



The Role of Climatic Factors on the Health of Rural Settlements in Iran

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Abstract

Purpose- Health is one of the main axes of sustainable development and has a main role in flourishing and improving the quality of life. Housing, as an important factor can have a direct impact on human health. The purpose of this study is to investigate the climatic elements on rural housing and their impact on the health of villagers.

Design/methodology/approach- This research is a descriptive cross-sectional study of the housing health status of 1150 households in 2020 which was done by a library research method (statistical data of Sarvabad city health center) and a field study method (interview and questionnaire). The studied index of climatic factors includes four elements of radiation, heat, humidity and wind, which have the greatest impact on the housing of villagers.

Finding- Field surveys in Pirshalyar district showed that more than 67% of mountainous settlements are south-west. 23% of other settlements are located in the north, east and west. Sunlight illuminates only 20 to 25 percent of the home space. Villagers usually thicken the walls to withstand the temperature (heat and cold). Also, it was shown that the average diameter of dry walls is between 100 and 75 cm. The results showed that 89% of the first-floor residential units are wet and damp. Wind flow in some seasons causes the spread of germs and parasites in the villages.

Keywords- Housing, Climate, Health, Village, Oraman Takht, Kurdistan.

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1. Introduction

Health is one of the main axes of sustainable development and part has a main role in (Bahrami, 2018). Maintaining and promoting the health of the community is a prerequisite for initiatives in economic and social planning. For years, housing has been recognized as one of the important factors that can have a direct impact on human health (1). Epidemiological studies show a high correlation between housing status and its health effects on human health. Housing is a shelter to facilitate a better life of human beings and guarantee human physical and mental health. More than half of human life is spent in housing (2). Obviously, abandonment of the principles of housing hygiene causes some irreparable consequences. According to the WHO, every year a large number of people and more than 3 million children die due to unfavorable environmental conditions (3). Use and interact with climatic elements in construction and architecture is influential for housing health. Rural settlements in Iran have been formed according to the requirements of environmental conditions. Iran's geographical position is a bridge between Europe and Asia (Eurasia). For this reason, it has always been invaded by foreigners throughout history. In the past, most Iranians lived in villages and mountainous areas were considered as a safe place away from the reach of enemies, so the construction of rural housing was more affected by human factors (security) and less attention was paid to comfort. Kurdistan Province is no exception to this situation. Due to the border position of Kurdistan Province, rural settlements have been formed in the foothills or at the bottom of mountain valleys in a stepped manner. According to 2016 census, 28% of the total population of this province live in villages (www.amar.org.ir, 2016).

Since rural settlements in Oraman are located uneven, high altitude and cold and dry climate and in mountains and foothills biological limitations are created. Lack of space to build housing has given rise to a dense and stepped texture. Other ensuing problems are the lack of sunlight for lighting and heat gain, infiltration of precipitation in the direction of the slope and its transfer into rural housing and more importantly human coexistence with livestock and poultry, respiratory and gastrointestinal diseases, osteoarthritis.

Therefore, paying attention to the climatic indicators of housing is important in the design and architecture of rural housing. The aim of this study is to investigate the rural settlements of Oraman in relation to the effects of climatic factors on the health and well-being of local residents. The main question of the research is how much attention has been paid to the health of housing in Oraman Villages of Sarvabad County of Kurdistan Province according to the climatic criteria in Oraman villages?

2. Research Theoretical Literature

Housing is the smallest form of physical embodiment of the relationship between man and the environment (Zanganeh, 2015). Rural housing, unlike urban housing, is not only a place for family members to rest and live, but also can be a place for the coexistence of humans and animals based on the type of economic function (Bahrami:2015). The World Health Organization in the setting standards for healthy housing considers climate the most important indicators ([http:// www.environmentalhealth.ir](http://www.environmentalhealth.ir)).

The U.S. Housing Health Committee made a list of 12 housing defects. Not to be evaluated as a uninhabitable accommodation, a housing unit should not exceed more than four of these shortcomings. One of the cases is the lack of access to sufficient light (Didier, 2010).

As stated by Opoko, the fundamental function of buildings is the protection of man from the unsuitable weather, Ogunsoye, continues that knowing about the nature is essential in design to maintain the comfort in buildings. In his views, six major factors exist that affect thermal comfort: (i) air temperature, (ii) the mean radiant temperature, (iii) the air velocity, (iv) the relative humidity, (v) the intrinsic clothing, and (vi) level of activity (Agboola, 2011).

Various models have been designed by climatologists for climatic comfort, including the Mahani, Giuni, Evans models. Alijani (1997) believes that among the climatic elements, temperature and humidity have a greater effect on human health and comfort. Kasmaei (2013) stated that human comfort conditions are a set of conditions that are suitable for at least 80% of people in terms of temperature regime. Hooshvar (1986) believes that the most effective factor in regulating the ecological circle is sunlight. Regardless of its heat and light, sunlight has direct

effects on human activities, including the construction, texture and architectural style of housing. Ghobadian (1993) believes that housing design based on climatic factors is the most important factor in increasing the comfort and health of the housing environment.

