DOI : 10.18843/rwjasc/v8i3/04
DOI URL : http://dx.doi.org/10.18843/rwjasc/v8i3/04

DETERMINANTS OF OWNERS' PERCEPTIONS ON HEALTHY HOUSING QUALITY OF LARGE RESIDENTIAL APARTMENTS IN PONDICHERRY

Dr. N. Sinouvassane,

Head of the Department,
Department of Management Studies
Rajiv Gandhi College of Engineering & Technology, Pondicherry, India

Prof. (Mrs.) B. Charumathi,

Professor
Department of Management Studies
Pondicherry University, Pondicherry, India

ABSTRACT

Housing has been a major concern for all people in the world, and it has been always considered as a basic human need. Housing fulfills physical needs by proving a sense of personal space and privacy. To what extent dwelling unit features, neighborhood features, building quality, services needs and expectations predict the occupants' residential satisfaction, which were classified as the exogenous variables. Determinants of good apartment housing can be measured through the investigation of the satisfaction levels perceived by the apartment's owners. The need for adequate and affordable housing is connected with the physical, psychological, social and managerial aspects. This study aims to model the determinants of owners' perceptions on healthy housing quality of large residential apartment in Pondicherry taking overall apartment satisfaction in terms of price satisfaction as dependent variable. For this purpose, five dimensions of healthy housing quality are identified, viz., physical, psychological, social, managerial and overall apartment satisfaction. This study used primary data collected from 193 owners who live in 9 large residential apartments (having 30 and above dwelling units) in Pondicherry, using convenience sampling method. A structured questionnaire is used to collect the required data. This study employs correlation and multiple linear regression models. Using regression analysis, It is found that price satisfaction is positively and significantly related to comfort, safety, psychological vitality, social identity, managerial maintenance and operation management whereas negatively and significantly related to social integration (such as Physical, Psychological, Social and Managerial) of Large Residential Apartments in Pondicherry, based on owners' perceptions.

Keywords: healthy housing quality, large residential Apartments, Owners, residential satisfaction, Pondicherry

INTRODUCTION:

Pondicherry, a former French colony is a Union Territory (UT) situated in the southern part of India. The city is best accessible by road from Chennai, Bangalore and Kerala. The Union Territory has evidenced high degree of urbanization over the last few years. Real estate in Pondicherry has been playing a vital role in the economy of the Union Territory. The real estate sector is booming at a faster rate in Pondicherry. It is a favorite destination both for the builders and investors. The real estate in Pondicherry is developing both in the commercial and residential sector. The builders are constructing various types of houses including bungalows, apartments, duplex houses etc. One of the Union Territories of India is Pondicherry and it has four regions, viz., Pondicherry (now renamed as Puducherry), Karaikal, Mahe and Yanam. Pondicherry is a fast developing city and is outstanding in terms of tourism, education, industry and spirituality. It is rich in its heritage culture and attracts people from various parts of India and abroad as tourists, job seekers and for settlement. Pondicherry Government has taken many housing initiatives for the betterment of the society based on the guidelines of National Housing Policy. Pondicherry is yet to introduce its own Housing Policy. Now apartment houses are facing a switch of concept of homebuilders and consumers from "products that are sold as built" to "products that are built well to be sold." To comply with such change, homebuilders consider houses as products and provide various services to satisfy high demand and requirement to meet the expectation of the market differentiation. To assure continuity in changing housing market, firms strive to develop housing products to enhance the residential satisfaction.

The study of discovering residents' satisfaction in terms of the apartment housing management was insufficiently conducted due to more prioritized housing supply. However, expanding the lifespan of building by concentrating on maintenance and management of supplied apartment houses, and increasing residents' residential satisfaction seem to become more important than other attributes. Therefore, the need of studies on consistent management of apartment housing is desperately required. Especially, the recent trend of increased interests in qualitative improvement of houses along with quantitative expansion, it is required to discover economical and efficient alternative policies to improve the housing quality. This study is designed to find out the effect of the quality of apartment houses on the residential satisfaction of owners' perception on large residential apartments in Pondicherry.

REVIEW OF LITERATURE:

This section presents the most important earlier literature available on the topic. Baiden et al (2010) Measuring the level of housing satisfaction and its determinants have become an important matter to the overall quality of life. There is little evidence about the relationship between social capital investment and housing satisfaction. Vera-Toscana and Alteca- Amestoy (2008) have shown that homeowners evaluate their housing situation based on social interaction with others in Spain. It is reasonable to assume that social capital investment may enhance the positive effects of homeownership on housing satisfaction. Housing is more than just bricks and mortar and it is the building block of a community, and the community builds a common stock of social relationships. Homeowners are able to reach a desired social status by communicating with others in the social connection as this can promote self-esteem among homeowners. Rohe and Stegman (1994). Homeowners may receive benefits when others stay in the neighbourhood longer (household stability).

