilities for tourism development in the villages	18	24	19	37	49	3.51	24.12	0.000	Confirmed

One-sample t-test of the obstacles of developing tourism entrepreneurship among rural women in Oraman District in table 7 revealed that as the mean scores acquired higher than the numerical test value (more than 3) and the values of t statistics are positive (significant at 0.05 and 0.01 level), the four indicators are confirmed as obstacles of developing tourism entrepreneurship among rural women occupying in the field of rural tourism in Oraman District. It is worth mentioning that legal obstacles and weakness in policy making with a mean score of 4.96, weakness in tourism infrastructure, services and facilities with a mean score of 4.53 and social and cultural obstacles with a mean score of 4.48, have the highest calculated mean score, respectively (Figure 6). In other words, from the respondents' point of view, they are known as the most important obstacles of developing tourism entrepreneurship among women occupying in the field of tourism in Oraman District. Nonetheless, the financial obstacles have the lowest calculated mean score (3.78). Considering its lower and its positive upper level, it can be deduced that this obstacle, from the respondents' view point, is at an average level and are less effective on the lack of entrepreneurial activities of rural women occupying in the field of tourism in Oraman District.

Table 7. Assessing the respondents' point of view regarding the obstacles of developing tourism entrepreneurship among rural women using the one-sample t-test

Indicator	Test Value = 3						
	Mean	t	df	Sig. (2- tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Financial obstacles	3.36	3.78	146	0.000	0.364	0.173	0.551
Legal obstacles and weakness in policy making	3.43	4.96	146	0.000	0.437	0.239	0.531
Social and cultural obstacles	3.40	4.48	146	0.000	0.400	0.218	0.561
Weakness in tourism infrastructure, services and facilities	3.42	4.53	146	0.000	0.453	0.241	0.612

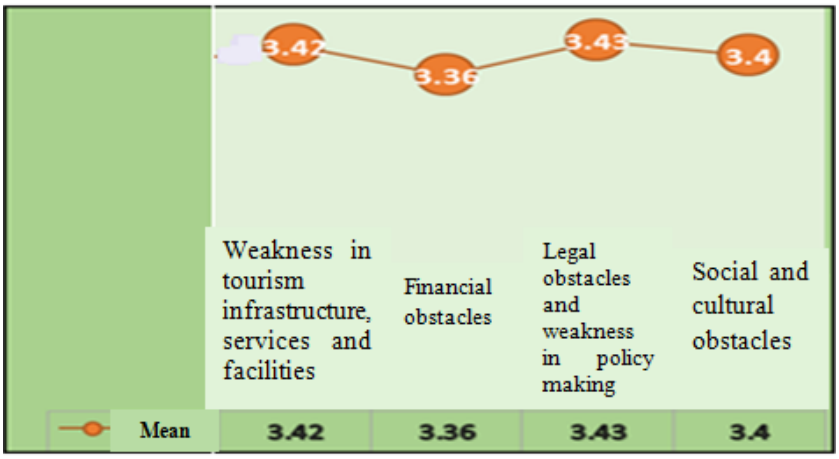

Figure 6. The mean scores of the obstacles of developing tourism entrepreneurship among rural women from the respondents' point of view

Partial correlation test was employed to investigate the effect of personality and background variables such as: age, education level, the number of women participating in the field of rural tourism, having friends, acquaintances or active family members in the economic field of tourism and being purposeful in life on rural women's tendency to carry out entrepreneurial activities in tourism as well as the effectiveness and performance of the factors identified as obstacles of developing tourism entrepreneurship among rural women in the field of tourism. It is worth noting that a favorable level of mentioned personality and background characteristics are essential for the development of entrepreneurial activities. In this regard, firstly, personality and background characteristics were categorized in two levels (high/ low, or with/without, good/bad) and then combined. Changing their scale to an interval scale, their correlation with other two mentioned variables was calculated through Pearson correlation analysis. Then in the second stage, a partial correlation was calculated by considering the personality and background variable as a control variable or a variable whose role should be removed from the relationship between the other two variables. According to the results of the Pearson correlation test shown in table 8, there is a significant relationship between the three variables. In the next stage, in the partial correlation, there is still a significant relationship between the variables, but with a decrease in correlation coefficients (Table 9). It can be concluded that the personality and background characteristics in the studied rural area do not have a significant effect on reducing the identified obstacles of developing tourism entrepreneurship among rural women occupying in tourism. In addition, the effect of the identified obstacles on rural women's tendency for entrepreneurship is so high that personal differences cannot eliminate them. In order to better understand, the results of table 8 and 9 are illustrated in figure 7, as well.

Table 8. The results of Pearson correlation between personality and background characteristics, tendency to entrepreneurship and obstacles of developing tourism entrepreneurship among rural women

		Personality and background characteristics	Women's tendency to entrepreneurship in the field of tourism	Obstacles of developing tourism entrepreneurship among rural women
Personality and background characteristics	Pearson correlation	1	0.282**	-0.366**
	Significance (Two-tailed)		0.005	0.000
	Number		97	97
Women's tendency to entrepreneurship in the field of tourism	Pearson correlation		1	-0.487**
	Significance (Two-tailed)			0.000
	Number			97

**significant at 0.01 level.

Table 9. Partial correlation between personality and background characteristics, women's tendency to entrepreneurship **and** obstacles of **developing tourism entrepreneurship among rural women**

Control variable			Women's tendency to entrepreneurship in the field of tourism	Obstacles of developing tourism entrepreneurship among rural women
Personality and background characteristics	Women's tendency to entrepreneurship in the field of tourism	Pearson correlation	1	-0.315
		Significance (Two-tailed)		0.004
		Number		97

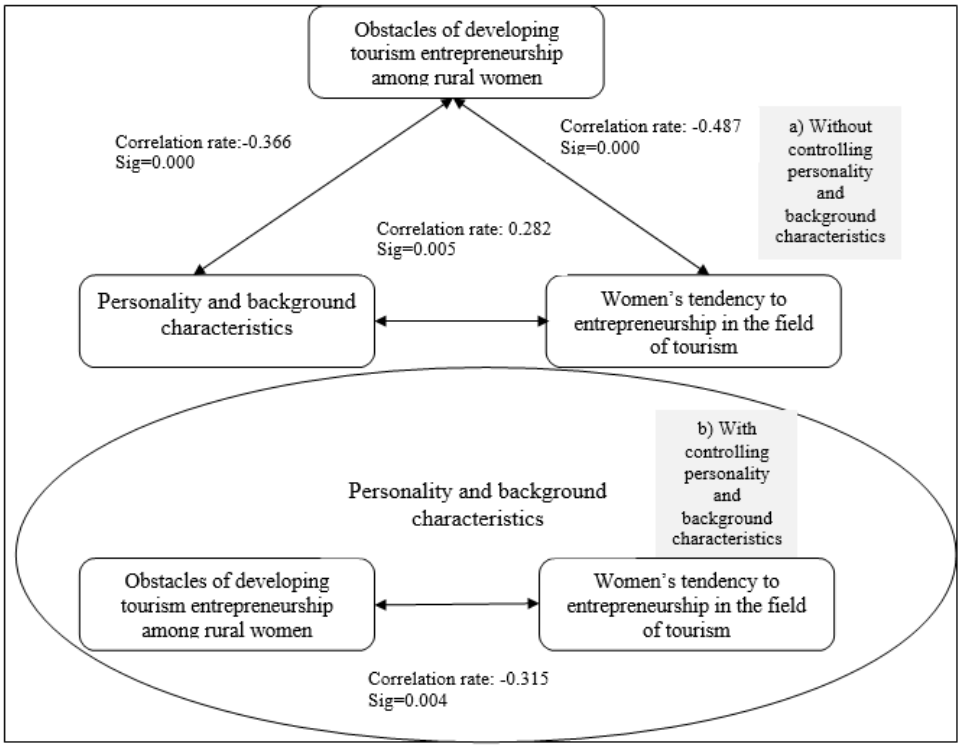

Figure 7. Pearson correlation, partial correlation between personality and background characteristics, women's tendency to entrepreneurship and obstacles of developing tourism entrepreneurship among rural women

5. Discussion and conclusion

Nowadays, entrepreneurship is an effective solution and an incentive element to solve insurmountable economic and social problems in rural areas and is widely implemented in leading countries, especially developing countries with large rural population such as Iran. The review of previous studies also indicated that in the developing regions and countries, due to the weakness of the economic and social structures, there are always many obstacles and problems facing the successful entrepreneurial performance, particularly for women who are enthusiastic to revolutionize their life environment by conducting entrepreneurial activities in the field of business and society. Investigating various viewpoints in the field of entrepreneurship showed that these problems and obstacles can be divided into three categories: the first category are problems and obstacles common to all entrepreneurs, the second category are the ones that have a greater functional intensity on women in rural environments, and the third category are the ones that are unique and specific to rural women. Hence, the present study aimed at identifying the obstacles of tourism entrepreneurship among rural women in Oraman District. The results of one-sample t-test revealed that, in line with the findings of Bouzarjmehri et al. (2016) and Karimzadeh (2019), as the mean of scores acquired higher than the numerical test value (more than 3) and the values of t statistics are

positive, the respondents agree with four indicators (financial obstacles, legal obstacles and weakness in policy making, social and cultural obstacles, weakness in tourism infrastructure, services and facilities) as obstacles of developing tourism entrepreneurship among rural women occupying in the field of rural tourism in Oraman District. It is noteworthy that legal obstacles and weakness in policy making with a mean score of 4.96, weakness in tourism infrastructure, services and facilities with a mean score of 4.53 and social and cultural obstacles with a mean score 4.48 are identified as the most important obstacles of developing tourism entrepreneurship among rural women occupying in the field of rural tourism in Oraman District, respectively. However, financial obstacles with the lowest mean score (3.78) are at an average level and less effective on the lack of entrepreneurial activities of rural women occupying in the field of tourism in Oraman District.

In general, it can be concluded that the rural tourism system of the study area has weaknesses and challenges in the supply side (weakness in services and infrastructure) which leads to a weakness in the demand side as well. Furthermore, there are other obstacles and weaknesses such as the weak performance of government institutions, financial obstacles, and social and cultural obstacles. Therefore, in order to achieve developing tourism entrepreneurship among rural women, problems and obstacles should be resolved by coordinating all sectors and sub-sectors related to rural tourism in the region. Developing tourism entrepreneurship can act as a great driving force for the sustainable development of rural areas by providing a suitable bed for innovative activities and their entrepreneurship in the field of tourism in rural areas. The entrepreneurship of rural women in the field of tourism is a factor in improving the economic situation at the individual, family and rural community levels. There would be hope that the economic-social isolation of rural women, poverty and the severe deprivation among them and gender inequalities would be eliminated and the dynamics of half of the human resources in the villages (women), family strength and creating a lively environment for either work or life of rural women would be achieved which is one of the main goals of sustainable development being followed seriously by different countries.

Also, in order to answer the second question, the results of the Pearson correlation test showed that, consistent with the findings of Momayez et al. (2013), Moradi & Ahmadvand (2021), Hosseinpour Niazi et al. (2023), Jurdana et al. (2015), Kumari and Shankar (2020), and Rao et al. (2022), the two variables including women's tendency to entrepreneurship and personality and background characteristics had a significant correlation. Rural women with a better and more favorable situation in terms of personality and background characteristics, that is, with higher education level, with more rural women occupying in the field of tourism in their villages, be more purposeful in their lives and with acquaintances or close friends occupying in the field of tourism, have more tendency to enter the field of rural tourism and entrepreneurship. Also, there was a negative relationship between the favorability of personality and background variables with the effect of identified obstacles for women entrepreneurship, which means that the more favorable the personality and background variables were, the less the effect of the identified obstacles on women's entry into in the field of tourism, entrepreneurship and innovation. In addition, the results of the partial correlation test, removing the effect of personality and background variables, showed that there is still, but with less intensity, a significant and negative relationship between tendency to entrepreneurship and the effect of obstacles of developing tourism entrepreneurship among women. This means that the obstacles of developing tourism entrepreneurship in the studied rural areas are very severe as personality and background characteristics, although are effective in reducing the effects of these obstacles, this effect is partial and limited. This result is consistent with the behavioral approach in the development of entrepreneurship. This approach believes that the entrepreneurial environment, i.e. economic, social, natural and institutional conditions, play an effective and decisive role in the growth of entrepreneurship and entrepreneurial activities, and the growth and development of entrepreneurial activities cannot be solely based on favorable personality and psychological characteristics. Nonetheless, not only is the entrepreneurship environment not favorable in the studied villages, but also the psychological and

personal characteristics are not satisfactory among rural women.

Ultimately, according to the obtained results and the high mean score of legal obstacles and weakness in policy making as the most important obstacle to entrepreneurship of rural women in the field of tourism, it is suggested to improve the existing unfavorable situation of entrepreneurship of rural women occupying in the field of tourism in the region. The government's serious involvement in all stages from setting up to implementation and support for the survival of new businesses is necessary. Indeed, it is the first and the most basic step in the development of entrepreneurship. Based on this, in the study area, according to the findings of the research, the government as well as government institutions responsible for development in the area should first improve the tourism development environment in the studied rural areas and provide the conditions for the development of rural tourism in the area and prevent the region from moving towards stagnation in tourism, and then in the next stage entering more women into the field of tourism, make an attempt to direct them towards entrepreneurial activities.

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Original Article

شناسایی و تحلیل موانع توسعه کارآفرینی گردشگری در میان زنان روستائی (مورد مطالعه: بخش اورامان شهرستان سروآباد)

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چکیده مبسوط

۱. مقدمه

حضور زنان در محیط‌های اقتصادی روستاها را با چالش‌هایی روبروست و مانع نقش آفرینی آنها در توسعه اقتصادی روستاها با ایجاد و رونق کسب و کارهای کوچک می‌شود که می‌بایست در زمینه آماده‌سازی محیط‌های عمومی روستایی با رفع این موانع و مشکلات، زمینه‌ساز حضور موفق زنان در عرصه کارآفرینی شد و بدین ترتیب به برابری جنسیتی، ارتقای سطح شادی و بهزیستی عینی و ذهنی زنان روستایی، پایداری نظام خانواده و اجتماعات روستایی و در نهایت حل مشکل فقر و بیکاری به عنوان مهم‌ترین موانع تحقق توسعه پایدار روستایی، دست یافت. از سویی دیگر نیز، در عرصه کارآفرینی گردشگری روستایی به‌عنوان فعالیتی که در چند ساله اخیر با استقبال فراوانی از سوی بازدیدکنندگان روبرو بوده است، ضرورت روی آوردن به فعالیت‌های کارآفرینانه توسط زنان و راه‌اندازی کسب و کارهای کوچک و مولد کاملاً احساس می‌شود چرا که ویژگی فعالیت‌های گردشگری روستایی به گونه‌ای است که زنان می‌توانند نقش پررنگی در توسعه آن ایفا نموده و با کارآفرین شدن زنان روستایی در حوزه گردشگری روستایی، خدمات‌دهی مطلوب‌تری به گردشگران، تنوع‌بخشی بیشتر به جاذبه‌های گردشگری روستایی حاصل آید و در نتیجه با ایجاد شغل و درآمد پایدار، گردشگری روستاها از حالت فصلی بودن خارج گردد. در این راستا هدف اصلی و کلی این پژوهش، شناسایی و تحلیل موانع موثر بر کارآفرینی زنان روستایی بخش اورمان در زمینه توسعه گردشگری می‌باشد.

۲. مبانی نظری

در ارتباط با موانع کارآفرینی زنان، می‌توان دو دسته از موانع را مشخص نمود، دسته اول موانعی هستند که عمومی بوده و برای مردان و زنان ایجاد معضل می‌نمایند و دسته دوم موانعی هستند که مختص زنان می‌باشند و به‌دلیل شرایط خانوادگی، اجتماعی و حقوقی در مورد زنان کارآفرین، شدیدتر است. در زمینه گردشگری، مهم‌ترین موانع حضور زنان در عرصه کارآفرینی گردشگری همانند مشکلات عمومی دیگر کارآفرینان به ویژه در مناطق روستایی، کمبود منابع مالی، عدم اطمینان و اعتبار زنان در جامعه، عدم ارائه آموزش‌های لازم، فقدان حمایت‌های دولتی و خصوصی از سوی خانواده‌ها، جامعه و دولت از کارآفرینان زن می‌باشد. فرهنگ اقتدارگرا و مردسالار، همواره رواج دهنده باورهای سنتی و کلیشه‌های جنسیتی بوده و از ابتدا، تربیت و اجتماعی شدن دختران، در نظرگرفتن خویش به عنوان جنس دوم و تضعیف اعتماد به نفس و تعمیق حس حقارت و خود کم‌بینی توانایی های خویش را در پی داشته‌است. همچنین کمبود آگاهی زنان در ابعاد حقوق فردی، خانوادگی و اجتماعی، حرفه‌ای و عدم شرکت در تشکل‌های صنعتی حرفه‌ای و فعالیت‌های اجتماعی، فرهنگی و سیاسی، به استمرار ساخت نابرابر کمک می‌رساند. زنان روستایی به دلیل مسئولیت خانه‌داری و خانوادگی، در هر نوع فعالیتی نمی‌توانند حضور یابند و باید بیشتر در فعالیت‌های کارآفرینی مرتبط با مزرعه و نزدیک به خانواده‌های‌شان عمل نمایند.

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۳. روش‌شناسی تحقیق

تحقیق حاضر از لحاظ هدف، کاربردی؛ از لحاظ روش، توصیفی-تحلیلی و از لحاظ روش گردآوری اطلاعات، ترکیبی از روش کتابخانه‌ای و روش میدانی با استفاده از پرسشنامه، مصاحبه و مشاهده می‌باشد. تعیین روایی صوری و محتوایی پرسش‌نامه‌ها با نظر اساتید دانشگاهی و با انجام پیش آزمون و توزیع ۳۰ پرسشنامه در میان روستاییان صورت گرفت و جهت تعیین پایایی پرسشنامه‌ها از آلفای کرونباخ استفاده گردید که مقدار آن ۰/۷۷ حاصل آمد. جامعه آماری پژوهش شامل زنان شاغل در عرصه گردشگری روستاهای بخش، مدیران محلی، مسئولین و تعدادی از متخصصان عرصه توسعه و آگاه به شرایط منطقه مورد مطالعه می‌باشد. جهت تعیین حجم نمونه در ابتدا در گروه زنان روستایی به منظور تعیین افراد نمونه، ۹۷ زن شناسایی شدند و با روش تمام‌شماری در میان تمامی آنها پرسشنامه‌ها پژوهش توزیع گردید. در گروه آگاهان محلی، متخصصان و مسئولین عرصه توسعه روستایی در منطقه نیز، تعداد ۵۰ نفر به روش گلوله‌برفی شناسایی و پرسشنامه‌ها در میان آنان توزیع گردید. به منظور تجزیه و تحلیل داده‌ها از آزمون‌های کای دو، t تک نمونه‌ای و ضریب همبستگی استفاده شده است.

۴. یافته‌های تحقیق

جمع‌بندی پاسخ‌های ارائه شده از سوی پاسخگویان در ارتباط با موانع توسعه کارآفرینی گردشگری در میان زنان روستایی شاغل در عرصه گردشگری منطقه اورامان با آزمون t تک نمونه‌ای نشان می‌دهد که پاسخگویان در سطح معنی‌داری ۰/۰۵ و ۰/۰۱، و با محاسبه میانگین‌های بیشتر از مطلوبیت عددی مورد آزمون(بیشتر از ۳) و مقدار مثبت آماره‌های T با شاخص‌های چهارگانه آورده شده به عنوان موانع توسعه کارآفرینی گردشگری در میان زنان روستایی شاغل در عرصه گردشگری روستایی منطقه اورامان موافق هستند. نکته قابل ذکر، این مطلب می‌باشد که به‌ترتیب موانع قانونی و ضعف در سیاست‌گذاری و برنامه‌ریزی با میانگین ۴/۹۶، ضعف در زیرساخت‌ها و خدمات و امکانات با میانگین ۴/۵۳ و موانع اجتماعی و فرهنگی با میانگین ۴/۴۸ دارای بیشترین میانگین‌هایی محاسبه-شده می‌باشند و یا به عبارتی دیگر از دیدگاه پاسخگویان به عنوان مهمترین موانع توسعه کارآفرینی گردشگری در میان زنان شاغل در عرصه گردشگری منطقه اورامان شناخته شده‌اند. در ادامه نتایج آزمون اولیه همبستگی پیرسون نشان داد که بین سه متغیر ارتباط معنی‌دار وجود دارد و در مرحله بعدی و در همبستگی تفکیکی یا جزئی نیز مشاهده شد که با مقداری کاهش همبستگی، این ارتباط حفظ گردیده است تا بدین ترتیب بتوان اظهار کرد که ویژگی‌های شخصیتی و زمینه‌ای مورد بررسی در محیط روستایی مورد مطالعه، تاثیر چشمگیری بر کاهش موانع شناسایی شده در راستای کارآفرینی گردشگری در میان زنان روستایی شاغل در گردشگری ندارند.

۵. نتیجه‌گیری و پیشنهادات

نتایج پژوهش نشان داد که از دیدگاه پاسخگویان، موانع قانونی و ضعف در سیاستگذاری و برنامه‌ریزی، ضعف در زیرساخت‌ها و خدمات و امکانات و موانع اجتماعی و فرهنگی به ترتیب به عنوان مهمترین موانع توسعه کارآفرینی گردشگری در میان زنان شاغل در عرصه گردشگری منطقه اورامان شناخته شده‌اند. این در حالی است که موانع مالی دارای کمترین میانگین محاسبه شده در میان شاخص‌های مورد بررسی می‌باشند و می‌توان گفت که مانع مالی از دیدگاه پاسخگویان در سطح متوسط و کمتری نسبت به سایر موانع شناسایی شده در عدم شکل‌گیری فعالیت‌های کارآفرینانه زنان روستایی شاغل در عرصه گردشگری منطقه اورامان اثرگذار می‌باشند. لذا می‌توان بیان کرد که سیستم گردشگری روستایی منطقه مورد مطالعه در بعد عرضه دارای ضعف و چالش است (ضعف خدماتی و زیرساختی). همچنین نتایج آزمون همبستگی پیرسون نشان داد که دو متغیر، میزان تمایل به فعالیت‌های کارآفرینانه زنان روستایی شاغل در عرصه گردشگری و ویژگی‌های شخصی و زمینه-ای دارای ارتباط معنی‌دار بوده و زنان روستایی دارای وضعیت بهتر و مطلوب‌تر از نظر وضعیت شخصیتی و زمینه‌ای، داشتن هدف در زندگی و دارای آشنا یا دوستان نزدیک شاغل در عرصه گردشگری، تمایل بیشتری به ورود به عرصه گردشگری روستاها و کارآفرینی در آن را دارند.

کلید واژه‌ها: کارآفرینی، گردشگری، زنان روستایی، روستاهای بخش اورامان.

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Original Article

Spatial Analysis of the Ecological Footprint of the Rural Settlements (Case Study: Eslamabad-e Gharb County)

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Abstract

Purpose- Environmental issues such as the ecological footprint, are the product of intellectual, cultural, and economic factors. Therefore, it is necessary to know the variables effective on the amount of the footprint. The main objective of the present study is to investigate the factors affecting the ecological footprints of the rural settlements in Eslamabad-e Gharb County with a holistic and spatial approach.

Design/methodology/approach- The present study is an applied one regarding the objective and descriptive-correlational regarding the methodology. In terms of the data collection method, it is a field survey. The statistical population includes 25% of the villages in Eslamabad-e Gharb County (40 villages). The sample size was determined as 500 households based on the latent and observable variables. The Structural Equation Modeling (SEM) was used to analyze the data. Also, the Geographically Weighted Regression (GWR) was used to investigate the effects of the locative-spatial factors on the research variables.

Findings: The results of the Bootstrap test based on the T values indicated that the variables "ownership", "environmental awareness", and "consumerism" had the highest t-value and thus, were most correlated. The variable "ownership" in the economic structure is more correlated with the ecological footprint of the researched villages than other independent variables with a statistic of 26.053. overall, the analysis of the direct and inverse correlations in the SEM indicated that the variables "ownership" and "employment" were the most effective factors on the ecological footprint with coefficients of 0.874 and 0.575, while the "conspicuous consumption" was the least effective variable. Also, the results of spatial regression showed that the villages in the northwest of the county were more effective while moving towards the southeast and getting distant from the center reduces the effectiveness of the research variables on the ecological footprint.

Research limitations/implications- The high rate of employment in the agricultural sector, the weakness in environmental issues training, and the high rate of livestock and agricultural ownership among a limited number of people have created obstacles on the road to the ecological sustainability of the region.

Practical Solutions: Directing the residents of the researched villages towards non-agricultural employment by providing appropriate facilities and support, promoting an environment-friendly lifestyle, and training the residents to increase their environmental awareness by holding workshops in this field.

Originality / Value: The present study is the first to use the SEM and spatial approach to investigate the factors effective on the ecological footprints of rural settlements. The results obtained can aid the planners and decision-makers in the field of rural settlements to advance the goals of sustainable development.

Keywords: Ecological footprint, structural equations, geographically weighted regression, Eslamabasd-e Gharb.

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1. Introduction

The environmental crises are one of the largest threats to human beings' ecosystems, culture, economy, and health (Klemmer & McNamara, 2020). With the expansion of industries and technology and higher exploitation of nature, these problems were intensified (Soltani Bahram, 2015). Its onset can be the Industrial Revolution and the following population boom (Seif & Seif, 2021). In this period, the countries sought fast-paced economic growth unilaterally which led to a significant burden on the environment (Yang et al., 2022) as well as various crises. Among the environmental crises of the new century, a 40% increase in carbon dioxide emissions during the 2000-2017 period (UNEP, 2021) and the 36.8-billion-ton emission of greenhouse gases in 2022 (IEA, 2023) which has led to a 0.18-centigrade increase in the global warming in each decade (NOAA, 2022) can be named. Moreover, the annual destruction of 1 million hectares of jungles (Ritchie & Roser, 2021) as well as the 68% decline in global wildlife (Niemelä et al., 2000) indicate that the relationship between man and the environment is still inappropriate. These issues led to the introduction of the concept of sustainability into the development literature (Omisore, 2018). Sustainability denotes the fact that natural resources, as the collective heritage of humanity, should be used and protected in a way that meets the needs of future generations (Mehrara, 2016). In line with this paradigm, some theories such as the deep ecology (Cheney, 1987), environmental ethics (Taylor, 2011), and ecological citizenship (Dobson, 2006) were also proposed which all denied anthropocentrism and emphasized the necessity of paying attention to the environment to achieve the sustainable development.

On the other hand, since the environment is an absolute and constant phenomenon, and has a limited ecological capacity to be used by human beings (Alizade Aghdam et al., 2017), it requires the analysis of the way these resources are consumed. One of the appropriate means to perform such an analysis is the ecological footprint index. This index is a basis for the relationship between man and nature (Moodi et al., 2021). It seeks to answer the question of how much biocapacity regeneration is required for the regeneration of the resources used by a population, in a given period. (Venetoulis & Talberth, 2010). In fact, the amount of the footprint is compared to the region's biocapacity. Based on the Global Footprint Network, in 2018, human demand exceeded the regeneration capacity of all ecosystems on the planet by 70%. If this severe trend of environmental degradation continues, it will eventually lead to the depletion of resources (Aghayari et al., 2022). Therefore, the results of the ecological footprint are useful for the increase in the general and political awareness of human resources consumption by human beings (Bulte & Van Kooten., 2000). In addition to the importance of the analysis of resource consumption sustainability, the recognition of the effective factors in this field is also necessary because environmental issues such as the ecological footprint of rural and urban settlements are the outcome of the various intellectual, cultural, political, and economic factors (Bidhendi et al., 2014). Therefore, the recognition of the factors effective on the amount of the footprint helps the planners and decision-makers in the field of human settlements, especially the rural ones, with the advancement of the goals of sustainable development since the rural ecological issues are rooted in the economic and social aspects as well as people's lifestyle in such settlements. Therefore, investigation of these factors would provide a better and more precise understanding of the environmental conditions in rural areas.

Eslamabad-e Gharb Counrt, as a crop production hub in Kermanshah Provine, and also the second largest city in this province, has access to a huge volume of natural resources. The environmental issues from the past such as a 12-meter drop in the groundwater levels (Lashkari et al., 2009), failure to comply with the environmental principles by the agricultural enterprises (Motamedi Nia et al., 2013), water shortage due to a decade of drought, pastures and forest destruction due to human factors and fires, excessive use of chemical fertilizers, and pollution of Alvand River due to the waste from sugar and yeast factories necessitate the studies in this field. Therefore, the present study seeks to identify the factors effective on the ecological footprint and then, analyze the amount of the effectiveness of each factor in the rural settlements of Eslamabad-e Gharb County. In fact, the main research objective is to answer the question of "what the effective factors on the ecological footprint in the sample region are".

2. Research Theoretical Literature

2.1. Ecology

The term "ecology" is derived from the Greek 'Oikos' (meaning the settlement) and 'Logos' (meaning the science of studying) (Ataei et al., 2017). This term was first used by Earnst Heackl, a German biologist and

philosopher, in 1868 (Lawrence, 2003). Ecology is focused on the adaptability of living organisms to the environment. However, for human, who enjoys specific cultural and social structures, this adaptability is different from that of the plant and animal species (Alizade Aghdam et al., 2017). Therefore, ecology is a precondition by which the cities and villages can provide an appropriate environment for citizens to live in. In these environments, only those technological advancements that are associated with ecology can serve the citizens. The ecological city or village is a sustainable place that can provide the settlers with a meaningful life without destroying the ecological base it depends (Soltani Bahram, 2015). In this regard, human ecology is raised as a kind of analysis for the human-environment relationships (Park, 2012). This concept researches the mutual interdependence and grouping of the human beings in the place (space) (Omidpanah, 1985). It is generally divided as follows (Table 1):

Table 1. Different types of human ecology and its definitions

Social ecology	Social ecology seeks to understand the mutual relationships between the biophysical and sociocultural domains (Grove & Burch, 1997: 262). This type of ecology analyzes the relationships between the human community and the environment on the local, regional, national, and international scales. The urban and rural ecology are known as the pillars of social ecology (Moran, 2010).
Cultural ecology	Cultural ecology deals with the investigation of the mutual relationships between a cultural group with a shared material and spiritual lifestyle and the environment. The bases for cultural ecology are the anthropological studies of Julian Steward and the cultural geography of Carl Sauer. Steward has played an important role in the evolution of geography and anthropology by emphasizing the connection between nature and society through cultural adaptability (Motefakker Azad & Khorshid Doost, 2011)
Political-economic ecology	Political ecology, joined by economic ecology, determines how man uses the environment. Also, it analyzes the effects of capitalism on the development of communities. In other words, the political ecologist focuses on how the capitalism affects environment and human actions related to it. The economic ecologist on the other hand focuses on sustainable economic processes in the area of territory.