In recent years, various methods and models have been developed to identify and the degree of impact of climatic elements on the human body. The Oleg model provided a bioclimatic diagram in the 1960s. He performed calculations in four different climatic regions of the United States and concluded that the capacity requirements and thermal resistance of the regions were not the same. In the same decade, Giuni introduced the bioclimatic diagram (Safaepoor, et al., 2013).

Investigating the role of climate and environment in shaping the structure of rural housing in Fars province, Movahed & Fattahi (2013) concluded that the old rural housing units were built aligned with the climatic and environmental characteristics of the region. Darban & Salehi (2020) in their paper entitled "climate-based architecture study in residential houses in Kashan" found that the use of environmental conditions to create comfort inside the building was an aim in design goals and each of the building components is almost compatible with climatic conditions. Analyzing the role of climatic factors in the formation of rural texture and housing in temperate and humid climate of Diva Babol village, Ghorbani (2017) concluded that the old residential units have been designed compatible with the climatic conditions, and in the new residential units, the emphasis is on climatic factors.

In their paper entitled "climate change: Impact on the environmental design of buildings", Pretlove & Oreszczyń (1999) indicated that the temperature and solar radiation in the London region had changed significantly during 15 years and the climatic data which are applied for energy design calculations experience inaccuracies in predictions of energy use. Gupta & Nathani (2016) in their study titled "climatic elements & their impact on building design" concluded that climate is a key factor for architecture designing, and controlling climate takes a lot of parameters. The final outcome after applying the climate parameters is quite different than normal architectural design. In

fact, in architectural designing, architects have to consider all the parameters together to achieve sustainable energy efficient and green building.

Oraman Takht village is considered as one of the mountainous and touristic areas of Kurdistan province. No studies have been conducted on the effects of geographical factors in this area, especially the effect of climatic elements on the texture of rural settlements. In the present study, the effect of climatic factors on rural settlements in terms of health and wellness was investigated.

3. Research Methodology

The research is an applied study and in terms of method is descriptive-analytical method which investigated the housing health status of Oraman villages in accordance with climatic indicators. The statistical population includes 7 villages of Pirshalyar Rural District in Sarvabad County with 1150 households and 518 residential units. 220 residential units were selected by Cochran's method. The research was prepared in the period of 2020-2021.

In this study, four climatic indicators that have the greatest impact on the internal and external texture of buildings have been selected. As shown in Table 1, it includes sunlight, heat, humidity and wind. The selection method is based on the results of previous studies by researchers and the World Health Organization. Since rural areas do not have climatic synoptic stations, two stations in the surrounding areas, Kamyaran and Marivan, were used to determine the effects of climatic elements over a period of 10 years.

In preparing the items of the questionnaire in, the views of 6 professors of with a focus on climatology and public health and housing in Kurdistan University were utilized and its reliability was obtained with Cronbach's alpha coefficient 0.72.

Table 1. Climatic elements and related items

(Source: Chang-Richards, et al., 2018; Jaakkola, et al., 2014; Ormandy & Ezratty, 2012; Kasmaei, 2013; <https://www.ncbi.nlm.nih.gov/books/NBK535293/>)

Wind	Humidity	Tempretur	Radiation and light
The role of wind in cooling the texture inside the building	Ways of moisture penetration into the texture of the building	The role of solar heat in building heating	Sunlight coverage on the surface of the rooms
The role of housing design against wind burns	The role of moisture in the spread of germs and diseases	Texture and design of the building against heat	Position in the direction of light and radiation
			Common diseases in mountainous areas

Table 2. Number of villages in Pirshalyar-Sarvabad district

Source: Statistical Yearbook: 2018

Village name	Number of households	Number of residential units	Village name	Number of households	Number of residential units
Belbar	165	199	Absabad	16	17
Selen	206	200	Kalji	62	74
Ghevar	328	360	Nav	164	185
Neven	213	199			

3.1 Geographical Scope of the Research

Sarvabad County with an area of 1002 square kilometers located in Kurdistan Province, western Iran. which borders Iraq from the west. It has a border with Iraq form the west. The area is placed from 46 ° 4 'to 46 ° 43 ' east longitude and 35 ° and 3' to 35 ° and 25 ' north latitude. The county is limited from the north to Marivan County, from the east to Sanandaj County and from the south to

Kamyaran County. The capital of this county is Sarvabad city, which is located at an altitude of 1270 meters above sea level, and 80 km from Sanandaj (Statistics Center of Iran, 2016). Figure 1 shows the geographical location of the study.

