frontiers | Frontiers in Built Environment

TYPE Original Research
PUBLISHED 31 August 2022
DOI 10.3389/fbuil.2022.870240

OPEN ACCESS

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SPECIALTY SECTION
This article was submitted to Urban Science,
a section of the journal
Frontiers in Built Environment

RECEIVED 06 February 2022
ACCEPTED 02 August 2022
PUBLISHED 31 August 2022

CITATION
Ramzanpour M, Sharghi A and Nourtaghani A (2022), Assessing the public attitude toward low-income housing; (case study: Small- and medium-density cities of Iran). *Front. Built Environ.* 8:870240. doi: 10.3389/fbuil.2022.870240

Assessing the public attitude toward low-income housing; (case study: Small- and medium-density cities of Iran)

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Low-income housing (LIH) is subject to stigma. This study aims to measure the public attitude toward it with respect to three main attitude components. The survey was carried out using an online questionnaire and non-resident sample. Using exploratory factor analysis, 11 factors were derived, including 7 cognitive factors (security, unit characteristics, spatial reputation, individual and environmental characteristics, physical attractiveness, and social interaction), 2 affective factors (feeling toward physical dimension and feeling toward residents), and 2 behavioral factors (social distance and situational behavior). Descriptive analysis may show that the attitude toward LIH is negative in Iran. Among them, physical factors related to the environment and building have the lowest scores. Thus, it is necessary to pay more attention to the reduction of LIH stigma with more interventions in the physical aspect. The regression test showed the highest correlation between the "social distance" and "feeling toward physical aspects," whereas the highest correlation was observed between the "situational behavior" and "feeling toward residents". It means outsiders are further influenced by physical factors when making distance-related decisions. When they are in a situation with exposure to these housings, their feelings toward the residents are more important and are reflected.

KEYWORDS

attitude, low-income housing, stigma, small- and medium-sized cities, behavior

Introduction

LIH is one of the policies made by the government to support social classes that could not afford proper houses on their own income. Since the end of the 19th century, various countries have made different policies to protect this group, namely, "public housing," "social housing," and "affordable housing" (Ramzanpour and Nourtaghani, 2019). In Iran, the "Mehr Housing" plan has been considered for the provision of housing for low-income households since 2007 (Zabetian et al., 2017). Most projects are constructed on public lands and outside urban borders in repetitive rows with high population density in cubic forms with simple facades (Firoozi et al., 2016). Despite all the vastness and

importance of that, it lacked quality. The "National housing" plan was implemented by the government with the aim of providing houses for low-income groups between 2017 and 2021. The plan is in two forms of "social housing" and "low-income housing" (Comprehensive Housing Plan, Iran, 2017–2026).

Alternately, due to close relationships with low-income groups (Atkinson and Jacobs, 2008; Motley and Perry, 2013), LIH undergoes a weak reputation and negative labels from outsiders. This negative attitude is called "stigma" and is attributed to the residents and the physical areas they live (Wassenberg, 2004b; Palmer et al., 2004; Arthurson, 2012; Arthurson et al., 2014; Ruiz-Tagle, 2017; coulomb et al., 2018; Smets and Kusenbach, 2020). Stigma possesses a negative meaning and is concerned with shame. The stigma occurs in LIH due to social, economic, and physical reasons including being a living place for the low socioeconomic status group, reducing the property value, lack of attractiveness of the physical form and poor maintenance, rising crime (Permentier et al., 2011; Arthurson, 2012; O'Brien, 2016; Price, 2017), being located in suburban areas (Wacquant et al., 2008; O'Brien, 2016), physical decay, and low-quality services, unemployment that may cause residents to experience isolation. Stigma creates various social, psychological, and economic problems (Palmer et al., 2004; Gourlay, 2006; Link and Phelan 2006; Tighe, 2010). Such an attitude leads to public opposition to the construction of LIH (Tighe, 2009).

