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Impact of physical and social environment on residential satisfaction with special reference to Surat City: a PLS-SEM-based approach

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Abstract: This study emphasises the impact of dwelling unit features and the social environment on the overall satisfaction of residents. For the study, a structured questionnaire was prepared using a five-point Likert scale and was filled out by 500 beneficiaries of Pradhan Mantri Awas Yojna (PMAY). Relevant hypotheses were developed to explore the association and mediating effect of variables and analysed through PLS-SEM using multi-group analysis (MGA). The findings reveal that dwelling unit features are significantly related to the social environment and residential satisfaction. Additionally, the social environment also plays a significant role in overall resident satisfaction, mediating the relationship between dwelling unit features and overall satisfaction. This study has important implications for architects, urban planners, and policymakers, who can use these findings to make better decisions to improve housing quality, promote well-being, and enhance overall resident satisfaction. A comprehensive strategy for fostering overall resident satisfaction should be developed based on these insights.

Keywords: dwelling units; residential satisfaction; physical characteristics; social environment; residential buildings; Pradhan Mantri Awas Yojna; PMAY; neighbourhood; social support; quality of life.

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1 Introduction

The dwelling unit is more than just a physical structure; it is a place in which individuals and families can feel comfortable, relaxed, and a sense of belonging. Residents must feel at ease in their homes, as it directly impacts their happiness and well-being. Besides their physical characteristics, residential comfort is also affected by the surroundings. An individual's quality of life is heavily influenced by the living environment in which they reside and the conditions they experience. According to Abidin et al. (2019), residents are likely to be more comfortable and satisfied in their homes when they have a welcoming social environment combined with well-designed property features.

When it comes to dwelling units, structure, size, and facilities are crucial considerations. A well-built structure is essential for residents to feel comfortable in their homes. As noted by Lane and Kinsey (1980), individuals are more at ease in houses with strong and well-maintained structures. Moreover, the size of the dwelling unit plays a significant role in determining overall satisfaction. Homeowners generally prefer larger homes because they offer more space for movement and storage, as pointed out by Türkoğlu et al. (2019). In addition to size and structure, the facilities provided in a dwelling unit greatly influence an individual's overall satisfaction. Abidin et al. (2019) emphasises the importance of including necessities and amenities that can enhance the quality of life for residents. Apart from the physical environment, the social environment within a residence also contributes to overall satisfaction. Parkes et al. (2002) highlight the importance of easy communication with neighbours and community members, allowing individuals to build strong social networks and receive support when needed. Consideration of the location's accessibility to basic amenities and services is also crucial, as noted by Mohit and Al-Khanbashi Raja (2014). Access to healthcare, education, and recreation facilities is vital for individuals to lead healthy and comfortable lives, as highlighted by Morris et al. (1976). In summary, an individual's overall satisfaction is influenced by both the quality of their living environment and their social surroundings, as mentioned by Lu (1999). A well-constructed dwelling unit with sufficient size and necessary amenities, combined with a supportive social environment, is essential for individuals to lead fulfilling and comfortable lives, as studied by Mulligan et al. (2004).

Pradhan Mantri Awas Yojana (PMAY) is a housing initiative launched by the Indian government with the ambitious goal of providing accessible and affordable housing for

every individual in the country. Since its introduction, PMAY has garnered substantial attention and has been widely implemented. Notably, the scheme recognises women as co-owners of allocated houses, demonstrating the importance of empowering women. In line with its mission, PMAY promotes eco-friendly and sustainable construction practices, ensuring that the housing projects are resilient and environmentally sustainable in the long term. To assess the strengths, weaknesses, and effectiveness of PMAY, it is essential to examine key dimensions such as housing quality, affordability, accessibility, and overall well-being. Evaluating PMAY in terms of consumer satisfaction and its impact on the lives of the people it serves is crucial. Conducting a policy assessment like this allows policymakers and stakeholders to gain valuable insights into the program's performance, identify areas that require improvement, and shape future policies effectively. Therefore, the purpose of this paper is to provide insight into the effects of dwelling unit characteristics and the social environment on the overall residential satisfaction of individuals. By analysing the factors that comprehensively influence satisfaction, this study aims to contribute to a better understanding of how housing design and surroundings can impact individuals' contentment. Ultimately, the findings of this study will facilitate the creation of sustainable, inclusive, and people-centric housing solutions, thereby enhancing residents' quality of life and fostering residential satisfaction.