According to Rohe and Steward (1996) homeowners are generally committed to remaining in a neighbourhood for a long time as transaction costs associated with buying and selling houses are relatively high. Households seem to be willing to pay more to live around neighbourhoods as homeownership appears to increase home maintenance. Bond and Seiler (1998) found that the property value of homeownership has positive effects on housing satisfaction. In order to assess the relationship between housing satisfaction and homeownership, several determinants of housing satisfaction, such as housing and neighbourhood characteristics and the socio-economic status of households are used as control variables in this study. Francescato, Wiedemann and Anderson (1989) refers to the evaluation of the physical characteristics, facilities, services and environment, whereas subjective measures refer to perception, emotions, attitudes, and also intention towards the housing attributes in UK. Mohit, Ibrahim and Rasid (2009) have integrated both objective and subjective attributes of housing for the assessment of housing satisfaction.

Savasdosara and Suwannodom (1989) found that friendly and helpful neighbours, public facilities such as recreational facilities and parking space, environmental conditions such as cleanliness, and housing and location characteristics are important considerations to the formation of housing satisfaction of 1100 households in Bangkok. Lu (1999) reported that housing and location variables have significant effects on housing

satisfaction. Elsinga and Hoekstra (2005) identified eight EU countries data from the European Community Household and Panel (ECHP), found that housing quality is an important determinant of housing satisfaction. Their results also show that the housing quality index and the subjective perception of the dwelling size have the largest influence on housing satisfaction. Salleh (2008) found that the dwelling unit factor (area of the dining, kitchen and living room), the neighbourhood factor relating to educational facilities, the neighbourhood factor relating to security infrastructure (police, parking lot, fire brigade, facilities for the handicapped) and the neighbourhood factor relating to central facilities (telephone, market, public transport) are the most important determinant of housing satisfaction among residents in private low cost housing in Malaysia.

Zainal Abidin Hashim (2010) analyzed house price movements with regard to affordability and availability and to some extent in relation to the possibility of wealth created through house ownership and its influence on consumption. Since the housing industry is an important sector to the Malaysian economy, the health of the housing market is of paramount importance and is directly correlated to the ability to own and thus, to the purchasing power of the public. Thiele (2002) noted that the health aspect of adequate housing requires housing to be habitable by providing inhabitants with adequate space, and protecting them from cold, damp, heat, rain, wind, or other threats to health, structural hazards and disease vectors. Examination of the above principles shows that the first principle to ensure adequate housing is through safe water supply, sanitary disposal of excreta, disposal of solid wastes, and drainage of surface water. Adriaanse (2007) Examined this article is to introduce an integrative and more comprehensive approach to measurement of residential environmental satisfaction. Domains of residential environmental satisfaction were empirically examined using techniques for multivariate analysis. Xavier Bonnefoy (2007) explored the relevance of housing conditions as a key factor influencing mental health, sleep quality, indoor, air, home safety, accessibility, obesity, mould growth, hydrothermal conditions and energy consumption, perceptions of crime, and residential quality.

Andrew and James (2008) Achieving renter satisfaction is critical for residential property managers who desire to reduce the cost of high turnover. While safety has long been recognized as a critical component of residential satisfaction, issues of sanitation appear uniquely salient for residents of rented apartment housing. The implication for property managers is that a focus on the core issues revealed in this analysis of resident comments may help to achieve greater resident satisfaction and, thereby, reduce resident turnover. Amole (2009) explored how satisfied students were and the factors which predicted residential satisfaction. The data comprised objective and subjective measures of the physical, social and management attributes of the halls of residence. Bjorn Frank and Takao Enkawa (2009) examined the impacts of aggregate income and other social indicators on dwelling satisfaction. Path analysis is used to test the existence of mediated relationships. It is found that aggregate income positively influences dwelling satisfaction. Environmental Satisfaction, customer satisfaction and satisfaction with family relations also positively impact dwelling satisfaction.

Lundgren (2013) proved that the expectations of being able to relax in the immediate neighborhood as well feeling safe in the neighborhood have a high impact on customer perceived value. Krieger (2002) studied about poor sanitation, crowding, inadequate ventilation, lack of structural stability, poor lighting as major causes of slum conditions and infectious diseases in housing. Margaret Jobim (2006) found that the small-sized house-building were involved in quality management improvement, emphasizing residents' satisfaction measurement. Vimalagracy (2012) expressed a sustainable base for up gradation of the economic status and quality of life of the people. It found that people talk about security and low cost but today people are more concerned with the quality aspect. Nazeer Ahamed (2013) determined the home-buyer's preferences and residential satisfaction of customers and creates awareness among the builders about what buyers prefer in terms of both service and product during the construction or purchase of their residential premises.

RESEARCH GAP:

There are studies on individual housing satisfaction using various dimensions. Though there are in–depth studies available in the housing sector, only very few studies were conducted on the owners' perception on housing in developed and developing nations. There is no comprehensive study available on the evaluation of the owners' perceptions on healthy housing quality indicators of large residential apartments in Pondicherry. Hence, the present study attempts to fill this gap.

