Yeh’s Satisfaction Index Modelling of Tenants in Rental Apartments: A Case Study of Latifabad, Hyderabad

Rabia1, Saima Kalwar1, Irfan Ahmed Memon1, Intiaz Ahmed Chandio1

Abstract:
The population of urban areas has been rapidly growing over the last few decades. This has increased the housing demand including rental apartments in Pakistan. Although the satisfaction of tenant accommodated in an apartment is a big challenge. There are also many problems like income and affordability, lack of building bylaws for those tenants. This study finds the satisfaction level of the tenant living in apartments. A standardized closed-ended questionnaire survey was used to collect the data. The analysis was done in two parts: (1) analysis of frequency ranking of all amenities, services, and facility types, (2) Yeh’s satisfaction index model to find the satisfaction level of tenants toward particular amenity, service, or facility. Findings revealed issues like; water supply, ventilation, sunlight, age of apartment, electricity, improper cleaning, insufficient parking, minimum play area, isolation, over rent, price of services, maintenance, and management, suffocation, congestion, etc. This result implies that rents are more likely to base on provided amenities rather than on unit size which reconfirms that rent is driven by provided amenities.

Keywords: Yeh’s satisfaction index; amenities; services; rent.

1. Introduction

The population of urban areas has been growing at a rapid scale from the last few decades, and it is expected that about 60% world population will live in cities by 2050 so that the housing demand increasing including rental apartments [1]. Public rental accommodation is viewed as an important aspect of the overheated real estate industry in addressing housing issues. At the end of 2016, the initiative has helped a total of 11.3 million households with housing problems, and their housing conditions had changed dramatically [2]. In developing nations, typical central areas of urban centers are notorious for low housing standards and a declining community climate. There is however a lack of observational research on the degree to which inhabitants of such regions are satisfied with their housing conditions [3]. The prevalence of inadequate housing conditions not only impacts the quality of life of people but also threatens the pursuit of the aim of "sufficient housing for all" [4]. The events of recent years have made renter apartments more critical because of observing that rental is a big deal, this is because many households that were foreclosed upon have been forced to move into rental apartments. For mobile people that don't wish up-to-date the fixed prices of owning and busy people that don't want up-to-date the management price of owning, a rental apartment is a fundamental choice [5].

1 Mehran University of Engineering & Technology, Jamshoro, Pakistan.
Corresponding Author: saima.kalwar@faculty.muet.edu.pk
people satisfaction survey helped measure the quality of housing according to its technological and practical criteria, as well as the degree of partnership between consumers and contractors/builders [6]. Investors widely use rental yields, central bankers, researchers, and policymakers to assess and detect disorders in apartment markets [7]. Also, external factors such as traffic congestion, proximity to work, and access to public transportation may have significant impacts on rent [8, 9]. Research measuring the effect of these factors on apartment rent should have essential implications for anyone setting rents, controlling vacancies, marketing apartment projects, and designing and planning new apartment housing [8]. Therefore, the identification of determinants of this satisfaction has become an important consideration for service assessment in recent years for managers and practitioners in their studies [10, 11]. Satisfaction with the level of service quality offered by the service providers is expected. This is determined by the combined knowledge of a tenant in all points of communication with the business [12]. According to R. Negi, service providers must understand which added value and satisfaction attributes of the service can only meet minimal requirements and mitigate dissatisfaction [13].

A field survey is conducted to find ethnic discrimination in a rental apartment. Such a field survey has made use of personal approaches. Generally, two testers are matched and trained so that they make equivalent inquiries when speaking to renters in their apartments [14]. This method is used by researchers in this research to conduct the survey related to measuring apartment rent, services, and amenities such as utilities, maid services, and location facilities. Susilawati’s research in 2002 highlighted the need to identify satisfaction for tenants to match the success of the organization [15-20]. Leader happiness conceptualizes human perception of a certain service meeting as an interactional means. Tenant depends on the awareness of service providers and the performance of the service equally [21, 22]. Furthermore, fulfillment on the part of the occupant by finishing a commercial tenancy value or cost and benefits review [23]. According to Amérgo and J. I. Aragones find the satisfaction behavior of tenants toward particular amenity or services by using the satisfaction index method given by Yeh’s with the help of a questionnaire within the study area [21, 24-27].

2. Methodology

2.1. Study Area

Hyderabad city is comprised of three Talukas. For this study, the researcher has selected Latifabad Taluka as a case study area. As per the 2017 population census, the population of Hyderabad is 1,732,693 in which Latifabad Taluka contains 672,504. The Latifabad Taluka is distributed in 12 zones, which are commonly called Units. The study had collected data from the tenants residing in 6 and 7 Units (zones) of Latifabad Taluka. The purpose of selecting these two units was that half of the population of 6 and 7 Units are living in the apartments.