2 Review of literature

2.1 Residential satisfaction

Residential satisfaction is a measure that depicts how a resident feels and perceives their place of residence, as stated by Cutter (1982). This measure can be viewed from both a physical perspective, focusing on equipment and services, and a social perspective, which considers social networks, as discussed by Amérigo and Aragonés (1997) and Mesch and Manor (1998). The level of satisfaction a household experiences with its housing conditions largely depends on its needs, aspirations, and perceptions of the current housing policy, as studied by Barcus (2004) and Jiang et al. (2017). Furthermore, residential satisfaction encompasses both the social environment and physical characteristics of the home, allowing for a comprehensive assessment of the overall quality of life for a family, as highlighted by Mesch and Manor (1998). Based on the estimation of a residential satisfaction index, it is found that neighbourhood facilities have little direct influence on residential satisfaction. Surprisingly, it is highly correlated with various housing characteristics, social environments, healthcare services, and public amenities, as observed by Mohit et al. (2010).

2.2 Features of dwelling units and residential satisfaction

Numerous studies have demonstrated that the physical characteristics of residences significantly influence the quality of residential life (Wener and Evans, 2007). Therefore, when assessing residential satisfaction, it is essential to consider the physical characteristics of dwellings. Research consistently shows that residents are happier when their living spaces are adequate, functional in layout, and well-designed in their interiors (Ballantyne and Packer, 2013; Gifford et al., 2002). Moreover, individuals living in larger

dwellings tend to report higher levels of satisfaction compared to those living in smaller dwellings (Herfert et al., 2013). Similarly, studies have indicated a positive impact on residents' satisfaction when they are provided with comfortable and convenient living conditions, achieved through well-designed layouts and efficient storage solutions (Ibem and Amole, 2013). Apart from physical characteristics, the quality of the physical environment also significantly contributes to residential satisfaction, including factors such as natural lighting, ventilation, and sound insulation. There is evidence that access to natural light and pleasant views can enhance residents' well-being and overall satisfaction (Gou et al., 2012; Kabisch et al., 2016).

Residents' comfort and overall satisfaction also benefit from effective ventilation systems and soundproofing (Maroni, 2005; Lee and Shepley, 2018). Additionally, residential satisfaction is influenced by residential aesthetics and personalisation. Studies have shown that residents who can design and decorate their living spaces report higher levels of satisfaction (Joye, 2007). The design of a home, its architectural features, and the maintenance of the exterior have also been associated with the happiness of homeowners (Stansfeld et al., 2006; Herzog et al., 2003). Monitoring of housing provided by private developers is necessary to improve resident satisfaction. A review of the mass housing development policy should be conducted by the government through the development control department to ensure satisfactory service delivery (Waziri et al., 2013). For apartments, size and location must be designed to accommodate different types of activities while remaining affordable and accessible to public amenities. Redesigning existing rehabilitation housing units can improve their design for current occupants (Kshetrimayum et al., 2020). In addition to designing and developing private dwellings, developers also need to ensure that public spaces are designed to meet the needs of residents. Understanding the causes of dissatisfaction and defining a development strategy is essential to address problems and make housing communities more desirable (Pathak and Bajracharya, 2022). Improving residential satisfaction in historical neighbourhoods can contribute to preserving and revitalising their cultural and historical character, ultimately benefiting the area's economy (Davoodi et al., 2023).

2.3 Social environment and residential satisfaction

The social environment around dwellings can also affect residential satisfaction. High levels of satisfaction have consistently been shown to be correlated with positive neighbour relationships (Fried, 1982). A supportive social network, social cohesion, and trust have all been found to contribute to residential satisfaction (Mouratidis, 2020; Permentier et al., 2011). Having shared amenities in a community also contributes to residents' satisfaction with where they live. Social engagement, physical activity, and community interaction are promoted through parks, playgrounds, common areas, and recreational facilities (Van Kamp et al., 2003). Residents' satisfaction and mental well-being have been positively influenced by green spaces and nature access in the social environment (Korpela et al., 2010; Tzoulas et al., 2007). In addition, the level of satisfaction with the residential environment is greatly affected by safety and security in the social environment. There is a positive correlation between residents' feelings of safety and security and their level of satisfaction with their neighbourhood (Taylor et al., 1984). Residents' sense of well-being and satisfaction is enhanced when streets are well-lit and surveillance systems are effective (Abed and Alzghoul, 2023; Chu et al., 2004).