According to some researchers, the attitude of individuals toward a subject may include various dimensions. Most of them have been referred to three dimensions: cognitive, affective, and behavioral (Ho et al., 2019). Stigma is a type of negative attitude. Few studies have been conducted on the measurement of stigma and public attitude toward LIH. Gourlay (2006) measured the perceptions of outsider groups toward social housing, reputation, and their image using interviews. Most of his questions have been proposed concerning the cognitive aspect. Also, in studies conducted by Tighe (2009) and Price (2017), the existing attitudes and stereotypes were examined related to affordable housing, and it was briefly dealt with social distance as a behavioral dimension. Motley and Perry (2013) have addressed the attitude toward public housing, and the questions have been limited only to the stereotypes (cognitive dimension). Raynor et al. (2020) investigated the relationship between stigma and interaction, experience, attitude, and satisfaction. They mainly focused on the social dimension, and they had used an open-ended question for the affective dimension. Wutich et al. (2014) have measured stigma qualitatively concerning low-income neighborhoods only by proposing one question on the affective dimension, and the study was concerned with insiders (residents). Similarly, Atiles (1995) explored the effect of attitude toward manufactured housing on outsiders' acceptance and studied public beliefs, especially at cognitive and affective dimensions. Given the conducted studies, it can be perceived that the outsiders' attitude has been dispersedly measured, while all three dimensions of attitude have not been considered. As a result, no tool has been presented to measure public attitude regarding LIH and the related residents. Paying attention to this subject is important for three reasons: 1) if only cognitive and affective dimensions are considered, no one could predict the behavior of individuals when exposed to LIHs and their residents; as it mentioned, behavior results from attitude, and it should be taken into consideration (Thyne and Lawson, 2001; Link et al., 2004). 2) If only behavior is measured and we overlook two other dimensions, then it is impossible to imply what led to the emergence of such a behavior. 3) Attitude is a process, and it needs to consider all three dimensions for better measurement and understanding of the process.

Although several "Mehr Housing" projects have been designed and constructed in Iran and new plans have proceeded in this direction, the amount of allocated national funds, noticeable resident population, and a huge number of demands, the public attitude has not yet been explored toward LIH. With respect to the fact that the formation of negative attitude generates various problems and the attitude depends on the environment and characteristics of the community, it is necessary to deal with this subject. Hence, the current study aims to measure public attitude toward LIH with respect to three main attitude dimensions. However, based on the literature analysis, no tool was found to measure the attitude toward such housings based on three dimensions; thus, it seems necessary to build a measurement tool. The following questions are proposed for achieving the research goal:

- By which dimensions and criteria is the attitude toward LIH measured?
- How is the public attitude toward LIH in Iran?

In the "literature review" section, the attitude toward LIH and existing policies in this field are examined. The "study design" describes the method and sampling. In the "findings" section, the factors obtained from factor analysis are stated, and the relationship between cognitive and emotional factors with behavioral factors is examined. These findings are explained in the discussion and conclusion section.

Attitude toward low-income housing (literature review)

In the early 1990s, Wacquant combined Goffman (1963) viewpoint about stigma titled "discrediting difference" with Bourdieu's (1991) theory of symbolic power (Bourdieu, 1991) by which he could express the paradigm of territorial stigma (Wacquant, 2008). According to Link and Phelan (2006), stigma depends on four general components: 1) labeling of individuals based on distinct characteristics; 2) linking of those labels to

negative stereotypes; 3) establishment of social position and distance from labeled individuals; and 4) labeled persons' experience, status loss, and discrimination that lead to unequal outcomes for these individuals. These four elements can be placed in three dimensions of attitude: component 1 in the cognitive dimension; component 2 in the affective dimension; and components 3 and 4 in the behavioral dimension (Garcia et al., 2017; Fox et al., 2018), whereas stigma, as a negative label, is often linked to the places in which socioeconomic dissonance is prevalent; thus, it decreases the neighborhood's reputation (Warr, 2005; Verdouw and Flanagan, 2019). Therefore, it may be joined to the settlements where the low class resides (such as LIH projects). LIH is one of the government's policies to support people who cannot afford a decent house based on their lifestyle and income. Therefore, these houses are widely built for low- and middle-income groups to create equal residential opportunities. Since the end of the 19th century, different countries have had various programs and policies to support this group, such as public housing, social housing, and affordable housing (Price, 2017; Ramzanpour and Nourtaghani, 2019). In Iran, the "Mehr housing project" was defined and implemented in 2007 to provide houses for low-income groups (Zabetian et al., 2017). Most of these projects are built in government fields and outside the urban areas, with repeated rows and the same shape, high population density, and in the form of cubes (Firoozi et al., 2016), which, with all its extent of construction, cost, and importance, does not have good quality and has many challenges (Sharghi et al., 2021).

