THE INFLUENCES OF SOCIO-CULTURAL VALUES ON SUSTAINABLE HOUSING DESIGN: EVIDENCES AMONG ARAB COUNTRIES

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ABSTRACT: *The purpose of current study was to investigate the influence of socio-cultural values i.e. Family structure, family values, family life style and religious beliefs on sustainable housing design among the Arab students who currently studying at UTM Malaysia. Data was collected from randomly selected sample of 150 graduate students from different countries including Iraq, Jordan, Syria, Yamen and Palestine via personally administered questionnaire. Standard linear regression model was used and proposed hypotheses were tested statistically about the relationship between dependent and independent variables. The research study findings, have revealed that of socio-cultural values were positively related to sustainable housing design among the Arab students. Furthermore, significance of the study provides a valuable insight for understanding how importance for societies that socio-cultural values are integral part in Arab region to build and develop sustainable housing design.*

Key Words: Socio-Cultural Values, Sustainable Housing Design

INTRODUCTION

Today sustainable housing designing is one of the important concern and emergent issue for many developing world especially those countries which are economically and politically unstable. Sustainable housing design has got significant attention among researchers in order to manage the population in sustainable manner to serve the future needs [1]. The living environment, nature and culture are important aspects in designing houses and the surroundings for humans [2]. However it is also influenced by the modern technologies and economies. In the context of sustainable housing, the smart houses uses technologies and new models which aim to ensure comfortable and improve quality of life [3]. Socio-cultural elements are particularly important for establishing environment as they gradually transformed into social values transferred from generation to generation [4]. And still there is a debate about whether physical environment can foster community (Ganapati, 2008) [5]. Society carries certain customs, rituals, and idealistic rules without any rational interpretation which eventually become standard cultural values) [6-7-8- 9]. Sustainable design strategies are vital for building design [10-11].

Research studies have revealed primary standards of sustainable architecture. The sustainable building structure incorporate social, economic and environmental aspects and promote positive climate change in the surrounding [12]. Sustainable housing are significantly reduce environmental degradation and foster environmental concern and climate change [13]. Socio-cultural experiences are related with residents housing satisfaction [14]. All the aspects including social, personal and environmental values are equally important in designing sustainable houses [15]. For a society, a house is not just a physical space to live, but a place to socially interact and perform rituals [12-16-17]. The role of designing sustainable houses has got significant scope because of growth in urban population of the world [18]. More than half of population around the world are fall in urban areas which continue to increase by 72% till 2030 [19]. For example, David Saile has [20] studied housing design, cultural values and traditions based on anthropological, historical and archaeological dimension. In another study has described the socio-cultural secrets of housing forms.

Similarly, socio-cultural elements and housing design are equally important [21]. Similarly, to achieve sustainable housing it needs a successful balance between economic, environmental and social values in building sustainable houses [22]. Community and social values interactions are important predictors in housing and space context [23]. Sustainable housing and urban planning [24] involves environmental protection, economic development and social equity. Meanwhile the social, cultural, ethical, psychological, emotional, religious and ethnic aspects were ignored by some previous research studies in context of house and spacing [25].

Objectives of the research study

Since the social and cultural values are imperative to determine social behavioral patterns that require a sustainable housing structure, thus the present study aimed to investigate the influence of such socio-cultural values over sustainable housing design. In order to achieve this objective the present study investigated the influence of socio-cultural values (family values, religious beliefs, family structure, and life style) over sustainable housing design. The findings of the present study provides a valuable insight for understanding the significance of socio-cultural value in Arab region in building a sustainable housing designs In order to achieve sustainability.

LITERATURE REVIEW

In recent years, a number of scholars have contributed to the concept sustainable housing design and space and environmental aspects [22-1-15-25-2-13-14].

Sustainable Housing Development

The 'World Health Organization' (WHO) describes "housing as residential environment which provides its occupants with physical structure for shelter, services, facilities, equipment and devices required for their physical and mental health and social well-being". Housing is critical to sustainable development of cities. The current environmental efficiency needs improvements and investments can be made to ensure the sustainable housing to facilitate residents with low income and provide them houses with greater economic and environmental value [26].