2.4 Interaction between features and social environment of dwelling units

Physical and social environments are highly interconnected in determining the satisfaction of residential individuals. Studies have found that people are most satisfied when a supportive social environment is combined with well-designed physical characteristics (Joye, 2007). Citizens who live in attractive and accessible dwellings and have strong social ties report higher satisfaction rates (Ahmadi, 2023; Leyden et al., 2023). Further, well-designed physical environments encourage social interaction and community engagement by providing social amenities and shared spaces. The satisfaction and sense of belonging residents receive from these interactions is enhanced (Gifford et al., 2002). There can be no doubt that urban life is one of the most important aspects of modern life. In response to urbanisation patterns, rural lifestyles, and communities are being affected by depopulation and deindustrialisation. Several factors influence residential satisfaction, including urban changes and demographic factors (Koçak Güngör and Terzi, 2022; Biswas et al., 2021).

2.5 Low-cost and affordable housing and residential satisfaction

The perceived quality of life is influenced by housing affordability, which is why housing affordability and quality of life are related. The requirements for a good living space, which to some extent affect how people perceive their subjective quality of life, also have an impact on housing affordability (Anenberg and Kung, 2020). When looking at the effectiveness of affordable housing programs from the point of view of the families who are supposed to benefit from them, residential satisfaction is a vital angle to consider. The decision-makers in charge of policy should be aware of the numerous facets that comprise residents' residential experiences and how these facets may, in the end, decide the level of satisfaction that people have with the affordable housing program (Liu and Ma, 2021). It is possible that variations in household preferences for housing consumption can be reflected in the share of income spent on housing. In contrast to high burdens, low-income households likely face more constraints and are forced to trade off housing against non-housing consumption, resulting in a detrimental impact on their overall quality of life (Acolin and Reina, 2022). According to executives, there are impediments to collaboration, many of which are caused by conflicting interests, financial worries, and organisational cultures that improperly downplay the significance of interdisciplinary cooperation. These obstacles can be removed via constant communication, a readiness to make concessions, and a shared dedication to enhancing the lives of those who call affordable housing their place of residence (Read et al., 2022). Affordability of housing is also impacted by the demand for property in desirable areas, which drives up housing costs. On the other hand, those who live there are typically ready to spend more for a place that satisfies their demands. For this reason, reasonably priced rental housing ought to serve as a suitable alternative for population groups that are unable to afford purchasing their own homes (Výbošťok and Štefkovičová, 2023). It would be great if there was a policy that required communities to come up with a vision to improve public services. It is also necessary to re-envision how low-income people are involved in the development of public services in a more active way (Adewunmi et al., 2023).

2.6 *Pradhan Mantri Awas Yojna*

Indian government faces a major challenge in meeting the housing needs of its rapidly growing urban population. There have been numerous housing programs implemented in India since independence by a variety of governments. There was a lack of continuity and interconnectedness among the housing policies and programs in India, which was observed in previous research. Research on PMAY-Housing for All (Urban), a recently launched affordable housing scheme, has been attracting some researchers' attention (Bai, 2022). There have been several studies that have looked at how PMAY impacts housing quality and satisfaction with one's residence. In this scheme, economic weaker sections of society are provided with affordable and quality housing. In addition to improving living spaces, structural conditions, and providing basic amenities, PMAY has contributed to improving housing quality (Gohil and Gandhi, 2019). By improving the living conditions of beneficiaries, including access to sanitation facilities, clean water, and electricity, proper housing infrastructure has contributed to a more satisfied residence (Kumar and Shukla, 2022). Providing housing is only one aspect of the PMAY program; it also emphasises social and economic aspects that are very important to residential satisfaction. Through the scheme, marginalised communities are ensured housing that promotes inclusion and social integration. It has been found that PMAY has created a sense of security and belonging among beneficiaries through enhancing community cohesion and bonding (Kumar, 2019). Housing affordability has also played a significant role in increasing economic stability and improving people's livelihoods. It has reduced financial stress and improved residents' overall satisfaction with their homes (Sengupta and Shaw, 2017). Ownership satisfaction under PMAY was significantly impacted by the feeling of pride associated with owning a house. Beneficiaries experience a sense of accomplishment and security when they own their house, which contributes to their overall satisfaction with the housing scheme, as they perceive their homes as valuable assets (Balamurugan, 2023). Families have benefited from the PMAY scheme, which provides them with self-identity and satisfaction with its implementation. There should be a greater focus on quality improvement and inclusiveness in this housing scheme. Nonetheless, the PMAY had the unfortunate consequence of imposing a huge liability on beneficiaries (Mathews, 2018). Despite PMAY's improvements in liveability and residential satisfaction, there are still some challenges to overcome. It is imperative to address several issues, including the quality of construction, the time it takes to deliver houses, and the necessity to maintain and upkeep them (Sharma, 2020). PMAY residents suffer from health problems because of a lack of proper water connection, as well as poor parking facilities, so government needs to take action to provide them with access to water (Soni et al., 2020). Monitoring, quality control, and comprehensive maintenance support must be implemented efficiently and effectively to enhance residential satisfaction. Further enhancing the success and impact of PMAY on residential satisfaction is incorporating beneficiary feedback and involving them in decision-making processes (Mukherjee et al., 2016). There can be a pathway towards the improvement of living standards and ease of living at an affordable cost by properly monitoring the planning process and educating the end users about the schemes and benefits which are provided to them by the government. To collect and track key objectives effectively, stakeholder management is essential (Sharma et al., 2020). The convergence of socioeconomic, institutional, and technological factors is necessary for technological development, accessibility, and successful adoption. As it was noticed that high-end