2.2. Methods for Data Collection

Researchers used the primary data collection method where they conducted the questionnaire survey from the tenants of Latifabad Unit 6 and Unit 7. The sample consists of 384 individuals/Apartments by using cluster sampling techniques from various parts of Latifabad using different focus groups. The sample is selected about the existing situation of tenants residing over different areas of Latifabad. The purpose of the study is to know the satisfaction level of tenants in a rental apartment for this researcher has taken 15% of all samples 384, which is 58 to know the satisfaction level of tenants from different areas, through the Cluster sampling technique [28-30].
2.3 Methods for Data Analysis

The collected data was analyzed through Microsoft Excel and Yeh’s satisfaction index Model. Microsoft Excel helps to obtain the frequencies that determine the number of responses on the given variables based on the existing condition of apartments in Latifabad Unit 6 and 7 that show either respondents were satisfied with the existing condition or not. Whereas Yeh’s Satisfaction index is also a very helpful tool that is used to highlight the level of satisfaction and dissatisfaction.

2.3.1 Satisfaction Index Method

In this research work, researchers used the satisfaction index model of Kyle and Baird (1995) to analyze the satisfaction level of respondents regarding rent payment, amenities, and services while living in rental apartments by using the satisfaction index method given by Yeh’s [17] with the help of a questionnaire within the study area.

\[ \text{YSI} = \frac{\text{Satisfied} - \text{Dissatisfied}}{\text{total respondents}} \times 100 \]

YSI = Yeh’s satisfaction Index

Through this formula, the researcher is come to know about the satisfaction level of tenants regarding apartment rent, amenities, and services.

By using this Index researcher obtained numerical values which may be positive or negative or zero, these positive and negative or zero values may show that there is no satisfaction if the answer comes under 0 or it may show minimum, moderate, or strong satisfaction if the answer comes under 25% or 50% or 75%. Similarly, if the answers come under negative values such as -25%, -50%, or -75% then it will come under minimum dissatisfaction, moderate dissatisfaction or strong dissatisfaction and so on that will help the researcher to decide that how much response is satisfying or dissatisfying based on following criteria as mentioned in Table I:

| S. No. | Criteria for Satisfaction and Dissatisfaction level of tenants |
|--------|-------------------------------------------------------------|
| 01     | 0 - No satisfaction/dissatisfaction                          |
| 02     | 0.25 or 25% - Minimum satisfaction                           |
| 03     | 0.50 or 50% - Moderate satisfaction                          |
| 04     | 0.75 or 75% - Strong satisfaction                            |
| 05     | 0.90 > or 90% and above - Highly strong satisfaction          |
| 06     | 0 - No satisfaction/dissatisfaction                          |
| 07     | -0.25 or -25% - Minimum dissatisfaction                     |
| 08     | -0.50 or -50% - Moderate dissatisfaction                    |
| 09     | -0.75 or -75% - Strong dissatisfaction                      |
| 10     | -0.90 > or -90% and above - Highly strong dissatisfaction     |

3 Results

All the responses obtained from Latifabad Unit 6 and 7 are based on various research variables that are combined and presented in the form of tables and graphs.

Fig 1 shows that tenants who are residing in Latifabad Unit 6 are satisfied to some extent with the availability of basic services and amenities available to them but these tenants are not highly satisfied even they are paying rent and utility bills for the services available to them. Most of the responses related to the availability of hygienic services and ventilation the apartment shows that 45 respondents are satisfied and 15 are dissatisfied out 58, the question related to the condition of electricity shows that 48
respondents are satisfied and 10 are
dissatisfied and services charges indicate that
48 responses are dissatisfied whereas 10
respondents are satisfied, satisfaction with the
location of plaza shows that 11 respondents
are dissatisfied and 47 are satisfied, and
current rent payment shows that 37
respondents are not satisfied with the amount
of rent whereas 21 responses showed there
satisfaction.