Horaman is a completely uneven environment in terms of topography. the range of heights fluctuates from 800 meters to more than 2000 meters above sea level. Figure 2 shows the natural geographical location of Horaman



Figure 1: shows the location of Sarvabad County



Figure 2: shows the natural geography of Horaman-Google Earth

4. Research Findings

4.1. Location of rural settlements

Statistical findings show that more than 40% of rural settlements in Sarvabad County have a southern position, 26% have a northern position,

23% have an eastern position and less than 10% have a western position (4). Field surveys in Pirshalyar Rural District showed that more than 67% of mountainous settlements are south-west, and 23% of other settlements are located in the north, east and west. See Figure 3.

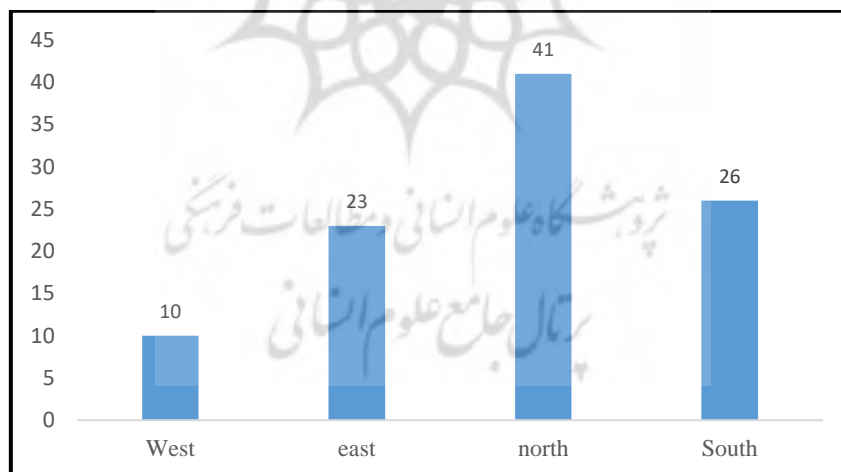


Figure 3: Location of rural settlements in Sarvabad County

4.2 The role of sunlight

Sun and sky are main sources of the light. A sufficient amount light is vital for health and comfort in buildings. Southern exposure to the light is ideal for most living spaces, as it brings in the most light and does not vary much over the course of the day (5). Moreover, daylight influences humans' welfare, health, primarily stimulates and controls circadian rhythms, improves the immune systems, activities of

inner and visual organs (6). The sunlight is considered by occupants as an important factor of well-being in indoor environment of habitable rooms. Basically, the direction of rural settlements in the mountainous areas of Oraman is towards south or south-west to maximize the sunlight intake.

In mountainous areas, the intensity of sunlight is high with a wide range of waves are in a wide range, although ultraviolet and infrared rays are

emitted more than other rays (7) . Villagers react to their environment by using checkered and long design for their house windows to prevent the intensity of sunlight. This is a special pattern when the sunlight has different waves. The long form of the windows causes the sunlight to illuminate and warm the internal texture of the building at dawn as shown in [Figure 4](#).

Despite of having benefits, traditional architecture has some drawbacks. The width of the windows is between 110 and 150 cm, which makes it impossible to keep more than 35% of the rooms bright and warm. Low sunlight, in turn, leads to the spread of diseases such as tuberculosis, rheumatism, and disorders in the vision, body, and

joints of the villagers. Field studies conducted through a questionnaire showed that more than 75% of middle-aged and elderly people suffer from joint pain and 24% of women and girls have vision problems. Among 288 residential units, 87% of rural windows are oriented to the south and only 13% of the windows are towards the west and some to the east. There are usually two windows for two rooms. The area of the rooms were at minimum 4 * 3 and maximum 5 * 3 meters. Due to the lattice pattern of the windows and their narrow width, the sunlight illuminates only 20 to 25 percent of the house space. In other words, Residential rooms need lighting such as lamps, from three in the afternoon. The corridors often need lamps.

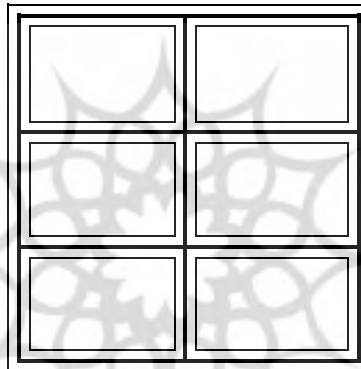


Figure 4: The form and texture of windows in mountainous areas

One of the characteristics of the texture of the settlements in Horaman, is having dry walls and using for the roof of the buildings. Because of the 15 per cent albedo of the clay, the structure is warmed up late and loses the temperature late (8). In other words, their heat capacity is high. These

conditions cause a balance of temperature inside the building space. The horizontal roof surface of the houses is used as a resting place and/or a yard for dwellers in summer due to the mountain breeze to the valley, as shown in [figure 5](#).