As LIH is supplied in a community, individuals will take ideas and comment about it under their ideology, values, and stereotypes (Tighe, 2010). Due to the creation of a sense of insecurity and crime, reduced property value, decreased neighborhood reputation, physical destruction, low-quality services, unemployment, etc., the outsiders form negative opinions toward LIH, and such a perception and negative label may lead to the segregation of socioeconomic classes (Tighe, 2010; Scally and Tighe, 2013; Price, 2017). The composition of housing physical characteristics and residents' demography has also led to stigma for social housing (Palmer et al., 2004). One of the main factors of stigma in social and public housing is their exclusion from other city buildings and placement in the city suburbs (Wacquant et al., 2008; O'Brien, 2016).

However, evaluation of attitude of the community is one of the most prevalent ways to measure stigma (Van Brakel, 2006); thus, studies in this regard have analyzed outsider's attitudes. Some of them assessed public attitude using the quantitative survey method with (pictured or un-pictured) a questionnaire tool (Atiles, 1995; Tighe, 2009; Price, 2017; Raynor et al., 2020), and some use the qualitative methodology and interviewed people to figure out their perceptions and beliefs (Gourlay, 2006; Kirkness, 2013; Wutich et al., 2014). Also, the experimental method was applied for measuring the attitude by showing hypothetical scenarios and completing a questionnaire (Motley and Perry, 2013). Some of the research was on the country scale or a set of cities, such as Price (2017) and Motley and Perry (2013), which investigated such attitudes in the United States. Some of the studies were conducted in one city or a region, such as Atiles (1995) in Virginia; Wutich et al. (2014) in Arizona neighborhoods; Raynor et al. (2020) in Melbourne; Gourlay (2006) in Dundee, Scotland; Kirkness (2013) studies neighborhoods that are located around Paris; and Tighe (2009) surveyed suburban areas of Austin, Boston, and San Diego.

Several factors play a role in creating LIH stigma that has been addressed by researchers. These factors can be categorized into two general groups: community and physical. One of the factors relating to residents that may be judged by them is demographic characteristics, which include the education level, family type (Atiles, 1995; Nguyen et al., 2013; Wassmer and Wahid, 2019), residents' appearance (Raynor et al., 2020), and tenure type (Arthurson, 2012; Price, 2017). In other words, residents at a lower educational level, populated families with untidy appearance, and those with tenant tenure are subject to outsiders' negative labels. Moreover, negative economic and socio-behavioral factors may also play a role in the formation of negative attitudes and social distances. According to community stereotypes, residents in LIH are usually from the low-income class, with no suitable job or they could not find a job (Atiles, 1995; Jacobs and Flanagan, 2013; Raynor et al., 2020). The occurrence of some antisocial behaviors may influence outsider attitudes such as unwillingness to work, drug addiction, and crime perpetration (Wassenberg, 2004b; Motley and Perry, 2013; Nguyen et al., 2013); also, social interactions and morality of residents have been evaluated (Van Duin et al., 2011; Price, 2017; Raynor et al., 2020). Some studies have also referred to the impact of physical factors on the formation of LIH stigma, including building safety (Watt, 2020; Coulombe et al., 2018); those parts are visible to the public, e.g., maintaining the building appearance (Tighe, 2009, 2010; Price, 2017), façade design (Tighe, 2009; Arthurson et al., 2014; Price, 2017), and unit area (Price, 2017). Those factors, which affect an outsider's attitude on a neighborhood scale, may highly vary. The weak reputation of the neighborhood is composed of the community's negative attitude (Gourlay, 2006; Kirkness, 2013). Distance from the city center and lack of access to facilities are some other important factors (Gourlay, 2006; Tersteeg and Pinkster, 2016; Norris et al., 2019). Maintenance of outdoor and green space is also followed with different judgments because of exposure to the public view (Wassenberg, 2004a; Price, 2017). The high density of LIHs in a neighborhood leads to concentrated poverty and contributes to the occurrence of negative thinking (Wassenberg, 2004b; Arthurson, 2012; Nguyen et al., 2013). The security of LIH also affects the formation of negative perceptions (Tighe, 2009; Price, 2017). In addition, some researchers have referred to the impact of these types of housing on their surroundings, including property value and their sale time (Atiles, 1995; Tighe, 2009;