According to the aforementioned concepts, in ecological development, the cities and villages should be designed to promote health and quality of citizens' lives, and the related ecosystems should be protected. This type of development connects the citizens' decisions, public management, efficient ecological industries, people's needs and expectations, culture, and natural landscapes. Accordingly, nature, agriculture, and man-made environment can be practically interconnected in a coherent and integrated manner (Alizade Aghadam et al., 2017).

2.2. Sustainability and Ecological Footprint Index

The geographers, as those who research the relationship between man and nature, have been pioneers of environment protection theories. The scholars in this field found out that although the rapid extraction of human resources boosts the development trend of developing countries, the environmental quality of these countries will be disturbed due to inappropriate patterns in the use of these resources (Bekun et al., 2019). In fact, there is an inverse correlation between rapid economic growth and natural resources-based exploitation. It will intensify the environmental damage (Yin et al., 2022). It led many social pioneers and governments to recognize the existing unsustainability and direct their activities towards sustainability (Missimer et al., 2010). As a dominant environmental policy, sustainability refers to the relationship between consumer societies, environmental factors, and social policies (Bogert et al., 2022). The concept of sustainability has many interdependent dimensions, including ecological, economic, political, and epistemological dimensions, and requires a kind of participatory, comprehensive, and interdisciplinary approach for planning, implementation, and evaluation (Ukaga et al., 2010). The most acceptable definition of sustainable development is the one provided in the Brundtland Report. Based on this report, sustainable development is the one that meets the current needs of human beings without disturbing the future generation's ability to meet their needs (Hajian & Kashani, 2021). To enjoy sustainable development, the first step is to know about the status of region's sustainability so that if it is otherwise, the plans required for sustainable development are prepared and implemented. The ecological footprint index is a criterion for the investigation of environmental sustainability. This criterion analyzes the amount of consumption by human beings and the effects of such consumption on the environment (Jomepoor et al., 2013). Such analysis is performed through the measurement of the amount of consumption of the resources and waste production. The logic behind this method is based on the fact that

annually, a specified amount of resources can be consumed and a specified amount of waste can be produced. This amount is based on the earth's biocapacity. If the amount of resource consumption and waste production by human beings exceeds its biocapacity, i.e., the ecological footprint in a region, country, or earth exceeds its biocapacity, that region will be unsustainable (Hosseinzade Dalir & Sasanpour, 2006).

The ecological footprint index was first introduced by Rees and Wackernagel in 1996, in the book "Our Ecological Footprint: Reducing Human Impact on the Earth", University of British Columbia. This index was then developed (Rees & Wackernagel, 1998: Jin et al., 2009). The ecological footprint index is a sustainability index that analyzes the amount of human consumption and its effects on the environment (Wackernagel et al., 2004, 265). In this method, the supporting area of the human settlement is estimated and this estimation indicates how much of the ocean and land is capable of natural production to meet the vital needs of the inhabitants (Wang et al., 2012), i.e., it demonstrates how each society affect the nature as a result of their lifestyle (Wilson & Anieldki, 2004). Therefore, the ecological footprint is the outcome of the mutual relationship between man and the environment and the result of his actions and behaviors. Thus, various cultural, economic, and behavioral factors can affect the amount of an individuals' footprint. In the past few decades, due to the importance of investigating the effects of humans on nature, the ecological footprint of human societies has become the subject of new environmental studies. In addition to analysis of the human footprint in different consumption sectors, some researchers have sought to identify the factors that affect the ecological footprint. Ruini et al. (2010), in a study entitled "Is whatever good for you is also good for the environment?", have dealt with the relationship between people's lifestyles and how much they affect the environment. Their results indicated that preparing food at the lower levels of the food pyramid creates a smaller ecological footprint, and moving to the top of the food pyramid will increase the amount of the footprint. Also, Sheng and Chang (2016) dealt with the investigation of the effects of different income levels on the ecological footprint. Their results indicated that the GDP per capita varies with income levels. Also, the effects of urbanization on income levels were proven to be positive, i.e., the higher the urbanization in high- and low-income countries, the higher the ecological footprint.

Hassan et al. (2019) in a study entitled "Linking economic growth and ecological footprint through human capital and biocapacity", investigated the link between economic growth and the ecological footprint. This study indicated that economic growth leads to an increase in the ecological footprint and the destruction of the environment. The biocapacity also increases the ecological footprint and facilitates the destruction of the environment. However, using the causality method, the research indicated that there is no causal relationship between economic growth and ecological footprint. On the other hand, Özbaş et al. (2019), using a sociological approach, indicated that the percentage of ecological footprint is different for three various age groups (50+ age group). Also, ecological footprint values were investigated based on the education and income levels among both men and women. The results indicated that in all age groups, the ecological footprint of people with higher income is more than those with lower income. Also, the ecological footprint of men with the same income as women is higher than them.

The ecological footprint index has recently grabbed the attention of many researchers in Iran. Some of these studies which have been conducted in the two last decades are presented in the following:

Hosseinzade Dalir & Sasanpour (2006), in a study entitled "The Application of Ecological Footprints Method In Sustaining Metropolitan With Particular Emphasis Up On Tehran", dealt with the investigation of the ecological footprint of Tehran metropolitan and the factors effective on sustainability and unsustainability. The results indicated that the ecological footprint per capita of Tehran and Iran are 3.79 and 1.98 hectares, respectively. Compared to the global level, the footprint per capita of Tehran citizens is greater by 2.3 hectares. Hajilou (2013), in his thesis entitled "Sociological explanation of the ecological footprint and factors affecting it (case study: Tabriz City)", identified the social factors affecting the ecological footprint. It was a survey with Tabriz City being the case study. All citizens above 15 years old were chosen as the statistical population. The results indicated that the variable "lifestyle" was the most effective factor on ecological footprint. On the other hand, the variables "age", "education", "job", and "social and economic class" were effective on average ecological footprint. Also, Alizadeh Aghdam & Honarvar (2018) investigated the correlation between environmental attitude and environmental behavior. This research was a survey which was conducted in Tabriz City. Based on the results, there is a significant

and positive correlation between environmentally responsible behavior and people's attitudes towards the environment.

Soltani Bahram (2015), in his thesis entitled "Sociological study of ecological citizenship and its related factors (case study: Tabriz city)", investigated the effects of social factors such as lifestyle, spiritual intelligence, mass media, and cultural and economic capital on the ecological citizenship. The results indicated that ecological citizenship is significantly correlated with age, ecological concern, spiritual intelligence, and cultural and economic capital, however, it was not significantly correlated with the conspicuous consumption lifestyle and the mass media.

Based on the literature review, it can be said that environmental issues and pollution are grabbing more and more attention in various sciences. It can be proven by the number of environmental studies in recent years. These environmental concerns are mainly rooted in excessive load and exploitation of the regions' ecological capacity in the last two centuries, which have led to numerous environmental disasters worldwide. However, most of these studies have dealt with the investigation of economic effects on the environment. Another part also has been focused on its sociological explanation. In fact, a holistic and spatial approach is rarely seen in these studies. On the other hand, these studies have mainly focused on the effects of urban areas on the environment while the rural settlements, as a huge part of the world's population, have been ignored. Also, a review of the related literature indicates that no studies have been conducted on the ecological footprint of rural settlements in Eslamabad-e Gharb, and no answers to the present research questions have been found. Based on the literature review, three categories of ecological culture capital, conspicuous lifestyle, and economic capital have been identified as the factors affecting ecological footprint (Table 2):

Table 2. Factors investigated in the literature

Main factors	Secondary factors	Hajilou, 2013	Soltani Bahram, 2015	Mahdavi & Riahi, 2003	Aghil et al., 2009	Rafei & Amirnrjad, 2009	Saraei & Zarei Farshad, 2011	Alizadeh Aghdam & Honarvar, 2019	Salehi & Emamgholi, 2012	Aghayari Hir et al., 2023	Bani Fatemeh & Hossein Zade, 201	Craig & Allen, 2015	Gelissen,2007	Chen & et al, 2011	Gorus & et al, 2022	Huang, 2016	Jorgenson & Clark, 2010	Poortinga et al, 2004	Galli et al, 2010	Garigoryeva, 2010	Emine Ozmete, 2011	Simpson et al., 2000	Gorus & Karagol, 2022	Moore, 2015	Chen & Chang, 2016
Economic capital	Workforce quantity and quality																						*		
	ownership		*																					*	
	Income		*			*	*						*		*			*					*		*
	Improvement of production tools																	*							
Ecocultural and social capital	Social solidarity										*														
	Social trust (institutional and public)				*																				
	Environmental awareness			*					*																
	Environmental cognition	*	*																						
	Education level		*				*	*			*			*											
	Environmental beliefs	*	*					*	*							*									
	Environmental participation		*		*			*														*			

Main factors	Secondary factors	Hajilou, 2013	Soltani Bahram, 2015	Mahdavi & Riahi, 2003	Aghil et al., 2009	Rafei & Amirnrjad, 2009	Saraei & Zarei Farshad, 2011	Alizadeh Aghdam & Honarvar, 2019	Salehi & Emamgholi, 2012	Aghayari Hir et al., 2023	Bani Fatemeh & Hossein Zade, 201	Craig & Allen, 2015	Gelissen,2007	Chen & et al, 2011	Gorus & et al, 2022	Huang, 2016	Jorgenson & Clark, 2010	Poortinga et al, 2004	Galli et al, 2010	Garigoryeva, 2010	Emine Ozmete, 2011	Simpson et al., 2000	Gorus & Karagol, 2022	Moore, 2015	Chen & Chang, 2016
	Cultural dynamism and environmental movements	*																							
	Ecological literacy	*	*			*				*															
	Family size							*										*							
	Environmental NGO's				*																*				
	Environmental training					*						*	*								*	*				
Consumer lifestyle	consumerism		*																*			*	*	*	
	Media consumption															*									
	Conspicuous consumption		*																			*			
	Amount of consumption (responsible consumption)		*							*									*			*			
	Clothes selection pattern	*	*																						
	Food preferences	*	*																			*			
	Paying attention to buying	*	*																						
	Promotion of traveling and tourism		*																*					*	
	Avoiding extravagance		*																*						

Source: Related Literature (2023)

Based on the theoretical framework and literature review, as well as the analysis of the subject of the study, the conceptual model of the study is presented in Figure 1:

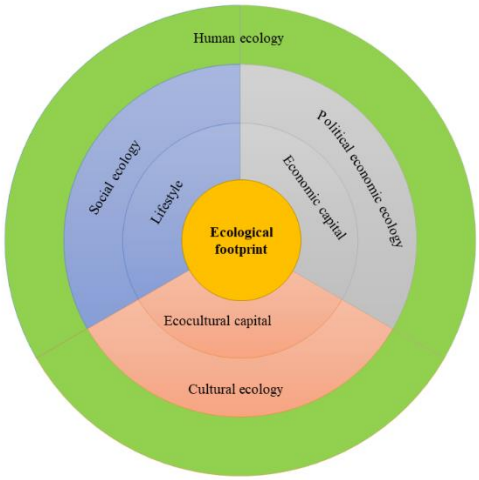

Figure 1. Conceptual model of the study (aimed at investigation of factors effective on ecological footprint)

3. Research Methodology

3.1 Geographical Scope of the Research

The statistical population of the study included all rural households in Eslamabad-e Gharb. The coordinates of the city are 34°6'47.47"N and 46°31'40.34" E (Figure 2). Based on the latest administrative divisions, Islamabad-e Gharb consists of two counties (Islamabad-e Gharb and Homeyl), two districts (Central and Homeyl), 7 rural districts (Hasan Abad, Howmeh-ye Jonubi, Howmeh-ye Shomali, Shiyan, Mansuri, Harasam, and Homeyl), and 161 inhabited villages. The population of the city is 140876 people in 40911 households among which 440 people (14031 households) live in rural areas and 9176 people (26880 households) live in urban areas (Statistical Center of Iran, 2016). In other words, 34% of this county's population lives in rural areas.

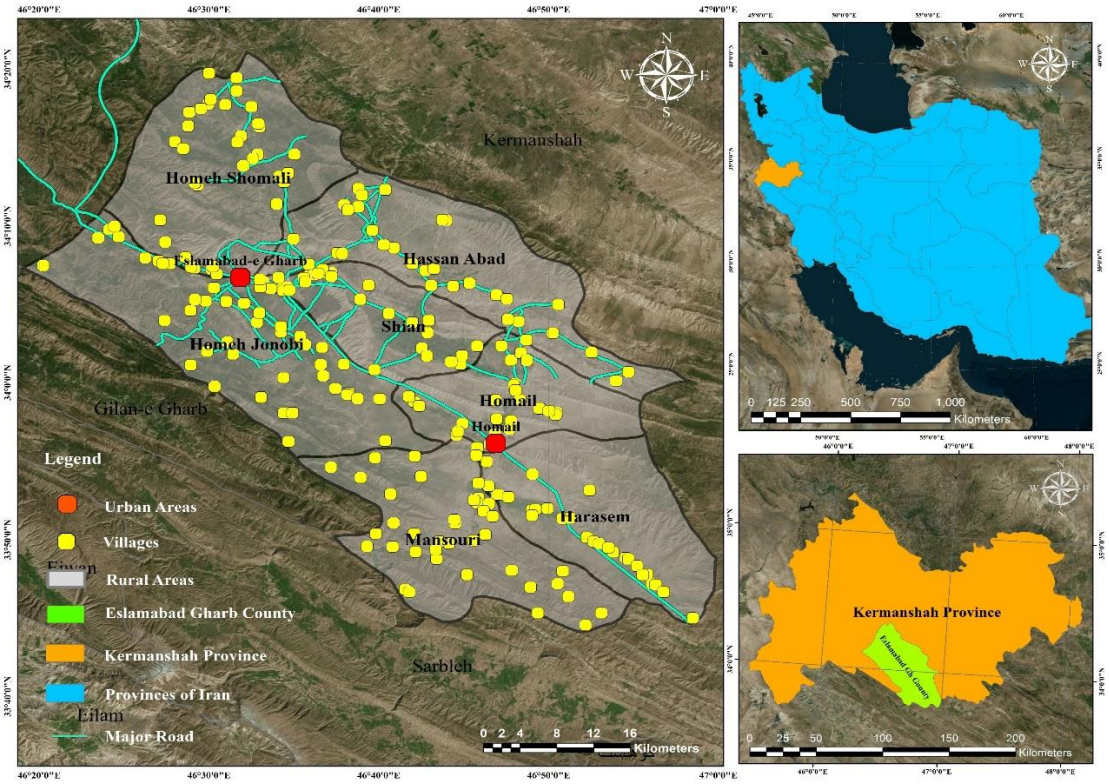

Figure 2. Location of the case study

3.2. Methodology

The present study is applied regarding the objective and descriptive-correlational regarding methodology. In terms of the data collection procedure, it is a field survey. The analyses have been done using the Structural Equation Modelling (SEM) or the causal model of Partial Least Squares (PLS). In the SEM, the sample size is determined based on latent and observable variables (Diamantopoulos, 2011; Hair, 2011). Therefore, in the present study, the Gamma-exponential Method was used to determine the minimum sample size. In this method, the number of latent and observable variables, desired statistical power level, and F-square (effect size) are considered. The effect size is an index that indicates the power level of independent variables. According to Cohen (1988), the value of this index is divided into weak (0.02), moderate (0.15), and strong (0.35) levels. The minimum level of 0.15 is considered for sample size calculation.

The power level is chosen to be between 80 and 90% (Hair, 2011). By inserting the effect size value, power level, and latent and observable variables into the G-Power software, the sample size was calculated as 420 people (householders) at a 95% confidence level.

The statistical population consists of 25% of the villages in Eslamabad-e Gharb (40 villages). The sample villages were chosen based on three features: distance from the city center, number of households, and location. The spatial dispersion of the villages over the whole city area was considered in selecting them. Finally, the spatial dispersion of the sample villages is presented in Figure 3.

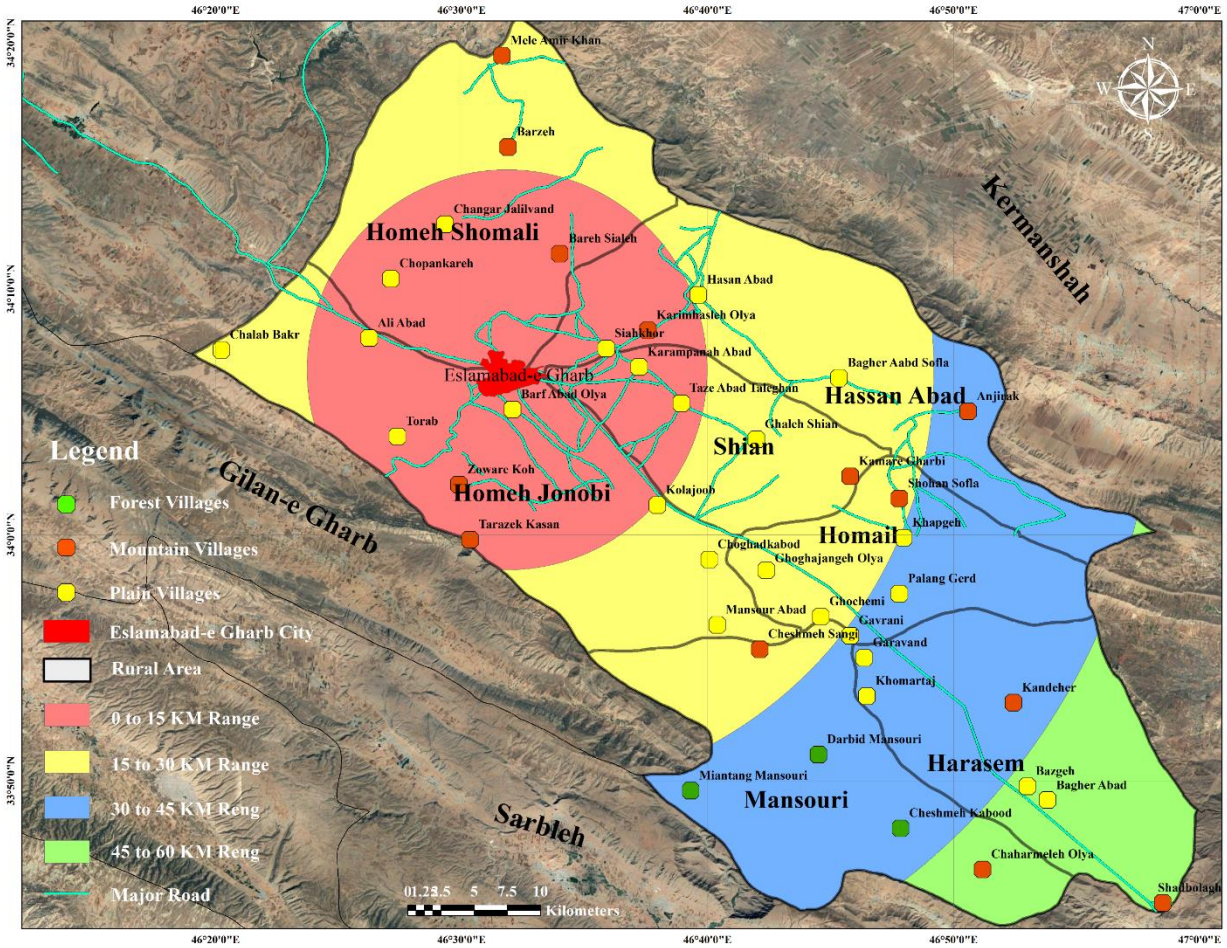

Figure 3. Location of the sample villages in Eslamabad-e Gharb County and their distance from the center

The total population of the sample villages was 20659 in 5966 households, based on the last census which was conducted in 2016. Since the number of families varies from village to village, proportionality constant with 10 samples as the base for each village was used for appropriate distribution. This value is added to the minimum sample size (420 people) and finally, 500 households were chosen as the sample size (Table 3). The households were also chosen by purposeful sampling.

Table 3. Share of each rural area from the number of samples

Rural Area	Hassan Abad	Howmeh-ye Shomali	Howmeh-ye Jonubi	Harasam	Homeyl	Shiyan	Mansuri	Total
Household	806	583	1896	749	528	801	602	5966
number of samples	59	55	143	75	41	65	62	500

To select the research variables, those used in the literature were indexed as the first step (Table 2). Then, those variables with the highest frequency were chosen and categorized into three ecological, lifestyle, and economic capital categories (Table 4). Finally, based on the selected variables, a questionnaire was designed using a 6-point Likert scale.

Table 4. Research constructs and variables

Construct	Latent variable	Observable variables	Number of elements
Ecocultural capital	Environmental cognition	The limited right to use nature for economic growth and welfare, belief in the protection of the environment, importance of environmental issues, belief in natural resources, belief in the limitation of natural resources, urbanism and industrialization as the reasons behind environmental problems, not preferring the economic considerations over the protection of environment, No need to take care of nature because of its ability to regenerate itself, priority of environment over other issues, concerns about environmental crises, concerns about destruction of jungles and pastures.	9
	Environmental beliefs	The role of participation of people and institutions in preserving the environment, the role of individual consumption patterns in preserving the environment, protection of natural resources as one of the signs of the progress of societies, the right to life for all living beings, responsibility towards nature, protection and support of Nature in all animate and inanimate parts, belief in the pristine life of animals in nature, the preciousness of the planet earth, the importance of the individual role of people in taking care of nature	10
	Environmental knowledge	Recognizing the most important environmental crises in the world, reducing biodiversity as an important environmental issue, being aware of the pollution of water resources,	3
	Environmental behavior	Practical action against the destruction of the environment, reduction of plastic items, sensitivity to the release of waste in nature, sensitivity to excessive consumption, practical cooperation with environmental associations, payment for environmental measures, action to reduce consumption In personal life	9
	Environmental awareness	Knowing the environmental problems of the place of residence, being aware of the priority of environmental problems, being aware of the separation of the environmental problems of the place of residence, and prioritizing the existing environmental problems.	5
Consumer lifestyle	Consumerism	Diversification in consumption, following fashion, desire to constantly change home appliances, desire to buy clothes seasonally, doing shopping as a hobby, not wanting to repair appliances for reuse.	5
	Amount of consumption	The amount of buying cosmetics, eating out, expenses for unnecessary activities	4

Construct	Latent variable	Observable variables	Number of elements
	Conspicuous consumption	The desire for decorations and luxuries at the party, the desire to change vehicles and residential houses, the desire to buy luxury appliances, a luxurious view of the home layout, accompanying the current models of household appliances and clothing, being cheap is equal to being of poor quality, buying from certain brands	6
Economic capital	Ownership	The type of residential house ownership, the approximate value of the residential house, the approximate value of the vehicle, the amount of ownership of agricultural land, the approximate value of real estate, the ownership of livestock and its approximate value, the ownership of agricultural tools	6
	Income	Average household income	1
	Employment	The number of active family population, the number of family workers	2

After the data were collected and categorized, descriptive and inferential statistics were performed using SPSS software. Also, the SMART PLS was used to extract the SEM and determine the effect size of the identified variables on ecological footprint. The ecological footprint of sample villages was extracted from Aghayari et al. (2023) (Table 5). The GWR was used to investigate the effect size of each variable on the ecological footprint of sample villages. Using this model, the patterns can be easily identified in a collection of data (Motesaddi Zarandi et al., 2021: 24).

Table 5. Amount of ecological footprint of sample villages in the consumption sectors

Name of the village	Ecological footprint	Food	Housing	Transportation	Consumer goods	Services
Karim Haseleh	5.29	4.4	0.45	0.06	0.37	0.02
Siah Khoor	3.14	1.46	0.46	0.01	1.2	0.01
Bagher Abad Sofla	5.029	2.54	0.4	0.01	2.04	0.04
Anjirak	4.032	1.75	0.43	0.01	1.81	0.03
Hasan Abad	5.9	3.27	0.48	0.02	2.09	0.04
Malleh Amir Khan	9.67	8.67	0.45	0.02	0.52	0.02
Barzeh	5.3	3.92	0.42	0.02	0.93	0.02
Bareh Sileh	5.401	3.98	0.37	0.02	1	0.03
Changar Jalilvand	5.474	2.98	0.45	0.01	2.01	0.03
Choopan Kareh	5.1148	1.76	0.44	0.02	2.86	0.04
Zavareh Kooh	6.873	4.41	0.56	0.05	1.5	0.35
Tarazak Kasan	4.13	2.49	0.45	0.03	1.13	0.03
Mansur Abad	3.039	2.3	0.02	0.02	0.69	0
Torab	4.058	2.37	0.45	0.03	1.19	0.03
Chalab Bekr	7.901	5.56	0.43	0.02	1.87	0.02
Kalleh Joob	3.908	1.74	0.34	0.02	1.77	0.04
Ali Abad	4.979	1.75	0.47	0.02	2.71	0.03
Chogha Kabood	5.029	1.2	0.5	0.01	3.29	0.03
Barf Abad Oliya	5.64	1.37	0.46	0.02	3.75	0.04
Choghajangeh Oliya	4.49	3	0.47	0.03	0.7	0.29
Bagher Abad	6.241	5	0.56	0.05	0.41	0.22
Bazgah	7.377	6.44	0.56	0.05	0.29	0.04
Khomar Taj	8.349	7.23	0.53	0.03	0.53	0.03
Shad Balagh	3.65	2.44	0.43	0.02	0.74	0.03
Garavand	4.342	2	0.5	0.02	1.8	0.02
Kondehar	5.379	2.69	0.47	0.02	2.17	0.04
Showhan Sofla	5.355	3.32	0.53	0.03	1.14	0.34
Khepgeh	4.295	2.32	0.49	0.02	1.45	0.02

Name of the village	Ecological footprint	Food	Housing	Transportation	Consumer goods	Services
Palangerd	5.139	3.06	0.48	0.02	1.53	0.04
Gardangah Quchmi	4.873	3.06	0.43	0.02	1.34	0.04
Tazeh Abad Taleghan	3.272	2.4	0.46	0.02	0.38	0.02
Kamareh Gharbi	2.791	1.66	0.47	0.02	0.61	0.03
Karam Panah Abad	3.76	2.54	0.48	0.02	0.69	0.03
Ghale Shiyan	5.365	1.52	0.48	0.02	3.34	0.01
Mina Tang Mansuri	6.1	4.46	0.04	0.04	1.55	0.01
Chahar Malleh Oliya	5.094	3.7	0.56	0.03	0.78	0.03
Cheshmeh Kabud	7.3542	5.34	0.48	0.03	1.46	0.05
Darbid Mansuri	6.636	4.31	0.52	0.01	1.69	0.1
Cheshmeh Sangi	5.095	3.3	0.53	0.01	1.2	0.04
Gavrani	4.713	2.84	0.5	0.02	1.31	0.05

Source: Aghayari et al. (2023)

4. Research Findings

According to the results obtained from descriptive statistics, among the 500 samples studied, 382 were male and 118 were female. In other words, 76.4% of the respondents were male and 23.6% of them were female. In terms of age, the average age of the participants was 34.26 with a standard deviation of 11.2. Based on the age categorization, 34.8% of the participants were categorized in the 24-28 age group and this group was the most frequent. Considering the marital status, among 500 samples, 62% were married while 37.7% were single. Regarding education level, the diploma was the most frequent (28.2% of respondents). Also, investigating the employment of the householders, it was revealed that those working in the agricultural sector were the most frequent (82.4%).

4.1. Descriptive Statistics related to the Dependent Variable "Ecological Footprint"

The ecological footprint variable, which is raised in the present study as the dependent variable, includes five main dimensions as food, housing, transportation, consumer goods, and services. The amount of ecological footprint of the sample villages in different sectors of consumption is presented in Table 5, per hectare. However, since a 6-point Likert scale has been used for the investigation of the three factors as lifestyle, cultural capital, and economic capital, the amount of ecological footprint of the villages has been categorized and valued in 6 categories. This categorization is as follows: Very large ecological footprint (code 1), large footprint (code 2), fairly large footprint (code 3), fairly small footprint (code 4), small footprint (code 5), and very small footprint (code 6). This coding was also performed for other sections of the footprint (Table 6). Based on the descriptive findings, 30% of the sample villages were categorized under the 'fairly large footprint' category.

Table 6. Evaluation of the value of the ecological footprint of sample villages

Ecological footprint dimensions	Very large footprint (code 1)	Large footprint (code 2)	Fairly large footprint (code 3)	Fairly small footprint (code 4)	Small footprint (code 5)	Very small footprint (code 6)
Food footprint	7.43 - 8.67	6.19 - 7.42	4.94 - 6.18	3.70 - 4.93	2.45 - 3.69	1.2 - 2.44
Housing footprint	0.47 - 0.56	0.47 - 0.56	0.29 - 0.38	0.2 - 0.29	0.11 - 0.2	0.02 - 0.11
Transportation footprint	0.051 - 0.06	0.041 - 0.05	0.031 - 0.04	0.021 - 0.03	0.019 - 0.02	0.01 - 0.018
Goods footprint	3.18 - 3.75	2.60 - 3.17	2.03 - 2.59	1.45 - 2.02	0.87 - 1.44	0.29 - 0.86
Services footprint	0.30 - 0.35	0.24 - 0.29	0.18 - 0.23	0.12 - 0.17	0.06 - 0.11	0.00 - 0.05
Total footprint	8.53 - 9.66	7.38 - 8.52	6.23 - 7.37	5.09 - 6.22	3.94 - 5.08	2.79 - 3.93
Percentage of villages in each class	2.50%	5%	30%	10%	27.50%	17.50%

Status of Ecocultural Capital of the Villagers- To assess the ecocultural capital of the sample villages, variables namely environmental cognition, environmental beliefs, environmental knowledge, environmental awareness, and environmental behavior were used with 36 items on a 6-point Likert scale. The data obtained from the questionnaire indicates that the ecocultural capital of the villagers was medium-to-low with an average of 3.92. Also, the environmental beliefs variable was the highest value among the villages with an average of 4.87, while the environmental participation was the lowest with an average value of 2.02. The average spatial distribution of ecocultural capital in the sample villages indicates that Kalleh Joob, Siah Khoor, and Kamareh Gharbi villages had the highest statistics with 4.2, 3.89, and 3.63, while Khomar Taj, Malleh Amir Khan, and Bazgah had the lowest statistics.