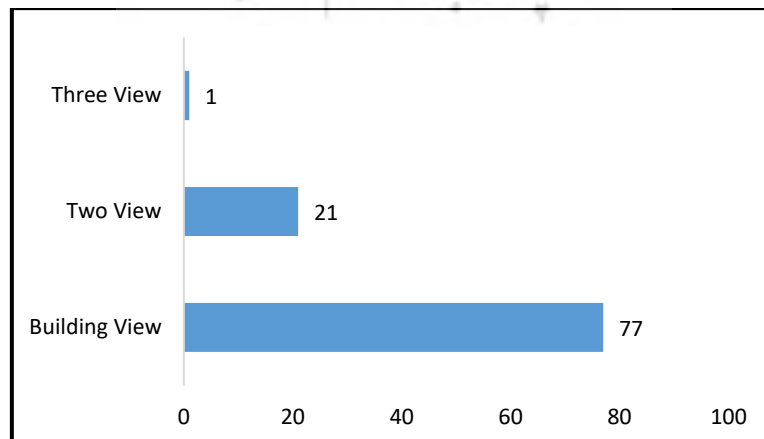


Figure 5: Number of residential units in terms of number of facades in percentage

4.3. Temperature

Temperature is one of the most important indicators in determining human comfort and convenience in a residential space, because heat is directly related to the efficiency of human physical and physiological activities. Thus, the heat does not only affect the physiological structure of humans, but also their functions such as housing (9). The quantity of temperature affects both the exterior texture of the dwellings (materials, dense texture, wall diameter, etc.) and the interior space of the building in terms of design and form. Statistical findings showed that the average temperature in two stations close to the study area. For Marivan, the average temperature is 12.8 ° C, the maximum temperature is 35.4 ° C and the minimum is 4-6 ° C. For Kamyaran, the average temperature is 13.5 ° C, the maximum is 36.6 and the minimum is -5.5 (10).

The findings showed that the materials used in Oramanat rural housing (Horaman) are in fact from local and indigenous substances such as carcass stone, which are often laid down on top of each other without the use of mortar. Villagers usually thicken the walls to withstand the weather (cold and heat). Field studies showed that the average diameter of dry walls is between 100 and 75 cm. One of the reasons for this situation can be due to increasing the thermal capacity of the texture inside the building. However, the thermal capacity of

materials depends not only on the material, but also on their specific gravity (11). The temperature fluctuation of the interior surfaces of the building depends on the exterior surfaces or the capacity and the thermal resistance of the wall materials. Due to the rough topography of the study area, the high diameter of the walls has caused that the space inside the building is limited and the number of rooms does not exceed two. Because of the mountainous location of the villages, snow is the prevailing type of the precipitation. As the temperature increases, snow gradually melts and penetrates into the ground and passes in the direction of the slope of the ground, which is in line with the texture of the buildings. This make moisture penetrate the internal texture of buildings and rooms. In these conditions, with increasing temperature, the volume of humidity also increases, and consequently, human health is physiologically and respiratory threatened (Figure 6).

One of the natural ways to deal with climate change is to design summer and winter living rooms. The winter living room is chosen above the barn (where livestock and poultry are kept), because the animals keep the roof of the rooms warm with the heat (biogas) they produce. Conversely, a summer room above a livestock feed depot usually keeps the floor cool.

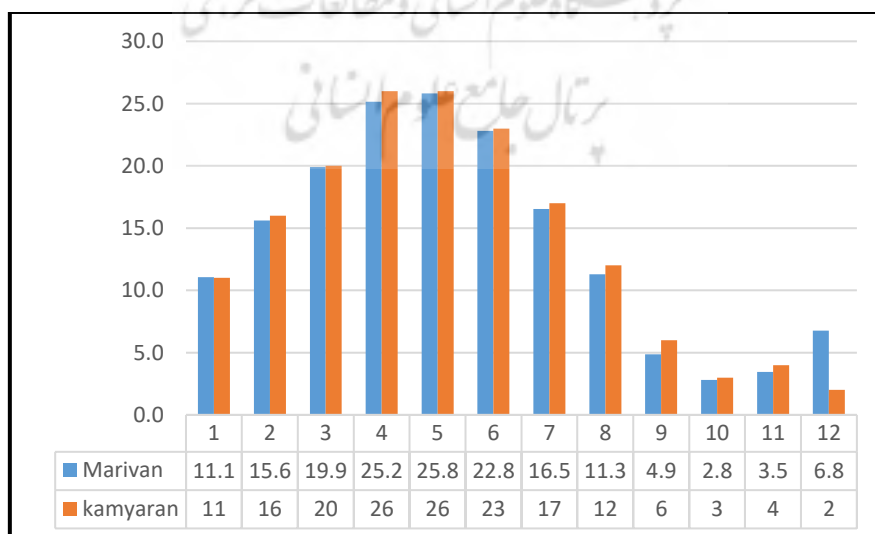


Figure 6: Average temperature over a ten-year period in Marivan and Kamyaran.