TABLE 1 Aspects and criteria of attitudes toward LIH.

	Aspect	Criteria
Resident	Demographic	Education level
		Family type
		Tenure type
	Economic	Income level
		Job
	Socio-behavioral	Willingness to work
		Drug addiction
		Crime
		Relationship with each other and with the community
		Moral
Physical	Building	Building safety
		Maintaining the building appearance
		Facade design
		Unit area
	Neighborhood	Reputation
		Distance from the city left and lack of access to facilities
		Outdoor and green space maintenance
		Number of units and density
		Neighborhood security
		Property value and the sale time of the property
		Security of surrounding neighborhoods
		Traffic
		Noise
		Impact on local schools
		Neighborhood attractiveness

Price, 2017), security of surrounding neighborhoods (Price, 2017), traffic and noise (Atiles, 1995; Tighe, 2009; Scally and Tighe, 2015; Norris et al., 2019), impact on local schools (Tighe, 2009; Price, 2017), and general attractiveness of the neighborhood (Atiles, 1995; Price, 2017). According to the explored literature, factors affecting public attitude toward LIH are divided into two residential and physical parts, each of which possess some criteria (Table 1).

Study design

Methodology

The survey method has been utilized by the questionnaire. A systematic review was used for the extraction of dimensions and criteria of attitude toward LIH. To determine the validity of the questionnaire, the factor analysis method was utilized and the attitude criteria toward LIH were extracted in three related dimensions. Then, a stepwise regression test was utilized to discover relations between factors.

Statistical population and sampling

Proximity to LIH may increase the negative attitudes and opposition to the construction of such housing (Atiles, 1995; Tighe, 2009; Price, 2017). Due to the placement of LIH near the city texture in small- and medium-sized cities, they have more potential for adjacency for this type of housing. Thus, by moving near to this socioeconomic class, outsiders' perceptions and behaviors become important. Given these issues, small- and medium-sized cities were selected for the study. Due to better access for researchers and ease of data collection, Mazandaran, Golestan, and Guilan provinces were selected. According to the OECD, population density is one of the criteria for the size of cities. By considering the OECD and Zebardast (2004), the cities with a maximum population of 150,000 were measured in this study.

Due to lack of access to all residents for sample selection, a non-randomized accessible sampling method was used. Based on 54 attitude questions, the sample size was calculated at 270 (Houman, 2005; Kline, 2005). The online questionnaire link was sent *via* social media, SMS, etc., sent to (because of COVID-19 pandemics) 800 respondents approximately. A

total of 366 respondents answered the questionnaire, and among which 58 questionnaires were excluded from the study. The online survey lasted for 2 months on the Porsline website. Eventually, 308 questionnaires were analyzed. Most of the respondents were female (60%) in the age range 18–35 having education levels of MA and Ph.D. (40%) and academic students (35%) and with income range (215–358 dollars). These figures indicate a high socioeconomic status in most of the respondents. In terms of residential characteristics, most of the respondents declared that they are native (81.5%), the length of their residence was more than 20 years (67%), and inside the given city (88%). They were mainly living with ownership tenure (78%) in the apartment housing type (57%). The family type in most of the respondents was also a small family with two parents' households.