Fig 2 shows the responses obtained from
Latifabad Unit 7. Most of the responses
indicate that tenants who are residing in
Latifabad Unit 7 are not satisfied with the
existing living condition and services and
amenities available to them, they are paying
more than they consume. Collected responses
were based on the variables such as sufficient
apartment area, availability of hygienic
services, ventilation in the apartment, proper
cleaning system, condition of electricity,
availability of sufficient drinking water,
satisfaction with the location plaza, sufficient
parking space within the plaza, sufficient play
area, overall beneficial area for the tenants,
feeling of isolation in the apartment, available
facilities in the apartment, services charges,
hygienic services, quality of basic services,
the safety of tenants in the apartment, benefits
of the area and current rent payment. The
responses related to these variables indicate
that related to sufficient apartment area 50
respondents are satisfied and 8 respondents
are dissatisfied, however, for the availability
of hygienic services and ventilation in the
apartment 45 respondents are dissatisfied and
15 are satisfied, condition of electricity and
services charges shows 47 respondents are
dissatisfied and 11 responses are satisfied out
of 58.similiarly all the other responses on
variables indicates that majority of tenants are
not satisfied with their existing condition.

TABLE II shows the results in the form of
percentages obtained from the tenants of
Latifabad Unit 6. The showed results are
calculated through Yeh’s Satisfaction Index
which brings positive and negative values.
With the help of these positive and negative
values researchers come to know the
satisfaction and dissatisfaction levels of
tenants according to the criteria mentioned in
Table 1. However, the calculations show that
tenants are highly strong satisfaction with the
apartment area, response related to the
availability of hygienic services and
ventilation in the apartment shows that tenants
are moderately satisfied, related to proper
cleaning system, availability of sufficient
drinking water, sufficient parking space
within the plaza, sufficient play area and
quality of basic services shows that tenants are
minimum satisfied. Tenants are strongly
satisfied with the condition of electricity,
satisfaction with the location of the plaza,
overall beneficial area for the tenants, and
services charges.

TABLE III shows the results in the form of
percentages obtained from the tenants of
Latifabad Unit 7. The showed results are
calculated through Yeh’s Satisfaction Index
which brings positive and negative values.
With the help of these positive and negative
values researchers come to know the
satisfaction and dissatisfaction levels of
tenants according to the criteria mentioned in
Table 1. However, the calculations show that
tenants are highly strongly satisfied with the
apartment area, response related to the
availability of hygienic services and
ventilation in the apartment shows that tenants
are moderately dissatisfied, related to proper
cleaning system, availability of sufficient
drinking water, sufficient parking space
within the plaza, sufficient play area and
quality of basic services, shows that tenants
have minimum dissatisfaction.
Fig. 1. Shows the satisfaction and dissatisfaction level of tenants residing in Latifabad Unit # 6
Fig. 2 Shows the satisfaction and dissatisfaction level of tenants residing in Latifabad Unit 7

TABLE III shows the results in the form of percentages obtained from the tenants of Latifabad Unit 7. The showed results are calculated through Yeh’s Satisfaction Index which brings positive and negative values. With the help of these positive and negative values researchers come to know the satisfaction and dissatisfaction levels of tenants according to the criteria mentioned in Table 1.
TABLE II. Shows the Satisfaction and Dissatisfaction level of tenants residing in Latifabad Unit 6

| Variables                                | Satisfaction and Dissatisfaction level determined through Yeh’s Satisfaction Index |
|------------------------------------------|-----------------------------------------------------------------------------------|
|                                           | Satisfy | Dissatisfy |
| Sufficient apartment area to accommodate | 72%     |            |
| Availability of hygienic services        | 51.72%  |            |
| Ventilation in the apartment             | 51.72%  |            |
| Proper cleaning system                   | 3.44%   |            |
| Condition of electricity                 | 65.5%   |            |
| Availability of sufficient drinking water| 6.9%    |            |
| Satisfaction with the location of the plaza | 62% |            |
| Sufficient parking space within the plaza| 13.79%  |            |
| Sufficient play area                     | 13.79%  |            |
| Overall beneficial area for the tenants  | 62%     |            |
| The feeling of isolation in the apartment | -13.79% |            |
| Available facilities in the apartment    | -13.79% |            |
| Services charges                         | 65.5%   |            |
| Hygienic services                        | -24.14% |            |
| Quality of basic services                | 12.6%   |            |
| Safety of tenants in the apartment       | -37.9%  |            |
| Benefits of the area                     | 10.34%  |            |
| Current rent payment                     | -27.58% |            |