SCOPE FOR THE STUDY:

Apartment Owners are more likely to consider quality as an amalgamation of factors, some of which are based on perceptions of feeling good, safe, pleasing to the eye, not too repetitive, and fit for purpose. For many

developers, quality is what sells. The sale ability of houses is the commercial reality of the industry. Some defined quality as relating to the specification of materials. There has been a key split between developers in relation to this. Some see that the elaboration of the exterior with decorative elements is indicative of quality; others would tend to favor simplicity on the exterior, with quality driven by interior specification of kitchens, bathrooms etc. Specification is clearly linked to affordability for owners and planning constraints. Hence, this study first identified the dimensions of healthy housing quality, viz., physical, psychological, social, managerial and overall apartment satisfaction. The perceptions of owners on these dimensions are analyzed based on their views. The study covers the geographical area of Pondicherry Region which is one of the four parts of Union Territories of Pondicherry (The other three parts include Karaikal, Mahe and Yanam).

STATEMENT OF THE PROBLEM :

In Pondicherry, the housing problem is felt more in recent years; there is a huge scarcity in the availability of houses. The housing problem has distinctive characteristics in its dual dimensions of quantity and quality. The problems of insufficient sheltering is a result of the staggering population explosion, migration, lower per capita income, the phenomenon of nuclear family formation, scarcity of developed land, hike in the cost of building materials, non-availability of skilled manpower and the highly speculative trend in real-estate business dealing in house-sites contribute to the worsening of the situation. Keeping in mind, the various problems of individual house owners, people move from individual houses to the apartment houses for the above mentioned reasons. When people choose to own apartment houses, the selection of dwelling units is depended on their socioeconomic characteristics. Hence, this study aimed to model the determinants of owners' perception on healthy housing quality of large residential apartments in Pondicherry through their socioeconomic characteristics.

OBJECTIVE OF THE STUDY:

This study aims to model the determinants of owners' perceptions on healthy housing quality of large residential apartment in Pondicherry taking overall apartment satisfaction in terms of price satisfaction as dependent variable.

HYPOTHESES:

Following are the hypotheses tested:

$H_{01:}$ There is no significant correlation among the four dimensions of healthy housing quality (such as **H_{01a}**: Physical dimension, **H_{01b}**: Psychological dimension, **H_{01c}**: Social dimension and **H_{01d}**: Managerial dimension) of Large Residential Apartments in Pondicherry, based on owners' perceptions.

H_{02}: Based on owners' perceptions, there is no significant relationship between overall apartment satisfaction in terms of price satisfaction and various attributes of physical dimensions such as **H_{02a}** : Comfort, **H_{02b}**: Hygiene, **H_{02c}**: Safety, and **H_{02d}**: Convenience.

H_{03}: Based on owners' perceptions, there is no significant relationship between overall apartment satisfaction in terms of Price satisfaction and various attributes of psychological dimensions such as **H_{03a}**:Vitality, **H_{03b}**: Stability, **H_{03c}**: Pride, and **H_{03d}**: Mental security

H_{04}: Based on owners' perceptions, there is no significant relationship between overall apartment satisfaction in terms of price satisfaction and various attributes of social dimensions such as **H_{04a}**: self-sufficiency,**H_{04b}**: social integration, **H_{04c}**: social identity, and **H_{04d}**: residential stability

H_{05}: Based on owners' perceptions, there is no significant relationship between overall apartment satisfaction in terms of price satisfaction and various attributes of managerial dimensions such as **H_{05a}**: Operation, **H_{05b}**: Maintenance, **H_{05c}:** Information management and **H_{05d}**: Organization management

The linear multiple regression models developed for this study is as follows:

To study the owners' perceptions on healthy housing quality, (4) Multiple Regression Models are used. They are;

H_0	Model No	DV	Model description
H_{02}	1	OS – PS	OS-PS = β0 + β1PHY-COM + β2PHY-HYG + β3 PHY-SAF +β4PHY-CON + εi
H_{03}	2	OS –PS	OS-PS = β0 + β1PSY-VIT + β2PSY-STA + β3PSY-PRI+β4PSY-SEC + εi
H_{04}	3	OS – PS	OS-PS = β0 + β1SOC-SS + β2SOC-SI + β3 SOC-ID +β4 *SOC-RS*+ εi
H_{05}	4	OS – PS	OS- PS = β0 + β1MAN-OP+ β2 MAN-MA+ β3 MAN-IN +β4 *MAN-OM*+ εi

Note: DV – Dependant Variable, PHY=Physical dimension, PSY= Psychological dimension, SOC= Social dimension, MAN= Managerial dimension and OS-Overall Apartment Satisfaction in terms of price satisfaction

RESEARCH METHODOLOGY:

This study is a descriptive study. It used primary data. It is collected through a structured questionnaire. The respondents include the owners who are living in large residential apartments, having 30 or more dwelling units, in Pondicherry Region. Using 5-point Likert scale (Very Good-5, Good-4, To some extent-3, Bad-2 and Very bad-1), questionnaire was developed, pre-tested reliability statistics Cronbach's Alpha and administered to the respondents to know their residential satisfaction. The questionnaire was designed to have five dimensions of healthy housing quality with 20 attributes, 49 sub-attributes and 126 variables. The Five dimensions of healthy housing quality include Physical Dimension (Comfort, Hygiene, Safety and Convenience), Psychological Dimension (Vitality, Stability, Pride, and Security), Social Dimension (Safety, Self-sufficiency, Social Integration, Residential Stability), Managerial Dimension (Operation, Maintenance, Information management, Organization management) and Overall Apartment Satisfaction (Apartment Community, Service Facility, Intention to Stay and Price Satisfaction). Using convenient sampling method, this study selected a sample of 193 owners from 9 large residential apartments in Pondicherry Region. The five dimensions of healthy housing quality along with their attributes, sub-attributes are given in Table – 1.

RESULTS AND DISCUSSION:

Table 2 to measure the reliability of the instrument used in this study, Cronbach Alpha is calculated. In empirical studies reliability and validity of the instrument plays a significant role while performing statistical analysis and it also helps to provides consistency in the results and helps to measure the reliability of the data Cronbach Alpha should be greater than 0.70. Cronbach Alpha for this study is 0.952 provides an acceptable values. Similarly, the values of measurement coefficient Cronbach Alpha of each of eight constructs provide acceptable values which are greater than 0.80 in all cases.

It is evident from Table 3 that the correlation among the four dimensions of healthy housing quality of large residential apartments is positive and significant. Hence, the null hypothesis is rejected. Thus, there is significant correlation among the four dimensions such as physical dimension, psychological dimension, social dimension and managerial dimension of healthy housing quality of large residential apartments in Pondicherry, based on owners' perceptions.

Table 4 shows the regression results to find the relationship between price satisfaction and various attributes of physical dimensions, based on owners' perceptions on healthy housing quality of large residential apartments in Pondicherry. From the model summary, it is clear that the value of R is equal to 39% and R-Square of the model is equal to 15%. This means that 15% of the change in the dependent variable, viz., price satisfaction (such as investment, value appreciation, value of home and helpfulness) is due to the variations in the independent variables used in this model. It is found that F test of the model is significant at 1% level.

Physical Comfort: There is a positive relationship between price satisfaction and physical comfort. The co-efficient is positive and significant at 1% level of significance. Hence, the null hypothesis H_{02a} is rejected. Thus, there is a significant positive relationship between the physical comfort and price satisfaction.

Physical Hygiene: There is a negative relationship between price satisfaction and physical hygiene. The co-efficient is negative but not significant. Hence, the null hypothesis H_{02b} is accepted. Thus, there is no significant negative relationship between the Physical hygiene and price satisfaction.

Physical Safety: There is a positive relationship between price satisfaction and physical safety. The co-efficient is positive and significant at 5% level. Hence, the null hypothesis H_{02c} is rejected. Thus, there is a significant positive relationship between the physical safety and price satisfaction.

Physical Convenience: There is a negative relationship between price satisfaction and physical convenience. The co-efficient is negative but not significant. Hence, the null hypothesis H_{02d} is accepted. Thus, there is no significant relationship between the physical convenience and price satisfaction.

Table 5 shows the regression results to find the relationship between price satisfaction and various attributes of psychological dimensions, based on owners' perceptions on healthy housing quality of large residential apartments in Pondicherry. From the model summary, it is clear that the value of R is equal to 36% and R-Square of the model is equal to 13%. This means that 13% of the change in the dependent variable, viz., price satisfaction (such as amenities, neighborhood and helpfulness) is due to the variations in the independent variables used in this model. It is found that F test of the model is significant.

Psychological vitality: There is a positive relationship between the price satisfaction and psychological vitality. The co-efficient is positive and significant at 10% level. As the p-value is less than 0.10, the null hypothesis H_{03a} is rejected. Thus, there is a significant positive relationship between the psychological vitality and

apartment price satisfaction.

Psychological stability: There is a positive relationship between the price satisfaction and psychological stability. The co-efficient is positive but not significant. Hence, the null hypothesis $H_{03b}$is accepted. Thus, there is no significant relationship between psychological stability and apartment price satisfaction.

Psychological pride: There is a positive relationship between the price satisfaction and psychological pride. The co-efficient is positive but not significant. Hence, the null hypothesis $H_{03c}$is accepted. Thus, there is no significant relationship between psychological pride and apartment price satisfaction.