Research tool

The attitude questionnaire was distributed with 51 items after analysis of the pilot study, in which it was asked of the non-residents of low-income housing (outsiders) to express their attitude toward LIH.

However, the main characteristic of attitude is its evaluative dimension; thus, almost all standard techniques of attitude measurement lead to a score given by the respondent. The questions are proposed in three forms: cognitive, affective, and behavioral. 1) Cognitive questions: evaluation of the quality of the given factor in LIH; 2) affective questions: the rate of individual feeling toward the given factor; and 3) behavioral questions: Behavioral tendencies toward LIH and given residents. Aiming at how individuals perceive and judge LIH, cognitive and affective questions were categorized into two main classes: physical and residents. The cognitive and behavioral sections of the current questionnaire were designated on a 4-point Likert scale (1 = strongly disagree through 4 = strongly agree) and also a semantic differential scale for the measurement of affective dimensions (Divilová, 2016). These characteristics were extracted from various studies on attitudes (Wutich et al., 2014; Price, 2017). Due to the necessity for the discovery of individual beliefs and omission of disambiguation and uncertainty, and because the specific answer was needed, the neutral choice was omitted from the Likert scale in all three cognitive, affective, and behavioral dimensions (same as Atiles, 1995; Tighe, 2009; Win et al., 2018).

Validity and reliability

By Lertap 5 (ver. 10), the difficulty and recognition coefficient of the questionnaire were calculated. Some questions were deleted for their lower recognition coefficient by the *t*-test.

The value for the KMO test is 0.835 in the cognitive dimension and for Bartlett's test of sphericity ($\chi 2 = 3384.37$; df = 406; $p = 0.000$), in affective dimension 0.915 and Bartlett's test of sphericity ($\chi 2 = 3018.11$; df = 120; $p = 0.000$), and in behavioral dimension 0.799 and Bartlett's test of sphericity ($\chi 2 = 732.02$; df = 15; $p = 0.000$), which may show the sample size is adequate. An exploratory factor analysis was utilized to prove construct validity. Using data analysis for the questionnaire after rotation, seven factors were extracted in the cognitive dimension and two factors in either of affective or behavioral dimensions (Table 2). The total variances are obtained for cognitive factors (55.74%), affective factors (60.34%), and behavioral factors (72.53%). The reliability (0.949) was calculated for the total test that showed the standardized built questionnaire possessed suitable reliability. Reliability is also given for any factor in Table 2.

Findings

The general attitude toward LIH is formed according to various factors. In total, 11 factors were obtained. They are as follows: 7 factors in the cognitive dimension: security, unit characteristics, spatial reputation, individual characteristics, environmental aspects, physical attractiveness, and social interaction; 2 factors in the affective dimension: feeling toward physical aspects and feeling toward residents; and 2 factors in the behavioral dimension: social distance and situational behavior.

Descriptive analysis

However, in the present study, a 4-point Likert scale was prepared to give answers to 49 items of attitude; therefore, the minimum score of respondents is 147 (cut-off point) for interpretation of positive attitude (lack of stigma) toward LIH. The total mean score was derived as 110.04 for the questionnaire that is lower than the defined point, that is, the presence of stigma from outsiders' view (Table 3). The cognitive, affective, and behavioral dimensions' mean scores were derived in the questionnaire as 60.81, 34.24, and 14.98, respectively. In order to compare mean scores of items, one-sample *t*-test (with test value: 3) was utilized (Sig: 0.000); accordingly, it includes the cognitive attitude (2.22) and affective attitude (2.24), which is lower than behavioral attitude (2.50). It can be implied that stigma toward LIH is more influenced by the cognition and feeling of the given community than their behavioral tendencies. The mean scores of any factor also denote that 1) in the cognitive dimension with public attitude toward the physical factors (factors 2, 3, and 6), they have obtained lower scores in which the lowest one belongs to "spatial reputation" (1.62). Also, among items in this factor, "distance from the city center" has the lowest score (1.15). 2) Among two given factors in affective dimensions,

TABLE 2 Eleven-factor matrix extracted after rotation.