Status of Consumption Lifestyle of the Villagers- The variables consumerism, conspicuous consumption, and amount of consumption have been used to investigate the ecological lifestyle of households residing in the sample region. These variables were measured in a 6-point Likert scale using 15 items. According to the obtained data, the consumer lifestyle of the villagers is at a low level with an average of 2.8. Meanwhile, the amount of consumption is the highest value with an average of 4.1. The conspicuous consumption is the lowest value in the sample villages with an average of 2.8. Also, the spatial distribution of the consumer lifestyle in the sample villages indicated that Siah Khoor, Anjirak, and Choopankareh top all other villages in all variables with average values of 3.92, 3.76, and 3.25. The lowest statistics belonged to Ghale Shiyan, Choghad Kabood, and Barf Abad.

Status of the Economic Capital of the villagers- Variables such as ownership, income, and employment along with 9 items on a 6-point Likert scale were used to assess the economic capital in the sample villages. According to the obtained responses, the status of the economic capital in the region was middle-to-high with an average value of 3.41. Among the investigated variables, ownership was the highest with an average value of 3.9, while employment promotion was the lowest with an average value of 2.2. The spatial distribution of economic capital indicates that Ghale Shiyan, Kalleh Joob, and Garavand top other villages with average values of 4.1, 3.8, and 3.68.

4.2. Investigation of Effectiveness of the Independent Variables on Ecological Footprint: The results obtained from the Pearson correlation coefficient (with the confirmation of the normality of data distribution) indicated that the correlation between independent variables (lifestyle, ecocultural capital, and economic capital) and ecological footprint is significant at $p<0.01$ (Table 7). Meanwhile, lifestyle and economic capital are directly correlated with ecological footprint, while ecocultural capital is inversely correlated with it, i.e., with the increase in ecocultural capital, the amount of ecological footprint is reduced in all sample villages. The spatial analysis of the correlation between the independent variables and ecological footprint as the dependent variable is mostly significant and high in most villages. However, in four villages of Chighajanga, Kandhar, Shohan Sofla, and Mansur Abad, there is no correlation between the studied variables. The statistics indicated that the highest correlation between the independent variables and the ecological footprint was observed in Hasan Abad and Kamareh Panah with values of 0.971 and 0.979.

Table 7. Correlation of research variables with ecological footprint

Independent / Dependent		Ecological footprint		
		Pearson's correlation coefficient	Significance level	Test result
Ecocultural capital	Environmental cognition	-0.792	0.000	Correlation is significant
	environmental beliefs	-0.655	0.000	Correlation is significant
	Environmental knowledge	-0.823	0.000	Correlation is significant
	Environmental awareness	-0.763	0.000	Correlation is significant
	Environmental behavior	-0.847	0.000	Correlation is significant
Lifestyle	Consumerism	0.895	0.000	Correlation is significant
	Conspicuous consumption	0.623	0.000	Correlation is significant

Independent / Dependent		Ecological footprint		
		Pearson's correlation coefficient	Significance level	Test result
Economic capital	Amount of consumption	0.852	0.000	Correlation is significant
	Employment	0.688	0.000	Correlation is significant
	Ownership	0.859	0.000	Correlation is significant
	Income	0.838	0.000	Correlation is significant

The Structural Equations Modeling (SEM) in the SmartPLS Ver.3 was used to test the conceptual model of the research and analyze the variables affecting ecological footprint, based on the theoretical foundation and what was mentioned in the methodology. In the SEM (with PLS approach), first, the measuring model fit should be investigated and then, the research question should be analyzed in this framework. The three criteria, namely reliability, convergent validity, and divergent validity, as well as the overall fit of the model, have been used for the investigation of the measuring model fit. Convergent validity refers to the degree to which the variables of a dimension can explain that dimension. Divergent validity is also indicative of the fact that the constructs of the research model should be more related to their questions than other constructs (Hulland, 1999, 195). The Composite Reliability (CR), Average Variance Extracted (AVE), and factor loading were used to test the reliability. If the value of CR is above 0.7, the value of AVE is above 0.5 (Magner et al., 1996: 41), and factor loadings are above 0.05 (on the condition of being significant), the reliability of the measuring model is confirmed (Amani et al., 2014). According to the results (Table 3), the constructs' AVE value is above 0.5, i.e., the latent variable has been able to explain more than 50% of the observable variables' variance. Therefore, the convergent validity of the questionnaire is also confirmed. Also, since the latent variables' CR and Cronbach's alpha values are above 0.7, the research reliability is confirmed (Table 8).

Table 8. Criteria for investigation of reliability and validity of research constructs

Variables	Items	AVE	CR	Cronbach's alpha	questions	Factor loading	t-value
Ecocultural capital	Environmental cognition	0.578	0.921	0.898	q1	0.814	304.41
					q2	0.834	379.46
					q3	0.85	29.57
					q4	0.836	37.57
					q5	0.844	833.64
					q6	0.72	452.64
					q7	0.699	189.3
					q8	0.285	616.24
					q9	0.804	690.7
	Environmental belief	0.596	0.936	0.923	q10	0.845	183.53
					q11	0.846	838.69
					q12	0.849	868.72
					q13	0.852	699.76
					q14	0.836	208.69
					q15	0.69	58.64
					q16	0.665	979.3
					q17	0.665	254.26
					q18	0.616	122.29
					q19	0.873	190.19
	Environmental knowledge	0.754	0.902	0.837	q20	0.869	391.75
					q21	0.863	680.69
					q22	0.205	617.66
	Environmental behavior	0.576	0.920	0.897	q23	0.81	854.3
					q24	0.834	167.59

Variables	Items	AVE	CR	Cronbach's alpha	questions	Factor loading	t-value
					q25	0.829	602.53
					q26	0.845	800.56
					q27	0.811	28.63
					q28	0.777	570.53
					q29	0.765	530.76
					q30	0.732	513.43
					q31	0.77	342.34
	Environmental awareness	0.517	0.840	0.771	q32	0.842	553.45
					q33	0.703	450.62
					q34	0.578	825.28
					q35	0.673	579.15
					q36	0.851	113.23
Consumer lifestyle	Consumerism	0.777	0.946	0.928	q37	0.919	656.53
					q38	0.911	222.109
					q39	0.834	841.82
					q40	0.89	656.63
					q41	0.914	148.94
	Amount of consumption	0.821	0.948	0.926	q42	0.93	167.95
					q43	0.937	243.135
					q44	0.839	358.143
					q45	0.881	928.58
	Conspicuous consumption	0.674	0.914	0.867	q46	0.91	249.7
					q47	0.915	504.115
					q48	0.899	114.108
					q49	0.888	110.92
					q50	0.07	519.71
					q51	0.749	403.1
Economic capital	Ownership	0.667	0.923	0.900	q52	0.847	229.32
					q53	0.819	963.56
					q54	0.855	628.43
					q55	0.807	907.57
					q56	0.819	583.41
					q57	0.001	764.48
	Income	1	1	1	q58	0.907	0
	Employment	0.791	0.884	0.738	q59	0.872	164.93
					q60	0.141	911.5
Ecological footprint	Food footprint	0.521	0.805	0.700	q61	0.817	590.1
	Housing footprint				q62	0.851	776.45
	Transportation footprint				q63	0.645	590.55
	Services footprint				q64	0.789	191.14
	Goods footprint				q65	0.814	504.29

After confirming the reliability and validity of the measuring model, the independent and dependent variables were inputted in the SEM as latent variables and in the form of a first-order factorial model, to measure the effects of consumer lifestyle, ecocultural capital, and economic capital on the ecological footprint of the residents in the sample villages (Figure 4).

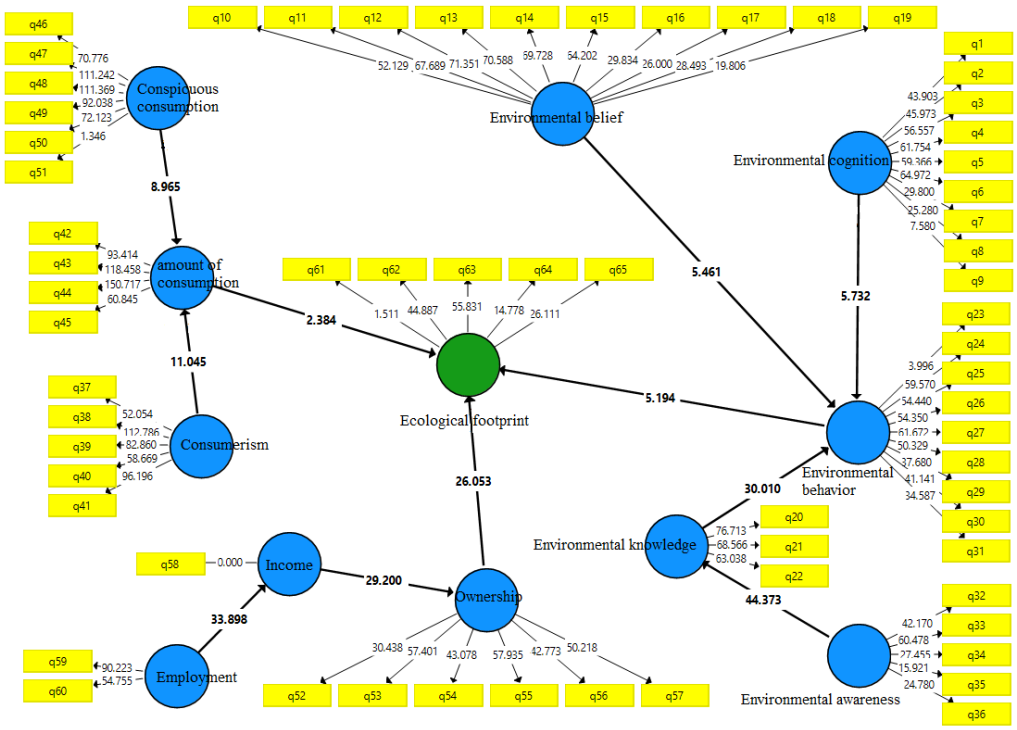

Figure 4. Structural model of the correlation between independent variables and ecological footprint

The t-values between the variables are obtained based on the Bootstrap test (Figure 4). In this test, which was performed at 0.05 significance level, the t-values (the numbers on the arrows) must be above 1.96 so that the significance of the correlations between the variables can be confirmed (Vinzi et al., 2010: 47). As seen in Figure 4, the t-statistics values between all independent variables as well as ecological footprint are above 1.96, and in fact, the correlation between the variables in the sample villages is confirmed with the significance level of 0.01. Also, for analysis of the significance of the path coefficient, it is required to determine the t-statistics values for each path (Table 9).

Table 9. Direct effects of research latent variables

	Standardized beta coefficient	T Statistics (|O/STDEV|)	P Values
Environmental awareness => environmental knowledge	0.017	44.373	0
employment => income	0.022	33.898	0
Environmental belief => environmental behavior	0.033	5.461	0
consumerism => amount of consumption	0.048	11.045	0
Environmental knowledge => environmental behavior	0.024	30.01	0
income => ownership	0.025	29.2	0
Conspicuous consumption => amount of consumption	0.047	8.965	0
Environmental cognition => environmental behavior	0.022	5.732	0
Environmental behavior => ecological footprint	0.029	5.194	0
Amount of consumption => ecological footprint	0.066	2.384	0.017
ownership => ecological footprint	0.029	26.053	0

The path coefficients are shown in Figure (5). The path coefficient here is the same as the standardized beta in the linear regression. Positive path coefficients are indicative of the direct correlations between the endogenous and exogenous latent variables, while negative coefficients are indicative of inverse correlations between them. According to the results obtained

from the analyses, it can be said all the correlations between the endogenous and exogenous latent variables are direct except that of environmental behavior and ecological footprint which was negative and thus inverse.

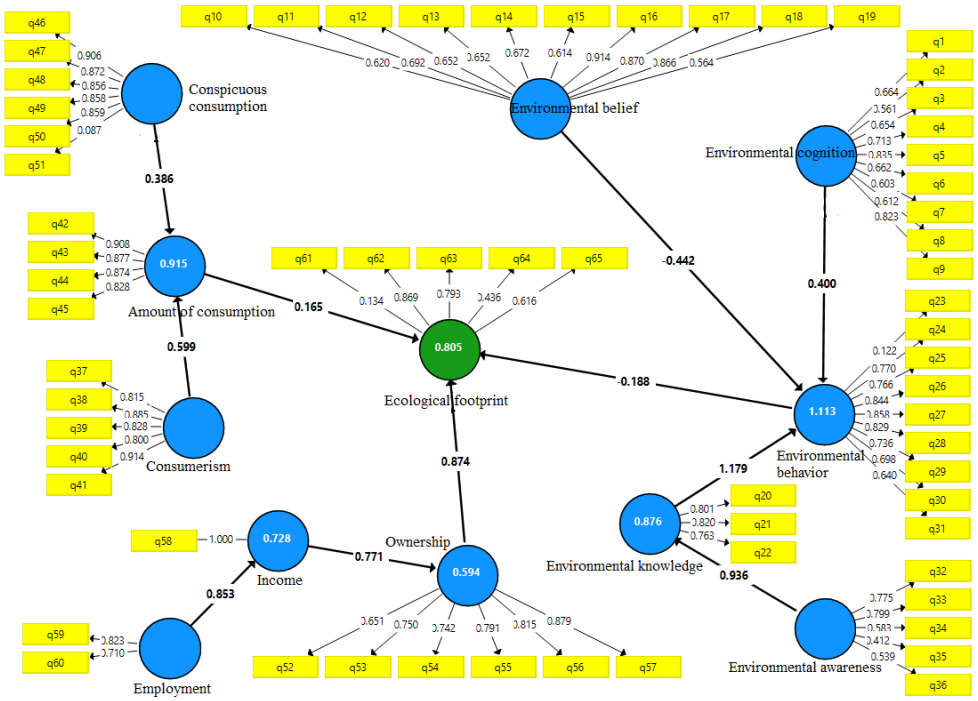

Figure 5. Evaluation of the structural model for independent variables and ecological footprint

The numbers inside the circles are indicative of the model's square (R^2) to which are connected the values of latent variables (arrows). These values do not indicate the removal of any variables for adjustment of other variables. However, what is worth noting is the significance value of the square. The results indicate that the square values of all latent variables are above the standard value of 0.621 except for the 'ownership', and thus, they can be described in the "significant" threshold. "Environmental behavior" is greater than other variables with a square value of 1.113. according to Figure 5, not all independent variables are effective on ecological footprint and there are some mediating variables to affect. Therefore, the correlation between the independent and dependent variables is inversely significant. Based on the R^2 obtained, nearly 80% of the ecological footprint in the sample villages is predicted by the independent variables of ecocultural capital, consumer lifestyle, and economic capital (Table 10).

Table 10. evaluation of the correlations between the research variables and ecological footprint and how they affect it

Variable	Mediating variables	Dependent variable	Coefficient of determination	Estimation					
				Total		Direct		Inverse	
				Effect	P	Effect	P	Effect	P
Employment	=>income=>ownership =>	Ecological footprint	0.805	0.575	0.00	-	-	0.575	0.00
Environmental belief	=>environmental behavior =>			0.083	0.00	-	-	0.083	0.00
Environmental cognition	=> environmental behavior =>			-0.075	0.00	-	-	-0.075	0.00
Environmental awareness	=>environmental knowledge =>environmental behavior =>			-0.208	0.00	-	-	-0.208	0.00
consumerism	=>amount of consumption =>			0.099	0.00	-	-	0.099	0.00

Variable	Mediating variables	Dependent variable	Coefficient of determination	Estimation					
				Total		Direct		Inverse	
				Effect	P	Effect	P	Effect	P
Conspicuous consumption	=>amount of consumption =>			0.067	0.00	-	-	0.067	0.00
Environmental behavior	=>			-0.188	0.00	-0.188	0.00	-	0.00
Amount of consumption	=>			0.165	0.00	0.165	0.00	-	0.00
ownership	=>			0.874	0.00	0.874	0.00	-	0.00

According to the results obtained from the analyses, it can be said that:

The consumer lifestyle, ecocultural capital, and economic capital predict 0.80% of the variance of the ecological footprint variable in total. Regarding the effect size and R^2, this value is considered to be "high", i.e., the independent variables are highly capable of determination of the variance of ecological footprint.

Environmental behavior, amount of consumption, and ownership are three independent variables that affect ecological footprint without any mediation. Meanwhile, the effectiveness of environmental variables is inverse while other variables affect ecological footprint directly.

The independent variables have affected the ecological footprint both directly and indirectly. This effectiveness is significant at a 95% significance level since $p<0.05$, i.e., with a 1-unit increase in the independent variables (compared to the R^2 coefficient), the dependent variable is also increased and vice versa.

Finally, based on the values of direct and indirect R^2 coefficient, the effectiveness of the independent variables on the ecological footprint of villages was considered to be positive and high. According to villagers, ownership and employment were the most effective variables on ecological footprint with values of 0.874 and 0.575, respectively. Also, conspicuous consumption was the least effective variable with a value of 0.067. Environmental behavior, environmental awareness, and environmental cognition inversely affected the ecological footprint with values of -0.188, -0.208, and -0.075, respectively, i.e., with the increase in these variables, the ecological footprint is reduced.

According to the results obtained for the main research question, economic factors can be introduced as the most effective factor on ecological footprint.

In terms of the PLS, an indicator named goodness-of-fit is suggested. This model considers both measurement and structural models and is used as a criterion for investigation of the overall performance of the model. The outputs of the PLS model in the qualitative indices have been used to calculate the mean shared values of the variables. Results in Table 11 indicate that the model enjoys the goodness-of-fit and can be generalized.

Table 11. Model's goodness-of-fit

	Standard model	Estimated model
SRMR	0.126	0.131
d_ULS	33.813	37.015
d_G	n/a	n/a
Chi-Square	infinite	infinite
NFI	n/a	n/a

In the following, the degree of effectiveness of each of the variables as ecocultural capital, consumer lifestyle, and economic capital on ecological footprint is measured using the R^2 coefficient obtained from the GWR. The results indicate that the values of R^2 and adjusted R^2 in the sample region are 0.991 and 0.990, respectively. It is indicative of the proper accuracy of the model and confirmation of the correlations between the research variables. Since the correlation between the variables varies per the geographical unit in the GWR, where there are strong-weak correlations, it can be zoned in the form of a map. In this regard, the R^2 coefficients obtained for the sample villages

are zoned in the five categories as low, fairly low, fairly high, high, and very high. Zoning of the effectiveness of the ecocultural capital on ecological footprint (Figure 6-a) indicates that the value of this coefficient is decreased moving from the northwest to the southeast, i.e., the degree to which the ecocultural capital affects ecological footprint is higher in the northwestern villages. Also, the distribution of the R^2 coefficient of ecocultural capital indicates that the villages closer to the city of Eslamabad-e Gharb have a greater R^2 value, regardless of their natural position. In this regard, Barf Abad Olia, Hasan Abad, and Siah Khoor had the greatest R^2 values, while Cheshmeh Kabood, Khomartaj, and Shadbalagh had the lowest R^2 values.

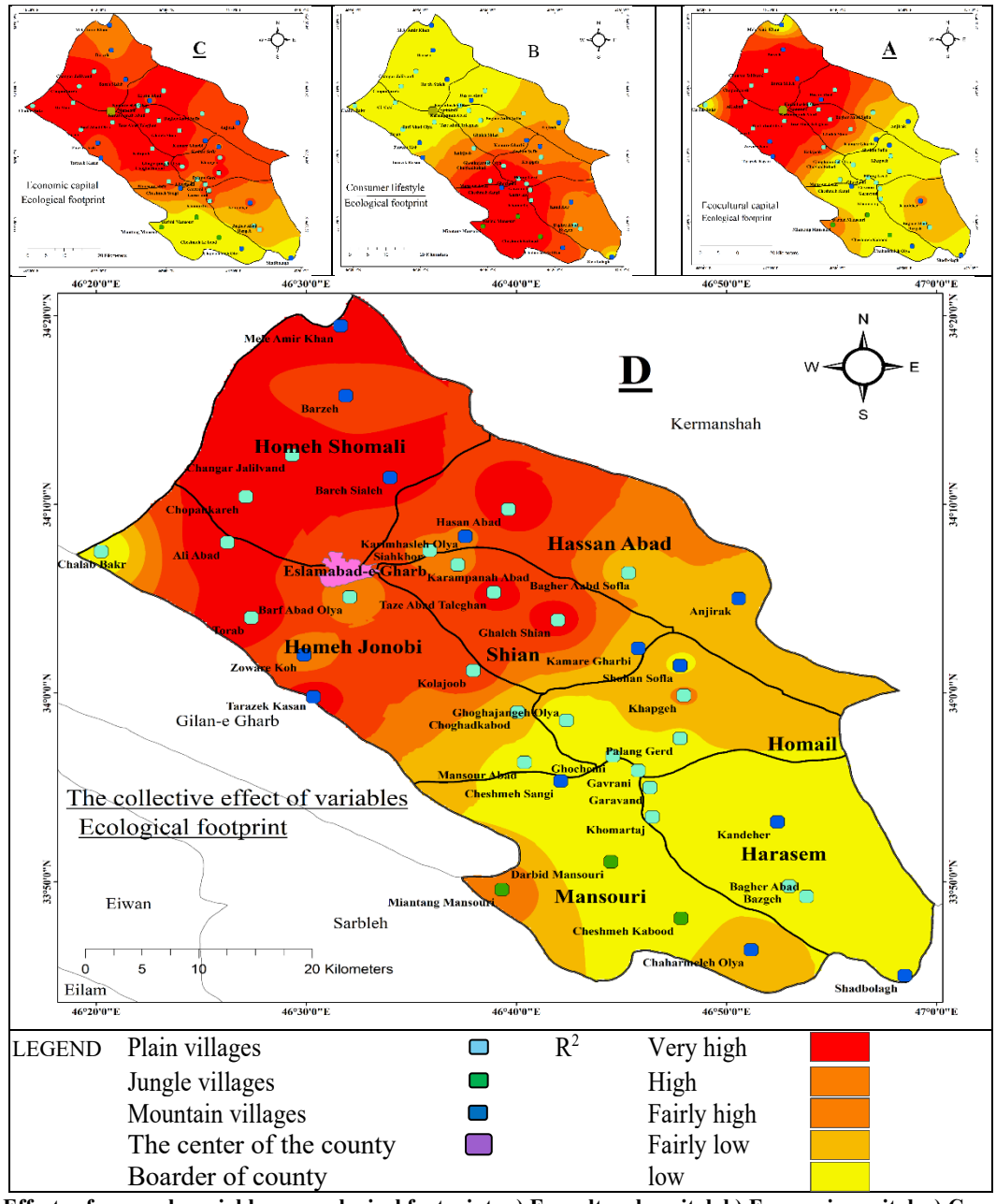

Figure 6. Effects of research variables on ecological footprint: a) Ecocultural capital, b) Economic capital, c) Consumerism, and d) collective effects of variables

In terms of economic capital also the situation is the same. The R^2 values are reduced moving from the northwest to the southeast with the only difference being that plain villages have greater R^2 values than jungle and mountain villages (Figure 6-b). Besides, the findings indicated that R^2 values of economic capital effects on ecological footprint are higher for Ghale Shiyan, Kalleh Joob, and Ali Abad.

Investigation of the zoning of the effects of consumer lifestyle on ecological footprint in the sample villages also indicates that the southern part of the county has had a greater R^2 and it has reduced moving towards the northwest. The reason can be the traditional lifestyle in the southern villages which are farther from the city and are more dependent on the natural resources. In this regard, Darbid Mansuri, Cheshmeh Kabood, and Cheshmeh Sangi had the greatest R^2 values while Barzeh, Malleh Amir Khan, and Ali Abad had the lowest R^2 (Figure 6-c). in the following, the overall status of distribution of R^2 in Eslamabad-e Gharb county was determined by putting together the zoning of each variable (Figure 6-d). Based on the obtained output, it was revealed that 'very high' zones are more located in the western parts of the city. Ghale Shiyah, Tazeh Abad Taleghan, and Hasan Abad were located in the 'very high' zone as island units. The effectiveness of the variables on ecological footprint was reduced moving towards the southeast.

5. Discussion and Conclusion

The limitation of natural resources and the biocapacity of the regions have made the necessity of the correct and optimal use of these resources more and more important. On the other hand, population boost, rapid development, promotion of consumerism, and technological advancements have brought about the increase in exploitation of resources and consequently, the outbreak of the environmental crises. Therefore, the authorities and planners should especially consider the environment on the path to development. The environmental challenges created are the outcome of the human-centered and materialist approaches from the past centuries, which have led to the introduction of sustainability in the development literature. Sustainability refers to the concept that natural resources, as the collective heritage of humanity, should be used and protected in a way that can meet the needs of future generations. In line with this paradigm, some theories such as environmental ethics, ecological citizenship, and deep ecology were also proposed which all emphasize the denial of anthropocentrism and the necessity of paying attention to the environment to achieve sustainable development. Meanwhile, ecological footprint assesses the sustainability of societies through the investigation of the consumption of resources. In this index, energy consumption, food consumption (agricultural, livestock, and aquatic products), water consumption, service consumption, types of goods, and transportation are examined. Considering the wide range of human uses in this index, it can be concluded that various factors can affect the ecological footprint of people and settlements. Therefore, the current research aimed to identify the factors affecting the ecological footprint using the structural equation model as well as the spatial analysis of these factors. As the main suppliers of food and direct users of natural resources, rural communities were chosen as the case study.

The results indicated that 30% of the sample villages had a 'fairly large' footprint (6.22-7.37 hectares). According to the respondents, the ecocultural capital is at a middle-to-high level in the sample villages with a mean value of 3.92. In this construct, the environmental beliefs had the highest mean, while the environmental participation had the lowest mean, which indicates that although the villagers have some environmental beliefs for the protection of the natural resources, these beliefs have not been fulfilled in practice and their environmental participation has been very low. In this regard, the highest statistics belong to Kalleh Joob, Siah Khoor, and Kamareh Gharbi. The consumer lifestyle construct is at a low level with a mean value of 2.3. The amount of consumption and conspicuous consumption have scored the highest and lowest mean values, respectively. Also, the spatial distribution of the lifestyle in the region indicated that Siah Khoor, Anjirak, and Choobankareh scored better than other villages in terms of the statistics. Economic capital is at a middle-to-high level with a mean value of 3.41. Also, the ownership scored the highest value in the sample villages. Pearson's correlation test indicated that there is a significant correlation between the independent variables (ecocultural

capital, lifestyle, and economic capital) and the dependent variable (ecological footprint) at $p<0.01$.

The results of SEM (with the PLS approach) indicated that the fit of the measuring model is approved based on the three criteria of reliability, convergent validity, and divergent validity. The reliability of the measuring model was confirmed using the CR, AVE, and factor loading of observable variables, and it was revealed that the observable variables of the research can explain their latent variable. The t-value-based results obtained from Bootstrap indicated that the correlations between the research variables are significant. In this regard, it can be claimed that the 'ownership' in the economic capital variable, 'environmental awareness' in the ecocultural capital construct, and 'consumerism' in the consumer lifestyle construct have the highest t-values and thus, are most correlated. The 'ownership' variable was more correlated with ecological footprint than other independent variables, with a statistic of 26.053. Also, the path analysis results indicated that the research constructs can predict 80% of the changes in ecological footprint, and the independent variables are highly capable of the explanation of the footprint's variance.

Overall, the evaluation of the direct and inverse correlation indicated that from villagers' point of view, the 'ownership' and 'employment' most affected ecological footprint with R^2 values of 0.874 and 0.575, respectively, while the 'conspicuous consumption' has been the least effective variable. Thus, it can be concluded that ownership in the region, which is mostly farm and livestock ownership, has managed to overcome the effectiveness of their lifestyle or environmental beliefs in terms of affecting the environment, i.e., the villagers are most effective on ecological footprint through their employment which is the exploitation of the farms and livestock. So, people's environmental attitudes and their consumer lifestyle are less effective in this regard. Also, the results of the spatial regression showed that the R^2 values of ecocultural and economic capital constructs are higher in the northeastern parts of the county. It can be due to the location of the city in this area, i.e., the villages closer to the center are more affected by the location and spatial factors. Overall, the northwestern villages have greater R^2 values, and this effectiveness is decreased moving toward the southeast, away from the center.

In terms of approval of the effectiveness of ecocultural capital and lifestyle on ecological footprint, the results of the present study are in line with those of Hajilou (2013), Soltani Bahram (2015), Alizadeh Aghdam (2016). In these studies, the effectiveness of the 'environmental behavior', 'environmental knowledge', and 'environmental belief' on ecological footprint has been measured and confirmed. Ruini et al. (2010) have emphasized the effects of the consumer lifestyle of households on the amount of ecological footprint, which was approved by the present study by the use of the SEM. Also, a positive and significant correlation between environmental belief and environmental behaviors has been confirmed in Alizadeh Aghdam and Honervar's study (2017), which is also in line with the results of the present study. Moreover, the results of the present study in terms of the effects of economic capital on the footprint are also in line with those of Alizade Aghdam et al. (2013)'s research.

Based on the results obtained, it is suggested that the dependence of the residents in the sample villages on the natural resources and their exploitation be reduced by creating occupational diversity, especially in the villages in which economic capital was more effective on ecological footprint. Also, further studies are needed for the identification and provision of strategies to increase environmental awareness and knowledge in the sample villages, to reduce the footprint of the residents residing in these regions.

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Authors' contributions

The authors equally contributed to the preparation of this article.

Conflict of interest

The authors declare no conflict of interest.