4.4 Humidity

Relative humidity is another climatic element that is directly related to temperature, precipitation and wind fluctuations. Relative humidity indicates the degree of saturation and precipitation power. Relative humidity along with air temperature are effective elements in human comfort and climate-based design (12). The results showed that the highest relative humidity is in the cold months of the year. The lowest percentage of relative humidity is in July, when 45% of the relative humidity of Kamyaran station is below 50%, and the highest level is in January, when the humidity is above 70%. But in Marivan station, the average minimum relative humidity is 51% in July and the highest is in January, when the humidity is above 80%.

The importance of studying the relative humidity in the residential texture of stepped villages is due to the fact that rainfall such as snow and rain moved in the direction of the slope. In other words, rainwater and snowmelt due to heights in the floor of residential buildings moved in the direction of the slope. It affects a residential movement. In general, moisture enters the residential space in various ways and causes adverse effect on health the buildings. Ways of moisture penetration into the building were as follows:

- Infiltration of moisture (rain, snowmelt) from the floor of the building
- Infiltration of moisture (rain) from the roof
- Moisture penetration from the side walls.

4.1.1 Moisture penetration from the floor to the ceiling

Basically, the flat roof design of mountain dwellings is composed of clay. In winter, rainwater turns into ice and during the day the ice melts, which creates some holes on the roof where clay is lesser. In this way, water and moisture passes through the roof and reaches to wooden beams and boards with a diameter of 2 cm. They absorb infiltrating water and swell up. Throughout the year the pressure due to expansion is associated with the bursting of the side walls, which causes

the loss of adhesion of mud and soil around the beams. After a few years only the stone folds of the walls can be seen. This ends up to the invasion of insects and animals that consume the beams. Insects tend to live and destroy the whole structure gradually.

4.1.2 Infiltration of moisture (rain) from the roof

Because the regime for precipitation in different mountainous areas, the falls fall obliquely and vertically to the wall surfaces made of stone and mud straw, during continuous rainfall over time provides a gradual destruction of the walls. In mountainous areas, the direction of droplets is angled or straight when it rains. During the rain seasons, the hatch and stones on the walls are washed up and slowly get destroyed. The destruction is aggravated by changes in temperature. Rural dwelling stones are calcareous. The combination of freezing ice at night and melting the ice during the day increases dissolution and permeability of moisture, which causes the spoilage of gypsum and soil in the walls, and increases the danger of breakdown.

4.1.3. Infiltration of rainwater and snow through the floor of the building

Since rural settlements are formed in the direction of the slope and in a regular and vertical staircase, rainwater and snow flow penetrate the ground and reach the foundations of the building, and then, soak up the walls with moisture. This situation brings about:

- The relative humidity increases to a considerable extent.
- increasing the temperature inside the building
- Existence of high humidity causes the growth of bacteria, animals and vermin.
- Significant humidity inside the living space accelerates the spoilage of dairy products.
- High humidity combined with rising temperature and lack of sunlight in the seasons (summer and winter) leads to diseases such as tuberculosis, rheumatism, joint and muscle disorders, dizziness and shortness of breath. See [Figure7](#).

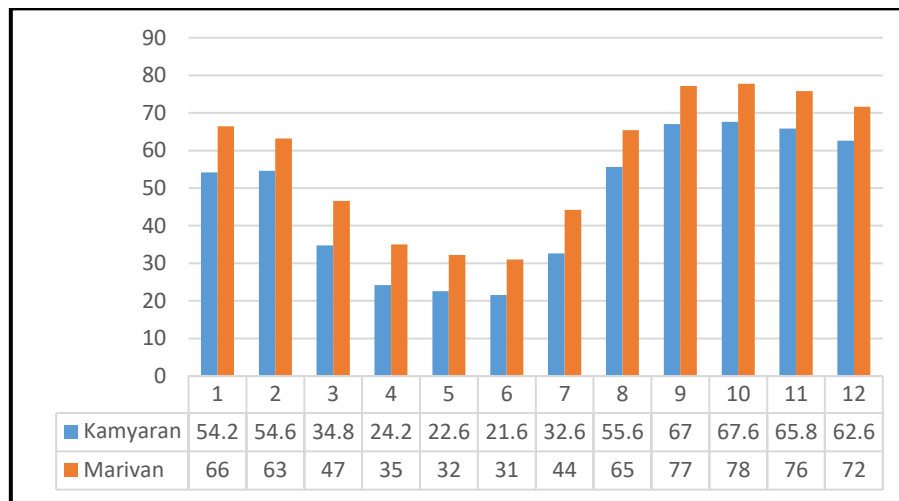


Figure 7: Average ten-year wet period in Kamyaran and Marivan stations

4.1.4 Wind

Among all the environmental factors that affect architecture, the wind has the greatest influence on architectural shapes, more precisely, the wind flow is greatly dependent on the shape of architecture (13). This is the case in Oramanat rural settlements. The results showed that two types of winds with two different directions have affected the study area. One of these winds is called Zalan or dry wind from the northwest to the southwest, the second is Shah Mal wind, a wet wind which move from the west of the country (the Mediterranean) to the east of the country. The results of field studies showed that most of the villages are located in the southwest, which is about 15 degrees from the west. This location is chosen to turn the settlements towards dry and scorching winds that are directed from the northwest to the south. On the other hand,