Attitude component	Factor/item (N = 308)	Factor loading	Variance explained	Cronbach's alpha
Cognitive	Factor 1: security		11.26	0.81
	Crime (complex)	0.785		
	Around security	0.748		
	Crime (residents)	0.659		
	Addicted to drugs	0.645		
	Factor 2: unit characteristics		9.20	0.75
	Unit density	0.753		
	Unit area	0.715		
	Appearance maintenance	0.537		
	Outdoor maintenance	0.516		
	Facade design	0.400		
	Factor 3: spatial reputation		8.00	0.70
	Distance from the city left	0.778		
	Access to facilities	0.766		
	Reputation	0.473		
	Factor 4: individual characteristics		7.40	0.67
	Education	0.690		
	Family type	0.634		
	Tenure type	0.526		
	Income group	0.523		
	Willingness to work	0.450		
	Job	0.394		
	Factor 5: environmental aspects		6.90	0.74
	Traffic	0.811		
	Noise	0.752		
	School	0.459		
	Factor 6: physical attractiveness		6.69	0.63
	Building safety	0.738		
	Green space maintenance	0.663		
	Neighborhood attractiveness	0.646		
	Factor 7: social interaction		6.26	0.64
	Relationships with society	0.832		
	Relationships with each other	0.665		
	Moral	0.499		
Affective	Factor 1: feeling toward physical aspects		36.88	0.91
	Repulsion–attraction*	0.833		
	Shame–pride*	0.826		
	Repulsion–attraction**	0.807		
	Dirty–clean*	0.791		
	Dirty–clean**	0.767		
	Ugly–beautiful**	0.763		
	Insecurity–Security*	0.739		
	Unsafety–safety**	0.644		
	Isolation–combining with society*	0.579		
	Cheap–expensive**	0.547		
	Factor 2: feeling toward residents		23.46	0.86
	Distrust–trust	0.817		
	Anger–kindness	0.793		

(Continued on following page)

TABLE 2 (*Continued*) Eleven-factor matrix extracted after rotation.

Attitude component	Factor/item (N = 308)	Factor loading	Variance explained	Cronbach's alpha
	Pessimistic–optimistic	0.784		
	Strange–closeness	0.702		
	Anxiety–peace	0.658		
	Hate–compassion	0.653		
Behavioral	Factor 1: social distance		39.61	0.86
	Social distance (owner)	0.849		
	Social distance (tenant)	0.888		
	Social distance (B53)	0.836		
	Factor 2: situational behavior		32.92	0.74
	Supportive housing location (B52)	0.804		
	Commuting in supportive housing neighborhood (B57)	0.777		
	Supportive housing in your neighborhood (B56)	0.771		

*Environment; **Buildings.

TABLE 3 Scale and factor description: Mean and standard deviations.

	Attitude factor	Mean	Std. deviation
Cognitive	Factor 1: security	2.85	0.81860
	Factor 2: unit characteristics	1.75	0.79853
	Factor 3: spatial reputation	1.62	0.74668
	Factor 4: individual characteristics	2.53	0.79834
	Factor 5: environmental aspects	2.43	0.90368
	Factor 6: physical attractiveness	1.78	0.88741
	Factor 7: social interaction	2.61	0.81036
Affective	Factor 1: feeling toward physical aspects	1.82	0.78316
	Factor 2: feeling toward residents	2.66	0.77875
	Cut-off point: 48; scores' mean: 34.24		
Behavioral	Factor 1: social distance	1.98	0.75059
	Factor 2: situational behavior	3.01	0.81186
	Cut-off point: 18; scores' mean: 14.98		
Attitude (whole scale)		2.24	0.80190

"feeling toward physical aspects" (1.82) compared to "feeling toward residents" (2.66) has achieved a lower mean score. The lowest score belongs to the item of "ugliness–beauty" of building's appearance. 3) "Social distance" has obtained a very lower mean score (1.98) than "situational behavior" (3.01) in the behavioral dimension. In the *t*-test, the average difference was not significant merely in "situational behavior".