technologies have limited access in many situations, these should have discussed the household's needs, preferences, cost, social structures, governmental support, and delivery mechanism (Angoori and Kumar, 2023).

The review emphasises the importance of considering both physical and social aspects in the planning and designing of residential environments. However, it also highlights the need for future research to explore how physical characteristics can be integrated into the social environment to create truly livable and satisfying communities. For a comprehensive understanding of this complex relationship, cultural factors, demographic differences, and contextual influences should be considered, providing an in-depth approach to the study. Notably, this aspect has not been previously analysed in the context of Pradhan Mantri Awas Yojna (PMAY). Thus, this study aims to provide a clearer picture of the topic and gain insights to ensure further residential development.

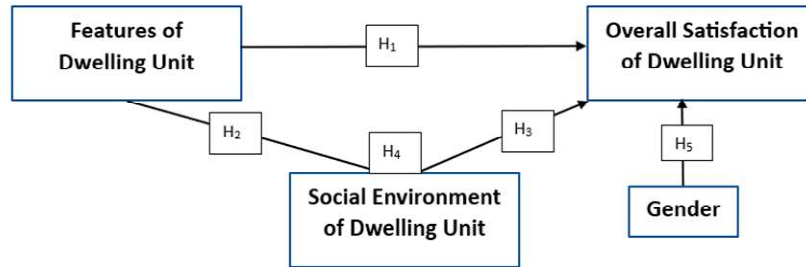
3 Research methodology

The primary focus of the study is to understand how the characteristics of dwelling units impact residents' overall satisfaction with their homes. However, it also recognises the potential influence of social environmental factors, which may act as a mediator between the features of dwelling units and the overall satisfaction of residents. The study also explains that the mediation model will be invariant across gender. The questionnaire utilised a five-point rating scale, ranging from strongly disagree to strongly agree, to gauge participants' perspectives. The target population for participant selection was PMAY beneficiaries, and to ensure equal opportunity, all eligible participants were given the chance to take part in the study. The questionnaire was distributed online through Google Forms, utilising electronic means of data collection. For the study, a sample size of 501 participants was selected, considering the features of dwelling units as an independent variable, social environmental factors as a mediating variable, residential satisfaction as the dependent variable, and gender as a control variable.

The following alternate hypotheses were formulated:

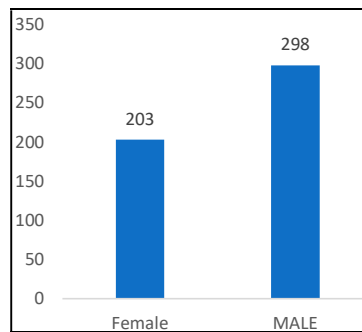
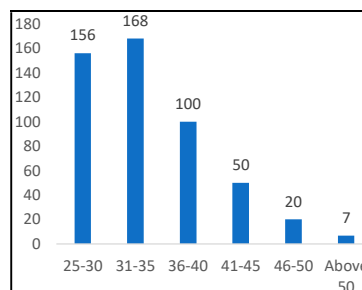
- H₁ The features of dwelling units with residential satisfaction are significantly related.
- H₂ The features of dwelling units with Social environmental factors are significantly related.
- H₃ Social environmental factors with residential satisfaction are significantly related.
- H₄ Social environmental factors mediate the features of dwelling units and residential satisfaction.
- H₅ The mediation model between the features of dwelling units, social environmental factors, and residential satisfaction is invariant across gender.