The traditional purpose of housing is to ensure housing space and satisfy housing basic condition. In context to the

sustainable development, it's not good enough to ensure the space and condition but also need to meet environmental aspect of housing. Thus sustainable housing development can be defined as "housing development that meets the housing needs and demands of the present generation without compromising the ability of future generations to meet their needs and demands" [27].

In other words, sustainable housing not only accomplishes the needs of the current residents but also ensures the ability of future generations to manage their own needs. However, this perspective of sustainable housing is usually advocated on ecological basis. Apart from space perspective house social interactions are performed inside the house. The research scholars have focused on the socio-culture dimensions of housing and many studies have revealed that design and layout have relationship with these dimensions [24-17-16]. Hence the notion of housing goes beyond the accommodation demands, it includes a critical measure of social and cultural developments. Hence sustainable housing integrate environmental, social and cultural aspects in to a sustainable layout of house.

Sustainable housing establishes the sustainable communities. In UK's Govt. official policy statement, sustainable communities have been defined as "places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all" [28]. Researchers have argued that instead of focusing on only social factor the environmental factor should be included too. Generally, socio-cultural standards are considered crucial for sustainable housing development. Since there social, structure, values, life style affects environmental and cultural activities. The social, cultural values are mutually associated along with environmental values to ensure the needs of future generations [28].

Such an improvements include socio-culture values and norms i.e. family values, religious values, family structure, and life styles. Research study has described sustainable housing development as the prime concern to satisfy people's housing needs to ensure environmental concern. However, the environment needs protection from failing the capacity of the current generations to manage housing needs without compromising future generation housing resources. Further, sustainable housing does not mean that only basic needs are met, but it should also maintain and improve a liveable internal and external environment [28]. In summery the socially sustainable housing include the following aspects: firstly the social aspects to ensure the interactions secondly the economic aspect to keep the fair value resources and assets and thirdly the environmental aspect of housing. All of these aspects of sustainable housing include the importance and relevance of socio-cultural values and norms that ensure the social sustainability of housing. Sustainable housing reduce environmental degradation and foster environmental concern and climate change [13]. Similarly, to achieve sustainable housing it needs to integrate economic, environmental and social values in designing sustainable houses [22].

Socio-Cultural Settings

Social customs usually consist of cultural elements such as social experiences, philosophies, beliefs and attitudes, etc. transferred verbally from one generation to the other. Such customs determine the social behavioural patterns and pressurize the members of the society to treat them as part of normative culture [29]. Thus, customs can also be described as unwritten, anonymous rules. Human create culture including material components like production, communication, technology and non-material components like customs, traditions, and beliefs. In order to understand interaction between culture and housing, this study focuses on spiritual elements of a culture that relate human to their past. It is not usually concerned with fast changing material components of a culture.

Socio-cultural norms are imperative for shaping environment. According to Altman, there are four differentiating characteristics to understand how culture relates man with the environment2. These factors are 1) cultural beliefs and perceptions, values and norms, group or social behaviors, and habits, 2) commonly shared patterns of knowing, feeling or behaviour of a group, 3) transfer of these common beliefs, values and forms of behaviour between generations, and 4) presence of culture in physical environment to reflect its values e.g. houses, settlements, and other man-made structures reflect cultural values.

Similarly, Rapoport has described three integrative aspects of culture within the context of man-environment relationship. The first aspect describes culture as a life-style of a social group. The second argues that culture is a system of symbolic codes for cognitive schemes, symbols and meanings. The third suggests that culture is adaptive plans for survival according to available natural resources and within a surrounding environment [30]. Also classified culture into basic elements and also described that interaction between culture and behaviour is a process of moving from abstract to concrete (with regard to world view, beliefs, values, images, life-styles, and action chains).

Relationship between Socio-Cultural Values and Sustainable Housing Design

Sustainable housing is related to prevail social order and interaction among residents in neighbourhoods. The sustainable communities have the ability to maintain the society social order and functioning. Similarly to keep the balance among social, cultural and environmental capital and reproduce a sustainable behaviours [31]. Rapoport has also argued that his explanations of culture are directly related to the house and its environment. He further assessed that form of housing is affected by cultural components e.g. values and images, religious beliefs, family structure, and life-styles. The cultural elements define the features of groups, life-styles, and key activities [30]. Socio-cultural values that influence housing design depends upon factors like family values, religious beliefs, family structure and domestic life-style. These components complement each other and are described below. In this line, among all identified environmental

values, use of space are the significant social value in housing design [15].