Psychological mental security: There is a negative relationship between the price satisfaction and psychological mental security. The co-efficient is positive but not significant. Hence, the null hypothesis H_{03d} is accepted. Thus, there is no significant relationship between psychological mental security and apartment price satisfaction.

Table 6 shows the regression results to find the relationship between price satisfaction and various attributes of social dimensions, based on owners' perceptions on healthy housing quality of large residential apartments in Pondicherry. From the model summary, it is clear that the value of R is equal to 41% and R-Square of the model is equal to 17%. This means that 17% of the change in the dependent variable, viz price satisfaction (such as amenities, neighborhood and helpfulness) is due to the variations in the independent variables used in this model. It is found that F test of the model is significant.

Self-sufficiency: There is a positive relationship between the price satisfaction and self-sufficiency. The co-efficient is positive but not significant. Hence, the null hypothesis H_{04a} is accepted. Thus, there is no significant relationship between self-sufficiency and price satisfaction.

Social Integration: There is a negative relationship between the price satisfaction and social integration. The co-efficient is negative and significant at 5% level. As the p-value is less than 0.05, the null hypothesis H_{04b} is rejected. Thus, there is significant negative relationship between the social integration and price satisfaction.

Social Identity: There is a positive relationship between the price satisfaction and social identity. The co-efficient is positive and significant at 1% level. As the p-value is less than 0.01, the null hypothesis $H_{04c}$is rejected. Thus, there is a significant positive relationship between social identity and apartment price satisfaction.

Residential stability: There is a negative relationship between the price satisfaction and residential stability. The co-efficient is negative but not significant. Hence, the null hypothesis H_{04d} is accepted. Thus, there is no significant relationship between residential stability and apartment price satisfaction.

Table 7 shows the regression results to find the relationship between price satisfaction and various attributes of managerial dimensions, based on owners' perceptions on healthy housing quality of large residential apartments in Pondicherry. From the model summary, it is clear that the value of R is equal to 35% and R-Square of the model is equal to 13%. This means that 13% of the change in the dependent variable, viz., price satisfaction (such as amenities, neighborhood and helpfulness) is due to the variations in the independent variables used in this model. It is also found that F test of the model is significant.

Managerial operation: There is a positive relationship between the price satisfaction and managerial operation. The co-efficient is positive but not significant. Hence, the null hypothesis $\boldsymbol{H_{05a}}$ is accepted. Thus, there is no significant relationship between managerial operation and price satisfaction.

Managerial maintenance: There is a positive relationship between price satisfaction and managerial maintenance. The co-efficient is positive and significant at 5% level. As p-value is less than 0.05, the null hypothesis $H_{05b}$is rejected. Thus, there is significant positive relationship between managerial maintenance and price satisfaction.

Information management: There is a negative relationship between price satisfaction and information management. The co-efficient is negative but not significant. Hence, the null hypothesis $H_{05c}$is accepted. Thus, there is no significant relationship between information management and apartment price satisfaction.

Organization management: There is a positive relationship between the price satisfaction and organization management. The co-efficient is positive and significant at 5% level. As the p-value is less than 0.05, the null hypothesis $H_{05d}$is rejected. Thus, there is significant positive relationship between the organization management and apartment price satisfaction.

FINDINGS OF THE STUDY :

1) There is a significant correlation among the four dimensions of healthy housing quality (such as physical, psychological, social and managerial) of large residential apartments in Pondicherry, based on owners' perceptions.

2) Table 8 shows the summary of regression results for the relationship between price satisfaction and other dimensions of healthy housing quality of large residential apartments in Pondicherry, based on owners' perceptions. It is found that price satisfaction is positively and significantly related to comfort, safety, psychological vitality, social identity, managerial maintenance and operation management whereas negatively and significantly related to social integration.

SUGGESTIONS:

From the apartments owners' angle, obtaining finance is difficult. In Pondicherry, subsidy is already given to economically weaker section for housing. This may be extended to middle income group also to enable them to get an own apartment housing in Pondicherry. In Pondicherry, majority of the developers of large residential apartments are private players and hence, the pricing of apartments is done as per their whimsical fancies. Hence, public private partnership mode of developing affordable apartment houses will solve the problem of skyrocketing of prices of apartments in Pondicherry.

CONCLUSION:

The present study analyzed the perceptions of owners on five dimensions of healthy housing quality of large residential apartments such as physical dimensions, psychological dimensions, social dimensions, managerial dimensions and overall apartment satisfactions in terms of price satisfactions covering the geographical area of Pondicherry. Pondicherry is a microcosm of India (with multi- cultural, multi-lingual, etc.) and can be viewed as miniature of India. As majority of the population is in the middle income group, getting an own house is a very tuff task nowadays due to various reasons. The quality of life for the most people is likely to be determined by the quality of their residential areas. Thus, the dimensions are the fundamental inputs in measuring the satisfaction of healthy housing quality of large residential apartments in Pondicherry. Further, understanding the owners' perceptions based on their residential satisfactions will surely help the apartment promoters/developers to have better idea about their satisfaction than ever before.