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Original Article

تحلیل فضایی عوامل مؤثر بر ردپای اکولوژیکی سکونتگاه‌های روستایی (مورد پژوهشی: شهرستان اسلام آباد غرب)*

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چکیده مبسوط

۱.مقدمه

محیط زیست پدیده‌ای ثابت و مطلق است و توان اکولوژیکی محدودی برای استفاده انسان دارد. لذا این ضرورت ایجاب می‌شود که نحوه مصرف منابع طبیعی، مورد ارزیابی قرار گیرد. یکی از ابزارهای مناسب در این زمینه شاخص ردپای اکولوژیکی می‌باشد. این شاخص مبنایی برای ارتباط بین انسان و طبیعت و به دنبال پاسخ به این سوال است که چه مقدار از ظرفیت احیاء زیست کره، برای تجدید منابع مورد استفاده توسط یک جمعیت، دردوره‌ای معین مورد نیاز است. از آنجاکه مسائل زیست محیطی من جمله ردپای اکولوژیکی انسان در طبیعت محصول عوامل فکری، فرهنگی، سیاسی و اقتصادی است از این‌رو شناخت شاخص‌های تأثیرگذار بر میزان ردپا ضرورت می‌یابد. هدف اصلی پژوهش حاضر بررسی عوامل مؤثر بر ردپای اکولوژیکی سکونتگاه‌های روستایی شهرستان اسلام آبادغرب با نگاهی گل‌نگر و فضایی می‌باشد و در پی پاسخ به این سوال است که عوامل تأثیرگذار بر ردپای اکولوژیکی منطقه کدامند؟

۲. مبانی نظری تحقیق

توسعه اکولوژیکی به دنبال این است که با درک و فهم کاملی از تعامل میان محیط، اقتصاد، سیاست و فاکتورهای فرهنگی - اجتماعی که بر اساس اصول بوم‌شناختی هستند، انسان‌ها را توانمند کند که در هماهنگی با طبیعت به شکوفایی رسیده و به توسعه پایدار دست یابند. در توسعه اکولوژیکی، شهرها و روستاها، باید با هدف ارتقای سلامتی کیفیت زندگی ساکنانش طراحی شوند و اکوسیستم‌های وابسته مورد حفاظت قرار گیرند. این نوع توسعه، تصمیمات شهروندی، مدیریت عمومی، صنایع کارآمد بوم‌شناختی، نیازها و توقعات مردم، فرهنگ و مناظر طبیعی را با یکدیگر پیوند می‌دهد. در راستای این رویکرد، شاخص ردپای اکولوژیکی، به بررسی پایداری زیست‌محیطی میزان مصرف انسان می‌پردازد و اثر این مصرف را بر محیط‌زیست ارزیابی می‌کند. این شاخص بازگوکننده آثاری است که هر کدام از جوامع در اثر سبک و شیوه زندگی خود در طبیعت به‌جای می‌گذارند بنابراین ردپای اکولوژیکی پیامد رابطه متقابل انسان با محیط پیرامون و نتیجه کنش و رفتار انسان است. از این رو عوامل متعدد فرهنگی و اقتصادی و رفتاری در میزان ردپای افراد تأثیرگذار است.

۳.روش تحقیق

پژوهش حاضر از لحاظ هدف‌گذاری در حوزه مطالعات کاربردی و از نظر روش‌شناسی، توصیفی از نوع همبستگی می‌باشد. نوع تحقیق از لحاظ روش گردآوری داده‌ها به صورت پیمایشی و میدانی است. جامعه نمونه را ۲۵ درصد از روستاهای شهرستان اسلام آباد غرب که معادل ۴۰ روستا است، تشکیل می‌دهد. روستاهای منتخب بر اساس سه ویژگی فاصله از مرکز شهرستان، تعداد خانوار و موقعیت طبیعی گزینش شده‌اند.

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۵۰۰ خانوار تعیین شد. نوع تحلیل یا شیوه تجزیه و تحلیل داده با استفاده از روش آماری مدل معادلات ساختاری (SEM) یا مدل‌یابی علّی حداقل مربعات جزئی صورت گرفت و اثرات سه سازه سرمایه فرهنگی بوم شناختی، سرمایه اقتصادی و سبک زندگی مصرفی بر ردپای اکولوژیکی به عنوان متغیر وابسته سنجیده شد. همچنین جهت بررسی اثرات عوامل مکانی- فضایی بر متغیرهای پژوهش از رگرسیون وزنی جغرافیای(GWR) استفاده گردید.

۴. یافته‌های تحقیق

نتایج نشان داد که ۳۰ درصد روستاهای مورد مطالعه دارای ردپای تا حدودی بزرگ هستند. وضعیت سرمایه فرهنگی بوم شناختی روستاییان با میانگین ۳/۹۲ در سطح متوسط رو به بالا، سبک زندگی مصرفی با میانگین ۲/۳ در سطح پایین و سرمایه اقتصادی منطقه با میانگین ۳.۴۱ در وضعیت متوسط به بالا قرار داشت. نتایج آزمون Bootstrapp براساس مقادیر t، نشان داد که روابط بین متغیرهای پژوهش با ضریب بیشتر از ۱/۹۶ معنادار هستند. از این نظر متغیر مالکیت در سازه سرمایه اقتصادی، متغیر آگاهی محیط زیستی، در سازه سرمایه فرهنگی بوم شناختی و تمایل به مصرف در سازه سبک زندگی مصرفی، دارای بیشترین مقدار t و در نتیجه دارای بیشترین میزان ارتباط هستند. متغیر مالکیت در سازه سرمایه اقتصادی با آماره ۲۶/۰۵۳ ارتباط بیشتری نسبت به سایر متغیرهای مستقل با ردپای اکولوژیکی روستاهای مورد پژوهش داشته است. همچنین نتایج تحلیل مسیر نشان داد که سازه های پژوهش می‌توانند ۰/۸۰ درصد از تغییرات ردپای اکولوژیکی منطقه را پیش‌بینی کنند و متغیرهای مستقل توان بالایی در تبیین واریانس متغیر ردپا دارند. در مجموع بررسی و ارزیابی روابط مستقیم و غیرمستقیم مدل معادلات ساختاری نشان داد که از نظر روستاییان متغیر مالکیت و اشتغال با ضریب اثر ۰/۸۷۴ و ۰/۵۷۵، بیشترین تأثیر را بر ردپای اکولوژیکی داشته و متغیر مصرف منزلتی کم‌اثرترین متغیر بوده است. همچنین نتایج مدل رگرسیون فضایی نشان داد که ضریب تأثیر سازه‌های سرمایه فرهنگی بوم‌شناختی و سرمایه اقتصادی در بخش‌های شمال شرق شهرستان بیشتر است. این امر را می‌توان ناشی از استقرار مرکز شهرستان در این قسمت دانست. به این معنی که روستاهای نزدیک به مرکز شهرستان تأثیر بیشتری از عوامل مکانی و فضایی گرفته‌اند.

۵. بحث و نتیجه‌گیری

شاخص ردپای اکولوژیکی با بررسی وضعیت مصرف منابع به ارزیابی پایداری جوامع می‌پردازد. در این شاخص مصرف انرژی، مصرف غذا، مصرف خدمات، انواع کالا و حمل و نقل مورد بررسی قرار می‌گیرد. با توجه به بررسی طیف وسیعی از مصارف انسانی در این شاخص، می‌توان نتیجه گرفت که عوامل مختلفی می‌تواند بر میزان ردپا اکولوژیکی افراد و سکونتگاه‌ها تأثیرگذار باشد. از این رو پژوهش حاضر، با هدف شناسایی عوامل موثر بر ردپای اکولوژیکی صورت گرفت و جوامع روستایی به عنوان تأمین‌کنندگان اصلی غذا و بهره‌بردارن بی‌واسطه از منابع طبیعی به عنوان مورد پژوهشی انتخاب شدند. براساس یافته‌های پژوهش، متغیر مالکیت و اشتغال بیشترین تأثیر را بر ردپای اکولوژیکی منطقه داشته است. لذا می‌توان نتیجه گرفت که مالکیت در روستاهای منطقه که بیشتر در زمینه مالکیت زمین‌های کشاورزی و دام است، توانسته بر تاثیرگذاری سبک زندگی یا باورهای محیط زیستی آنها در زمینه اثرگذاری بر محیط زیست چیره شود. به این معنی که روستاییان بیشترین تأثیر خود را از طریق شغل خود که بهره‌برداری از زمین و مرتع و دام است ایجاد می‌کنند و نگرش‌های محیط زیستی افراد و همچنین سبک زندگی مصرفی آنها تأثیر کمتری در این مسئله دارد. با توجه به نتایج بدست آمده از پژوهش، پیشنهاد می‌گردد با ایجاد تنوع شغلی در روستاهای مورد مطالعه به ویژه روستاهای که اثرگذاری سرمایه اقتصادی در آنها بر ردپای اکولوژیکی بیشتر بوده، وابستگی ساکنین این مناطق به منابع طبیعی و بهره‌برداری از آن کاهش یابد.

کلید واژه‌ها: ردپای اکولوژیکی، معادلات ساختاری، رگرسیون موزون جغرافیایی، اسلام آباد غرب.

تشکر و قدردانی

پژوهش حاضر برگرفته از رساله دکتری نویسنده چهارم (اشکان شفیعی)، گروه جغرافیا و برنامه‌ریزی روستایی، دانشگاه تبریز، تبریز، ایران است.

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Original Article

Designing a Path Analysis Model of Institutional Factors Affecting the Development of Entrepreneurship (Case Study: Nesa Rural Area in Karaj County)

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Abstract

Purpose- The goal of this research is to identify institutional variables affecting entrepreneurship in Nesa rural Area in Karaj County.

Design/methodology/approach-This is a fundamental, applied research that uses a descriptive survey method for data collection. The statistical population of the research comprises the residents of Nesa Rural district. The sample size was calculated using Cochran's formula (n = 216) and its distribution among the villages was proportional to the number of households in each village and the sampling was conducted using a simple random method. The research instrument is a researcher-designed questionnaire. In this research, the confirmatory factor analysis method was used to assess the validity and reliability of the questionnaire, and the partial least squares path analysis method was adopted to test the conceptual model of the research. The relationship between the variables was measured with the Pearson correlation test.

Findings- The findings of the research on the state of entrepreneurship suggest that self-employment driven by a small family business approach, mostly without innovation, has been the predominant entrepreneurial activity in the study area. The results of the conceptual research model showed that the institutional variables of economic stability, transparency and accountability, and educational system and skills training have the most direct impact on the state of rural entrepreneurship. The analysis of fit indices of the model revealed that the coefficient of determination for the dependent variable of the rural entrepreneurial status was 0.683. Accordingly, the independent and mediating variables of the model can explain 68.3% of the variance in the rural entrepreneurial status, indicating the explanatory power of the model.

Practical implications- The results of the research suggested that rural entrepreneurship is in a deplorable condition and despite the direct and indirect effects of institutional variables on rural entrepreneurship, institutional factors play a weak and inefficient role in rural areas. Hence, it is necessary to pay attention to the role of institutional factors such as political stability, enforcement of the rule of law among citizens, control of corruption, and payment of rewards in proportion to the endeavors and creativity of individuals to promote rural entrepreneurship.

Keywords- Institutional variables, Entrepreneurship, Nesa rural area, Karaj County.

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1. Introduction

I I the past two decades, the concept of rural entrepreneurship has undergone fundamental and methodological changes. In this development, the role of man in economic development has come to the fore, and by changing the view of space from a merely physical area to a dynamic system of relations including the activities of local and social actors and institutional capital, the assumption that space is created by history, tradition and local communities has come into consideration (Kulawiak et al. 2022).

In this sense, it is driven by completely sectoral issues (macroeconomics) that are related to the impact of emerging economic activity on the development of rural areas or the study of economic trends in light of econometric models. Methods have shifted towards regional approaches, mainly disclosing the resources of the territory and the characteristics of the entrepreneurs working there, such as the actions of local actors, local entrepreneurial behavior, the roots of rural entrepreneurs, and their demographic and psychosocial characteristics (Dennis 2006; Newmeyer 2012).

In this sense, emphasis on the role of the local environment in the entrepreneurial process and the importance of endogenous factors in the socio-economic development of rural areas has given rise to two approaches "entrepreneurship in rural areas" and "rural entrepreneurship" (Gaddefors, 2019). The first concept only denotes the location of companies in the village or rural areas. In this approach, the entities are located in the rural area and they only exploit rural resources without profiting the local people. The conditions result in the disintegration of the economy of rural areas and render the local flows of materials and capital less important, thus encouraging the arbitrary exploitation of rural resources (Korsgaard et al., 2015). The second approach adopts a broader semantic context and deals with companies that are not only located in a rural area but also embody a "pure" form of rural entrepreneurship. This means that entrepreneurs use the resources of the rural (local) environment while creating products and services, and their activity is the source of countless benefits for this environment (Pato 2020). Moreover, in rural entrepreneurship, the local resources not only determine the nature of the activity, but also shape the entrepreneurial process as well (Baumgartner et al. 2013).

Hence, in the second approach, entrepreneurs are not only physically present in the rural space, but also attached to the place (embedded/rooted in it); that is, they have a good understanding of the characteristics of the rural environment which can come in handy in the entrepreneurial process (Baumgartner et al. 2013; Korsgaard et al. 2015). Therefore, rural entrepreneurial activities denote a special type of participation of entrepreneurs in the local social and economic environment and are connected to the participation of residents and their knowledge in creating these companies. In this sense, rural entrepreneurship cannot be established elsewhere without losing its previous character due to the "locality" of the settlements. Rural entrepreneurship is also defined as a special blend of endogenous factors that creates value for entrepreneurs and the entire rural community (Korsgaard et al. 2015). It is because it is shaped under the influence of an institutional framework in the rural community and stems from specific cultural, social, political and economic values of the rural environment and if the institutional environment is prepared for entrepreneurial activities and supports the property rights of workers, it will usher in productive entrepreneurship and bolster the economic prosperity of rural areas. Therefore, given the nature and structure of rural entrepreneurship, identifying institutional factors affecting the development of this type of entrepreneurial activity is essential. In fact, the institutions have a bearing on rural entrepreneurs by creating regulatory and social conditions and supporting social entrepreneurs to strengthen innovations in vulnerable areas (Lang and Fink 2019).

Studies by "Douglas North" (1990, 1994, 1997 and "William Baumol " (1990 suggest that there is a direct connection between the institutional environment and the development of entrepreneurship. According to North (1990), institutions constitute the rules of the game in society. If the game rules are determined by non-productive activities, it is only natural that entrepreneurs lose their passion and motivation to enter productive activities. As such, Baumol (1990) divides entrepreneurship into three types: productive, unproductive and destructive. Weak

formal and informal institutions will foster opportunistic behaviors. Since the dearth of clear rules of the game and uncertainty will urge people to seize all opportunities to their advantage, under such an institutional environment, rent-seeking and corruption (unproductive and destructive entrepreneurship) will encourage non-productive economic activities. (Samadi., 2019).

To North, institutions are "man-made constraints that shape political, economic, and social interaction" (North, 1990). North splits institutions into two categories: formal and informal institutions, contending that the former encompass political, legal and economic systems and other systems established by the government to regulate the behavior of individuals (property rights, contracts, procedures, political structure, etc.). These formal institutions can help eliminate market defects (North, 1990). While informal institutions guide human behavior and decision-making processes, informal institutions are made of contracts, norms, values and accepted ways of doing things, whether economic, political or social. These institutions are embedded in culture and traditional social practices that can be equally binding and influential (North, 1997).

Acemoglu puts the institutions into two categories, inclusive and exploitative institutions based on their nature, arguing that inclusive institutions safeguard property rights and encourage investment in new technologies and skills. On the other hand, exploitative institutions are often constructed to extract resources from the majority of society for the benefit of small cliques and fail to protect property rights and provide incentives for economic activity (Afrakhteh, 2018).

In this regard, North argues that institutions that define and enforce property rights affect economic performance as they bring down transaction costs and uncertainty triggered by transactions. Thus, growth theory is incomplete without the theory of institutions. Enforcement of property rights is more important in the new economy where "property" comprises plans and ideas that are easily appropriated (North, 1990).

There is no doubt this institutional structure is feasible within the rule of law. The rule of law enables entrepreneurs to optimize their unique skills and knowledge. Because, under the protection of private ownership law, it deters arbitrary and incompatible unproductive activities by powerful institutions and individuals. As such, laying the foundations of a suitable trust environment for business can inspire entrepreneurship (Harper, 2003).

Studies on the role of institutions in the development of entrepreneurship in rural areas exhibit that entrepreneurship in these areas offers special opportunities and incentives to carry out a diverse range of production (Korsgaard et al., 2015). However, the socio-economic and institutional conditions in which entrepreneurial activity takes place are distinct from urban areas. In this sense, Krugman and Venables (1995) underlines the importance of governance to overcome the socio-spatial deficiencies inherent in rural entrepreneurship, contending that the failure of entrepreneurial activities in rural areas is induced by traditional government policies in many countries worldwide. Generally, all forms of entrepreneurship have a spatial dimension and are based in places with the strongest economic incentives in terms of land, labor, infrastructure and other social and economic aspects (Korsgaard et al., 2015).

This research looks into the role of institutions in the development of entrepreneurship in the rural area of Nesa. This area, located in the tourist area of the Karaj-Chelos Road, has favorable climatic and environmental conditions, with huge potential in the economic and social domains of rural areas. In recent years, however, due to failure to account for the requirements of sustainable development and to lay a fertile ground for employment in rural areas based on an entrepreneurial approach, it has not been able to retain the residents of rural areas. This, especially with the extensive change in agricultural land use, the unbridled expansion of urbanization, and the destruction of the identity and characteristics of local and rural communities, has led to unbalanced development and compromised production and employment processes in this area

In this vein, this research aims to identify the institutional variables affecting rural entrepreneurship, and to explain the factors that stimulate the development of entrepreneurship in rural areas from an institutional perspective. Since increased production and employment and the growth of economic enterprises in rural areas call for a suitable ground to properly direct and guide resources, it is necessary to identify important institutional variables and structures that can

contribute to the improvement and promoton of entrepreneurship in rural areas. Therefore, the main research question is as follows: From an institutional point of view, what variables affect the state of rural entrepreneurship development?

2. Research Theoretical Literature

This research draws on the institutional theory. The pioneering literature in this field, driven by the theories of Douglass North (1992) stresses that institutions are the cornerstone of change. He also argues that most of the incentives that guide entrepreneurial behavior rely on the quality of institutions. Therefore, institutions can be defined as "the rules of the game in society or, more accurately, the constraints that shape human interaction" (North, 1990).

In 1991 Douglass North published a paper titled "Institutions" in the Journal of Economic Perspectives. This article sums up the gist of his previous work on economic and institutional change. North defines institutions as "man-made constraints that shape political, economic, and social interactions." North states that constraints are introduced as formal rules (constitutions, laws, property rights) and informal constraints (taboos, customs, traditions, rules of conduct) that usually help maintain order and security in the market. Their effectiveness is a variable of many conditions, such as the limited coercive power of a state, the absence of an organized government, or the power of religious orders (North, 1991).

North (1990) asserts that formal institutions are there to reduce transaction costs while informal institutions are intended to mitigate uncertainties in human interactions. North (1990) has also contended that informal institutions originating from culture may hamper changes and improvements in formal institutions or vice versa. Therefore, interactions between formal and informal institutions yield results that have major implications for increasing "productive" entrepreneurial activity. (Baumol, 1990; North, 1990)

North maintains that the economic development of communities begins with local transactions in the village. In this regard, specialization "is at its basic level and self-sufficiency is characteristic of most rural households". Rural trade is on a small scale and in dense social networks with informal restrictions, which facilitates local transactions and has a relatively low transaction cost. However, this confined market diminishes the potential for specialization and raises production costs. In this dense network, "people are in intimate relationships with each other, and the threat of violence is a constant force to maintain rule and order" (North, 1991). As local transactions grow, the market develops beyond the village to more interconnected areas. When the participants in a transaction are more socially distant, it calls for more explicit terms of the transaction. This requires to increase the transaction costs of institutions that can lower the risks of fraud. As specialization grows, production costs fall, which in turn can justify higher transaction costs (North, 1991).

North further clarifies that all transaction costs are rooted in information asymmetry between the parties to the transaction. Since these costs are a major obstacle to economic growth, the main function of political and economic institutions is to control and contain them, chiefly through fraud, theft, and other socially harmful behaviors. However, the rulers of the political system have built these institutions in such a way as to maximize their personal interests rather than the social good. Thus, transaction costs are not always minimized by such institutions (North, 1992).

North states that individuals and organizations make their decisions based on flawed ideologies, which reflect the "mental constructs" governing the way the world works. Thus, despite their best efforts, politicians founding these institutions will occasionally fail to maximize their self-interest. In this case, entrepreneurs who believe that institutional change will be in their interest enter the political arena to apply this change.

North argues that this change will typically be slow for two reasons:

First: by controlling political systems, powerful actors have built institutions for their own benefit, and therefore they are reluctant to change. As a result, there will be path dependence.

Second: informal institutions, such as social customs and traditions, and cultural practices, by their very nature, are resistant to change, but they have a role in determining transaction costs (North, 1992).

North postulates that the distribution of wealth and income in society, which is manifested in the light of cooperation and competition between people and its executive systems, can be theorized as two

theories of government and property rights. In the theory of property rights, the stronger the monopolistic security of property rights, the more efficient the incentive structure is, and the more affordable the cost of invention and innovation is for the individual, the more they are inspired to introduce innovation (RezaGholi, 2019). This may transpire in the reverse condition as well. Thus, "if the highest yields in an economy come from piracy, we can expect organizations to invest in skills and knowledge that make them better pirates" (North, 1990).

Therefore, in the systems where informal and non-productive activities yield higher revenues and profitability compared to productive activities, it will likely offer an intriguing reward in the related investment and draw the labor force and investment to that profession. On the other hand, it keeps the creative and innovative workforce and capital away from productive activity (Afrakhteh, 2018).

In the theory of government, North argues that the tendency of all governments to develop inefficient property rights and provoke instability is inherent. Nonetheless, such a government, analogous to the governments in developed countries, is actually a merchant government.

The merchant government provides services (such as security, justice, and law) with an economy of scale, although it may be costly; however, from a certain point, it not only covers the cost but also offers considerable benefits for the government and society. On the other hand, the exploitation state is a rapacious state that defines and determines the general property rights that maximize the revenues of those in power, irrespective of its consequences for the wealth of the society as a whole. In this situation, the cost of proceedings surges and leads to the looting of resources and property rights will be rendered void (Rezagholi, 2019)

A survey of the dimensions of institutional theory in the field of rural entrepreneurship studies shows that the subjects related to the role of institutions and governance have gained prominence. As far as governance is concerned, studies suggest that the role of the government should be focused on overcoming the structural obstacles of rural entrepreneurship (Futemma et al. 2020). Research shows that governance is also manifested in the level of cooperation and participation of citizens, for the greater involvement of communities would foster entrepreneurship (Joshi et al. 2019) and help to alleviate poverty (Nambiar, 2019). The interrelationship between governance and institutions is associated with the interactions of the entrepreneur and the environment (Deng et al. 2020), the integration of local institutions and a confining institutional environment (Kumar et al. 2020), and horizontal and vertical relationships (Lang and Fink 2019). Then, formal and informal institutions should be considered in the analysis, alongside government policies and interventions. As such, there is a need to better understand the rural context, in particular, the value system and traditions of entrepreneurs and the society in which they operate. Studies in developing countries have revealed that in many societies, individual work is preferred over collaborative labor. This can be attributed to various reasons such as a lack of trust in institutions, and third parties and disapproval of economic models that are oblivious to the realities of the territories (Tabares et al. 2021). Accordingly, it is essential to address entrepreneurial action with a view of territories (Joshi et al. 2019) and environmental conditions. It is because these exogenous factors can enable or inhibit successful entrepreneurship (Baskaran and Mehta 2016). Hence, further research is warranted to investigate the role of institutions and governance in rural entrepreneurship.

In light of the above, by reviewing studies on the role of institutions in the development of rural entrepreneurship, it seems that the bulk of these studies focus on policy-making, rural governance, innovation and social, psychological and individual characteristics. Therefore, considering the role of production and employment policies. entrepreneurship at the local level will be inevitable. In the meantime, the role of effective institutional factors in the development of rural entrepreneurship, including policymaking and local cooperation in the form of supporting effective property rights, as a key institutional means for the development of rural entrepreneurship, can lay the ground for the economic prosperity of the rural areas.

3. Research Methodology

3.1 Geographical Scope of the Research

Nesa rural area is located to the north of Karaj county in the Asara district. Asara district consists of 3 Rural district named Aderan, Asara and Nesa

and consists of a total of 62 villages, of which 47 are home to more than 20 households. According to the 2015 Census, Nesa comprises 17 villages with a population of 5064 people, of which 2459 are female and 2605 are male. In fact, approximately 48.5% of the population of the above villages are women and the other 51.5% are men. There are 15 villages and demographic centers with more than 20 households in this area. Velayat Roud village with 1382 people and 458 households is the most populated village in this county and includes 27.2% of the population of the Rural district

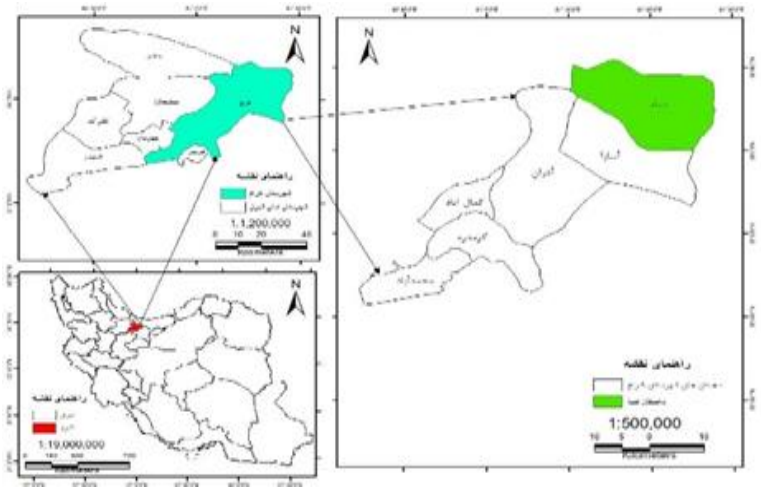

Figure 1. Geographical location of the study area

3.2. Methodology

This is a fundamental-applied study that uses a descriptive survey method for data collection. The statistical population consists of the residents of Nesa village in Karaj, which is home to 678 households. The sample size was calculated using the Cochran formula (n = 216) and its distribution among the villages was proportional to the number of households in each village. Sampling was also conducted using a simple random sampling method. The research instrument was a researcher's designed questionnaire, which was developed based on a review of Persian and English literature and comprised three major parts. The first part contains 20 items that explore individual and demographic characteristics. The second, the analysis of the state of rural entrepreneurship, consists of 35 items, and the third part, institutional factors affecting the development of rural entrepreneurship, includes 102 items, the results of which are outlined in Tables 1 and 2. In this research, to assess the content validity of the questionnaire, it was handed over to three professors and experts and they were asked to state their views on the indicators and items of the questionnaire. After collecting their comments and feedback and adjusting some items, the final draft of questionnaire was designed. In the next step, the validity and reliability of the questionnaire were checked using confirmatory factor analysis. The measurement model was checked with t-statistics and standard coefficients. The t-statistic over 1.96 means that the observed relationship is confirmed at a confidence interval (CI) of at least 95% ($p<0.05$). T-values reveal that all the relationships of the model are statistically significant ($p<0.05$). In this study, a minimum factor load of 0.4 was considered to confirm the validity of the items. The reliability of the questionnaire was measured by Cronbach's alpha and composite reliability methods. It should be noted that some items (n=32) were removed from the model due to weak factor loading (<0.40). Also, in this research, the partial least squares in path analysis were used to test the conceptual model, and the relationship between variables was measured by Pearson's correlation test.

Table 1. Variables affecting the state of rural entrepreneurship

Dependent variable	Variable	Item No.	Standard coefficient (loading)	t-value	Average variance extracted (AVE)	Composite reliability	Cronbach's Alpha
Rural entrepreneurship	Individual	2	0/62	3/50	0/30	0/72	0/63
		3	0/51	2/33			
		4	0/41	1/97			
		5	0/63	3/85			
	Social	8	0/42	3/98	0/39	0/75	0/68
		11	0/65	8/63			
		12	0/55	5/33			
		13	0/73	14/66			
		16	0/72	11/65			
	Economic	18	0/74	12/34	0/47	0/86	0/80
		19	0/74	10/58			
		20	0/71	9/67			
		21	0/83	28/23			
		22	0/73	17/98			
		23	0/44	7/63			
		24	0/52	9/56			
	Political	25	0/78	25/58	0/47	0/86	0/80
		26	0/80	27/11			
		27	0/48	4/93			
		28	0/78	29/96			
		29	0/69	12/23			
	Cultural	30	0/70	15/22	0/57	0/89	0/85
		31	0/74	20/59			
		32	0/78	28/94			
		33	0/79	33/50			
		34	0/74	19/46			
		35	0/76	23/74			

Sources: Test results

Table 2. Institutional Variables Affecting Rural Entrepreneurship

Dependent variable	Variable	Item No.	Standard Coefficient (Factor loading)	t-value	Average variance extracted (AVE)	Composite Reliability	Cronbach's Alpha
Institutional factors	Economic stability	4	0/45	6/34	0/29	0/92	0/91
	Rule of law	5	0/43	7/15			
		6	0/48	7/12			
		7	0/49	7/91			
		8	0/66	11/02			
		9	0/77	26/75			

Dependent variable	Variable	Item No.	Standard Coefficient (Factor loading)	t-value	Average variance extracted (AVE)	Composite Reliability	Cronbach's Alpha
		10	0/52	10/01			
		11	0/82	33/96			
		12	0/73	16/35			
		13	0/48	5/83			
		14	0/75	25/57			
	Judicial independence	16	0/49	8/59			
		17	0/66	13/43			
		18	0/60	12/94			
	Control of corruption	19	0/77	21/04			
		20	0/44	6/32			
		21	0/72	22/99			
		22	0/41	5/75			
		23	0/52	8/55			
		24	0/53	7/97			
	Physical property rights	26	0/79	26/91			
		27	0/81	33/60			
		28	0/82	36/01			
	Intellectual property rights	29	0/68	14/34			
		32	0/77	18/31			
		33	0/56	7/24			
		34	0/54	5/32			
	Economic stability	74	0/77	16/61	0/61	0/88	0/84
		76	0/70	15/23			
		77	0/69	12/80			
		78	0/78	26/37			
		79	0/84	35/34			
		80	0/88	51/91			
		81	0/85	44/41			
	Reward system	82	0/66	10/47	0/34	0/74	0/64
		83	0/61	7/91			
		84	0/82	33/23			
		85	0/87	37/73			
		87	0/76	12/07			
		35	0/67	13/00	0/23	0/90	0/88
		36	0/79	21/24			
		37	0/74	19/33			
		40	0/48	5/35			
		45	0/66	9/57			
		48	0/67	11/47			
		49	0/64	14/62			
		50	0/78	27/93			
		51	0/74	19/47			

Dependent variable	Variable	Item No.	Standard Coefficient (Factor loading)	t-value	Average variance extracted (AVE)	Composite Reliability	Cronbach's Alpha
		52	0/71	20/37			
		53	0/77	26/12			
		54	0/72	17/36			
		57	0/76	21/09			
		59	0/51	5/98			
		61	0/64	11/46			
		62	0/64	10/48			
		64	0/70	13/28			
		65	0/71	15/53			
		66	0/64	7/76			
		67	0/70	17/52			
		68	0/84	34/99			
		69	0/80	28/84			
		70	0/72	17/73			
		71	0/54	9/30			
		72	0/61	11/11			
	Cost of proceedings	88	0/66	14/59	0/50	0/83	0/75
		89	0/75	22/07			
		90	0/79	27/35			
		91	0/56	9/32			
		92	0/75	22/64			
	Transparency and accountability	93	0/75	14/06	0/48	0/78	0/68
		94	0/69	8/79	0/48	0/78	0/68
		95	0/53	34/17			
		96	0/80	13/72			
	Educational system and skills training	98	0/72	3/37	0/34	0/72	0/62
		99	0/40	12/01			
		100	0/66	8/38			
		101	0/59	10/64			
		102	0/68	6/41			

Source: Test results

4. Research Findings

4.1. Analysis of rural entrepreneurship situation and its underlining institutional variables

Descriptive findings about the general characteristics of the respondents demonstrated that most of the respondents (81.9%) were male and 18.1% were female. The majority of the respondents (73.1%) were heads of the household. In terms of education, they primarily had high school diploma and lower education (56.5 percent) and bachelor's degrees (26.4 percent). Regarding the occupations, they usually held a job in the service sector so that 56% of the respondents worked in the service field. It was followed by agriculture (24.1 percent), animal breeding (14.8%), handicrafts (3.7%), and industry (1.4%). In this research, to compare villages in terms of entrepreneurship, four indices of "Considering oneself as an entrepreneur, the history of entrepreneurial activity, the number of people working in the workshop, and the amount of

investment" were combined based on Table 3 and an index called "scale of entrepreneurship" was obtained. Each of the four factors had the same weight in creating the scale of entrepreneurship. A higher score denotes a greater scale of entrepreneurship. The entrepreneurship scale is between 0 and 16. The results of the comparison of villages in terms of entrepreneurship scale are outlined in Table 4 and Figure 2.