Family Values

Confucian ethics refers family as the basic unit for social interaction [32]. Family values evolved within a larger social and cultural group. According to Hendry the psychological association exists among the individual identity and the group in the community. He has further stated that the family values are normally developed based on a community's cultural and social orientation of either independence or interdependence. Interdependence involves greater emotional dependence among members of a social group, whereas independence is associated with self-reliance of individuals [33]. Parenting and early socialization transform individuals as independent or dependent. Altman and Chemers have analysed the idea of the housing and argued that family dwellings simultaneously accomplish the needs of its residents for personal identity and for linkages with community and culture. Thus the sustainable housing design must accomplish the family values of its residents; which include safety and security, privacy, comfort, dining, and socialization [34]. Therefore it is hypothesized that:

H1: Family Values are positively related to Sustainable Housing Design.

Religious beliefs

Past research has established that human behaviour and spatial form define religious beliefs both in traditional and modern societies. However, the religious qualities of the house [35] are not considered important in modern societies and religious rituals are managed external venues. This can be specially seen in Western societies. But, in many societies, houses are built keeping in view the availability of space to perform indoor religious obligations and practices. For example, tradition Chinese and Indian houses, even today, are fully equipped with space and other arrangements to carry out religious activities. Traditional Chinese houses still contain religious symbols made of paper and hung on the doors for protection, and a special room dedicated to perform religious rituals. So, in many societies, religious beliefs are an important component of housing structure. Thus this study hypothesized that:

H2: Religious Values are positively related to Sustainable Housing Design.

Family structure

Family structure emerges from an overall socio-culture of either individualism or collectivism. Usually, individualism advocates the independent family system while collectivism constitutes interdependent family systems. Thus houses are built according to the type of family structure. For example, the current generation of an individualistic society, like western society, usually care less about carrying their family legacy of traditions and values. Consequently, internal and external layout of western houses are usually not based on their family structure but on their needs. On the other hands, most nations in eastern part of the world still promote their historical socio-cultural values of collectivistic society through their family structure of interdependence and thus built their houses to reflect those values in their family structure [7].

The families, mostly uses different housing units for their children according to their social and cultural values. In the modern communities the living style and social values are different [36]. Houses express culture through its design whether that design is purposefully adopted or otherwise. Houses design determine the internal and external layout of dwellings which can either be disruptive or supportive of the culture of their residents [7-12-34]. Conducted housing research from a cultural and historical perspective and studied housing as a reflection of culture and environment. They listed family structure as one of the important cultural factors that affect housing. They rather prefer to evolve and develop their own inclinations and update with time. Thus this notion of independence does not influence much on housing structure of the family except to fulfil accommodation needs. However in collectivism, marriage and family institutions are part of a broader kinship system, it is important to understand the overall social structure of a community. Because, in many societies, small and traditional communities are based on a strong extended family system. Thus family and kinship relations are the fabric of an overall social structure. The social roles and tasks are assigned according to gender in a kinship and family system. Thus, it is hypothesized that:

H3: Family Structure is positively related to Sustainable Housing Design.

Life-style

The previous research studies have revealed the impact of life style and housing design in consideration with environmental value of housing space during building sustainable houses [37-8-38]. Life style is determined by the way a family is consuming its housing space. It consists of a society's habits and inclinations of using house spaces for different household purposes like food arrangement etc. different societies have developed different spatial and behavioural patterns to use the available housing space. These patterns are usually based on their spatial needs for socializing, living, and individual and family usage. In order to fulfil such needs, housing structural arrangements are required in accordance with the behavioural patterns. Such structural arrangements are cultural variables which affect the life-style within the house and also influences outer appearance. The important factors that determine the behavioural mechanisms are the use of space for kitchen, living, customs, and other usage. Thus, house structure are built with a notion to maintain an effective social life style of a family. Therefore, it is hypothesized that:

H4: Life Style is positively related to Sustainable Housing Design

METHODOLOGY

Research model

The current research study has proposed theoretical model on the basis of extensive literature review. The study empirically tested the model. The theoretical framework has consisted of family structure, family values, family life style and religion and attitude beliefs and one dependent variable i.e. Sustainable housing design.