the southwest position of the houses is somewhat inclined to the Mediterranean winds that are rainy. Another effect of wind flow is related to the location of rural settlements in mountainous areas. Mountain villages have a local wind flow that is the same as mountain to valley breeze and valley to mountain during the day and night. Since the livelihood of these villages is livestock, livestock waste is dumped into the rivers by the villagers. When the local winds breeze and the temperature is high in summer, a stench of animal waste blows in the village. This will lead to the spread of germs and fungi and ultimately increases the incidence of diseases and the overall mortality rate. The results showed that in Oraman villages, seasonal rivers that pass through the middle of the village have no concrete cover. See Figure 8.

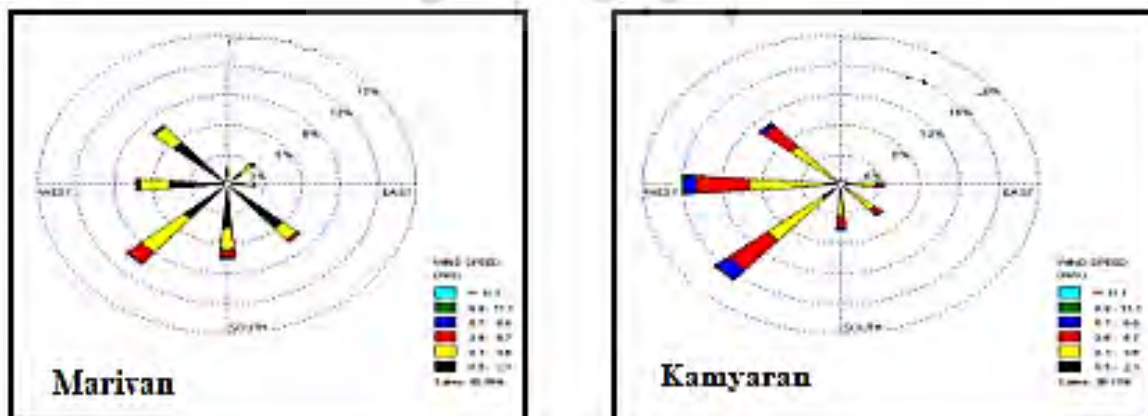


Figure 8: Golbad diagram in two synoptic and climatological stations of Marivan and Kamyaran

5. Discussion and conclusion

Housing as one of the biological needs of human beings plays an essential role in the survival and life expectancy of its inhabitants (14). Field surveys in Pirshalyar Rural District in Oramat, Sarvabad County in Kurdistan Province, showed that the high rate of rural population growth and limited space for construction have led to the migration of rural youth to other urban areas. According to the results of official statistics, about 54.4% of the rural housing area in Sarvabad County is less than 100 meters. There is also a shortage in supply of housing in the study area (Bahrami, 2018). The results showed that sunlight illuminates 20 to 25% of the residential space. The temperature in summer and deposit of animals' waste into the river bring about a condition for the growth of bacteria and germs., Due to the local breeze of mountain to valley and valley to mountain during the day and night, respiratory and gastrointestinal diseases are spread. The local people were dissatisfied with this situation and stated that it led to more migration from the villages. In terms of humidity, that the findings indicated that the first floor of the units are mostly wet because of snowmelt and rain penetration that flows in the direction of the slope. In terms of wind flow, even though the flow is balanced during the seasons, the statistical evidence of stations close to the study area indicates that the weather is hot in summer and dry and scorching in winter due to the low altitude of villages above sea level.

Finally, the lack of space for the inhabitants on the one hand and the coexistence of humans with livestock and poultry over a period of several years, lack of light and heat in the living space and hot winds in the mountainous areas of Oramanat have led to the spread of diseases such as tuberculosis, rheumatism, joint disorders, osteoarthritis, respiratory failure, heart disease, etc. According to the Sarvabad Health Network, over the past decade, the number of tuberculosis patients was more than 30, more than 48% of the people who are 49 or more has been diagnosed with osteoarthritis. Furthermore, more than 12% of rural residents suffers from rheumatism and 6% of them have respiratory disorders and 4% have experienced common human-animal diseases (malaria).