Table 3. Characteristics related to the scale of entrepreneurship in the sample population

Characteristic		No.	Percent
Attending entrepreneurship classes	Yes	4	1/9
	No	212	98/1
Considering yourself an entrepreneur	Yes	80	37
	No	136	63
History of entrepreneurial activity	Less than 2 years	16	7/4
	2-5 years	34	15/7
	More than 5 years	56	25/9
	I have no record in this field	110	50/9
Number of people working at the workshop	1	38	35/8
	2	36	33/9
	3	18	16/9
	4	9	8/4
	Over 4	5	4/7
Amount of investment	Less than 100 million	64	29/6
	100 to 200 million	21	9/7
	200 to 300 million	10	4/6
	More than 300 million	13	6
	No investment	108	50

Source. Local survey 2022

Table 4. Statistical index of the scale of entrepreneurship in villages (sorted by average)

Rank	Village	Number in Sample	Mean	SD
1	Velayat Rud	57	8/42	5/04
2	Gasil	5	7/80	4/44
3	Emam Cheshmeh	6	7/50	4/32
4	Asiab Dargah	5	6/60	4/88
5	Azadbar	8	5/63	3/07
6	Kohneh deh	7	5/43	3/91
7	Gach sar	5	5/40	3/13
8	Valeh	11	5/27	4/69
9	Garmab	5	5/20	4/32
10	Meidanak	5	5/20	4/55
11	Nesa	34	5/06	4/00
12	Gashnadar	5	5/00	4/36
13	Varangehrud	9	4/78	4/47
14	Sorkheh Darreh	7	4/71	3/95

Rank	Village	Number in Sample	Mean	SD
15	Malek faliz	17	4/12	2/93
16	Koshgak	6	3/67	1/03
17	Hasanakdar	24	2/75	2/54

Source: Local survey 2020

According to the results of Table 4, all the villages, except for Velayat Rud, had an average below the mean or median (i.e. 8). In terms of the scale of entrepreneurship, Velayat Rud (8.42), Gasil (7.80) and Emam Cheshmeh (7.50) had the highest average, and the lowest scale of entrepreneurship belonged to Hasanakdar villages with a score of 2.75. In the scope of the study, the results showed that more than 98.1% of respondents had not attended any entrepreneurship classes and were not familiar with modern business methods and innovations in the production and employment process. 37% considered themselves entrepreneurs, claiming that if proper conditions for supporting rural businesses were provided, they were willing to enter this field.

The survey on the history of entrepreneurial activity of the respondents revealed that about 50.9% of the respondents have no history of entrepreneurial activity. Although 49.1% of the respondents reported a history of entrepreneurial activity, the surveys denoted that about 23.1% of the respondents, with less than 5 years of experience, by setting up a small business unit and lacking competitive power, could be treated as novice entrepreneurs and have not yet been able to expand their entrepreneurial activities. Although 26% of the respondents were involved in entrepreneurial activity for over 5 years, the field survey suggested that the activities conducted were in line with family businesses, which are largely to meet the family's economic needs without any innovation in the field of employment and rural business. The survey of the number of workers in the workshop revealed that only 49% of the studied sample owned a specific workshop for economic activity of whom about 69.7% worked in workshops with two workers. This suggests that self-employment with the approach of family businesses has been the dominant activity of most workshops located in the study area. As for the amount of investment made by the respondents, 39.3% of the investments made in the field of business village was below 2000 million Rials, which is characteristic of small businesses with minimum capacity for economic competition. The findings in the study area indicated that entrepreneurial activity had not suppressed creativity, as Schumpeter noted, and lacked the process of innovation in the field of rural business, including the production and distribution of new goods and the presentation of novel methods.

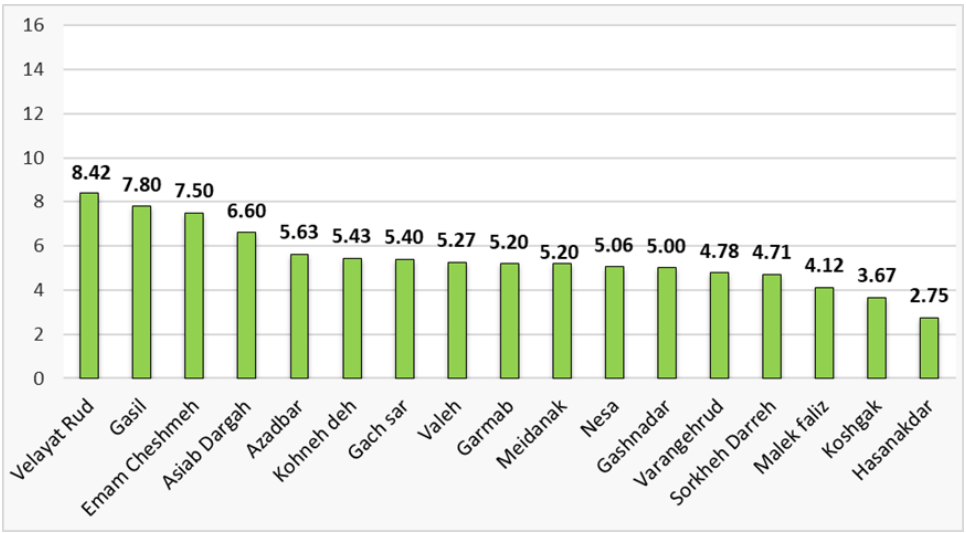

Figure 2. Column chart of entrepreneurship scale index for each village. Source: Research Findings 2022

The results on the average status of variables affecting the development of entrepreneurship in all villages show that they are below the average. Hence, it can be concluded that the studied villages did not have a favorable entrepreneurial condition. The comparison of the villages revealed that Velayat Rud and Valeh obtained the highest score in the state of rural entrepreneurship with an average of 2.93 and 2.26, respectively, and the lowest average was scored by the villages of Koshgak and Kohne Deh with an average of 1.98 and 2, respective. Below is the column chart of the state of entrepreneurship and its variables for comparison of villages in terms of entrepreneurship.

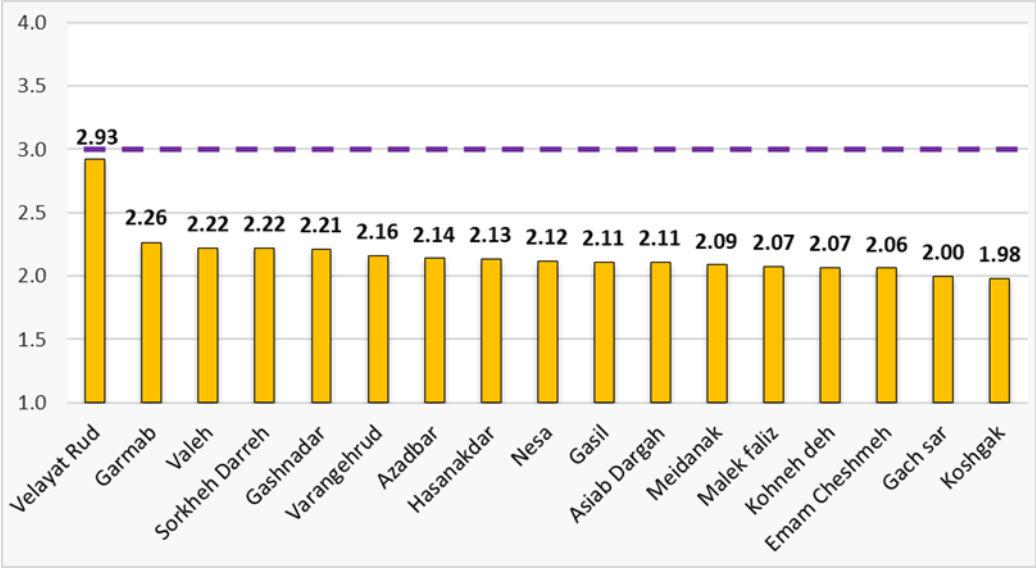

Figure 3. Column chart of the total average of rural entrepreneurial status for each village. Source: Research findings 2022

As outlined in (Table 5), the total score of entrepreneurial status was 2.33, which is below average. Further, the mean of all five variables: individual, social, economic, political and cultural, was below the average. Among these, the cultural variable obtained the highest mean (2.67), and the lowest mean belonged to the political variable (1.77). The analysis of skewness and kurtosis showed that the reported values were in the range of -2 to +2 or close to this range, indicating that the variables had fairly normal distribution.

Table 5. Descriptive statistics for the analysis of rural entrepreneurial status

Variable	Mean	SD	Skewness	kurtosis
Individual	2/32	0/60	0/641	0/483
Social	2/24	0/51	1/32	2/66
Economic	2/49	0/66	0/985	1/12
Political	1/77	0/55	1/79	3/23
Cultural	2/67	0/74	1/15	0/220
Total	2/33	0/48	1/54	1/84

Moreover, the average of the institutional variables affecting rural entrepreneurship (Table 6) revealed that all the averages were below 3, indicating that all villages did not have a desirable condition in all 12 variables under study. The analysis of averages showed that physical property rights had the highest mean (2.63), followed by costs of proceedings (2.37) and transaction costs (2.37).

The lowest mean was related to the variable of intellectual property rights (1.83), political stability (1.88) and economic stability (1.95). Also, the values of skewness and kurtosis suggested the research variables have a normal or close to normal distribution and no severe deviation from the normal distribution was observed in the data.

Table 6. Descriptive statistics for institutional variables affecting the development of rural entrepreneurship

Variable	Mean	SD	Skewness	kurtosis
Political stability	1/88	0/84	0/65	-0/29
Rule of law	2/20	0/62	1/29	0/86
Judicial independence	2/03	0/57	1/16	0/72
Control of corruption	1/97	0/56	1/47	1/54
Physical property rights	2/63	0/78	0/63	-0/23
Intellectual property rights	1/83	0/45	1/11	0/76
Reward system	2/22	0/58	0/85	0/68
Political stability	1/95	0/72	1/38	1/84
Transaction costs	2/19	0/70	0/95	1/26
Costs of proceedings	2/37	0/67	0/98	0/49
Transparency and accountability	2/05	0/84	0/69	0/49
Educational system and skills training	2/01	0/45	0/75	0/24

Accordingly, it can be argued that the total score of the institutional variables affecting the development of rural entrepreneurship is lower than mean in all the villages of the study area. The studies indicate the deplorable institutional conditions of the studied area, because all studied variables are below average. Undoubtedly, the poor structure of property rights, the ineffective enforcement of contracts and the absence of effective legal restrictions increase the profits of non-productive activities pushing people towards non-productive activities which are the key source of inflation, looting, brokering and intermediation. Under this condition, the cost of freeloading drops and the cost of production, employment and entrepreneurship soar. This process will escalate transaction costs, increase investment risk, and suppress motivation for productive activities, which will discourage production factors, decrease productivity, and consequently, prompt stagnation in the economic development process of rural areas.

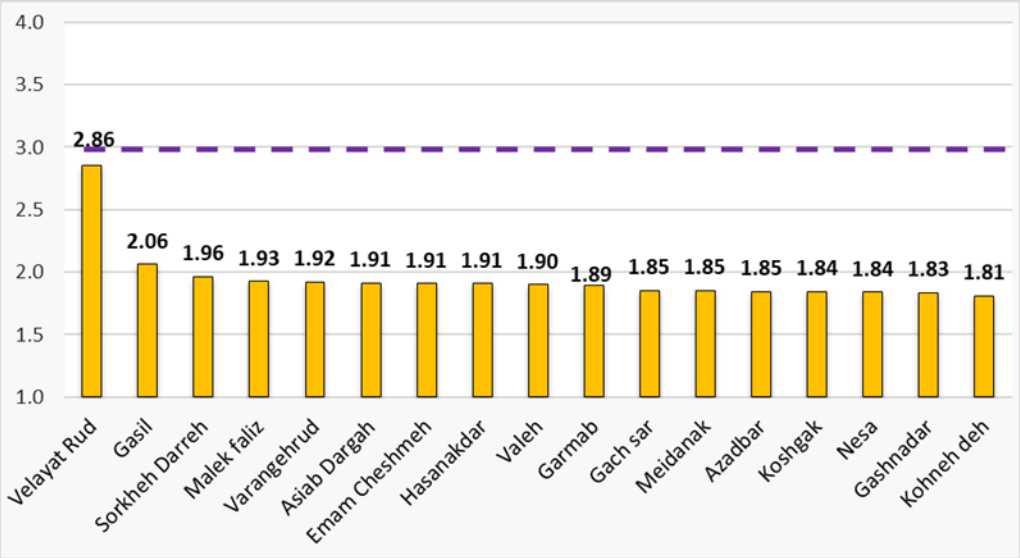

Figure 4. Column chart of the average of all institutional factors for each village. Source: Research findings 2022

4.2. Path analysis of institutional factors affecting the development of rural entrepreneurship:

In this research, the partial least squares path analysis technique was used to test the conceptual model, and the relationship between the variables was measured by Pearson's correlation test. The use of the partial least squares approach was primarily driven by the exploratory nature of the research model and questionnaire, and to a lower degree, by the fact that the assumption of multivariate normality was not established. Also, in this research, multivariate normality, which is the premise of the structural equation modeling test, was tested with Mardia's coefficients, and a coefficient value of 7.42 was obtained. Considering a value of 5 for Merdia's coefficient, it can be concluded that the assumption of multivariate normality was not confirmed, and therefore, the non-parametric method of partial least squares, which is resistant to the assumption of multivariate non-normality, was used for testing the model. Hence, 12 independent variables of institutional factors were measured by the dependent variable of rural entrepreneurship analysis in the form of a correlation matrix. Table 7 outlines the correlation of the independent variables of institutional factors and the dependent variable of rural entrepreneurship in the correlation matrix along with the descriptive statistics of the mean and standard deviation. The average scores range from 1 to 5. It should be noted that the normality of single variables was evaluated using skewness and kurtosis indices, and given that skewness and kurtosis values of all variables were in the range of +2 to -2, the normality of the distribution of variables was confirmed. As a result, Pearson's correlation test was used to investigate the relationship between the variables.

Table 7. Pearson correlation test for research variables and descriptive statistics of variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Political stability	1												
2. Rule of law	0/45**	1											
3. Physical property rights	0/35**	0/56**	1										
4. Intellectual property rights	0/25**	0/41**	0/59**	1									

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
5. System of rewards	0/19**	0/38**	0/32**	0/09	1								
6. Economic stability	0/36**	0/29**	0/08	0/11	0/15*	1							
7. Educational system	0/45**	0/31**	0/11	0/17*	0/11	0/26**	1						
8. Transaction costs	0/54**	0/42**	0/19**	0/21**	0/13*	0/19**	0/06	1					
9. Cost of Proceedings	0/36**	0/35**	0/21**	0/30**	0/16*	0/27**	0/04	0/42**	1				
10. Control of Corruption	0/28**	0/53**	0/35**	0/38**	0/23**	0/32**	0/23**	0/23**	0/15*	1			
11. Transparency & Accountability	0/46**	0/22**	0/28**	0/25**	0/26**	0/31**	0/11	0/31**	0/29**	0/46**	1		
12. Judicial independence	0/33**	0/47**	0/33**	0/37**	0/10	0/27**	0/20**	0/26**	0/35**	0/52**	0/38**	1	
13. State of rural entrepreneurship	0/48**	0/42**	0/16*	0/35**	0/13*	0/55**	0/46**	0/26**	0/22**	0/41**	0/37**	0/31**	1
Mean	1/88	2/20	2/63	1/83	2/22	1/94	2/01	2/25	2/37	1/97	2/06	2/03	2/33
Standard deviation	0/84	0/62	0/78	0/45	0/48	0/67	0/45	0/60	0/67	0/56	0/67	0/57	0/48

Note: *p*≤0.05 and **p ≤0.01 ** Source: test output

The results of Pearson's correlation test (Table 7) showed a significant correlation between all institutional factors and rural entrepreneurial status ($p<0.05$). The analysis of the intensity of correlations revealed that economic stability had the strongest correlation with the state of rural entrepreneurship with a correlation coefficient of 0.55, followed by political stability (0.48), and educational system and skills training (0.46). The conceptual model of the research was tested using the structural equation modeling technique and Smart PLS software. It should be noted that the hypothesis of multiple non-collinearity between the variables affecting the entrepreneurial status was evaluated by the variance inflation factor (VIF). VIF shows the extent to which variables are aligned with each other. Since the value of this measure was below 5, there was no strong collinearity between predictor variables and the hypothesis of multiple non-collinearity was established. Figure 5 is the experimental model in standard coefficients mode and the t statistic is reported in parentheses. T-values over 1.96 confirm the relationship at the 95% CI ($p<0.05$). The presented model is modified and final. Therefore, to provide a simpler model and also to improve the fit of the model, non-significant relationships were removed and all remaining relationships are statistically significant.

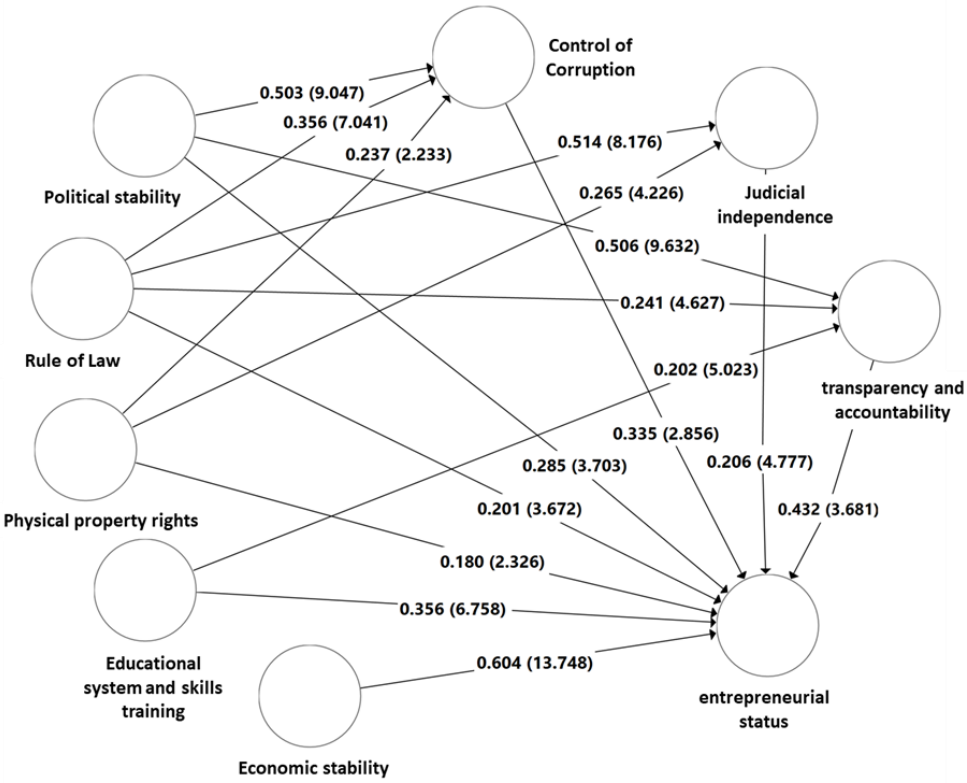

Figure 5. Empirical model in standard path coefficients (and t-statistics)

According to Figure 5, all paths have a t-value over 1.96, and therefore, all relationships in the revised model are significant at CI=95% ($p<0.05$). The fit indices of the model showed that the coefficient of determination for the dependent variable of rural entrepreneurial status was 0.683. Given that this coefficient indicates the degree to which variance or variation of the dependent variable of rural entrepreneurship is explained by the set of independent variables of institutional factors, it turned out that independent and mediating variables of the model could explain 68.3% of the variance of the dependent variable of the state of rural entrepreneurship, which exhibits the explanatory power of the model. Another index used to explore the structural fit of the model is the Q2 index. According to this index, models with good structural fit should be able to predict the endogenous variables of the model. This means that if in a model, the interrelationships of structures are properly defined, the structures will wield sufficient impact on each other and hence the hypotheses are confirmed. As such, Q2 value (CV-Redundancy) for loneliness was 0.354, which was above the desired value of 0.35, and the Q2 index confirmed the structural fit. The normalized fit index was 0.92, which was a good and acceptable value and showed the good fit of the model. The root mean square index of the standard residual was 0.082. In general, none of the fit indices had a low value and they all appeared good and acceptable, according to which the model fitness is confirmed. After measuring the model fitness, the structural relationships of the institutional factors affecting rural entrepreneurship were discussed in the form of direct and indirect effects. The results of the direct impacts of institutional factors affecting the state of rural entrepreneurship (Table 8) confirmed the direct effect of eight factors, political stability, rule of law, physical property rights, educational system and skills training, economic stability, control of corruption, judicial independence, transparency and accountability on the state of rural entrepreneurship. According to the results, out of a total of 12 factors, 8 factors remained in the model. The highest effect was for economic stability with a standard coefficient of 0.60, transparency and accountability with a standard coefficient of 0.43, and the educational system and skills training with a standard

coefficient of 0.36. The results suggest that when the security the property rights and support for rural entrepreneurship is guaranteed, the rural entrepreneurs will be more confident in abiding by the laws and regulations supporting entrepreneurship, and the ground will be prepared for the development of employment and productive activity in rural areas. Subsequently, favorable and stable political and economic conditions in line with the rule of law lead to higher levels of entrepreneurship and wealth creation.

Table 8. The results of investigating the direct effects of institutional factors affecting rural entrepreneurship

Type of effect		Standard Coefficient	Standard error	T value	P value
Direct Relation	Political stability -> Control of corruption	0/50	0/056	9/05	<0/001
	Rule of law -> Control of corruption	0/36	0/051	7/04	<0/001
	Physical property rights -> Control of corruption	0/24	0/106	2/23	0/027
	Rule of law -> Judicial independence	0/51	0/063	8/18	<0/001
	Physical property rights -> Judicial independence	0/26	0/063	4/23	<0/001
	Political stability -> Transparency and accountability	0/51	0/053	9/63	<0/001
	Rule of law -> transparency and accountability	0/24	0/052	4/63	<0/001
	Physical property rights -> Transparency and accountability	0/20	0/040	5/02	<0/001
	Political stability -> Entrepreneurial status	0/28	0/077	3/70	<0/001
	Rule of law -> entrepreneurial status	0/20	0/055	3/67	<0/001
	Physical property rights -> Entrepreneurial status	0/18	0/077	2/33	0/021
	Educational system and skills training -> entrepreneurial status	0/36	0/053	6/68	<0/001
	Economic stability -> Entrepreneurial status	0/60	0/044	13/75	<0/001
	Control of corruption -> Entrepreneurial status	0/34	0/117	2/86	0/005
	Judicial independence -> Entrepreneurial status	0/21	0/043	4/78	<0/001
	Transparency and accountability -> Entrepreneurial status	0/43	0/117	3/68	<0/001

Source: Test output

Moreover, the results of the indirect effects of institutional factors affecting the state of rural entrepreneurship (Table 9) corroborated the mediating role of the control of corruption in the relationship between political stability and the state of rural entrepreneurship, between the rule of law and the state of entrepreneurship, and between physical property rights and the state of entrepreneurship($p>0.05$). Political stability and the rule of law imposed an indirect effect on the state of entrepreneurship through the mediating role of judicial independence. Transparency and accountability also played a significant mediating role in the association of the three independent variables of political stability, rule of law, and the educational system with the dependent variable of the state of rural entrepreneurship. ($p>0.05$). The findings suggest that a high level of corruption control in the society, while alleviating the uncertainty of production, enhances transparency and establishes order in the society, paving the way for enhanced security of property rights in rural areas. In this regard, the mediating role of judicial independence is of great importance. When the

government appoints a third-party arbitrator to enforce and arbitrate the laws in a fair and non-discriminatory manner, and it is ensured that all the stakeholders involved are treated equally. This provides a fair and impartial means of enforcing and upholding the rule of law, which in turn increases predictability and opportunities for long-term planning and investment. In fact, it can be asserted that the government, by setting up an independent and third-party arbiter, can demonstrate its commitment to protecting property rights to support entrepreneurship and employment.

Table 9. The results of investigating the indirect effects of institutional factors affecting the state of rural entrepreneurship

Type of Mediation	Standard Coefficient	Standard error	T value	P value	Type of effect
Control of corruption	Political stability -> Control of corruption -> entrepreneurial status	0/17	0/041	4/11	<0/001
	Rule of law -> Control of corruption -> entrepreneurial status	0/12	0/036	3/31	0/001
	Physical property rights -> Control of corruption -> entrepreneurial status	0/08	0/030	2/65	0/009
Judicial independence	Political stability -> judicial independence -> entrepreneurial status	0/11	0/029	3/65	<0/01
	Rule of law -> Judicial independence -> entrepreneurial status	0/05	0/021	2/60	0/010
Transparency and accountability	Political stability -> Transparency and accountability -> entrepreneurial status	0/22	0/032	6/83	<0/001
	Rule of law -> Transparency and accountability -> entrepreneurial status	0/10	0/019	5/48	<0/001
	Education system -> Transparency and accountability -> entrepreneurial status	0/09	0/025	3/49	<0/001

5. Discussion and Conclusion

This research explored institutional variables affecting entrepreneurship in Nesa rural area in Karaj. The research model was based on institutional theory. According to this theory, there is a bilateral relationship between institutions and entrepreneurial activities. The theoretical foundation of this relationship rests upon the views of North (1990; 1994; 1997), Baumol (1990), and Williamson (2000). The literature on institutions (North, 1990) Baumol, 1990; Sobel, 2008) and entrepreneurship assumes that institutional environments prepare conditions for individual decision-making, and thereby the institutional framework in which an activity is conducted often determines the productive, unproductive or destructive nature of that activity. This research, by looking into the institutional entrepreneurship literature, seeks to identify institutional variables affecting the development of entrepreneurship. The analysis of research variables shows that the existing institutional structure is in a favorable condition and failed to pave the way for entrepreneurship development in the scope of the study.

Studies on the state of entrepreneurship in the rural area of Nesa suggest its deplorable condition in the studied area so that rural businesses are actually intended to provide sustenance for the family, so these activities fall short of competing with the manufacturing industries in the periphery of the cities. In fact, it has been developed only with the approach of ensuring family employment with the minimum investment. Moreover, research shows that the entrepreneurial activity in the rural area of Nesa is bereft of any innovation in the field of rural business, including the development and distribution of new products and the presentation of new production methods.

As such, the comparison of this area, in terms of historical structure and social, economic and

institutional conditions with other regions of the country, suggests that entrepreneurial activities have not offered a decent reward for manufacturers and economic activists, which lays the ground for innovation, labor division and added value for residents.

It is because institutional factors that breach property rights have amplified the cost of exchanging assets, and there is no doubt under these circumstances, entrepreneurship will not be recognized as one of the main and underlying values of society. It is driven by the fact that institutional factors instigate uncertainty in the production and employment process, which hampers productive entrepreneurship.

The analysis of Iran's economic conditions in different periods demonstrates that the "sustenance" economy has been the dominant economic life of Iranian in history, at least until the Constitutional Revolution, and economic activities have displayed a tendency for brokerage economy in trade (RezaGholi, 2019) The studies of Charles Issawi (1971) on Iran's economy in the middle of the 19th century found that in Iran, brokering and reselling have been the antithesis of productive and entrepreneurial activities, and it has wreaked havoc on productive economic activities (Afrakhteh, 2019) Research by a group of Harvard consulting engineers between 1951 and 1958 state that it modern production would never take root in Iran, because in Iran, land and house trade and speculations are highly profitable. and there is no anti-corruption program in place (Afrakhteh, 2019). In this regard, failure to recognize security, as one of the fundamental and strategic issues in Iran's economy, makes it difficult to defend property rights. This has exposed assets to risk and capitals tend to be accumulated in areas where they can be concealed and easily moved. As a result, manufacturing in Iran, whether agricultural or industrial production, has not expanded, and as a result, the knowledge investment has been limited to ensuring minimum livelihood (RezaGholi, 2019).

The analysis of institutional variables affecting rural entrepreneurship suggested that all had an average of below 3, indicating that villages had an unfavorable situation in 12 studied variables. These conditions clearly indicate the weak and inefficient role of institutional variables in rural areas. Further, the findings revealed that the highest average belonged to physical property rights (2.63), followed by costs of proceedings (2.37). The lowest mean was found in the variable of intellectual property rights (1.83), political stability (1.88) and economic stability (1.95). Further, skewness and kurtosis values suggested that the research variables have a normal or close to normal distribution and no severe deviation from the normal distribution was observed in the data.

The results of Pearson's correlation test showed that all institutional variables were significantly correlated with the state of rural entrepreneurship ($p<0.05$). As for the intensity of correlations, the results displayed that economic stability had the strongest correlation with the state of rural entrepreneurship (a correlation coefficient=0.55), followed by political stability (0.48), and the educational system and skills training (0.46).

The findings of the research conceptual model using the structural equation modeling technique confirm the direct effect of eight factors of political stability, rule of law, physical property rights, educational system and skills training, economic stability, Control of corruption, judicial independence, transparency and accountability on the state of rural entrepreneurship. The research on the role of mediating institutional variables affecting the development of rural entrepreneurship suggests that the variable of Control of corruption mediated the relationship between political stability and the state of entrepreneurship, the rule of law and the state of rural entrepreneurship, and physical property rights and the state of rural entrepreneurship. Also, political stability and the rule of law imposed an indirect effect on the state of rural entrepreneurship through the mediating role of judicial independence, and finally, the variable of transparency and accountability mediated the relationship between the three independent variables of political stability, rule of law and the educational system with the dependent variable of the state of rural entrepreneurship. The analysis of the fit indices of the model revealed that the coefficient of determination for the dependent variable of the rural entrepreneurial status was 0.683. accordingly, independent and mediating variables of the model could explain 68.3% of the variance of the rural entrepreneurial status, which demonstrates the good explanatory power of the model.