The study has employed a theoretical framework based on the relationships between dwelling unit features, social environmental factors, and residential satisfaction among PMAY beneficiaries. Figure 1 presents the proposed conceptual model, illustrating the hypothesised relationships and mediating effects. Additionally, the study utilised multi-group analysis (MGA) in PLS-SEM to determine if gender acts as an invariant factor in the mediation model.

Figure 1 Proposed theoretical model (see online version for colours)

4 Discussion

These descriptive statistics provide an overview of the distribution of sample participants.

Figure 2 Frequency of gender (see online version for colours)**Figure 3** Frequency of age (see online version for colours)

4.1 Measurement model

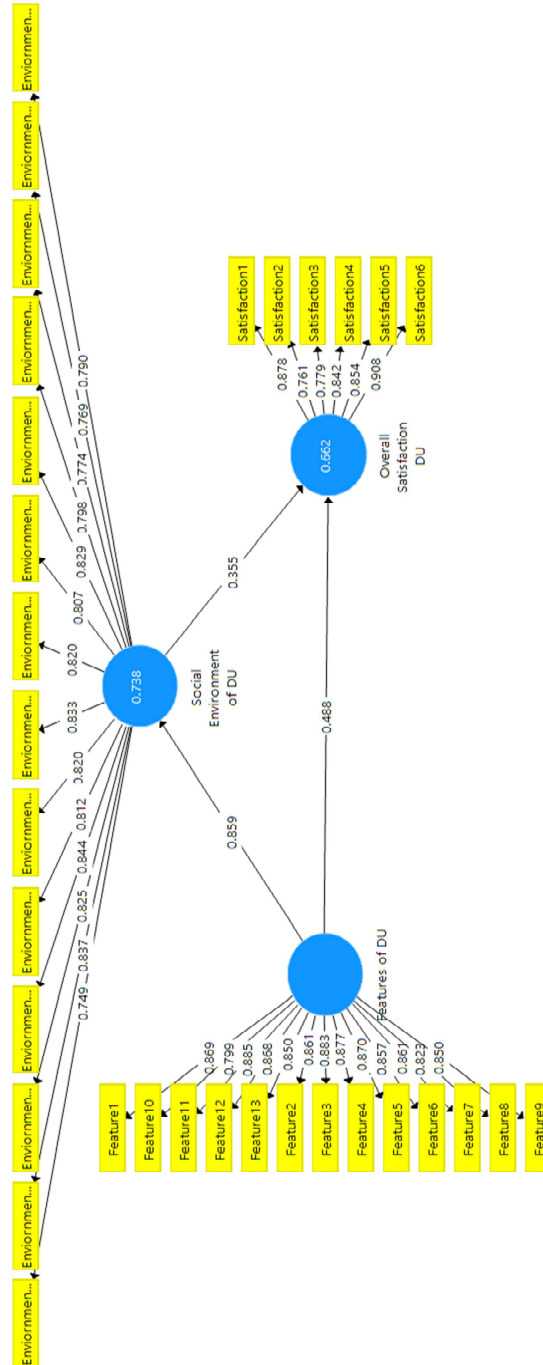
The results in Table 1 showed that all indicators for the features of dwelling units, social environment factors, and overall satisfaction had significant factor loadings which are

>0.6, indicate a robust correlation between the indicators and their corresponding latent constructs (Nunnally, 1978).

Table 1 Factor loadings

	<i>Features of DU</i>	<i>Overall satisfaction DU</i>	<i>Social environment of DU</i>
Enviornment1		0.744	
Enviornment10		0.776	
Enviornment11		0.871	
Enviornment12		0.87	
Enviornment13		0.833	
Enviornment14		0.831	
Enviornment2		0.825	
Enviornment3		0.844	
Enviornment4		0.815	
Enviornment5		0.846	
Enviornment6		0.698	
Enviornment7		0.675	
Enviornment8		0.67	
Enviornment9		0.727	
Feature1	0.869		
Feature10	0.836		
Feature11	0.887		
Feature12	0.862		
Feature13	0.837		
Feature2	0.823		
Feature3	0.873		
Feature4	0.843		
Feature5	0.819		
Feature6	0.827		
Feature7	0.844		
Feature8	0.808		
Feature9	0.854		
Satisfaction1	0.833		
Satisfaction2	0.664		
Satisfaction3	0.714		
Satisfaction4	0.85		
Satisfaction5	0.85		
Satisfaction6	0.889		