In the last two decades, after the development of communication network and application of durable materials into the rural space, there has been a

change in the architecture and design of rural housing. However, because of the rough nature, they did not improve the health of rural residents. In general, the housing health situation in this area is not optimal and some measures and programs need to be implemented by health officials. On the other hand, government technical and regulatory agencies should monitor the construction of new rural housing to prevent physical and mental illness caused by poor housing

The villages of Pirshalyar Rural District were built in mountainous areas due to historical and security conditions. Rural housing in the study area was a safe environment to survive from the invasions of the enemies, which was the main reason of settlement other than well-being. The results also showed that the texture and construction of rural housing in this part of Kurdistan lacks the necessary architectural standards, including; sunlight, heat, humidity and wind. Several factors have contributed to the spread of diseases such as tuberculosis, malaria, respiratory and vascular disorders, joint disorders and osteoarthritis. These factors are: human coexistence with livestock and poultry, lack of air conditioning in the interior of rural settlements, high humidity and inappropriate method of burying animal waste in rural areas. These factors, in turn, have reduced life expectancy. Therefore, the need to design housing compatible with climatic elements is essential for the sustainability of rural settlements in the study area. The results of the above studies are consistent with the results of Sepahi, et al., (2015) in the terms of poor housing, Fallah et al., (2010) about existence of common human and animal diseases, Darula et al., (2015) in terms of sunlight and its effects, Straube (2002) regarding the negative effects of humidity, Golpayegani, et al., (2013) in the matter of the shortage of health services, Aktan Aktu (2014) concerning the air conditioning.

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Authors' contributions

The authors equally contributed to the preparation of this article.

Conflict of interest

The author declare no conflict of interest.

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نقش عوامل اقلیمی بر سلامت سکونتگاه‌های روستایی ایران

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چکیده مبسوط

۱. مقدمه

سلامت یکی از محورهای اصلی توسعه پایدار و بخش لاینفک آن برای شکوفایی و ارتقای کیفیت زندگی است. حفظ و ارتقای سطح سلامت جامعه؛ لازمه هر حرکت و اقدام در برنامه‌ریزی اقتصادی و اجتماعی محسوب می‌شود. از سال‌ها پیش، مسکن به‌عنوان یکی از عوامل مهمی شناخته‌شده است که می‌تواند بر سلامت بشر اثر مستقیم بگذارد. مسکن عبارت است از محلی به‌عنوان سرپناه برای ادامه حیات بهتر انسان مورد استفاده قرار می‌گیرد و دارای امکانات و تسهیلاتی است که سلامت جسمی و روانی انسان را تضمین می‌کند. بیش از نیمی از عمر انسان در مسکن سپری می‌گردد. یکی از عواملی که مستقیماً بر سلامت مسکن تأثیر می‌گذارد نقش عوامل اقلیمی است.

در این پژوهش چهار عامل اقلیمی تابش و حرارت، رطوبت، باد بیش از سایر عناصر اقلیمی بر طراحی و معماری مسکن تأثیرگذار می‌باشند. در گذشته ساخت مسکن روستایی بنا به اقتضای شرایط امنیتی آن زمان طراحی و بنا شده‌اند. غالب روستاهای اورامان تخت بنا به موقعیت اکولوژیکی آن‌ها کوهستانی و کوهپایه‌ای بوده از این رو بافت سکونتگاه‌ها کوچک، متراکم و پلکانی شکل است. کمبود فضا توأم با شرایط نامطلوب اقلیمی در طراحی مسکن بستر سلامتی و تندرستی ساکنان روستایی را تهدید کرده است. پژوهش با هدف بررسی سکونتگاه‌های روستایی اورامانات در ارتباط با شرایط سلامتی و تندرستی مورد مطالعه قرار می‌دهد. سؤال اساسی پژوهش این است که روستاهای اورامان تابعه شهرستان سروآباد استان کردستان تا چه اندازه به سلامت بهداشت مسکن با توجه به معیارهای اقلیمی در روستاهای اورامان توجه شده است؟

۲. مبانی نظری تحقیق

مسکن کوچک‌ترین شکل تجسم فیزیکی رابطه انسان و محیط است. مسکن روستایی برخلاف مسکن شهری، نه تنها مکانی برای استراحت و سکونت اعضای خانواده است، بلکه با توجه به نوع کارکرد اقتصادی، از همزیستی انسان و حیوان برخوردار است. سازمان جهانی بهداشت استانداردهایی را برای مسکن سالم تعیین می‌کند که مهم‌ترین آن‌ها شاخص‌های آب و هوایی است. کمیته بهداشت مسکن ایالات متحده ۱۲ نقص مسکن را فهرست می‌کند که اگر هر واحد مسکونی بیش از ۴ مورد از این مشکلات را داشته باشد، غیرقابل سکونت تلقی می‌شود و باعث بیماری‌های روحی و جسمی می‌شود. یکی از ۴ مورد، عدم دسترسی به نور کافی است. آگوبلا معتقد است: شش عامل برآسایش حرارتی مسکن تأثیر می‌گذارد: ۱- دمای هوا ۲- دمای تابشی ۳- سرعت هوا ۴- رطوبت نسبی ۵- لباس ۶- سطح فعالیت. علیجانی براین باور است که از میان عناصر اقلیمی دما و رطوبت بیشترین تأثیر بر سلامت انسان دارند. هوشور معتقد است تابش نور خورشید بیشترین تأثیر بر بافت مسکن دارد. کسمایی معتقد است شرایط آسایش انسان را مجموعه‌ای از شرایطی رژیم دمایی مناسب می‌داند.