LIMITATIONS OF THE STUDY:

Following are the limitations of the study:
1) The findings cannot be generalized as the study is carried out only in Pondicherry.
2) As there was time constraint, more samples could not be taken

SCOPE FOR FURTHER RESEARCH:

This study aimed to understand the determinants of owners' perceptions on healthy housing quality of large residential apartments in Pondicherry using five dimensions. Further studies can be taken up in the areas of service quality gaps and relationship between corporate brand and residential satisfaction.

REFERENCES:

Adriaanse C.C.M (2007). Measuring Residential Satisfaction: A residential Environmental Satisfaction Scale (RESS), *Journal of Housing and Built Environment*, 22, 287-304.

Andrew T. Carswell, Russell N. James (2008). Home Sweet Apartment: A text analysis of Satisfaction and Dissatisfaction with Apartment Homes, *Housing and Society*, 35(1), 92-110.

Baiden, P., Arku, G., Luginaah, I. and Asiedu, A. B. (2010). An assessment of residents' housing satisfaction and coping in Accra, Ghana, *Journal of Public Health*, DOI 10.1007/S10389-010-0348-4. 17th PRRES Conference Gold Goast Australia

Bjorn Frank and Takao Enkawa (2009). Economic Drivers of Dwelling Satisfaction Evidence From Germany, *International Journal of Housing Markets and Analysis*, 2(2), 6-20.

Bond, M. T. and Seiler, M. J. (1998). Real estate returns and inflation: An added variable approach. *Journal of Real Estate Research,* 15, 327 – 338.

Dolapo Amole (2009). Residential Satisfaction In Students' Housing, *Journal of Environmental Psychology*, 29, 76–85.

Elsinga, M., and Hoekstra, J. (2005). Homeownership and housing satisfaction. *Journal of Housing and the Built Environment,* 20, 401 – 424.

Francescato, G., Weidemann, S., and Anderson, J.R. (1989). *Evaluating the built environment from the user*

point of view: an attitudinal model of residential satisfaction. In W. F. E. Preiser (Ed). Building evaluation. NY: Plenum Press.

.Krieger, J. a. (2002). Housing and Health: Time Again for Public Health Action. *American Journal of Public Health,* 92 (5), 758-768.

Lu, M. (1999). Determinants of residential satisfaction: ordered logit vs regression models. *Growth and Change,* 30, 264 – 287

Lundgren, B. (2013). Customer-perceived Value in Residential Developments: the Case of Horns berg Strand, Sweden. *International Real Estate Review*, 16 (1), 1 –27.

M.F. Nazeer Ahamed, S. P. (2013). A Study to determine the Home-Buyer's Preferences through Voice of Customer. *IOSR Journal of Engineering,* 3 (3), 26- 32.

Margaret S.S. Jobim, C. T. (2006). Challenges in Improving Customer Focus in Small-Sized House-building Companies in Brazil. *Journal of Construction in Developing Countries,* 11 (2), 77-101.

Mohit, M. A., and Ibrahim, M. And Rashid, Y. R. (2009). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat International*, 1- 10. doi:10.1016/j.haitatint.2009.04.002.

Rohe, W. M., and Steward, L. S. (1996). *Homeownership and neighborhood stability Housing Policy Debate*, 7(1), 37 – 81.

Rohe, W. M., and Stegman. (1994). *Homeownership and neighbourhood stability Housing Policy Debate*, 7(1), 37 – 81.

Salleh, A. G. (2008). Neighborhood factors in private low-cost housing in Malaysia. *Habitat International*, 32, 485 – 493.

Savasdosara, T. Tips, W. E. J., and Suwannodom, S. (1989) Residential satisfaction in private estates in Bangkok, a comparison of low-cost housing estates and determinant factors. *Habitat International*, 13 (1), 65 – 73.

Thiele, B. (2002). The Human Right to Adequate Housing: A Tool for Promoting and Protecting Individual and Community Health. *American Journal of Public Health,* 92 (5), 712-715.

Vera-Toscano, E., and Ateca-Amestoy, V. (2008). The relevance of social interactions on housing satisfaction. *Social Indicators Research,* 86, 257 – 274.

Vimalagracy.p, K. (2012). A Study On Individual House Owners Towards Select Reasons For Promoters In Tamil Nadu With Reference To Coimbatore. *Journal of Management and Science*, 2 (4), 99-111.

Xavier Bonnefoy (2007). Inadequate housing and health: an overview, *International Journal of Environment and Pollution,* 30(3), 411-429.

ZainalAbidinHashim (2010). Price and Affordability in Housing in Malaysia, *Journal of Akademika*, 78, 37-46.