A comparison of this research with previous studies suggests that institutional variables play an effective role in the development of rural entrepreneurship, which is in keeping with studies such as Ghasemi et al. (2020), Zandieh et al. (2020), Heydari Sareban (2015), Hashemi et al. (2013). The role of institutional factors, especially governing bodies, in the development of rural entrepreneurship and the protection of property rights is also aligned with the studies of Avramenko and Silver (2009), and Fortunato (2014). Socio-economic and institutional conditions with emphasis on the importance of governance and the role of the rule of law are also in line with the findings of Korsgaard et al., (2015) and Pezzini (2001). The findings prove that despite the direct and indirect impact of institutional factors on rural entrepreneurship, they play a weak and inefficient role in rural areas. As such, it can be contended that a poor institutional structure increases profits derived from non-productive activities and therefore it is necessary to organize the institutional structure in line with the national production and employment policies of rural areas.

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Authors′ contributions

The authors equally contributed to the preparation of this article.

Conflict of interest

The authors declare no conflict of interest.

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Original Article

طراحی مدل تحلیل مسیر عوامل نهادی موثر بر توسعه کارآفرینی (مورد مطالعه: ناحیه روستایی نسا در شهرستان کرج)

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چکیده مبسوط

۱. مقدمه

در دو دهه گذشته مفهوم کارآفرینی روستایی،با تحولات بنیادین و روش شناختی روبرو بوده است.در این تحول، نقش انسان در توسعه اقتصادی مد نظر قرار گرفته است و با تغییر رویکرد به فضا از درک آن به عنوان یک مکان فیزیکی ثابت به نفع یک نظام پویای روابط شامل فعالیت های بازیگران محلی و اجتماعی و سرمایه نهادی به همراه این شناخت که فضا توسط تاریخ، سنت و جوامع محلی ساخته شده است،مورد توجه قرار گرفته است. بر این اساس کیفیت بستر نهادی در شکل‌گیری فعالیت‌های کارآفرینانه مولد و غیر مولد در مناطق روستایی بسیار تاثیرگذار است. بررسیهای انجام شده در خصوص نقش نهادها در توسعه کارآفرینی مناطق روستایی به صورت مشخص نشان می دهد که کارآفرینی در این مناطق فرصت ها و انگیزه های خاصی را برای انجام انواع مختلف تولید ارائه می نماید. از آنجا که افزایش تولید و اشتغال و گسترش بنگاه های اقتصادی در مناطق روستایی نیازمند ایجاد بستر مناسب جهت هدایت منابع است،ضرورت توجه به شناخت متغیرهای نهادی موثر وساختار هایی که تبیین آن باعث بهبود و ارتقای سطح کارآفرینی در مناطق روستایی است،اجتناب ناپذیر می نماید.

۲.مبانی نظری تحقیق

مطالعات انجام یافته توسط "داگلاس نورث" و "ویلیام بامول" نشان می دهدکه بین محیط نهادی و توسعه کارآفرینی رابطه مستقیم وجود دارد.براساس نظر نورث نهادها، قواعد بازی در جامعه هستند. اگر قواعد بازی از طریق فعالیت‌های غیرسازنده امکان پذیر شود. طبیعی است که کارآفرینان انگیزه کمتری برای ورود به فعالیت‌های تولیدی خواهند داشت . بر این اساس، بامول کارآفرینی را به سه نوع مولد ، غیرمولد و مخرب تقسیم می‌کند . نهادهای ضعیف رسمی و غیر رسمی رفتارهای فرصت‌طلبانه را تقویت خواهند کرد. از آنجا که فقدان قواعد روشن بازی و عدم اطمینان، این انگیزه را برای مردم ایجاد خواهد کرد که از تمام فرصت‌ها به نفع خود استفاده کنند،در چنین محیط نهادی، جستجوی رانت و فساد (کارآفرینی بی‌حاصل و مخرب) فعالیت‌های اقتصادی غیر مولد را رونق خواهد داد در همین راستا نورث معتقد است که نهادهایی که حقوق مالکیت را تعریف و اجرا می کنند بر عملکرد اقتصادی تأثیر می گذارند. زیرا هزینه های مبادله و عدم اطمینان ناشی از مبادله را کاهش می دهند. بررسی مطالعات حاصل از نقش نهادها در توسعه کار آفرینی روستایی می توان دریافت که بیشتر این مطالعات، حول محور سیاستگذاری ، حکمرانی روستایی، نوآوری و ویژگیهای اجتماعی، روانی و فردی است.

بنابراین ضرورت توجه به نقش سیاستهای تولید،اشتغال و کارآفرینی از سطح محلی اجتناب ناپذیر می نماید. و در این بین نقش عوامل نهادی موثر در توسعه کارآفرینی روستایی از جمله سیاستگذاری و حمکرانی محلی در قالب حمایت از حقوق مالکیت کارا به عنوان مهمترین ابزار نهادی توسعه کارآفرینی روستایی،می تواند زمینه ساز شکوفایی اقتصادی مناطق روستایی شود.

۳.روش شناسی تحقیق

این پژوهش براساس هدف،بنیادی،کاربردی و بر اساس روش گردآوری داده ها توصیفی-پیمایشی است. جامعه آماری پژوهش ساکنان دهستان نسا است.

حجم نمونه بر اساس فرمول کوکران به تعداد۲۱۶ $=n$محاسبه شده است و توزیع آن در میان روستاها بر اساس انتساب متناسب با تعداد خانوارها در هر روستا بود و نمونه گیری نیز با روش تصادفی ساده

*. نویسندهٔ مسئول:
دکتر حسن افراخته
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انجام شد. ابزار پـــژوهش، پرسشـــنامه محقق ساخته است. در این پژوهش از روش تحلیل عاملی تاییدی به منظور بررســـی روایی و پایایی پرسشنامه و از روش تحلیل مسیر به روش حداقل مجذورات جزئی برای آزمون مدل مفهومی پژوهش اســـتفاده شـــد و رابطه متغیرها با آزمون همبستگی پیرسون سنجیده شد.

۴.یافته های تحقیق

بررســـیهای انجام یافته در خصـــوص وضـــعیت کارآفرینی در ناحیه روستایی نسا نشان می دهد که این موضوع در محدوده مورد مطالعه از شرایط مناسبی برخوردار نبوده و عملا کسب کارهایی روستایی در جهت تامین حداقل معاش خانواده است. بررسی میانگین متغیرهای نهادی موثر بر کارآفرینی روســتایی نشـان داد که تمامی میانگین ها کمتر از مقدار متوسط ۳ بود.

نتایج مدل مفهومی پژوهش با اســـتفاده از تکنیک مدل ســـازی معادلات ســاختاری،تاثیر مســـتقیم هشـــت عامل ثبات ســـیاســـی، حاکمیت قانون، حقوق مالکیت فیزیکی، نظام آموزشـــی و مهارت آموزی، ثبات اقتصـادی، کنترل فسـاد، اسـتقلال قضـایی، شـفافیت و پاســـخگویی بر وضـــعیت کارآفرینی روســـتایی تایید می نماید. بررســیهای انجام شـده در خصـوص نقش متغیرهای نهادی میانجی موثر در توسعه کارآفرینی روستایی نشان می دهد که متغیر کنترل فسـاد در رابطه بین ثبات سـیاسـی و وضـعیت کارآفرینی ، حاکمیت قانون و وضـــعیت کارآفرینی روســـتایی و همچنین حقوق مالکیت فیزیکی و وضـــعیت کارآفرینی روســـتایی مورد تایید قرار گرفت. همچنین ثبات ســـیاســـی و حاکمیت قانون نیز با میانجی گری اسـتقلال قضـایی بر وضـعیت کارآفرینی روسـتایی اثر غیرمسـتقیم داشـتند و در نهایت عامل شـفافیت و پاسـخگویی توانسـت در رابطه سه متغیر مستقل ثبات سیاسی، حاکمیت قانون و نظام آموزشی با متغیر وابسـته وضـعیت کارآفرینی روسـتایی، نقش میانجی گر معنی داری داشته باشد. بررسی شاخص های برازش مدل نشان داد ضریب تعیین برای متغیر وابسته وضعیت کارآفرینی روستایی برابر با ۰/۶۸۳ بدســـت آمد و بر این اســـاس متغیرهای مســـتقل و میانجی مدل توانســتند ۶۸/۳ درصـد از واریانس وضـعیت کارآفرینی روسـتایی را تبیین کنند که نشان از قدرت تبیین مناسب مدل دارد.

۵. بحث و نتیجه گیری

پژوهش حاضـر با هدف تحلیل مسـیر عوامل نهادی موثر در توسـعه ناحیه روستایی نسا انجام پذیرفت. نتایج پژوهش در خصوص وضعیت کارآفرینی نشـان می دهد،خود اشـتغالی با رویکرد کسـب و کارهای خرد خانوادگی و عمدتا فاقد نوآوری، فعالیت غالب کارآفرینی در محدوده مورد مطالعه بوده اسـت. در این پژوهش بر اسـاس مطالعات حاصـل از منابع فارسـی و لاتین، ۱۲ متغیر نهادی موثر در توسـعه کارآفرینی شناسایی شدند

بررسیهای انجام یافته ، برنامناسب بودن شرایط نهادی محدوده مورد مطالعه اشـــاره دارد.زیرا تمام متغیرهای مورد مطالعه پایین تر از میانگین متوسط است. مسلما ساختار نامناسب حقوق مالکیت، عدم اجرای مناسـب قراردادها و عدم ایجاد و اعمال محدودیت‌های قانونی موثر ، باعث افزایش ســـودآوری فعالیت‌های غیر مولد می شـــوند و موجبات حرکت افراد را به ســـمت فعالیت‌های غیر مولد که منشـأ اساسی تورم،غارت و دلالی و واسطه گری هستند، فراهم می‌کنند و در این شرایط هزینه مفت خوارگی کاهش و هزینه تولید و اشتغال و کارآفرینی افزایش می یابد. و این فراینـد باعث افزایش هزینـه‌های مبادلاتی، افزایش ریسـک سـرمایه‌گذاری و کـــــاهش انگیزه برای فعالیت‌های مولد شده که پیامد آن کاهش انباشت عوامـل تولیـد و کـــــاهش بهره‌وری کل عوامل و درنتیجه رکود در رونـد توسعه اقتصادی مناطق روستایی خواهد شد.

کلیـد واژه هـا: متغیرهـای نهـادی،کـارآفرینی،نـاحیـه روســـتـایی نسا،شهرستان کرج

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Original Article

Behavior-Oriented Design in Neighborhoods with Rural Origins (Case Study: Saber Street in Noh-Dareh, Mashhad)

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Abstract

Purpose- With the physical expansion of cities, some surrounding villages are incorporated into the city as new neighborhoods. These areas, due to their rural backgrounds, differ from newly developed urban neighborhoods in physical, social, economic, and cultural aspects. Social issues, particularly behavioral problems, are one of the challenges in these areas. The neighborhood of Noh-Dareh in Mashhad (with a rural background) faces such a challenge. The Saber Street (located in Noh-Dareh) is the intersection of formal and informal settlements and has a strategic location due to its proximity to the Kuh Park. However, the occurrence of certain inappropriate behaviors has led to a decline in its efficiency and attractiveness for residents. This study aims to propose design recommendations for Saber Street to improve user behavior patterns.

Design/methodology/approach- This research is mixed-method (quantitative and qualitative). After collecting library resources (behavior, environment, and perception), user behaviors were identified by using qualitative techniques (observation, behavioral mapping, and interviews). The obtained data were then categorized into conditions, actions, and consequences through qualitative analysis using MaxQDA. Subsequently, based on the typology of existing micro spaces, design recommendations were proposed based on behavioral patterns.

Findings- Behaviors in the micro spaces of the mentioned street are often solitary, involving short and unconventional pauses due to the lack of diverse activities, psychological insecurity, inappropriate lighting furniture, and inconvenient climatic conditions. These results are reduced identity and increased insecurity, social damages, and inefficiency of activities.

Practical implications- To improve these conditions, it is suggested to enhance urban management control, adopt supervisory policies through the design of frontages, allocate collective activities in the space, organize various events, and provide welfare and comfort infrastructure and equipment.

Originality/Value- Considering the presence of social conflicts in neighborhoods with rural backgrounds, such as social damages, activity inefficiency, and ultimately resident dissatisfaction, the innovation of this study lies in identifying the context and causes of inappropriate behavioral patterns in these neighborhoods.

Keywords- Behavioral design, Behavioral sciences, Rural-based neighborhoods, Saber Street, Noh-Dareh neighborhood Mashhad.

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1. Introduction

The integration of villages into cities is a significant topic in urbanization and urban development, leading to the formation of rural-based neighborhoods. This process generates various interactions and conflicts (Shaykh Beygloo & Akbarian Rounizi, 2018; Mohammadi, 2021). Villages, while physically located within the city, often exhibit social and cultural conflicts. This results in issues such as low quality of life, poverty, lack of social welfare and sense of belonging, and inadequate urban services and infrastructure. These problems frequently emerge in these newly formed urban neighborhoods due to the absence of comprehensive planning and design, creating a foundation for conflicting interactions and behaviors among users. These behaviors reflect the diverse needs of individuals, mental imagery, and environmental characteristics, manifesting individually or collectively (Mohammadi et al., 2018; Esfandiari & Nabieian, 2018; Sepahi et al., 2017).

Examining users' behaviors for space design is a prominent topic in urban design and can influence the interaction between humans and their environment (whether rural or urban). Essentially, behavior is a product of both internal and external factors perceived by individuals. The individual, as an internal factor (with personal, cultural, and social characteristics), and the environment, as an external factor (Dimension of the Built Environment), provide the necessary context for creating behavioral patterns and social interactions. Thus, studying environmental behaviors can reveal how citizens' daily lives are influenced by their surroundings and social events (Sholeh et al., 2017; Dalakeh et al., 2017; Shirazi, 2018). Research in this field typically depends on various parameters such as age, gender, physical and environmental conditions, requiring considerable time, human resources, and financial investment. Therefore, the discussion of behavior is often overlooked in the urban design process (Shirazi, 2018). The failure to consider behavioral patterns in the design process leads to the deterioration of environmental and social qualities in urban spaces, undermining the human-centered nature of cities (Paknezhad et al., 2021). In Iran, there has been insufficient attention to the interactions among people within the environment, particularly in rural-based neighborhoods. As new developments occur in other areas, urban neighborhoods with rural characteristics struggle to adapt to new functions which results in reduced connections between the residents of these neighborhoods and their surroundings (Bahreini & Agha Karimi, 2016).

The Noh-Dareh neighborhood in Mashhad is one of the inefficient rural-based settlements. This neighborhood has a rural background and has undergone various physical changes over recent decades due to the city's expansion towards the south and the lack of proper urban design and planning control. These changes have led to the division of the neighborhood into formal and informal settlements.

Saber Street (the main street of Noh-Dareh) is the intersection of these settlements, hosting most of the neighborhood's functions (residential, commercial, recreational, etc.) and events (behavioral patterns). This street accommodates users of diverse ages and genders throughout the day, pursuing different activities within the area. Therefore, it plays a significant role in the daily lives of the street's users. However, it currently faces issues that exacerbate the neighborhood's social conditions and diminish its social status. These issues include the deterioration of environmental quality due to neglect of design principles, illegal constructions because of the absence of urban planning regulations and standards, a lack of sense of belonging following widespread migration of various groups and ethnicities, insecurity due to the presence of addicts, criminals, and delinquents, and the decline of social values due to the prevalence of non-conforming behaviors.

The introduction and development of ubiquitous urban design and behavioral considerations in the planning of such spaces are crucial to addressing these challenges and fostering a more cohesive and functional built environment.

The present study addresses the following question while outlining the theoretical framework of the research. After understanding the environment through the dimensions of urban design according to Carmona and analyzing user behaviors, the findings are discussed and analyzed:

How can design proposals for Saber Street in the Noh-Dareh neighborhood of Mashhad (with a rural background) be used to improve behavioral patterns?

2. Research Theoretical Literature

Understanding the relationship between humans and their environment and how they interact is a crucial topic in the study of behavior. Humans are rational, social, and progressive beings who constantly change and experience different needs throughout their lives. As a result, each person has various needs depending on their circumstances. These needs lead to their behaviors and can be categorized into three levels: Physiological, Psychological, and Spiritual and Emotional needs. Each person seeks to fulfill their needs within their environment and exhibits different behaviors based on their perception of the built environment dimensions (Shahcheraghi & Bandarabad, 2016, p.33; Saghatoleslami & Rohi Mirabadi, 2020, p.206; Paikan & Rafieian, 2019).

Behavior is the most observable reaction of humans to their environment. In addition, behavior is a product of an individual's needs, environmental characteristics, and mental imagery, which they acquire through environmental perception and express individually or collectively (Baek et al., 2015; De Cantis et al., 2016; Shirazi, 2018). Consequently, behavior can be seen as resulting from two factors: the environment (built environment dimensions) and the individual (personal, cultural, and social characteristics) (Pakzad & Bozorg, 2014; Carmona, 2014a). Furthermore, behavior is a tool through which individuals can communicate and interact with others in the environment without using verbal language (Pakzad, 2007). So, behavior has a well-known nature and a complex mechanism. Predicting behavior in the environment is one of the questions many researchers have sought to answer. Some believe that this field, along with other sciences such as anthropology, sociology, and political science, forms the basis of environmental psychology (Shahcheraghi & Bandarabad, 2016).

Behaviors in the environment can be categorized into three types based on their nature: High-level activities, Low-level activities, and Sedentary activities. High-level activities include a range of behaviors in the environment that involve the most movement and are constantly changing, leading to various behaviors being exhibited. Low-level activities involve short movement, and the range of behavioral changes is not significant. In sedentary activities, the duration of an individual's presence at a specific point is longer. In this context, the range of behaviors formed within each of these three categories can be classified into a general framework (Carmona, 2014b; McGrath et al., 2015; Baek et al., 2015; Li et al., 2019; Onojeghuo et al., 2019; Foweather et al., 2021). Figure 1 shows the behaviors formed in the environment based on their nature.

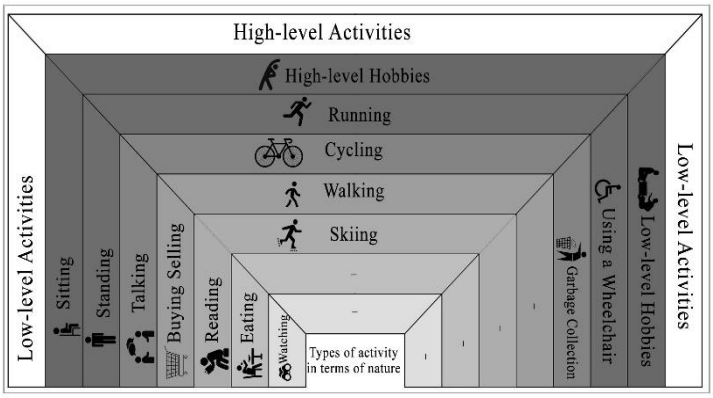

Figure 1. Environmental Behaviors Categorized by Nature

Everything that surrounds humans and can potentially interact with an individual and influence their behaviors is referred to as the environment. The environment, depending on its nature (natural or built environment), provides services. In this context, the richer the quality of an environment, the more users it attracts (Baek et al., 2015; Hahm et al., 2017; Carmona 2014a; Carmona 2014b). According to Carmona and colleagues (2011) the quality of each built environment can be identified through six dimensions: Morphological, Functional, Social, Perceptual, Visual, and Temporal. These dimensions are interconnected due to the continuous process of urban design, and each

dimension influences the others. So, to formulate a specific framework of influential factors in the built environment, these dimensions are examined separately (see Table 1).

Table 1. Dimensions and Components of the built environment. Source: Carmona et al., 2011

Dimensions	Components of Dimensions	Subcomponents of Dimensions
Morphological	Network Penetration	Level of Access, Physical Permeability, and Visual Permeability
	Quality Level of Communication Network	Narrowing of Roadways and Widening of Sidewalks, Activity Mixing in Streets, Passages, and Intersection Design, Increasing Environmental Legibility and Adequate Facilities such as Lighting Furniture
	Physical Form	Type of Building Form and Use of Various Materials in Defining Form
	Block Pattern	Large-scale Blocks, Small-scale Blocks
Functional	Performance Scale	Macro, Meso, Micro Scale
	Mixed used	Ensuring Security and Surveillance of People, Optimal Access and Distance Reduction, having more choice, Achieving More Urban Services and Economic Enterprises, Opportunities for Social Interactions
	Functional Density	Type of Horizontal and Vertical Density of Blocks
	Functional Specificity	Change of Height for External Monitoring of Buildings, Defining Soft or Hard Edges and Borders for Buildings
	Microclimate Conditions in Space	Wind Direction, Sun, Type of Vegetation Cover, Orientation of Blocks and Streets, Shading Elements
Social	Environment-People Interaction	Presence of Various Facilities in the Environment, Existence of Possibilities in the Environment
	Type of Engagement in Space	Active Engagement, Passive Engagement
	Public Realm in Space	Free Access to Space at Night, No Membership Required for Space Presence, Recreational Atmosphere, Providing Comfort and Convenience, Dignified and Glorious Spaces Politically Among People, Informal Spaces and Having Various Personal Choices
	Security in Space	Space Control, Space Surveillance, Activity in Space
	Accessibility in Space	Free Access for Individuals with Different Physical Conditions
Visual	Aesthetic Qualities	Naturalness of Space, Civility and Controllability of Space, Historical/Content Meaning, Spatial Order, Spatial Qualities - Quality of Elements, Qualities Between Elements, Quality of Relationship of a Specific Element with Other Elements
	Spatial Movement Experience	Sequencing, Point and Wide View
	Building Architecture	Form, Function, Meaning
	Hard and Soft Landscaping	Hard Landscape (Physical Elements), Soft Landscape (Green Elements)
Perceptual	Legibility in Space	Pathway, Signage, Edge, Node, Zone
	Sense of Place	Sense of Belonging, Sensory Richness (Eight Senses)
Temporal	Time Management in Space	Single-time Activities, 24-hour Activities
	Conservation Values in Space	Aesthetic Values, Architecture, Values Arising from Mixed Land Use, Economic and Commercial Values, Natural Resource Values, and Cultural Values, and Heritage Preservation

Once humans are present in an environment, the process of perception begins. Perception involves three stages: sensation, perception, and cognition. This process is active, and purposeful, and serves as a link between cognition and reality. Furthermore, perception is influenced by culture, attitudes, and societal values. “Sensation” Sensation is an external mechanism formed in the environment and received through the senses. “Perception” Perception is an internal mechanism shaped by the individual. The individual categorizes and analyzes information received from the environment. “Cognition” This stage is an external-internal mechanism that classifies and analyzes information received from the environment in the mind, establishing a connection between sensation and cognition. The subject of behavioral sciences has garnered the interest of researchers, leading to diverse research in

various scientific domains such as urban planning, design, health, psychology, and environmental psychology. Each of these research endeavors defines its objectives and adopts various methods, employing suitable tools for data collection and analysis. Table 2 elucidates these research efforts.

Table 2. Background of Research in the Field of Behavioral Sciences. Source: Authors

Researchers	Scale	Method	Data-Collection	Data-Analysis	Research Domains
Sun et al.,2014	Micro	Quantitative	Behavior Mapping Using	GPS, Quantitative Tool	Evaluating the Hong Kong University campus in two time periods before and after changes in the environment and behaviors. Results of the study indicated that changes in the built human environment influence the type of movement of individuals in space and lead to the emergence of various behaviors such as sitting or changing direction in the long term.
De Cantis et al.,2016	Macro	Quantitative	Questionnaire and GPS	GPS, Quantitative Tool	Investigating the popularity of tourist areas in the city. This research was conducted in two phases. In the first phase, general information from travelers was extracted through a questionnaire, then using GPS tools, the information and movement paths of travelers during the trip were collected, and finally, after analyzing the data, popular areas were identified.
Onojeghuo et al.,2019	Micro	Mixed	Observation	GPS, Quantitative Tool	Identifying children's behavior in educational spaces - using GIS tools to identify behaviors. Creating a grid network and determining the size of each square based on the nature of the environment and its activities. Utilizing CCTV cameras to identify behaviors in the environment and ultimately determining the type and level of activities, the gender, and age of users in each section with charts in each of the squares in the grid network.
Motomura et al,2022	-	Quantitative	Study of Document Analysis	GPS, Quantitative Tool	Investigating the relationship between public open space characteristics and active and sedentary behaviors in densely populated urban areas. This research selected and analyzed 18 studies related to this topic, mostly from East Asian countries. The results of this study showed that with the increase in public space characteristics, more physical recreational activities take place.
Lotfi et al., 2013	Meso	Mixed	Observational and Document Analysis Study	Qualitative Tools	Explaining the role of factors influencing the enhancement of interactions on Molla Sadra Street in Shiraz. The output of this research is a framework of strategies based on three components: functional, experiential-aesthetic, and environmental. This framework can serve as a model for enhancing social interactions on recreational and tourist streets.
Paknezhad et al., 2021	Meso	Mixed	Document Analysis Study	Space Syntax, O Graph, GPS	Discovering changes in behaviors across different urban fabrics to provide a basis for planning in line with planners' objectives. Creating behavioral patterns in various urban spaces is the product of existing human relationships. A regular pattern in pathways increases accessibility and integration, facilitating access and strengthening pedestrian and movement patterns.
Foroutanrad and Zamani, 2021	Micro	Qualitative	Observational and Behavioral	Qualitative Tools	Assessing behavioral settings in urban squares at three time periods (morning, noon, and night) over three-months in two squares, Imam Ali and Naqsh-e Jahan. Comparing the syntactic relationships in these two squares showed that

Researchers	Scale	Method	Data-Collection	Data-Analysis	Research Domains
			Mapping Study		each square accommodates a range of behaviors. Specifically, Naqsh-e Jahan Square, due to its environmental features, encompasses optional and social activities, whereas Imam Ali Square includes compulsory activities.

Given that the process of perception is influenced by factors such as needs and prior experiences, which themselves are influenced by the environment, the influential factors in perception formation can be classified into two categories: External (tangible) factors and,Internal (intangible) factors.

External factors include the environment and its dimensions, as well as the individual's position relative to them. Among these, two elements that consistently simplify environmental perception are form (everything potentially present in the environment, including physical, social, economic, cultural, and climatic features) and urban landscape (information consciously or subconsciously received and selected by humans, perceived through perceptual action).

Internal factors encompass personal characteristics (values, norms, mental meanings, memories, and self-identity), collective characteristics (ethnic culture, social values, and norms, sensory experiences), and general characteristics (age, gender, education, occupation, language) acquired through mental imagery (individual perception). These factors are integral to the human-environment perception process and lead to various behaviors in the environment. Therefore, they can be broadly categorized into two parts: stable elements, characteristics that are difficult to change, and dynamic elements, characteristics that are subject to change in the short term. Figure 2 illustrates a conceptual framework of the interaction between humans, perception, and behavior in the environment.

This theoretical framework will guide the study in understanding how design proposals for Saber Street in the Noh-Dareh neighborhood of Mashhad can improve behavioral patterns, considering the unique rural background of the area and its impact on user behavior and interactions.

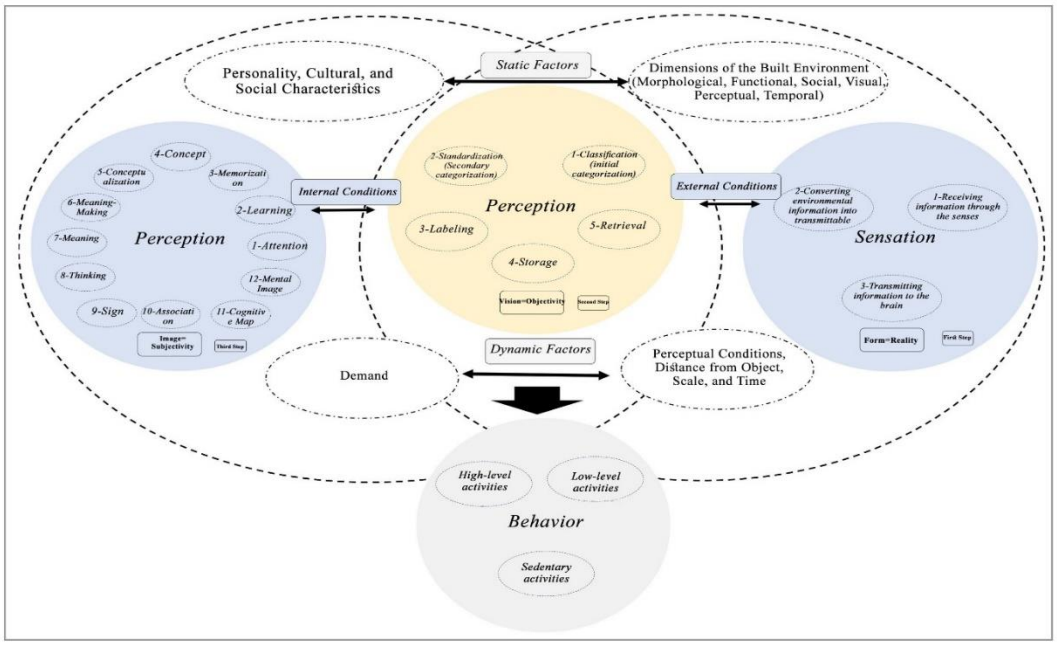

Figure 2. A Conceptual Framework of the Interaction between Humans, Perception, and Behavior in the Environment

3. Research Methodology

3.1.Geographic Scope of the Research

The focal point of the study is Saber Street in the Noh-Dareh neighborhood, situated at the intersection of rural and urban areas. This street spans from the east to Shaghayegh Street, west to Ladan Street, north to Fakouri Street, and south to the southern mountain of Mashhad. Saber This street divides the neighborhood into two sections: formal and informal settlements, shaping the spatial organization of the neighborhood. The highest density of activities occurs alongside this street, with a diverse range of activities, ranging from small-scale businesses like retails to large-scale infrastructure such as the water and sewage company and the seismology center. Additionally, Saber Street plays a significant role not only in facilitating movement but also in fostering social interactions, serving as a meeting point for residents from various cultural backgrounds,
including those from other parts of Mashhad, neighboring cities, rural areas, and migrant populations (e.g., Afghanistan). Figure 3 illustrates the position of Saber Street within the Noh-Dareh neighborhood of Mashhad.