Figure 4 Structural model (see online version for colours)



The features of the DU construct exhibited a Cronbach alpha (CA) value of 0.97, while the overall satisfaction DU and social environment of the DU constructs had values of 0.915 and 0.959, respectively. Similarly, the CR values, which assess the overall reliability of the constructs, were also found to be high, with values of 0.973 for the features of DU, 0.934 for the overall satisfaction of DU, and 0.963 for the social environment of DU. These results indicate that the items within each construct are highly reliable and consistent in measuring the intended constructs. Furthermore, all constructs surpassed the recommended threshold of 0.50 for the AVE values, indicating the substantial amount of variance captured by each construct (Fornell and Larcker, 1981). Specifically, the AVE values were 0.737 for the features of DU, 0.703 for the overall satisfaction of DU, and 0.653 for the social environment of DU. These findings confirm the convergent validity of the measurement scales, indicating that the items within each construct are capturing the intended construct adequately (refer Table 2).

Table 2 Convergent validity

	<i>CA</i>	<i>CR</i>	<i>AVE</i>
Features of DU	0.97	0.973	0.737
Overall satisfaction DU	0.915	0.934	0.703
Social environment of DU	0.959	0.963	0.653

According to the HTMT ratio, a value less than 1 indicates discriminant validity (Henseler et al., 2015). In Table 3, all the HTMT ratios are less than 1, which suggests that there is discriminant validity among the constructs of features of DU, overall satisfaction of DU, and social environment of DU. This means that these constructs are distinct and not measuring the same underlying concept.

Table 3 HTMT validity

	<i>Features of DU</i>	<i>Overall satisfaction DU</i>	<i>Social environment of DU</i>
Features of DU	--	--	--
Overall satisfaction DU	0.835	--	--
Social environment of DU	0.813	0.823	--

4.2 Structured model

The hypothesis testing results, as presented in Table 4, provide valuable insights into the relationships between the constructs in the study. The hypothesis (H_1) reveals a significant relationship between the features of DU and overall satisfaction DU, with a path coefficient of 0.488. The T-statistic of 8.692 indicates that this relationship is highly significant, further supported by the p-value of 0.00, which is less than the conventional significance level of 0.05. The H_2 hypothesis shows a substantial relationship between the features of DU and the social environment of DU, with a path coefficient of 0.859. The T-statistic of 55.798 indicates the high significance of this relationship, supported by the p-value of 0.00. The H_3 hypothesis demonstrates a significant positive relationship between the social environment of DU and the overall satisfaction of DU, with a path

coefficient of 0.355. The T-statistic of 5.967 and the p-value of 0.00 provide evidence of the significance of this relationship.

The specific indirect effect coefficient is 0.305, indicating the strength of the indirect relationship. This coefficient represents the change in the outcome variable (overall satisfaction DU) resulting from the indirect effect through the mediator (social environment of DU) while controlling for the direct effect of the predictor (features of DU). The p-value of 0.000 indicates that the indirect effect is statistically significant at a conventional level of significance. The results suggest that the features of DU have a positive indirect influence on overall satisfaction DU through the mediating effect of the social environment of DU. In Table 5 the R^2 is 66% for overall satisfaction of DU and 74% for social environment of DU.

Table 4 Hypothesis testing

<i>Hypothesis</i>	<i>Path coefficients</i>	<i>T statistics</i>	<i>P values</i>	<i>Result</i>
Features of DU → overall satisfaction DU	0.488	8.692	0.00	Supported
Features of DU → social environment of DU	0.859	55.798	0.00	Supported
Social environment of DU → overall satisfaction DU	0.355	5.967	0.00	Supported
Features of DU → social environment of DU → overall satisfaction DU	0.305	5.956	0.00	Supported

Table 5 Coefficient of determination

<i>Variable</i>	<i>R²</i>
Overall satisfaction	0.662
Social environment	0.738

4.3 Multi-group analysis

The results of the MGA in Table 6 provide insights into whether the mediation model is invariant across gender. For the path from features of DU to overall satisfaction DU, the difference in path coefficients between female and male is 0.070. The corresponding p-value of 0.699 indicates that this difference is not statistically significant, suggesting that the relationship between features of DU and overall satisfaction DU is similar for both genders. Similarly, for the path from the social environment of DU to the overall satisfaction of DU, the difference in path coefficients is 0.088, and the p-value is 0.747. The non-significant p-value suggests that the relationship between the social environment of DU and the overall satisfaction of DU does not differ significantly between genders. However, for the path from the features of DU to the social environment of DU, the difference in path coefficients is 0.074, and the p-value is 0.007. This indicates a statistically significant difference among genders (Henseler et al., 2009).