۳. روش‌شناسی پژوهش

در این مطالعه توصیفی-مقطعی وضعیت بهداشت مسکن ۱۱۵۰ خانوار در سال ۱۴۰۰-۱۳۹۹ مورد بررسی کتابخانه‌ای (مرکز بهداشت شهرستان سروآباد) و روش میدانی (مصاحبه و پرسشنامه) انجام گرفته است. شاخص مورد مطالعه شامل چهار عنصر اقلیمی شامل تابش، حرارت، رطوبت و باد که در آن ۹ گویه مشخص شده که بیشترین تأثیر را در بافت بیرونی و درونی سکونتگاه‌های روستایی

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. عامل دیگر اقلیمی جریان باد و وزش باد است. جریان باد به دو صورت بادهای خشک که در اصطلاح محلی زلان گویند و بادهای مدیترانه که غالباً بارانزا بوده و به باد شه مال معروفاند.

۵. بحث و نتیجه گیری

نتایج نشان داد تابش نور خورشید ۲۰ تا ۲۵ درصد فضای سکونتگاهی را روشن می کند. انتقال فضولات دامی به رودخانه موجب رشد و گسترش باکتری ها و میکروبها و حشرات موذی شده و نسیم محلی دره به کوه در طول ایام شبانه روز زمینه گسترش بیماری های تنفسی و گوارشی را بالا برده است. نتایج میدانی نشان داد ۸۹ درصد از واحدهای مسکونی اورامان طبقه اول آن ها مرطوب و نمدار است. از نظر جریان باد به دلیل وزش بادهای خشک و سوزان بافت پنجره ها کوچک طراحی شده اند. نهایتاً بیماری هایی ناشی از طراحی نامناسب اقلیمی زمینه گسترش بیماری هایی مانند سل، روماتیسم، ناراحتی های مفصلی، آرتروز، کم بنیایی تنفسی، ناراحتی های قلبی و سایر بیماری ها شده است. نتایج خانه بهداشت دهستان پیر شالیار نشان داد طی دهه گذشته تعداد بیماران سل بیش از ۳۰ نفر، بیش از ۴۸ درصد از افرادی که در سنین ۴۹ سال به بالا دارای ناراحتی آرتروز پا دارند. بیش از ۱۲ درصد از ساکنین روستایی دارای روماتیسم و ۶ درصد دارای ناراحتی های تنفسی و ۴ درصد دارای بیماری های مشترک انسان با دام (تب مالت) هستند. **کلیدواژه ها:** مسکن، آب و هوا، بهداشت، روستا، اورامان تخت، کردستان.


تشکر و قدردانی

پژوهش حاضر حامی مالی نداشته و حاصل فعالیت علمی نویسنده است.

دارند مورد مطالعه قرار گرفته است. در تهیه سوالات پرسشنامه از نظر محتوایی، از دیدگاه ۶ نفر از اساتید جغرافیا با گرایش اقلیم شناسی و اساتید بهداشت عمومی و مسکن دانشگاه علوم پزشکی کردستان استفاده شد و پایایی آن با استفاده از ضریب آلفای کرونباخ ۰/۷۲ به دست آمد. نحوه انتخاب بر اساس نتایج مطالعات محققین و سازمان بهداشت جهانی، کسمایی و... است.

۴. یافته های تحقیق

از نظر موقعیت اکولوژیکی بررسی های آماری نشان می دهد که بیش از ۴۰ درصد از سکونتگاه های روستایی شهرستان سروآباد دارای موقعیت جنوبی، ۲۶ درصد دارای موقعیت شمالی، ۲۳ درصد دارای موقعیت شرقی و کمتر از ۱۰ درصد دارای موقعیت غربی می باشند. در زمینه تابش بررسی های میدانی در دهستان پیرشالیار هورامان نشان داد که بیش از ۶۷ درصد از سکونتگاه های کوهستانی دارای موقعیت جنوب متمایل به غربی است. ۲۳ درصد از دیگر سکونتگاه ها دارای موقعیت شمالی، شرقی و غربی می باشند. از نظر تابش نور و حرارت این مناطق دارای پنجره های کوچک و مشبک می باشند. نور خورشید به دلیل بافت مشبک پنجره ها و عرض کم آن ها، زاویه تابش نور خورشید تنها ۲۰ تا ۲۵ درصد از فضای خانه را روشن می کند. یافته ها در زمینه رطوبت نسبی نشان داد به دلیل موقعیت استقرار سکونتگاه ها و ریزش نزولات جوی در طول، موجب افزایش رطوبت در بافت درونی ساختمان ها و زمینه رشد باکتری و حشراتی مانند شپش، کک، و... ایجاد می کند. در کل رطوبت از چند طریق وارد بافت مسکن روستایی شده و سبلمتی ساکنین روستاها را تهدید می کند: نفوذ رطوبت از طریق کف ساختمان باران و ذوب برف ۲- نفوذ باران از طریق سقف ساختمان ۳- از طریق دیوارهای کناری

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