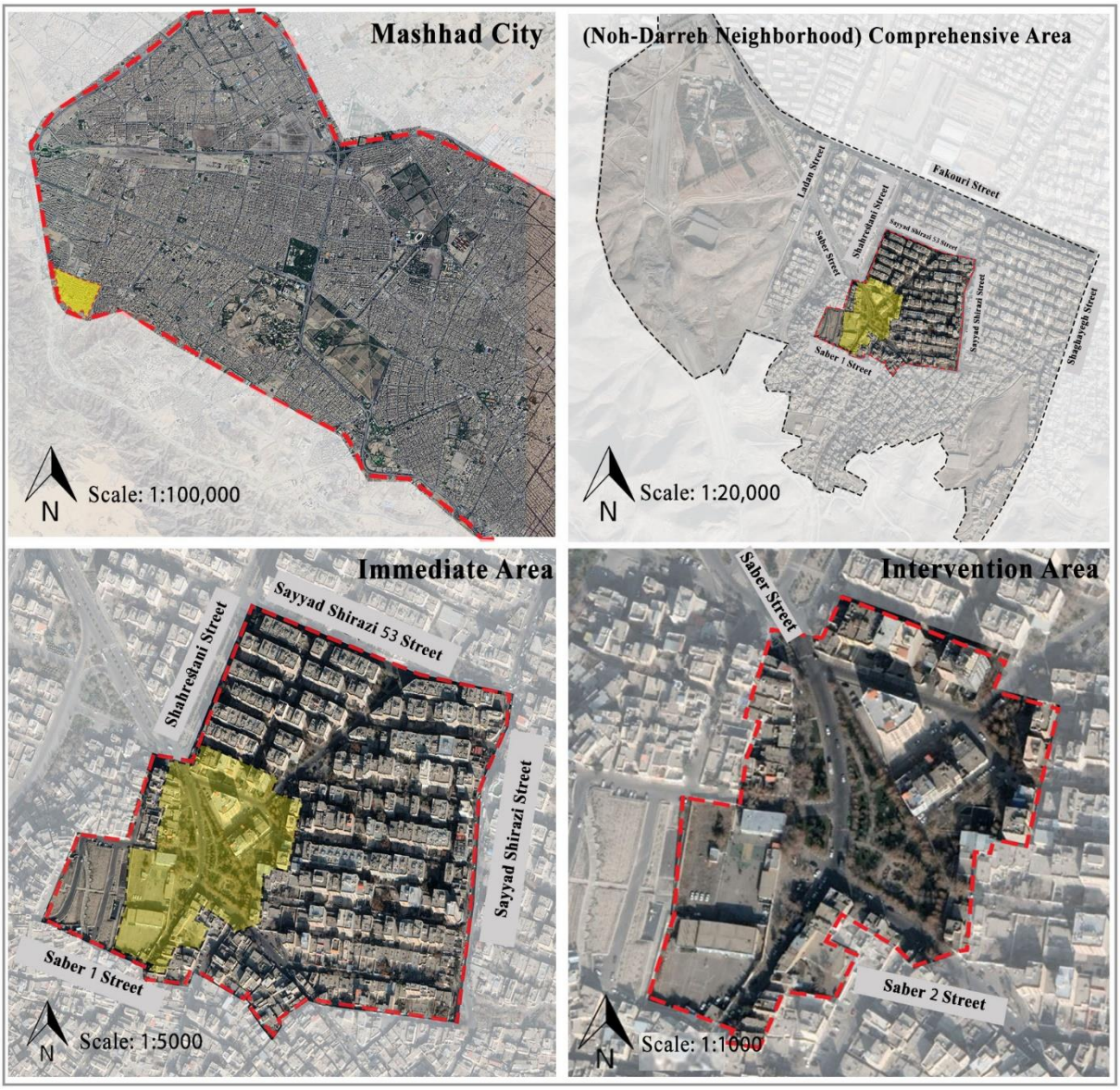

Figure 3. Location of Saber Street in the Noh-Dareh Neighborhood in the City of Mashhad. Source: Authors.

3.2. Methodology

The present study adopts a pragmatism paradigm and falls within the category of developmental research. Utilizing a deductive-interpretative approach, the study initially extracts relevant foundations related to behavior, environment, and perception from library sources. Subsequently, through a mixed-methods strategy incorporating techniques such as observation, behavioral mapping, and semi-structured interviews, behavioral information is gathered from the environmental context. Then, using the qualitative analysis tool (MaxQDA) and the coding technique in the data-driven approach, the collected data are analyzed. Unlike quantitative theoretical approaches, the data-driven method aims to generate and discover theories. In this approach, sampling is not initially conducted; instead, individuals who strengthen the theorization process are identified concurrently with conceptual identification and clarification. The data-driven approach extracts concepts (conditions, behaviors or actions, and consequences) from the core of the research, categorizing them into the mentioned concepts. Conditions encompass a set of events and incidents that create situations and issues related to a phenomenon, explaining how and why individuals and groups respond to these conditions. Behavior or action indicates behavioral patterns of individuals in response to issues and consequences resulting from conditions (Ghalandarian, 88, p.2022; Ghalandarian and Ghaemmaghami Farahani, 89, p.2023).

In the first step of this research, a systematic review of various sources was conducted to examine concepts related to theoretical foundations (environment, perception, and behavior) in the field of urban design. Then, the identification of the environment and its issues was performed through observation and behavioral mapping. Next, considering the dimensions of built environment, the focal street evaluated by the researchers was assessed to gain general knowledge about the study area. Subsequently, to complete the understanding and achieve comprehensive insight into the issues within the area, interviews were conducted with all age groups (children, youth, middle-aged, elderly) and genders (men and women). The number of interviews (20 cases) was repeated to a certain extent to acquire theoretical saturation. Figure 4 illustrates the research process.

4. Research Findings

For a comprehensive and precise evaluation, the focal street under study was divided into six micro spaces based on visibility, communications, visual access, and the spectrum of behavioral placement. Subsequently, behavioral patterns were observed over three different days, including regular days, Public Holidays, and Festive holidays. Figure 5 illustrates this division to facilitate the extraction of behavioral patterns, while Figure 6 depicts the distribution of behavioral patterns during morning and evening sessions over the course of three different days.

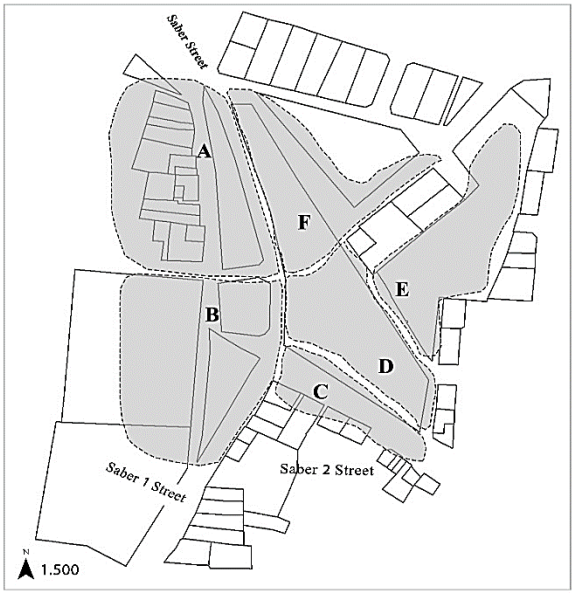

Figure 4. Research Process

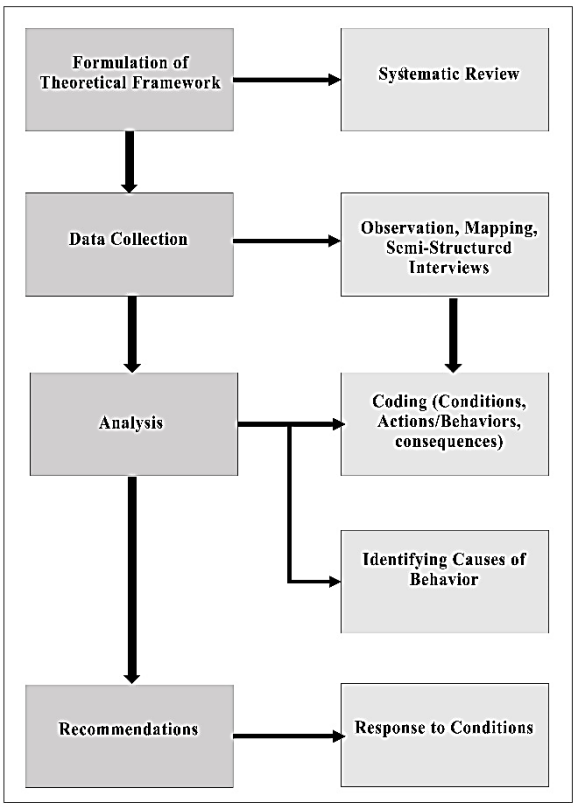

Figure 5. Division of Space into Six Subspaces for Behavioral Pattern Extraction

4.1. Analysis of Present Behavioral Patterns in the Space

According to the distribution of behavioral patterns (Figure 6), in both morning and evening sessions, walking constitutes the majority of behaviors (over 50%). This could be attributed to the presence of places such as schools, green spaces, cafes, supermarkets, and bakeries. Additionally, behaviors

like observing (more than 10%) are among the other prevalent behaviors in the area.

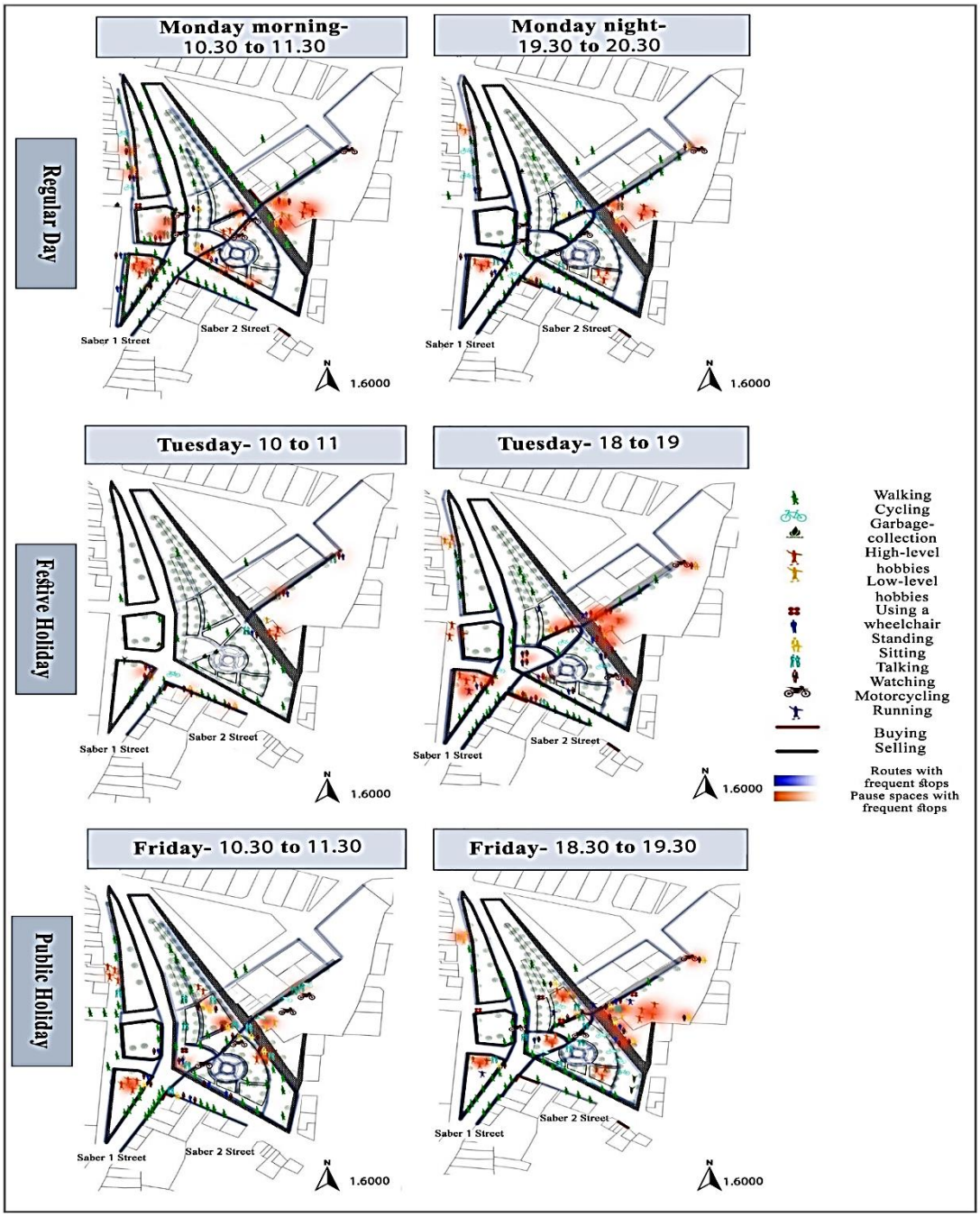

Figure 6. Distribution of Behavioral Patterns in Morning and Evening Sessions Over Three Different Days

The behavior, which is often combined with other behaviors such as sitting and standing, mostly occurs in the area of Bahamin Park (micro-space D), the stone edge of space E, space C, and sometimes in micro-space A as low-level hobbies. It should be considered that the users of these spaces are mostly local women and neighbors who, along with activities such as cleaning vegetables, shaking fruit trees, etc., enjoy watching the environment.

high-level and low-level activities, such as playing behaviors, occur due to weather conditions and the day of the week. These behaviors are welcomed in micro spaces E and B due to the presence of children's play areas and sports equipment by the

elderly group in micro-space D. These behaviors peak on public holidays, especially in the evening shift, leading to increased vitality.

Talking behaviors combined with actions such as sitting and standing occur sporadically in various spaces. These behaviors mostly occur at the edges of micro-space E, benches, or green spaces in micro spaces D and B, and behaviors such as *smoking* in public spaces and behaviors such as these, which are outside the norm of the city, are highlighted. These points have gradually turned into small territories over time, which improve social interactions and are available to different age and gender groups at different times of the day. Motor vehicle traffic inside pedestrian spaces, especially in micro spaces D and E, has reduced safety for pedestrians, especially specific age groups. This behavior decreases the efficiency of the space, especially due to the presence of youth in the evening shift.

Other behaviors, mostly seasonal, rarely occur within the study area due to its rural-base nature, such as spreading tents and shaking trees to eat fruits, which are observed mainly in the eastern part of micro-space D.

The analyses indicate that most of the formed behaviors in the study area occur in micro spaces D, B, and E. For example, in micro-space D, the presence of equipment such as benches, and recreational facilities, and the age conditions of the groups present (children, youth) are among the main reasons for the presence of more people on holidays and in the evening shift (more than 40% of individuals). In contrast, due to the location of micro-space B and its adjacency to local uses like the bakery, supermarket, and school, walking is mostly favored by individuals in the morning and more. Micro-space C, due to its linear nature, is mostly receptive to walking or standing conversations. The percentage of space use is the same day and night, less than 15%, with the least use belonging to micro-space F, which is probably due to the lack of elements or relevant activities. Figure 7 illustrates this issue.

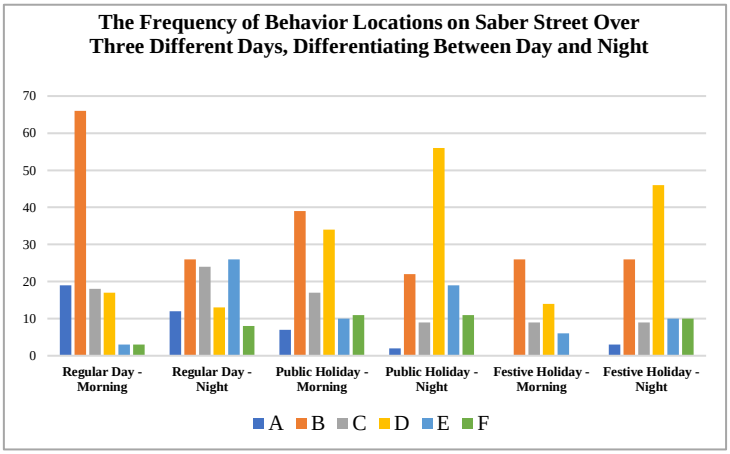

Figure 7. Frequency of behaviors categorized by space, during day and night, across three regular, public, and festive days

The analysis of findings in the aforementioned street indicated that 72.3% of behaviors occurred individually, while 27.7% were group behaviors (two or more individuals), predominantly observed in spaces B and C. In terms of gender distribution, the street had fewer female participants, with the highest frequency of female presence in spaces B and C on a regular day, accounting for 34.9%, nearly half of the male presence (65.1%).

The results of the investigations indicate that in the mentioned area, the presence of men is almost evenly distributed, while women are more present in spaces A (semi-public space), D, and E. However, it's essential to note that the presence of women in these spaces is heavily dependent on environmental conditions such as weather, lighting, comfort, and convenience. Figure 8, (a) displays the frequency of men and women in the small spaces, while (b) illustrates the frequency of individual versus group behaviors.

Furthermore, the six micro spaces were evaluated based on the dimensions of built environment (components of Table 3). Accordingly, micro spaces with more than 4 subcomponents were

considered suitable, those with two to three subcomponents were rated as moderate, and those with fewer than two subcomponents were deemed unsuitable.

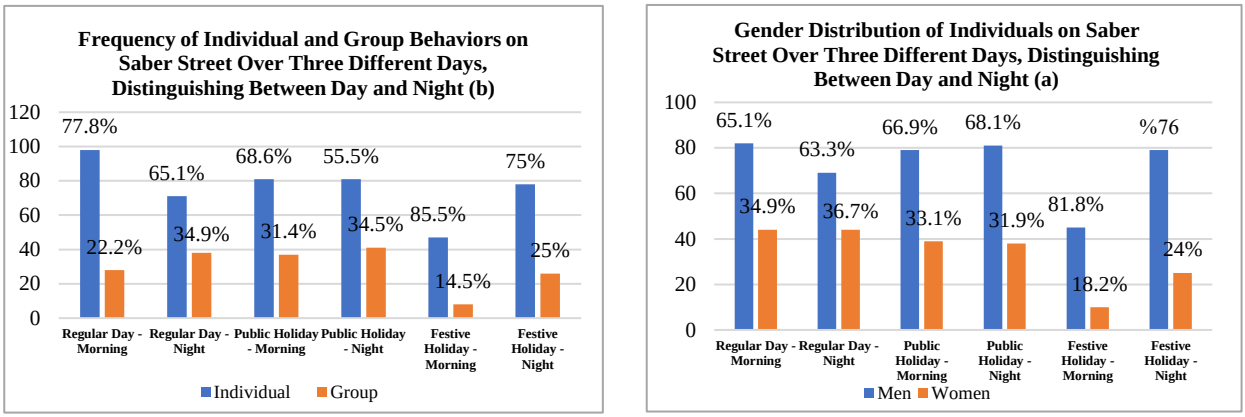

Figure 8. (a) The frequency of men's and women's presence on each of the sampling days, and (b) the frequency of individual and group behaviors on each of the sampling days

Table 3. Criteria for evaluating the conditions of micro spaces within the dimensions of built environment

Dimensions	Components	Subcomponents
Morphological	Safety	1-Soft and Hard Separator Edges,2-Steps and Ramps,3-Slopes and Gradients,4-Slip-resistant Surfaces,5-Durable Pavements,6-Crosswalks and Pedestrian Zones,7-Traffic Signals and Markings,8-Dedicated Bike Lanes,9-Separate Pedestrian Walkways,10-Public Transit Lanes
	Hangout space form	-
	Physical permeability	1- Separator Edges 2- Pathway Integration 3- Transport Mode Separation 4- Easy and Short Access 5- Accommodation for Sensitive Groups
Social	Security	1- Suitable Capacity for People 2- Presence of Lighting Elements 3- Passive Activities 4- Accessibility for Sensitive Age and Gender Groups 5- Space Monitoring by Police Force or Design-Based Monitoring
	The Relationship between the environment and people	1- Presence of Lighting Elements 2- Active Activities 3- Absence of Unhealthy Behaviors 4- Presence of Indicative Elements for Interactions
	Type of engagement in space	-
Functional	Mixed Used	1- Diversity of Compatible Functions 2- Externalization of Activities 3- Integration of Activities with Surrounding Space 4- Fine-grained Nature of Activities 5- Richness of Sensory Experiences due to Activities
	Comfort and Convenience	1- Number of Benches 2- Suitable Vegetation Coverage 3- Absence of Air and Noise Pollution 4- Quality of Paving Materials 5- Presence of Shelter
Perceptual	Sense of Place	1- Legibility 2- Physical Signs 3- Mental Signs 4- Urban Landmarks 5- Decorative Elements
Visual	Aesthetic qualities	1- Utilization of Design Principles 2- Landscaping 3- Physical Environment's Connection with Space 4- Integration of Soft and Hard Elements 5- Human Scale
	Visual Aesthetics	1- Attractive Facades 2- Visual Corridors 3- Transparent Walls 4- Sequential Views 5- Combination of Hard and Soft Design Elements
Temporal	Space Management	1- Eventful Space Circulation 2- Daytime Liveliness 3- Accessibility for Sensitive Groups at Various Times 4- Space Preservation Values 5- Presence of 12 to 24-hour Activities
Values and Priorities		More than 4 subcomponents = Suitable, Between 2 to 3 subcomponents = Moderate, Less than 2 subcomponents = Unsuitable

The results indicate that users of micro-space A are often middle-aged and elderly women who engage in talking. Sitting, standing, and talking behaviors occur in micro-space B, predominantly by youths and middle-aged individuals, often in a group setting without a specific location. Micro spaces C and F are primarily visited by middle-aged individuals, but due to unfavorable environmental conditions such as the lack of urban furniture and incompatible or absent activities, only intermittent behaviors occur in these spaces. In contrast, micro spaces D and E are more organized due to their spatial layout. These spaces have suitable environmental conditions and comprehensive facilities, accommodating a diverse range of behaviors from children, youths, and middle-aged individuals. However, due to the excessive presence of children during midday and addicts during late hours, they are less comfortable. Table 4 illustrates this phenomenon.

While these micro spaces serve as platforms for various behaviors, they do not necessarily influence the formation of these behaviors themselves but rather provide the groundwork for new inquiries. Therefore, interviews were conducted to complement the understanding and analyze behavioral patterns. Given the extensive and voluminous nature of the topics, manual analysis of interviews was time-consuming, irreversible, and prone to high error rates. Hence, MaxQDA 2020 software was utilized to code the interviews, enabling efficient analysis. Finally, conditions, behaviors, or actions, and consequences were identified and spatially mapped to propose location-specific recommendations. Figure 9 provides an example of the findings obtained from behavioral observations and mapping, indicating that in some cases, the observed behaviors are not strongly correlated with the spatial context. Indeed, some of these micro spaces have potentials that accommodate behaviors observed in others.

Furthermore, Table 5 presents the analysis of interviews based on the Strauss and Corbin model, illustrating conditions, behaviors, consequences, and central coding in the dimensions of built environment in Saber Street of Noh-Dareh, Mashhad.

Table 4. Evaluation of the Conditions of micro spaces in Each Domain in the Context of built environmental dimensions

Predominant Behavior	Age Groups of Users	Space Perception	Environmental Conditions of Micro Spaces													Micro Space
			Temporal		Visual		Perceptual	Functional		Social			Morphological			
			Space management		Visual aesthetics	Aesthetic qualities	Sense of Place	Comfort and Convenience	Mixed Used	Type of engagement in space	Relationship between the environment and people	Security	Physical permeability	Hangout space form	Safety	
			Night	Day												
Talking	Elderly, Middle-aged	Sustainable	Inappropriate	Moderate	appropriate	Inappropriate	appropriate	Moderate	Inappropriate	Active	Moderate	Moderate	appropriate	Linear	appropriate	**A**

Predominant Behavior	Age Groups of Users	Space Perception	Environmental Conditions of Micro Spaces												Micro Space
			Temporal			Visual		Perceptual	Functional		Social			Morphological			
			Night	Day	Space management	Visual aesthetics	Aesthetic qualities	Sense of Place	Comfort and Convenience	Mixed Used	Type of engagement in space	Relationship between the environment and people	Security	Physical permeability	Hangout space form	Safety	
Sitting, Watching, Talking	All Age Groups	Sustainable	appropriate	appropriate		appropriate	Inappropriate	appropriate	Moderate	appropriate	Active	appropriate	appropriate	appropriate	Linear	Moderate	**B**
Walking, Standing	Youth, Middle-aged	Moderate	appropriate	Moderate		appropriate	Inappropriate	Moderate	Moderate	Moderate	Inactive	appropriate	appropriate	appropriate	Linear	appropriate	**C**
Walking, Sitting, Watching, Talking	Youth, Elderly, Middle-aged	Sustainable	appropriate	appropriate		Moderate	appropriate	appropriate	appropriate	Moderate	Active	appropriate	appropriate	Moderate	Closed	appropriate	**D**
Playing, Sitting, Watching, Talking	All Age Groups	Unstable	Inappropriate	Moderate		Moderate	Inappropriate	Inappropriate	Inappropriate	Inappropriate	Active	appropriate	Inappropriate	appropriate	Closed	appropriate	**E**
Walking	Elderly	Moderate	Moderate	Moderate		appropriate	Inappropriate	Inappropriate	Moderate	Inappropriate	Inactive	Inappropriate	Moderate	appropriate	Shapeless	appropriate	**F**

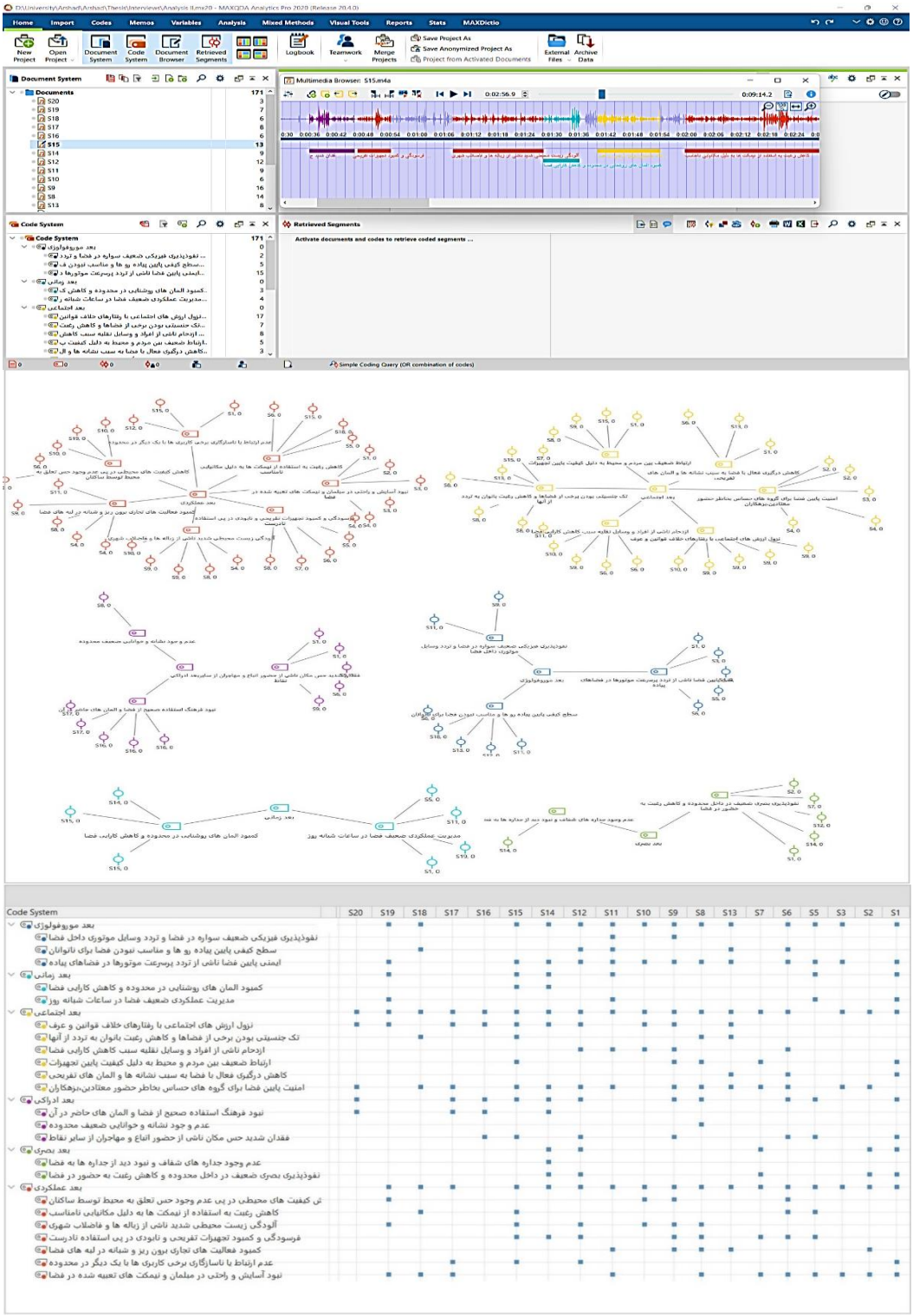

Figure 9. An example of the analysis derived from interviews with people using the qualitative analysis tool MaxQDA

Table 5. Examination of conditions, actions (behavior), consequences, and core coding in the context of built environmental dimensions. Source: Authors.