MGA results indicate that while the mediation model may exhibit invariance across gender in the relationship between the features of DU and overall satisfaction of DU, there are gender differences between the features of DU and the social environment of DU. Hence, H_1 , H_2 , H_3 , H_4 , are accepted and H_5 is rejected.

Table 6 Multi-group analysis

<i>Hypothesis</i>	<i>Path coefficients</i>	<i>P-value</i>
Features of DU → overall satisfaction DU	0.07	0.699
Features of DU → social environment of DU	0.074	0.007
Social environment of DU → overall satisfaction DU	0.088	0.747

5 Conclusions

Residential environments have a significant impact on the well-being and satisfaction of individuals who reside in them. Beyond being mere physical spaces, dwelling units play a crucial role in a person's welfare, happiness, comfort, and overall quality of life. Understanding the factors that contribute to residential satisfaction is key to fostering healthier and more liveable communities. Dwelling units and social environments are vital components in determining an individual's overall satisfaction. The features of these two components can greatly influence an individual's contentment. A well-constructed dwelling unit with ample size and necessary facilities, along with a social environment that facilitates access to neighbours and basic amenities, are all essential for individuals to lead comfortable and fulfilling lives. In light of these considerations, this study aims to determine the overall satisfaction of individuals based on the characteristics of dwelling units and the social environment surrounding them.

Overall, the hypothesis testing results support the proposed hypotheses, indicating significant relationships between the features of DU and overall satisfaction of DU, features of DU and social environment of DU, and social environment of DU and overall satisfaction of DU. These findings provide valuable insights into the factors influencing the overall satisfaction of DU and highlight the importance of considering both the features of dwelling units and the social environment in fostering satisfaction among residents in Surat. The specific indirect effect analysis reveals a significant indirect relationship between the features of DU, the social environment of DU, and overall satisfaction of DU. These results contribute to a deeper understanding of the underlying mechanisms and pathways connecting these constructs, offering valuable insights for policymakers and practitioners involved in enhancing residential satisfaction.

Ensuring overall satisfaction among residents in dwelling units requires consideration of both the physical space and the social environment within the community. By understanding the aspects of housing that contribute to resident satisfaction, the development of housing environments that address residents' needs and preferences can be improved. Researchers can use this information to design living spaces that are more comfortable, functional, and enjoyable, ultimately enhancing residents' quality of life and overall well-being. Moreover, the findings from MGA underscore the importance of considering gender-specific factors and dynamics in understanding the influence of dwelling unit features and the social environment on overall satisfaction. Taking a holistic approach that considers both dwelling unit characteristics and the social environment can ensure the overall satisfaction of residents. To create a thriving and satisfied community, it is essential to interconnect functional, well-designed living spaces with community spaces, promote social interactions, prioritise security, integrate green spaces, and involve residents in decision-making processes. Further research and analysis

may be necessary to explore additional factors that could explain the remaining variance and provide a more comprehensive understanding of overall satisfaction and the social environment of dwelling units in the context of the study.

6 Limitations and future research

While this study provides valuable insights into the factors influencing residential satisfaction, it is important to acknowledge its limitations. The study focused on a specific context (Surat) and utilised a particular sample, which may limit the generalisability of the findings to other areas or groups. To enhance the applicability of the results, future studies should aim to include diverse samples from different geographical locations. Additionally, future research could adopt longitudinal designs to examine the dynamics and changes in residential satisfaction and the social environment over time. The study relied on self-report measures for assessing residential satisfaction and the social environment, which may be influenced by individual biases or social desirability. Incorporating objective measures or observational data could provide a more comprehensive understanding of these constructs. Furthermore, the study focused on specific variables related to dwelling unit features, the social environment, and overall satisfaction, but other factors that could influence residential satisfaction, such as socio-economic status, cultural differences, or neighbourhood characteristics, were not explored. Considering these factors in future research could provide a more comprehensive understanding of residential satisfaction.