Table 1: Dimensions of Healthy Housing Quality with their attributes, sub-attributes and variables

S.No.	Dimensions	Attributes	Sub-attributes	No. of Variables
1	Physical	Comfort	Air	2
			Noise	2
			Light	3
			Thermal	2
			Environment-Friendliness	4
		Hygiene	Cleanness	3
			Materials	2
			Support for Physical Activities	2
		Safety	Home Accident	4
			Natural Disasters	2
		Convenience	Space Composition	3
			Facility Performance	3
			Human Traffic Lines	4
2	Psychological	Vitality	Attractiveness Of Apartment Complex	2
			Floor Area Ratio	2
			Light Condition	2
			Noise Level	2
			Proper Space Size	2

S.No.	Dimensions	Attributes	Sub-attributes	No. of Variables
		Stability	Green Space	2
			Privacy	2
		Pride	Privatization	2
			Pride	2
		Security	Mental Security	6
3	Social	Self-Sufficiency	Natural environment	4
			Education amenities	5
		Social Integration	Neighbor Friendliness	4
			Family friendliness	2
		Identity	Complex reputation	3
			Settlement consciousness	5
		Residential stability	Community Facilities	4
			Settlement ethos	2
4	Managerial	Operations	Cleaning Condition And Hygiene management	3
			Support and Operation of Amenities	3
		Maintenance	Short-Term Maintenance	2
			Long-Term Maintenance	2
		Information Management	User manual	2
			Residential Rules	2
		Organizational Management	Organization arrangements	2
			Residential organization	2
5	Overall Apartment Satisfaction	Apartment Community	Floor Plan	2
			Building Management	2
			Size of the Units	1
		Service Facility	Repair services	2
			Maintenance Management	2
		Intention to Say	Amenities	2
			Neighborhood	2
			Helpfulness	2
		Price Satisfaction	Apartment Cost	2
			Rental Rate	2
Total	**5 dimensions**	**20 attributes**	**49 sub-attributes**	**126 variables**
Note: Constructed by the researchers.				

Table 2: Reliability Statistics

Cronbach's Alpha	No. of Items
0.952	20

Table 3: Correlation matrix among the dimensions of healthy housing quality based on owners' perceptions

	Physical	Psychological	Social	Managerial
Physical	1			
Psychological	0.834**	1		
Social	0.764**	0.790**	1	
Managerial	0.740**	0.753**	0.849**	1
** Correlation is significant at the 0.01 level (2-tailed) *Correlation is significant at 0.05 level (2-tailed)				
Source: Primary data. Note: Results computed by using SPSS 16.0				

Table 4: Regression Results for Owners' Perceptions – Price satisfaction and various attributes of physical dimensions

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**	
1	.390[a]	.152	.134	.82426	1.504	
Analysis of Variance						
Model		**SS**	**Df**	**MS**	**F**	**Sig.**
1	Regression	22.910	4	5.727	8.430	.000[a]
	Residual	127.727	188	.679		
	Total	**150.637**	**192**			

Regression Coefficient								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**Co linearity Statistics**	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
1	(Constant)	1.869	.357		5.234	.000		
	PHY-COM	**.347**	**.130**	**.266**	**2.662**	**0.008***	**.452**	**2.211**
	PHY-HYG	-.020	.124	-.019	-.161	0.872	.321	3.113
	PHY-SAF	**.279**	**.111**	**.264**	**2.509**	**0.013****	**.406**	**2.463**
	PHY-CON	-.131	.147	-.101	-.893	0.373	.350	2.854

Residual Statistics					
	Minimum	**Maximum**	**Mean**	**Std. Deviation**	**N**
Predicted Value	2.7233	4.2865	3.6295	.34543	193
Residual	-2.25502	1.61653	.00000	.81562	193
Std. Predicted Value	-2.624	1.902	.000	1.000	193
Std. Residual	-2.736	1.961	.000	.990	193

a. Predictors: (Constant), PHY-COM,PHY-HYG,PHY-SAF,PHY-CON b. Dependent Variable: OS-PS, *Significant at 1% level; **Significant at 5% level, Note: Results Computed by using SPSS 16.0.

Table 5: Regression Results for Owners' Perceptions – Price satisfaction and various attributes of Psychological dimensions

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**	
2	.358[a]	.129	.110	.83563	1.536	
Analysis of Variance						
Model		**SS**	**Df**	**MS**	**F**	**Sig.**
2	Regression	19.360	4	4.840	6.931	.000[a]
	Residual	131.277	188	.698		
	Total	**150.637**	**192**			

Regression Coefficient								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Co linearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
2	(Constant)	1.925	.369		5.219	.000		
	PSY-VIT	**.260**	**.150**	**.194**	**1.739**	**.084***	**.373**	**2.679**
	PSY-STA	.200	.122	.186	1.644	.102	.361	2.768
	PSY-PRI	.012	.118	.010	.104	.917	.478	2.090
	PSY_SEC	-.005	.118	-.004	-.039	.969	.475	2.105