TABLE III. Shows the Satisfaction and Dissatisfaction level of tenants in Latifabad Unit 7

| Variables                                | Satisfaction and Dissatisfaction level determined through Yeh’s Satisfaction Index |
|------------------------------------------|-----------------------------------------------------------------------------------|
|                                           | Satisfy | Dissatisfy |
| Sufficient apartment area to accommodate | 72%     |            |
| Availability of hygienic services        | -51.72% |            |
| Ventilation in the apartment             | 51.72%  |            |
| Proper cleaning system                   | -3.44%  |            |
| Condition of electricity                 | -65.5%  |            |
| Availability of sufficient drinking water| -6.89%  |            |
| Satisfaction with the location of the plaza | -62.06% |            |
| Sufficient parking space within the plaza| -13.79% |            |
| Sufficient play area                     | -13.79% |            |
| Overall beneficial area for the tenants  | -62.06% |            |
| The feeling of isolation in the apartment | 13.79% |            |
| Available facilities in the apartment    | -13.79% |            |
| Services charges                         | -65.51% |            |
| Hygienic services                        | -24.13% |            |
| Quality of basic services                | -13.79% |            |
| Safety of tenants in the apartment       | -37.9%  |            |
| Benefits of the area                     | -10.34% |            |
| Current rent payment                     | -27.58% |            |
Table 1. However, the calculations show that tenants are highly strongly satisfied with the apartment area. response related to the availability of hygienic services and ventilation in the apartment shows that tenants are moderately dissatisfied, related to proper cleaning system, availability of sufficient drinking water, sufficient parking space within the plaza, sufficient play area and quality of basic services, shows that tenants have minimum dissatisfaction. Tenants are strongly dissatisfied with the condition of electricity, satisfaction with the location of the plaza, overall beneficial area for the tenants, and services charges. The results are calculated through Yeh’s Satisfaction Index which indicates that most of the tenants are dissatisfied with the existing condition which is determined through the positive and negative values obtained through Yeh’s Satisfaction Index and mentioned below in Table III.

4 Conclusion

This research aims to determine the satisfaction level of tenants in rental apartments based on data collected through the questionnaire on the selected site Latifabad unit 6 and 7 Hyderabad. Through which it has been derived that people who are living in rental apartments are mostly low and middle income that is migrated from rural areas for employment and education purposes. Due to their medium and low-income factor, they are not able to buy a home or get rented well-conditioned apartments through this factor they also did not have access to amenities and services. With the help of Yeh’s satisfaction index, it has been concluded that people are not satisfied with the apartment rent and available basic services and amenities. Whereas the collected data also indicates that the satisfaction level of tenants living in Latifabad Unit 6 is much better than those who are living in the unit.

References

[1] UN, World Urbanization Prospects: The 2014 Revision-Highlights. UN, 2014.
[2] J. Li, M. Stehlík, and Y. Wang, "Assessment of barriers to public rental housing exits: Evidence from tenants in Beijing, China," Cities, vol. 87, pp. 153-165, 2019/04/01/ 2019, doi: https://doi.org/10.1016/j.cities.2018.09.019.
[3] B. A. Adewale, E. O. Ibem, B. Amole, and A. B. Adeboye, "Assessment of residential satisfaction in the core area of Ibadan Metropolis, Nigeria," Journal of Human Behavior in the Social Environment, vol. 29, no. 2, pp. 206-233, 2019/02/17 2019, doi: 10.1080/10911359.2018.1502116.
[4] N. Lepkova, E. Butkiene, and M. Belej, "Study of Customer Satisfaction with Living Conditions in New Apartment Buildings," Real Estate Management and Valuation, vol. 24, pp. 52-70, 10/12 2016, doi: 10.1515/remav-2016-0021.
[5] R. K. Green, "Thoughts on rental housing and rental housing assistance," Cityscape, pp. 39-55, 2011.
[6] J. Li, D. Li, X. Ning, J. Sun, and H. Du, "Residential satisfaction among resettled tenants in public rental housing in Wuhan, China," Journal of Housing and the Built Environment, vol. 34, no. 4, pp. 1125-1148, 2019/12/01 2019, doi: 10.1007/s10901-019-09667-x.
[7] R. J. Hill, M. Steurer, and S. R. Waltl, "Owner Occupied Housing in the CPI and Its Impact on Monetary Policy During Housing Booms and Busts," 2018.
[8] V. Dökmeci and A. Yavas, "External factors, housing values and rents: Evidence from survey data." 2000.
[9] J. Zietz, E. N. Zietz, and G. S. Sirmans, "Determinants of house prices: a quantile regression approach," The Journal of Real Estate Finance and Economics, vol. 37, no. 4, pp. 317-333, 2008.
[10] A. Shaikh, U. Amjad, R. Khan, and N. Ur, "IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION:
EVIDENCES FROM THE RESTAURANT INDUSTRY IN PAKISTAN," *Management & Marketing Journal*, vol. 9, no. 2, 2011.

[11] R. Saravanan and K. Rao, "Measurement of service quality from the customer's perspective—an empirical study," *Total Quality Management and Business Excellence*, vol. 18, no. 4, pp. 435-449, 2007.