Data collection and population

The Primary data was collected via random probability sampling technique from sample size of 150 PhD scholar at

UTM Malaysia. The respondent's mainly belongs to different countries of Middle East region including Iraq, Jordan, Syria, yamen and Palestine. The questionnaires used in the study were developed and tested via validity and reliability tests. Standard multiple regressions model was used to test the proposed hypotheses, to predict sustainable housing design. The data was analysed via SPSS 22 statistical software.

Figure: 1 Theoretical framework

Statistical Validity of the Questionnaires
Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. To insure the validity of the questionnaire, two statistical tests should be applied. The details of questionnaires items has discussed in table 6.

Reliability analysis of survey instruments (Measures)
Table: 1 Reliability Analyses of Variables

Variables	Items	Alpha Value
Family Structure	8	0.91
Family Life style	7	0.93
Family Values	7	0.82
Religion &Attitudes Beliefs	12	0.78
Sustainable housing design	13	0.94
Overall	47	0.90

The table 1 shows that Cronbach's coefficient (α) is used for measuring the reliability of the survey measurement items i.e. questionnaires. The individual and accumulative values are listed in the above table.

Family Structure
The Family structure was measured by 8 items. The five point Likert scale from 1 to 5 was used. The sample question was "I do not mind that if my parents "as long as they are alive" live with my family in my house". The scale reliability value was 0.97

Family values
The family values was measured by 7 items scale developed by this study. The sample question was "Housing design should take in consideration our local traditions and customs". The five point Likert scale from 1 to 5 was used. The scale reliability value was 0.96).

Family life style
The family life style was measured by 7 items scale developed by this study. The sample question was "Availability of enough spaces to serve food and hospitality to the guests and family members" The five point Likert scale from 1 to 5 was used. The scale reliability value was 0.72).

Religion and attitude beliefs
The Religion and attitude beliefs was measured by 12 items scale developed by this study Sample item was used "Religion is directing my behaviour". The five point Likert scale from 1 to 5 was used. The scale reliability value was 0.76).

Sustainable housing design
Sustainable housing design was measured by 13 items. The five point Likert scale from 1 to 5 was used Sample items include ''Number and size of bed rooms" and Entrance and main hall design". The scale reliability value (a = 0.93).
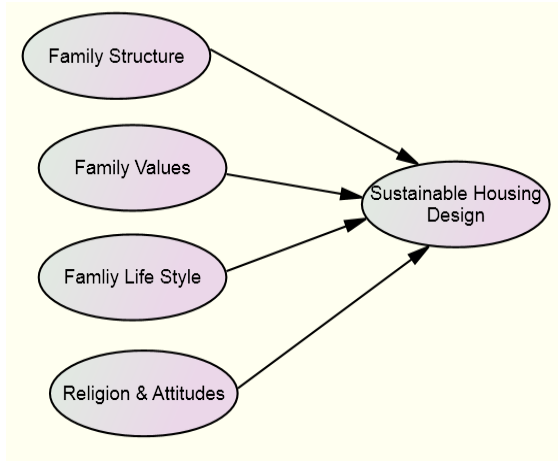
ANALYSIS AND RESULTS
This research study have examined the influence of socio-cultural values (family values, religious beliefs, family structure, and life style) over sustainable housing design among Graduate students studying at UTM Malaysia and they belong to different countries of Arab region including Iraq, Jordan, Syria, yamen and Palestine. The analysis includes descriptive, correlation, linear and multiple regression analysis.

Table: 2 Correlation analysis

	FS	FV	FLS	RAB	SHD
Family structure	1				
Family Values	-.169**	1			
Family life style	.589**	.176**	1		
Religion &attitude beliefs	.784**	.173**	-.436**	1	
Sustainable house design	.832**	.791**	.850**	.793**	1

**Correlation is significant at .01 level (2-tailed)

The correlation analysis, has confirmed the existence, of linear relationship among the impendent and dependent variables. The correlation analysis illustrates and how variables are related to each other.

The relationship of the entire variables i-e family structure, family values, family life style and religion & beliefs are positively correlated with sustainable hosing design. The table 2 has showed all relationships among variables are significant at 0.01 levels.