Axis Coding	Conditions	Actions (behavior)	Consequences
Inappropriate qualitative level and uncontrolled traffic flow within the area. (1)	Lack of control over motor vehicle traffic into pedestrian spaces / Absence of pedestrian crossings in streets / Absence of sitting spaces along main thoroughfares / Absence of barriers to control motor vehicle traffic in pedestrian areas.	Pedestrian routes between destinations (mandatory), lack of inclination to stay and linger in the space due to the absence of comfortable furniture.	Lack of reception by sensitive age groups and individuals with disabilities in micro spaces / Imbalance in traffic flow on thoroughfares / Increase in accidents due to disregard for guidance signs and driving regulations.
Lack of responsiveness to functional needs and uniformity of activities within the area. (2)	Lack of connection between open spaces and surrounding activities / Inadequate outward flow of activities due to narrow street widths and unclear external boundaries of parcels / Inappropriate placement of benches in the space.	The intermittent presence of individuals in the space and the creation of transient behaviors such as walking, short-term standing, or sitting on edges aimed at alleviating fatigue.	Lack of presence of age and gender groups in the space due to the absence of elements for lingering / Inefficiency of urban barriers due to lack of appropriate functional connectivity between them / Noise pollution due to non-compliance with functional compatibility / Absence of active and passive interactions and encounters between individuals.
Inappropriate climatic conditions and absence of comfort within the area.	Noise pollution resulting from drivers' non-compliance on Saber Street / Presence of remnants of incompatible activities in the space / Absence of sitting furniture and suitable vegetation cover in small spaces.	The reluctance of users to be present in certain spaces and their emptiness of any type of behavior and activity at different times of the day - presence of groups with destructive behaviors such as littering, homeless individuals, and addicts.	Increase in environmental pollution due to people's negligence and municipal management of municipal waste / Decreased efficiency of micro spaces during early and midday hours in hot seasons and neglect of people's comfort in the space / Decreased interactions between individuals in neighborhoods due to the lack of space for various age and gender groups / Increase in social tensions due to users' dissatisfaction with the space.
Lack of short-term and long-term spatial management. (4)	Low security in the open spaces in the northern section due to the lack of diverse activities / Absence of 24-hour and 12-hour activities / Failure to hold local events within the area.	Creation of negative behaviors such as addiction and alcohol consumption.	Decreased hospitality and increased undefended spaces / Some points becoming monotonous in micro spaces and lack of mental security during late hours of the night.
Inadequate connection between humans and the environment. (5)	Lack of suitable physical infrastructure to create quality and attractive social hubs / Absence of urban furniture for the presence of various age and gender groups / Lack of a prominent element for establishing social interactions.	Continuous activity of children in micro spaces and their play and recreation / Creation of neutral and uniform behaviors such as standing, sitting, and watching.	Creation of unhealthy behavioral knots in the late hours of the day / Children's presence on street beds and thoroughfares leading to increased accidents / Noise pollution resulting from children's continuous presence in the space.

Axis Coding	Conditions	Actions (behavior)	Consequences
Insecurity, lack of supervision, and spatial control. (6)	Absence of suitable lighting furniture in local secondary streets and open spaces / High rates of drug addiction and gathering in blind corners / Absence of outward activities that help foster social interactions /The presence of indefensible spaces due to lack of supervision / Decline in social values due to the presence of unconventional behaviors.	Creation of behaviors such as sitting or standing on the edges of spaces, decreased inclination to linger, and traffic flow in some points of small spaces, leading to solely transit behaviors.	Increase in theft, addiction, and criminal activities, leading to social tensions between negative groups / Decrease in individuals' social status / Positive behavioral hubs in the space being influenced by negative behaviors stemming from inappropriate behavioral hubs, causing a decline in social safety and user dissatisfaction / Feeling of belonging to the living area being affected.
Neglect of aesthetic qualities and absence of suitable movement experience within the space. (7)	Absence of sufficient lighting infrastructure in green spaces / High visual clutter in commercial areas / Lack of defined scenes appropriate for the functions of each space / Lack of visual transparency due to the predominance of residential areas.	Pedestrian walkways between destinations (mandatory), lack of lingering and standing or sitting in the space due to the absence of outward activities or attractive visual views on urban barriers.	Increase in crime and insecurity due to lack of appropriate visual permeability into corners / Decreased efficiency of space due to uniformity and users' reluctance to move in defined scenes / Increased insecurity during late hours of the night due to lack of lighting and sufficient visual supervision.
Lack of readability and sense of place within the area. (8)	Absence of defined entrance in the neighborhood / Confusion of pedestrians due to the lack of clear signage for guidance and driving / Decreased readability in existing barriers due to the absence of shop signs / Lack of sense of belonging due to the presence of immigrants and foreigners.	Creation of uniform behaviors resulting from the absence of attractive amenities and identity elements in the space.	Loss of identity and decreased sense of place among residents due to increased internal migration / Neglect of their residence and the emergence of vandalism among users / Confusion and disorientation of transient users during their presence in the space as well as increased accidents due to disregard for traffic guidance and regulations.

5. Discussion and Conclusion

This study aimed to investigate the behavioral patterns of users present on Saber Street in the rural-base neighborhood of Noh-Dareh Mashhad to identify conditions, behaviors, and consequences, and to provide design recommendations to improve behaviors in this street.

The results of this study confirm the findings of Soun and others (2014) and Motomura and others (2022), which showed that the lack of correlation between morphology, space, and activities, and the non-extrication of activities due to narrowness of the streets in such urban neighborhoods, leads to a decrease in pedestrian presence in the environment. Furthermore, as Foroutanrad and Zamani (2021) and Lotfi and colleagues (2013) demonstrated, insufficient urban amenities (such as urban furniture and greenery for comfort and convenience in spaces), lack of connection between open spaces and surrounding activities, lack of 24 and 12 hours activities, inappropriate physical environment for creating quality and attractive social gathering places, and weariness of walls lead to the formation of transient behaviors such as walking, short-term pauses in standing or sitting on the edges of micro spaces (to alleviate fatigue). In other words, the occurrence of security-promoting behaviors such as prolonged sitting of residents, conversations, and environmental supervision is not supported.

With the decrease in residents' supervision of the environment, opportunities for some deviant behaviors such as alcohol consumption, drug use, conflict, etc., are created, leading to irreparable damages such as loss of identity, decrease in residents' sense of belonging, increase in crime, and insecurity.

This issue has received less attention in behavioral studies. On the other hand, given the nature and scope of urban research and the breadth of behavioral sciences, it can be said that comprehensive understanding, analysis, and intervention in the sample under study are not possible due to time, financial, and human

limitations. Therefore, as often observed, some studies such as De Cantis et al. (2016) and Onojeghuo et al. (2019) have only used quantitative methods by using questionnaire and observation methods at specific times of the day to count and examine a specific range of behaviors and crowd density in the environmental context. While the discussion of behavioral patterns requires a detailed examination and direct, unmediated interaction with users (qualitative methods) in the environment to better understand and analyze the findings.

Some studies, like Pakzad and colleagues (2019), and Paknezhadand colleagues (2021), to overcome the breadth of the subject, have only intervened in the morphological dimension. This research examined the target context in the seven dimensions of built environment (morphological, functional, perceptual, visual, social, cognitive, and temporal). Therefore, the innovation of the present research can be called a mutual interaction discussion of behavioral patterns with built environmental dimensions in rural-based neighborhoods.

Furthermore, to amend the behavioral patterns of users in Saber Street in the rural-base neighborhood of Noh-Dare Mashhad, design recommendations are provided. Due to the findings of the study, by evaluating the conditions of gathering places in Table 4 and analyzing and coding the interviews in the form of conditions, behaviors, and consequences in Table 5 and Figure 10, recommendations can be made for each of the micro spaces. Recommendations such as institutional control by urban management and adoption of control policies on space, scheduling time planning to create various events, increasing equipment and comprehensiveness of micro spaces, etc., can be proposed. Figure 10 presents design recommendations to address the consequences of existing behaviors in Saber Street.

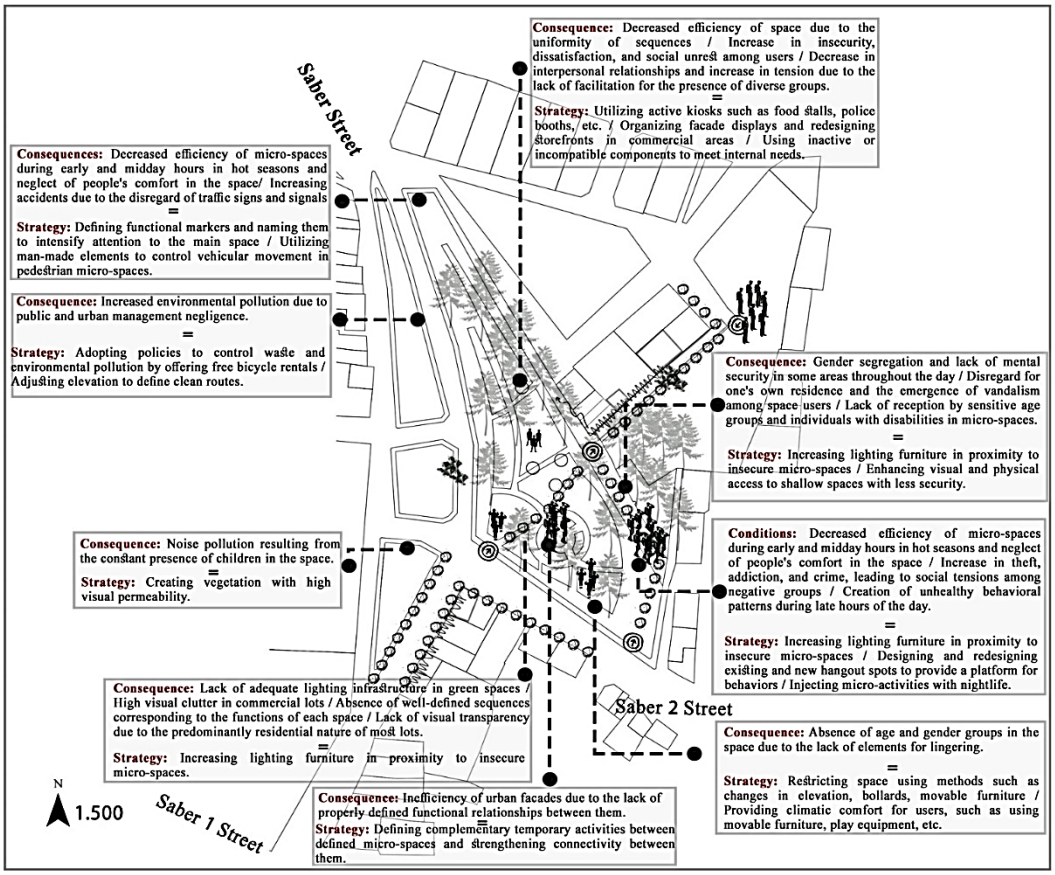

Figure 10. Proposed suggestions to address the consequences of existing behaviors in the micro spaces of Saber Street

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Original Article

طراحی رفتار گرا در محلات روستا-پایه
(مورد مطالعه: خیابان صابر در محله نه دره مشهد)

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چکیده مبسوط

۱.مقدمه

با گسترش کالبدی شهرها برخی از روستاهای پیرامونی به عنوان محلات جدید، به شهر الحاق می شوند. این بافت‌ها به علت پیشینه روستایی خود، از منظر کالبدی، اجتماعی، اقتصادی و فرهنگی با محلات نوین شهری متفاوت هستند. مسائل اجتماعی و خصوصا رفتاری یکی از چالش های این بافت‌هاست که خود را در قالب بی هویتی و بدنامی آن محدوده نشان می دهد. نتیجه این موضوع تشدید نارضایتی ساکنان و کاهش حس تعلق می باشد. محله نه دره مشهد (به علت سابقه روستایی) با چنین مساله ای روبه روست. محور صابر (واقع در نه دره) محل تلاقی دو بخش از سکونتگاه های رسمی و غیررسمی بوده و به واسطه همجواری با کوه پارک جایگاه مناسبی دارد. با این حال بروز برخی رفتارهای ناهنجار(به دلیل نوع کالبد و فرم)، باعث تنزل کارایی و جذابیت فضاهای موجود برای ساکنان شده است. بنابراین پژوهش حاضر با هدف اصلاح الگوهای رفتاری کاربران به طراحی این محور می پردازد.

۲.روش تحقیق

این پژوهش از نوع آمیخته کمی و کیفی است. پس از گرداوری و مطالعه منابع کتابخانه‌ای در خصوص رفتار، محیط و ادراک با استفاده از تکنیک های کیفی مانند مشاهده، نقشه برداری رفتاری و مصاحبه، رفتار کاربران شناسایی شد. سپس رفتارهای شناسایی شده با استفاده از ابزار MaxQDA مبتنی بر ملاحظات تحلیل کیفی در قالب شرایط، عمل و پیامد دسته بندی شد. در ادامه با گونه شناسی خرد فضا های موجود بر اساس الگوهای رفتاری، پیشنهادات طراحی ارائه شد.

۳.یافته های تحقیق

به منظور ارزیابی دقیق و همه جانبه، محور مورد مطالعه بر مبنای میزان دید، ارتباطات، دسترسی بصری و همچنین طیف قرارگیری رفتارها به شش خرد فضا تقسیم شد و در ادامه الگوهای رفتاری در سه روز متفاوت شامل(عادی، جمعه و تعطیل مناسبتی) برداشت شد. یافته های حاصل از برداشت و نقشه برداری رفتاری موید آن است که در برخی موارد رفتارهای شکل گرفته چندان با بستر فضا ارتباطی ندارند. در واقع، برخی از این خرد فضاها پتانسیل هایی دارند که پذیرای رفتارهای شکل گرفته در سایر خرد فضاها نیز می باشند. با این حال، این رفتارها در بستر خود شکل نمی گیرند و زمینه ساز تعریف سوالات جدید می باشند. در این راستا، به منظور تکمیل فهم و بررسی الگوهای رفتاری از مصاحبه باز استفاده شد. با توجه به گستردگی و حجم بالای موضوعات، تحلیل مصاحبه ها به روش دستی بسیار زمان بر، برگشت ناپذیر و با احتمال خطای بالایی همراه بود. لذا جهت صرفه جویی در وقت و هزینه و امکان اصلاحات احتمالی، از نرم‌افزار MaxQDA نسخه ۲۰۲۰ استفاده و با کمک آن، کدگذاری صورت گرفت. در انتها شرایط ، رفتار یا اعمال و پیامد ها شناسایی و بر روی نقشه مکانی شدند. نتایج حاصل از تحلیل نشان داد، رفتارها در خرد فضاهای محور مذکور به دلیل نبود فعالیت های متنوع، امنیت روانی، مبلمان روشنایی و شرایط اقلیمی مناسب، اغلب به صورت انفرادی، مکث های کوتاه و نامتعارف است که نتیجه این امر کاهش هویت، ناامنی، آسیب های اجتماعی و ناکارآمدی فعالیت‌ها می باشد.

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۴. بحث و نتیجه‌گیری

برای بهبود شـــرایط مذکور، افزایش کنترل مدیریت شـــهری، اتخاذ سیاست های نظارتی بوسیله طراحی بدنه ها، تخصیص فعالیت های جمعی در فضـــا، تنظیم رویـدادهـای مختلف، تـامین تجهیزات و زیرسـاخت های رفاهی و آسـایشـی و غیره پیشـنهاد می شـود. باتوجه به وجود تعارضـات اجتماعی در محلات با سـابقه روسـتایی همچون آسـیب های اجتماعی، ناکارآمدی فعالیت ها و در نهایت نارضـایتی سـاکنان، نوآوری پژوهش حاضـر در شـناسـایی زمینه و علت به وقوع پیوستن الگوهای رفتاری ناهنجار در این محلات است.

با توجه به ماهیت و مقیاس پژوهش های طراحی شـهری و وسـعت علوم رفتاری می توان گفت، عملا شـــناخت، تحلیل و مداخله در محدوده مورد نظر (محله روســـتا-پایه نه دره) به دلیل محدودیت های زمانی، مالی و انسـانی مقدور نمی باشـد. پژوهش هایی با مبانی نظری علوم رفتاری، احتیاج به تجهیزات پیشـــرفته همچون دوربین های عکســـبرداری، فیلم برداری پ تا بتولند در بســـتری کلان تر موضـــوع مورد نظر را مورد پایش قرار دهد. با توجه به گســـتره ی نظری موجود، یافته ها و محدودیت های حاضر، می توان پیشـنهادها و جهت گیری های پژوهشی زیر را ارائه نمود که فراهم کننده زمینه های پژوهشی جدید می باشند:

۱-با توجه به اینکه علوم رفتاری مفهومی متکثر اســـت بررســـی و تبارشـناسـی الگوهای رفتاری در بسـتر محیط های مختلف(محلات داخل شـهر، شـهرک ها، روسـتا شـهر ها را می توان به عنوان یک موضوع پژوهش در نظر گرفت.

۲-در پژوهش های آینده، عوامل مداخله گری همچون وضـــعیت اقتصـادی، تاهل، جنسـیت و مقدار تحصـیلات سـنجه های محیطی مورد بررسی قرار گیرد تا بتوان به صورت دقیق تر مسائل را استخراج و متناسب با ماهیت فعالیتی آن ها پیشنهاداتی مطرح کرد.

۳-پیشـــنهاد می شـــود که انجام پژوهش با حجم نمونه بزرگتر و محدوده جغرافیایی وســـیع تر انجام گیرد تا بتوان محیط را از دید کاربران بیشتری مورد فهم قرار داد و مطابق با نیاز آن ها عمل کرد.

کلید واژه‌ها: طراحی رفتار گرا، علوم رفتاری، محلات روســـتا پایه، محور صابر، محله نه دره مشهد.

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۹. ۳. انواع نقل قول‌ها (مستقیم و غیر مستقیم)، نقل به مضمون و مطالب به دست آمده از منابع و مآخذ، با حروف نازک و استفاده از نشانه‌گذاری‌های مرسوم، مشخص شود و نام صاحبان آثار، تاریخ و شماره صفحات منابع و مآخذ، بلافاصله در میان پرانتز نوشته شود.

۱۰. مقالات برگرفته از رساله و پایان‌نامه دانشجویان با نام استاد راهنما، مشاوران و دانشجو به صورت توأمان و با مسؤولیت استاد راهنما منتشر می‌شود.

۱۱ . چنانچه مخارج تحقیق یا تهیه مقاله توسط مؤسسه‌ای تأمین مالی شده باشد، باید در بخش تشکر و قدردانی مشخص گردد.

۱۲ . شیوه ارزیابی مقالات: مقالات ارسالی که شرایط پذیرش را احراز کنند، برای داوران خبره در آن موضوع ارسال می‌شوند. داوران محترم، جدای از ارزشیابی کیفی مقالات، راهبردهای سازنده‌ای پیشنهاد می‌کنند. پیشنهادهای داوران محترم به طور کامل، اما بدون نام و نشان داور، برای نویسنده مقاله ارسال خواهد شد.

۱۳ . مجله حق رد یا قبول و نیز ویراستاری مقالات را برای خود محفوظ می‌دارد و مقالات مسترد نمی‌گردد. اصل مقالات رد یا انصراف داده شده پس از سه ماه از مجموعه آرشیو مجله خارج خواهد شد و مجله پژوهش و برنامه‌ریزی روستایی هیچ مسئولیتی در این ارتباط نخواهد داشت.

۱۴ . مسؤولیت ارائه صحیح مطالب مقاله بر عهده‌ی نویسندگان مقاله است. از این‌رو، نسخه‌ای از مقاله آماده چاپ برای انجام آخرین تصحیحات احتمالی به نشانی الکترونیکی نویسنده ارسال خواهد شد. چنانچه ظرف مدت یک هفته پاسخی از سوی نویسندگان واصل نگردید به معنای موافقت آنها با اصلاحات انجام شده تلقی و نسبت به چاپ آن اقدام می‌شود.

۱۵. دریافت مقاله صرفاً از طریق سامانه مجله (http://jrrp.um.ac.ir) خواهد بود و مجله از پذیرش مقالات دستی یا پستی معذور خواهد بود.

۱۶. نویسندگان گرامی، مقالاتی که مطابق فرمت مجله تهیه نشده باشند به نویسنده بازگردانده شده و در فرآیند ارزیابی قرار نخواهد گرفت.

۱۷. فایل های ضروری برای ارسال از طریق سامانه عبارتند از:

الف) فایل مشخصات نویسندگان: در محیط word شامل اسامی و مشخصات نویسندگان به فارسی و انگلیسی.

ب) فایل اصلی مقاله بدون مشخصات: در محیط word شامل متن اصلی مقاله بدون اسامی و مشخصات نویسندگان.

ج) فایل چکیده مبسوط (مکمل) مقاله: شامل چکیده مبسوط فارسی در قالب یک فایل در محیط Word.

۱۸. شرایط جزئی تر و دقیق تر نیز در فایل راهنمای نگارش و ارسال مقاله توسط نویسندگان ارائه شده است.

۱۹. مقاله پس از ارزیابی علمی به زبان انگلیسی برگردانده شده و نویسنده(گان) موظف به ترجمه آن در مراکز ویراستاری معتبر خواهند بود و تا قبل از انجام ترجمه، امکان ارسال گواهی پذیرش مقدور نمی‌باشد. لذا پیشنهاد می‌شود فارسی زبانان مقاله خود را به زبان فارسی تهیه و ارسال نموده و پس از طی فرایند ارزیابی علمی و پذیرش نسبت به ترجمه آن اقدام شود.

آدرس پستی: مشهد- میدان آزادی- پردیس دانشگاه فردوسی مشهد- دانشکده ادبیات و علوم انسانی- دفتر مجلهٔ پژوهش و برنامه‌ریزی روستایی.

کد پستی: ۹۱۷۷۹۴۸۸۸۳ تلفن و نمابر: ۰۵۱-۳۸۷۹۶۸۴۰ پست الکترونیکی Rplanning@um.ac.ir

وب سایت: http://jrrp.um.ac.ir/

فرم اشتراک (یک ساله/ دوشماره) **مجلهٔ پژوهش و برنامه‌ریزی روستایی**

این جانب ..... شغل ..... با ارسال فیش بانکی به مبلغ ..... ریال به حساب جاری شماره **۴۲۵۲۹۹۶۳۸** بانک تجارت شعبه دانشگاه مشهد کد ۴۲۵۰ به نام عواید اختصاصی دانشکده ادبیات و علوم انسانی، متقاضی اشتراک فصلنامه از شماره .....هستم. چنانچه صاحبان مقالات منتشر شده متقاضی دریافت مجلّه و تیراژه‌ی آن از طریق پست پیشتاز باشند، باید هزینه‌ی آن را به شماره حساب مذکور واریز و اصل فیش پرداختی را به نشانی دفتر مجلّه ارسال کنند.

نشانی: ..... کدپستی: .....

شرایط پذیرش مقاله

برای سرعت بخشیدن به امر داوری و چاپ مقالات، از همهٔ پژوهشگرانی که مایل به چاپ مقالات علمی خود در این نشریه هستند، درخواست می‌شود به نکات زیر توجه کافی داشته باشند:

۱ . مقالهٔ ارسال شده نباید قبلاً در هیچ نشریهٔ داخلی یا خارجی چاپ شده باشد. هیئت تحریریه انتظار دارد نویسندگان محترم تا هنگامی‌که جواب پذیرش از نشریه نرسیده است، مقالهٔ خود را به مجلهٔ دیگری برای چاپ ارسال نفرمایند.

۲ . مقالات انگلیسی با قلم نازک Times New Roman11 با نرم افزار Word تهیه شود. مقالات، روی کاغذ A4 (با حاشیه از بالا ۳ و پایین ۲ و راست ۲ و چپ ۲ سانتی‌متر) تایپ شود. متن به صورت دو ستونی با رعایت فاصله ۱ سانتی‌متر بین دو ستون و فواصل بین خطوط به صورت single باشد. ۳ . حجم مقاله نباید ازحدود ۹۵۰۰ کلمه و یا حداکثر ۱۵ صفحهٔ چاپی به قطع نشریه بیشتر باشد (با در نظر گرفتن محل جداول، اشکال، خلاصه فارسی و فهرست منابع).

۴ . عنوان مقاله با در نظرگرفتن فواصل بین کلمات نباید از ۶۰ حرف تجاوز کند و با قلم Times New Roman14 سیاه تایپ شود.

۵ . نام نویسندهٔ مقاله با قلم سیاه Times New Roman10 عنوان علمی یا شغلی او با قلم Times New Roman10 در زیر عنوان مقاله ذکر شود. ضمناً آدرس الکترونیکی و شماره تلفن نویسندهٔ مسؤول در پاورقی آورده شود.

۶ . چکیدهٔ مقاله ساختاریافته با قلم نازک Times New Roman 11 به صورت تک ستونی باشد.

۷ . شکل‌ها و نمودارهای مقاله حتماً اصل و دارای کیفیت مطلوب باشد. فایل اصلی اشکال (تحت PDF، Word،Excel) و با دقت ۳۰۰ dpi ارائه شود. اندازهٔ قلم‌ها خصوصاً در مورد منحنی‌ها (legend) به گونه‌ای انتخاب شوند که پس از کوچک‌شدن مقیاس شکل برای چاپ نیز خوانا باشند.

۸ . ساختار مقاله شامل عناصر زیر است:

۸. ۱ صفحهٔ عنوان: در صفحهٔ شناسنامه باید عنوان مقاله، نام و نام خانوادگی نویسنده (نویسندگان)، درجهٔ علمی، نشانی دقیق (کد پستی، تلفن، دورنگار و پست الکترونیکی)، محل انجام پژوهش، مسؤول مقاله و تاریخ ارسال) درج شود. عهده‌دار مکاتبات باید با علامت ستاره مشخص شود.

۸. ۲ چکیده: شامل چکیده‌های فارسی ساختار یافته (شامل هدف؛ روش؛ یافته‌ها؛ محدودیت‌ها؛ راهکارهای عملی؛ اصالت و ارزش و واژگان کلیدی (۳ تا ۶ کلمه)) است. تا حد امکان چکیدهٔ مقاله از ۳۰۰ کلمه تجاوز نکند . علاوه بر چکیده ساختار یافته، لازم است چکیدهٔ مبسوط فارسی بین ۷۵۰ تا ۱۰۰۰ کلمه نیز حاوی مقدمه، مبانی نظری، روش، نتایج و بحث، نتیجه‌گیری و کلیدواژه‌های مقاله تهیه شود، به طوری که حاوی اطلاعاتی از کل مقاله باشد و بتوان جداگانه آن را چاپ کرد. با توجه به این که مقاله بعدا به صورت کامل به انگلیسی برگردانده خواهد شد، نیازی به ترجمه چکیده مبسوط به انگلیسی نیست.

۸. ۳ مقدمه: شامل ۱- طرح مسئله؛ ۲- اهمیت و ضرورت؛ ۳- اهداف و سوالات اصلی تحقیق.

۸. ۴ ادبیات نظری تحقیق: شامل ۱- تعاریف و مفاهیم؛ ۲- دیدگاه‌ها و مبانی نظری؛ ۳- پیشینه نظری تحقیق و ... .

۸. ۵ روش‌شناسی تحقیق: در برگیرندهٔ ۱- محدوده و قلمرو پژوهش؛ ۲- روش تحقیق و مراحل آن (روش تحقیق، جامعهٔ آماری، روش نمونه‌گیری، حجم نمونه و روش تعیین آن، ابزار گردآوری داده‌ها و اعتبارسنجی آن‌ها)؛ ۳- سؤال‌ها و فرضیه‌ها؛ ۴- معرفی متغیرها و شاخص‌ها؛ ۵- کاربرد روش‌ها و فنون.

۸. ۶ یافته‌های تحقیق: ارائهٔ نتایج دقیق یافته‌های مهم با رعایت اصول علمی و با استفاده از جداول و نمودارهای لازم.

۸. ۷ بحث و نتیجه‌گیری: شامل آثار و اهمیت یافته‌های پژوهش و یافته‌های پژوهش‌های مشابه دیگر با تأکید بر مغایرت‌ها و علل آن، توضیح قابلیت تعمیم‌پذیری و کاربرد علمی یافته‌ها و ارائهٔ رهنمودهای لازم برای ادامهٔ پژوهش در ارتباط با موضوع، نتیجه‌گیری و توصیه‌ها و پیشنهادهای احتمالی.

۸. ۸ تشکر و قدردانی: قبل از منابع مورد استفاده ارائه شود و از ذکر عناوین دکتر و مهندس خودداری شود.

۹. نحوهٔ ارجاعات: منابع و مآخذ باید به صورت درون‌متنی و همچنین در پایان مقاله ذکر شود.

۹. ۱ ارجاعات در متن مقاله باید به شیوهٔ داخل پرانتز (APA) نسخه ۶ باشد؛ به گونه‌ای که ابتدا نام مؤلف یا مؤلفان، سال انتشار و صفحه ذکر شود. شایان ذکر است که ارجاع به کارهای چاپ شده فقط به زبان فارسی بوده و در اسامی لاتین معادل آن در زیر نویس همان صفحه ارائه شود. به عنوان نمونه: (شکوئی، ۱۳۸۷، ص. ۵۰) یا (وودز، ۲۰۰۵، ص. ۲۷).

۹. ۲ در پایان مقاله، منابع مورد استفاده در متن مقاله، به ترتیب الفبایِ نام خانوادگی نویسنده بر اساس الگوی فهرست نویسی APA تنظیم گردد.

نمونه فارسی:

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بسم الله الرحمن الرحيم

دانشکده ادبیات و علوم انسانی

مجلّهٔ پژوهش و برنامه‌ریزی روستایی

سال سیزدهم، شمارهٔ ۱، زمستان ۱۴۰۲، شمارهٔ پیاپی ٤٤

صاحب امتیاز: دانشگاه فردوسی مشهد
مدیر مسئول: دکتر حمید شایان
سردبیر: دکتر علی‌اکبر عنابستانی

دستیار سردبیر: مهدی جوانشیری
مدیر اجرایی: زهرا بنی‌اسد
ویراستار انگلیسی: مرکز ویراستاری ادبیات
حروف‌نگاری و صفحه‌آرایی : الهه تجویدی
شمارگان: ۵۰ نسخه

نشانی: مشهد، دانشگاه فردوسی مشهد، دانشکدهٔ ادبیّات و علوم انسانی دکتر علی شریعتی، کد پستی ۹۱۷۷۹۴۸۸۸۳ ، نمابر: ۳۸۷۹۶۸۴۰ (۰۵۱)
بها: داخل کشور: ۲۰۰۰۰۰ ریال (تک‌شماره) خارج کشور: ۲۵ دلار (آمریکا– سالانه)، ۲۰ دلار (سایر کشورها– سالانه)
درگاه الکترونیکی: http://jrrp.um.ac.ir/ E-mail:Rplanning@um.ac.ir

*** این مجله در جلسهٔ کمیسیون بررسی نشریات علمی کشور مورخ ۱۳۹۲/۲/۲۵ رتبهٔ علمی– پژوهشی دریافت و طی نامهٔ شمارهٔ ۳/۱۸/۳۵۷۲۸ در تاریخ ۱۳۹۲/۳/۱۳ ابلاغ گردیده است.**

این مجلّه در پایگاه های زیر نمایه می‌شود:
- **پایگاه استنادی علوم جهان اسلام (ISC)**
- **پایگاه اطلاعات علمی جهاد دانشگاهی (SID)**
- **پایگاه بانک اطلاعات نشریات کشور (Magiran)**
- **فهرست دسترسی آزاد مجلات (Doaj)**
- **Index Copernicus- RICeST- ISI-Noormags- Googlescholar- Civilica- Oaji**

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مجله پژوهش و برنامه ریزی روستایی

سال سیزدهم، شماره ۱، زمستان ۱۴۰۲، شماره پیاپی ۴۴

شاپا: ۲۷۹۱-۲۷۸۳