[12] A. Eshghi, S. K. Roy, and S. Ganguli, "SERVICE QUALITY AND CUSTOMER SATISFACTION: AN EMPIRICAL INVESTIGATION IN INDIAN MOBILE TELECOMMUNICATIONS SERVICES," *Marketing Management Journal*, vol. 18, no. 2, 2008.

[13] R. Negi, "DETERMINING CUSTOMER SATISFACTION THROUGH PERCEIVED SERVICE QUALITY: A STUDY OF ETHIOPIAN MOBILE USERS," *International Journal of Mobile Marketing*, vol. 4, no. 1, 2009.

[14] A. M. Ahmed and M. Hammarstedt, "Discrimination in the rental housing market: A field experiment on the Internet," *Journal of Urban Economics*, vol. 64, no. 2, pp. 362-372, 2008.

[15] C. Susilawati, "Customer satisfaction survey of the facilities provided by office building “X” in Surabaya," in *Proceedings of The 8th Pacific Rim Real Estate Society Annual Conference*, 2002.

[16] M. A. Almomani, S. Basri, and A. R. Gilal, "Empirical study of software process improvement in Malaysian small and medium enterprises: The human aspects," *Journal of Software: Evolution and Process*, vol. 30, no. 10, p. e1953, 2018.

[17] A. R. Gilal, J. Jaafar, S. Basri, M. Omar, and A. Abro, "Impact of software team composition methodology on the personality preferences of Malaysian students," in *2016 3rd International Conference on Computer and Information Sciences (ICCOINS)*, 2016: IEEE, pp. 454-458.

[18] A. R. Gilal, J. Jaafar, M. Omar, S. Basri, and A. Waqas, "A rule-based model for software development team composition: Team leader role with personality types and gender classification," *Information and Software Technology*, vol. 74, pp. 105-113, 2016.

[19] A. R. Gilal, M. Omar, J. Jaafar, K. I. Sharif, A. Mahesar, and S. Basri, "Software development team composition: personality types of programmer and complex networks," in *6th International Conference on Computing and Informatics (ICOCI-2017)*, 2017, pp. 153-159.

[20] M. Z. Tunio, H. Luo, C. Wang, F. Zhao, A. R. Gilal, and W. Shao, "Task Assignment Model for Crowdsourcing Software Development: TAM," *Journal of Information Processing Systems*, vol. 14, no. 3, 2018.

[21] S. A. Taylor and T. L. Baker, "An assessment of the relationship between service quality and customer satisfaction," *Journal of Retailing*, vol. 70, no. 2, pp. 163-178, 1994.

[22] M. A. Amérigo and J. I. Aragones, "A theoretical and methodological approach to the study of residential satisfaction," *Journal of Environmental Psychology*, vol. 17, no. 1, pp. 47-57, 1997.

[23] A. Batool, N. Naz, and G. A. Anjum, "Socio-cultural value of public open spaces with hamchas in dera ghazi khan City, Pakistan," *Mehran University Research Journal Of Engineering & Technology*, vol. 35, no. 2, p. 181, 2016.

[24] I. A. Memon, N. Madzlan, M. A. H. Talpur, M. R. Hakro, and I. A. Chandio, "A...
Review on the Factors Influencing the Park-and-Ride Traffic Management Method," in *Applied Mechanics and Materials*, 2014, vol. 567: Trans Tech Publ, pp. 663-668.

[27] I. A. Memon, M. Napiah, M. A. Hussain, and M. R. Hakro, "Influence of factors to shift private transport users to Park-and-Ride service in Putrajaya," in *In Engineering Challenges for Sustainable Future: Proceedings of the 3rd International Conference on Civil, Offshore and Environmental Engineering (ICCOEE 2016, Malaysia, 15-17 Aug 2016)*, 2016, p. 385.

[28] I. A. Memon, S. Kalwar, N. Sahito, S. Qureshi, and N. Memon, "Average Index Modelling of Campus Safety and Walkability: The Case Study of University of Sindh," *Sukkur IBA Journal of Computing and Mathematical Sciences*, vol. 4, no. 1, pp. 37-44, 2020.

[29] I. A. Memon, M. Napiah, M. A. H. Talpur, and M. R. Hakro, "Mode choice modelling method to shift car travelers towards Park and Ride service." 2016.

[30] K. Shaikh, A. Memon, I. A. Memon, Z. A. Laghari, and A. M. Memon, "Awareness regarding Coronavirus pandemic among the population of Sindh, Pakistan: A cross-sectional study," *Sukkur IBA Journal of Computing and Mathematical Sciences*, vol. 4, no. 1, pp. 28-36, 2020.