Regression analysis
The regression statistics are consisted of correlations analysis, means square, R square, adjusted R square, and level of significance, among independent, and dependent variable of this study.

Table: 3 linear regression

Variables	R Square	Adjusted R Square	Std. Error	F	Sig.
SH	--	--	--	--	--
FS	.361	.314	.49387	35.525	.000a
FV	.173	.164	.55832	22.869	.000a
FLS	.161	.140	.53219	32.323	.000a
RAB	.189	.172	.50973	41.609	.000a

Hypothesis 1: The family structure is significantly related with 'sustainable housing design' to greater extent. The statistics confirmed that, significance value ($F_{(35.52)}$) = 36.00, ($p < 0.05$) the coefficient of determination value was (R square = 0.361) means the independent variable shows variability of almost 36% for the dependent variable i.e. 'sustainable housing design' at 95% probability level. So hypothesis 1 was supported by the results.

Hypothesis 2: The family values variable is significantly related with 'sustainable housing design' to a greater extent. The results revealed that, significance value ($F_{22.86}$) = 23.00, ($p < 0.05$) the coefficient of determination value was (R square = 0.17) means the independent variable shows almost 17% variability for the dependent variable i.e. 'sustainable housing design' at 95% probability level. So the results supported hypothesis 2.

Hypothesis 3: The family life style is significantly related with 'sustainable housing design'. The statistics revealed that, significance value ($F_{(32.33)}$) = 32.00, ($p < 0.05$) the coefficient of determination value was (R square = 0.16) which means the independent variable has a variability value of almost 16% for the dependent variable i.e. 'sustainable housing design' at 95% probability level. So hypothesis 3 was supported by the results.

Hypothesis 4: The religion and attitude beliefs variable is significantly related with 'sustainable housing design' to a greater extent. The results showed that, significance value ($F_{(41.609)}$) = 41.00, ($p < 0.05$) the coefficient of determination value was (R square = 0.189) which means the independent variable shows almost 19% variability for the dependent variable i.e. 'sustainable housing design' at 95% probability level. So the results supported hypothesis 4.

Multiple regression

Table: 4 Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.796a	.614	.603	.38197

Predictors (constants) FS, FV, FLS, RAB

Table: 5 ANOVA^s

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	22.509	5	4.502	33.85	.000a
Residual	12.986	89	.146		
Total	35.495	94			

Dependent variable: Sustainable housing design

The multiple regression statistics revealed that overall model is highly significant. The Table 1.2 presented the values of R square, F statistics, and significance of model. The all independent variables i.e. Family structure, family values, family life style and religious beliefs predicted the dependent variable sustainable housing design to greater extent. The inferential statistics have confirmed that over all model was significance with value ($F_{(33.855)}$ = 33.00, ($p < 0.05$) the coefficient of determination value was (R square = 0.603) means all the independent variables Family structure, family values, family life style and religious beliefs predicted shows variability of almost 60% for the dependent variable i.e. sustainable housing design at 95% probability level.

DISCUSSION

The objective of this study was to investigate the influence of socio-cultural values i.e. Family structure, family values, family life style and religious beliefs on sustainable housing design. Sustainable housing is generally defined as the ability of a housing design to satisfy the needs of its present residents without compromising the ability of future residents to meet their needs. It has also been argued by many scholars that housing design is greatly influenced by social, cultural values of a community [12-9-35]. The empirical findings of the present study suggested that all the proposed socio-cultural values significantly predicted sustainable housing among Arab students. Studies in the past have also predicted the similar relationship between socio-cultural values i.e. family values, family structure, life style, and religious values and sustainable housing designs [9-35-7-28-38].

Many previous studies revealed associations among sustainable housing design and environmental benefits and their interrelations with social and cultural dimensions. E.g Smart housing and sustainable designs are highly interrelated with sustainable issues and quality of life [1]. Similarly, to achieve sustainable housing it needs a successful harmonization of economic, environmental and social values in the functional spaces of a house [22]. The living environment, nature and culture, which are important aspect in home designing and the surroundings [2]. Sustainable housing reduce environmental degradation [3]. Socio-cultural experiences are related with residents housing satisfaction [14].