Building on the limitations mentioned above, future research can further enhance our understanding of residential satisfaction and the social environment by addressing the following areas like conducting comparative studies across different regions or countries can provide insights into the cultural and contextual factors that influence residential satisfaction. This would help identify similarities and differences in the factors affecting satisfaction across diverse populations. Longitudinal research designs can track changes in residential satisfaction and the social environment over time. This would enable researchers to examine the dynamic nature of these constructs and identify factors that contribute to changes in satisfaction levels.

Combining qualitative and quantitative methods can provide a more in-depth understanding of residential satisfaction. Qualitative approaches, such as interviews or focus groups, can capture rich narratives, and explore residents' experiences and perceptions. Implementing interventions or policy changes within residential environments and assessing their impact on satisfaction levels would provide valuable insights into effective strategies for enhancing residential satisfaction. Evaluating the outcomes of specific interventions can guide policymakers and practitioners in implementing evidence-based practices. Exploring the role of technology in residential satisfaction and the social environment could be an interesting avenue for future research. Investigating the impact of smart home technologies, virtual communities, or digital platforms on residents well-being and satisfaction would be valuable. By addressing these areas of research, we can further advance our understanding of residential satisfaction, inform evidence-based practices, and contribute to the development of more livable and satisfying residential environments.

7 Implications

The implications for practitioners and policymakers can also benefit from the findings of this study in shaping housing policies that promote residential satisfaction. Here are some policy implications that can be derived:

- 1 Housing design and standards: Policymakers can use the insights gained from this study to establish design standards for dwelling units that prioritise the well-being and satisfaction of residents. These standards can include requirements for adequate space, functional layouts, and essential amenities to ensure comfortable and livable housing.
- 2 Community development and planning: Policymakers can integrate the importance of the social environment into community development plans. This can involve creating community spaces that encourage social interactions, providing amenities that foster a sense of belonging and community engagement, and incorporating green spaces that promote well-being.
- 3 Inclusive decision-making processes: Policymakers should prioritise including residents in decision-making processes related to housing and community development. By involving residents in shaping policies, their perspectives, needs, and preferences can be better represented, leading to more resident-centric solutions.
- 4 Gender-specific considerations: The study highlights the importance of considering gender-specific factors in understanding the influence of dwelling unit features and the social environment on overall satisfaction. Policymakers should integrate these considerations into housing policies to ensure inclusivity and address the specific needs and experiences of different genders.
- 5 Safety and security: Policymakers should prioritise safety and security measures within residential environments. This can include implementing measures such as well-lit common areas, secure entrances, and community policing to create a sense of safety and promote overall satisfaction among residents.
- 6 Sustainability and green initiatives: The study emphasises the importance of integrating green spaces within residential environments. Policymakers can promote sustainability by incorporating environmental standards, encouraging energy-efficient designs, and supporting initiatives that enhance the ecological aspects of housing.

By considering these policy implications, policymakers can contribute to the creation of residential environments that prioritise resident satisfaction, well-being, and overall quality of life.

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Appendix

Table A1 Questionnaire

Age
Education
Family size
Monthly family income (Rs.)
Occupation
Gender
State of hygiene
Status of safe drinking water
Availability of primary health centre
Availability of electricity
Concrete paved roads/streets
Protection of women and children
The scheme was well publicized, ample time was given to apply
The application was readily available
The deposit amount was well within my paying capacity
The allotment process was transparent
Possession of the building was given on time
The documentation and registry process was good
Living area
Dinning space
Bedroom spaces
Toilet

Table A1 Questionnaire

Bathroom
Drying areas
Ventilation of the house
Corridors
Staircase
Balconies
Electricity supply
Water supply
Sewerage
Drainage
Telecommunication
Lifts
Fire-fighting system
Noise
Crime
Accidents
Security
Community relations
Distances to town centre
School
Police station
Hospital
Market
Shopping centres
Public library
Religious building
Light-rail transit
Bus and taxi station
Dimensions (community participation in the governance of society)
Participation in solving problems related to housing societies
Attendance of the resident in the meetings of the society
Timely payment of monthly maintenance charges by residents
Participation in welfare, cultural, social activities of society
The satisfaction of being home
Elevation of social status
Prestigious status of the family
A life changing moment