Residual Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.6157	4.2666	3.6295	.31754	193
Residual	-2.01514	2.01294	.00000	.82688	193
Std. Predicted Value	-3.193	2.006	.000	1.000	193
Std. Residual	-2.412	2.409	.000	.990	193

a. Predictors: (Constant), PSY-VIT, PSY-STA, PSY-PIR, PSY-SEC b. Dependent Variable: OS-PS , Note: Results Computed by using SPSS 16.0

Table 6: Regression Results for Owners' Perceptions – Price satisfaction and various attributes of social dimensions

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
3	.412[a]	.170	.152	.81555	1.510

Analysis of Variance						
Model		SS	Df	MS	F	Sig.
3	Regression	25.594	4	6.399	9.620	.000[a]
	Residual	125.042	188	.665		
	Total	**150.637**	**192**			

Regression Coefficient								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Co linearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
3	(Constant)	1.797	.353		5.092	.000		
	SOC-SS	.198	.128	.158	1.543	.124	.423	2.365
	SOC-SI	**-.319**	**.141**	**-.268**	**-2.264**	**.025****	**.315**	**3.171**
	SOC-ID	**.642**	**.153**	**.496**	**4.202**	**.000***	**.317**	**3.157**
	SOC-RS	-.017	.116	-.015	-.148	.883	.411	2.432

Residual Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.5204	4.3507	3.6295	.36511	193
Residual	-2.22080	1.63812	.00000	.80701	193
Std. Predicted Value	-3.038	1.975	.000	1.000	193
Std. Residual	-2.723	2.009	.000	.990	193

*a. Predictors: (Constant), SOC-SS, SOC-IN, SOC-ID, SOC-RS . Dependent Variable: OS-PS, *Significant at 1% level; **Significant at 5% level, Note: Results Computed by using SPSS 16.0*

Table 7: Regression Results for Owners' Perceptions – Price satisfaction and various attributes of managerial dimensions

Model Summary					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
4	.354[a]	.125	.121	1.09177	1.537

Analysis of Variance						
Model		**SS**	**Df**	**MS**	**F**	**Sig.**
4	Regression	32.548	1	32.548	27.306	.000[a]
	Residual	227.665	191	1.192		
	Total	**260.213**	**192**			

Regression Coefficient								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**Co linearity Statistics**	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
4	(Constant)	1.920	.335		5.730	.000		
	MAN-OP	.011	.118	.010	.091	.927	.377	2.649
	MAN-MA	**.261**	**.130**	**.236**	**2.016**	**.045****	**.332**	**3.012**
	MAN-IM	-.101	.127	-.088	-.797	.426	.376	2.656
	MAN-OM	**.305**	**.121**	**.245**	**2.514**	**.013****	**.479**	**2.089**

Residual Statistics					
	Minimum	**Maximum**	**Mean**	**Std. Deviation**	**N**
Predicted Value	2.3957	4.2988	3.6295	.33336	193
Residual	-2.23994	1.99250	.00000	.82063	193
Std. Predicted Value	-3.701	2.008	.000	1.000	193
Std. Residual	-2.701	2.403	.000	.990	193

*a. Predictors: (Constant), MAN-OP, MAN-MA,MAN-IM, MAN-OM b. Dependent Variable: OS-PS, *Significant at 1% level; **Significant at 5% level, Note: Results Computed by using SPSS 16.0*

Table 8: Summary of Regression Results – Price Satisfaction and various Dimensions of Healthy Housing Quality based on Owners' Perceptions

Attributes	Differences	H_0	Relationship	Accepted/ Rejected	Sig.	%
OS-PS	PHY-COM	H_{01a}	Positive	Rejected	Yes	1%
	PHY-HYG	H_{01b}	Negative	Accepted	No	-
	PHY-SAF	H_{01c}	Positive	Rejected	Yes	5%
	PHY-CON	H_{01d}	Negative	Accepted	No	-
OS-PS	PSY-VIT	H_{02a}	Positive	Rejected	Yes	10%-
	PSY-STA	H_{02b}	Positive	Accepted	No	-
	PSY-PRI	H_{02c}	Positive	Accepted	No	-
	PSY-SEC	H_{02d}	Negative	Accepted	No	-
OS-PS	SOC-SS	H_{03a}	Positive	Accepted	No	-

Attributes	Differences	H_0	Relationship	Accepted/ Rejected	Sig.	%
	SOC-SI	H_{03b}	Negative	Rejected	Yes	5%
	SOC-ID	H_{03c}	Positive	Rejected	Yes	1%
	SOC-RS	H_{03d}	Negative	Accepted	No	-
OS-PS	MAN-OP	H_{04a}	Positive	Accepted	No	-
	MAN-MA	H_{04b}	Positive	Rejected	No	5%
	MAN-IM	H_{04c}	Negative	Accepted	No	-
	MAN-OM	H_{04d}	Positive	Rejected	Yes	5%