Although, all the socio-cultural values are significantly linked with sustainable housing design, however family

Table: 6 Socio-Cultural Dimensions and Residential Conditions Variables

Survey instruments	
A	**Family Structure**
1	Extended families should to live with kinship at the same neighborhood
2	Rules of kinship is respected in the neighborhood
3	I do not mind that if my parents "as long as they are alive" live with my family in the my house
4	My house has enough rooms for my parents to stay with me in the same house
5	Would you mind to marry your son in the same house in future
6	I believe that my wife should has responsibilities outside the house
7	Elderly people have special and high status in our society
8	Children are being raised by the mother
B	**Family Life style**

1	I am ready to adapt of living among people of different lifestyle
2	People around share the same value
3	Availability of security in the neighborhood
4	Availability of safety in the neighborhood
5	Availability of enough spaces to prepare the food in the kitchen
6	Availability of enough spaces to serve food and hospitality to the guests and family members
7	The separation age and sex and guests have long determined roles played within family
C	**Family Values**
1	Availability of social infrastructure network within the neighborhood
2	Availability of social stability in the neighborhood
3	Availability of social cohesion in the neighborhood
4	Availability of social interaction is among the people
5	Availability of social peace in the neighborhood
6	Housing design should take in consideration our local traditions and customs
7	House design should enhancing the social harmony
D	**Religion and Attitudes Beliefs**
1	Religion is directing my behavior
2	Woman should dress according to the Islamic "Sharia's"
3	Women should be allowed to work outside their homes
4	Woman should be go to the market without being accompanied
5	Boys and girls should attend separate schools
6	Raising children would be based on Islamic value
7	Governance should be based on Islam "Sharia'a"
8	Governance should be based on democracy
9	Governance should be mix of Islam and democracy
10	When the local elections happen I prefer to vote for my relatives
11	Privacy should be the most priority consideration within housing spaces available in housing units design
12	The mosque should be the major element in the neighborhood
E	**Space and Spatial Activities**
	I am satisfied at my house with the:
1	Size of the apartment
2	Number and size of bed rooms
3	Entrance and main hall design
4	Master bedroom design and size
5	Secondary bedrooms design and size
6	Guest room design and size
7	Living room design and size
8	Kitchen design and size
9	Balcony design and size
10	Number and design of bathrooms
11	Number and design of W.Cs.
12	Rooms location
13	Toilets and bathrooms design

structure has been found as the strongest association and better prediction capability among others. The findings of present study relating to family structure being strongest predictor has further endorsed the similar findings in the past studies [34]. Family structure has been listed as one of the important cultural factors that affect housing which reflects culture and environment.

Generally, socio-cultural standards are considered critical for sustainable housing development. Since social values significantly influence housing and environment through cultural activities, the social and cultural sustainability must be mutually complemented and assure the well-being of current and future generations [28].

Limitations and Future Recommendations
This study has been conducted in small domain of international Arab students studying in UTM Malaysia. Keeping in view the population of the present study, the sample adopted was small and related to a close domain of international students in Malaysia which may provide limited feedback. Thus, future studies should consider a larger sample with different respondents. Similar studies in future should also be carried out among different communities in order to develop a broader understanding of the socio-cultural phenomenon with respect to the sustainable housing.

CONCLUSION
Today sustainable housing designing is one of the important concern and emergent issue for many developing world especially those countries which are economically and politically unstable. Based on the findings of the present study, it is suggested that socio-cultural values are important determinants of sustainable housing among Arab communities. These findings also describe that Arab communities are more likely to uphold their family legacy of housing designs and inherited socio-cultural values despite of huge technological and western style dominance in contemporary housing structures around the world. It also reflects that family structure and religious values dominate the behavioural and attitudinal inclinations in Arab societies when it comes to design a house for meeting current and future needs. Thus, such inclinations are transformed into future generations within a closely associated socio-cultural environment. Sustainable housing design has got significant attention from various governmental sectors and policy-makers in the creation of a better environment for the population. In the context of sustainable housing, the smart houses uses technologies and new models which aim to ensure comfortable and improve quality of life. Meanwhile the social, cultural, emotional, and religious aspects were ignored by previous research studies in context of house and spacing. The findings of the current study provides a comprehensive spot light on the sustainable hosing design and their interlinkages with social and cultural value in context of sustainable development.

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