- Individuals' attitudes toward the appearance of LIH and its residents' impact on their behavioral tendencies. In fact, due to encountering various problems and existing stereotypes in the community, the individual has rejected the construction of such housing in their neighborhood and exhibited some opposing behaviors (Blaison, and Hess, 2016; Tersteeg and Pinkster, 2016; Price, 2017; Raynor et al., 2020). Some researchers have referred to the impact of cognitive and affective factors on behavior (Thyne and Lawson, 2001; Link et al., 2004). So regression analysis was utilized in order to analyze the correlation between cognitive and affective dimensions. Dependent variables are social distance and situational behavior, and independent variables are all given cognitive and affective factors in this study. Table 4 shows correlation coefficients and other information derived from the multivariate regression. The following results are inferred:

- Dependent variable: social distance (Model 1). In this model, three variables of the feeling toward physical aspects in the affective dimension and individual characteristics and security in the cognitive dimension showed a significant relationship with the dependent variable. Multivariate

TABLE 4 ANOVA data regression analysis for both dependent variables.

ANOVA[a] (Model 1)

	Model	Sum of squares	df	Mean square	F	Sig.
1	Regression	322.557	1	322.557	110.441	0.000[b]
	Residual	893.713	306	2.921		
	Total	1216.269	307			
2	Regression	409.396	2	204.698	77.376	0.000[c]
	Residual	806.874	305	2.645		
	Total	1216.269	307			
3	Regression	434.019	3	144.673	56.223	0.000[d]
	Residual	782.251	304	2.573		
	Total	1216.269	307			

a. Dependent variable: f1B

b. Predictors: (constant), f1A

c. Predictors: (constant), f1A and f4C

d. Predictors: (constant), f1A, f4C, and f1C

ANOVA[a] (Model 2)

	Model	Sum of squares	df	Mean square	F	Sig.
1	Regression	521.496	1	521.496	232.923	0.000[b]
	Residual	685.111	306	2.239		
	Total	1206.607	307			
2	Regression	581.026	2	290.513	141.639	0.000[c]
	Residual	625.581	305	2.051		
	Total	1206.607	307			
3	Regression	605.011	3	201.670	101.909	0.000[d]
	Residual	601.596	304	1.979		
	Total	1206.607	307			
4	Regression	622.237	4	155.559	80.658	0.000[e]
	Residual	584.371	303	1.929		
	Total	1206.607	307			
5	Regression	632.807	5	126.561	66.611	0.000[f]
	Residual	573.800	302	1.900		
	Total	1206.607	307			

a. Dependent variable: f2B

b. Predictors: (constant), f2A

c. Predictors: (constant), f2A and f4C

d. Predictors: (constant), f2A, f4C, and f7C

e. Predictors: (constant), f2A, f4C, f7C, and f5C

f. Predictors: (constant), f2A, f4C, f7C, f5C, and f1C

correlation coefficient (R = 0.597) indicates a strong correlation existing between variables. With respect to the beta values, feeling toward physical aspects has the strongest relationship with social distance, and it interprets about 51.5% of the variance for social distance. Then, individual characteristic (32.9%) is placed at the next rank and followed by security (17.9%) which plays a small role in the prediction of the dependent variable.

- Dependent variable: situational behavior (Model 2). In this model, five variables of the feeling toward residents in affective dimension, individual characteristics, social interaction, environmental factor, and security in the cognitive dimension exhibited significant relationships with the dependent variable. The multivariate correlation coefficient (R = 0.724) shows a strong correlation between the existing variables. With respect to the beta values, the feeling toward residents has the strongest relationship with social distance, and it interprets approximately 65.7% of the variance of situational behavior. Then, individual characteristics (25.4%), social interactions (16.7%), and environmental factors (13.9%) are placed, respectively, and subsequently, security (14.3%) plays the least role in the prediction of the dependent variable.

Discussion

This study was designated for better perception of public attitude structure toward LIH and related residents through cognitive, affective, and behavioral questions. According to the findings, 11 factors were obtained: seven cognitive, two affective, and two behavioral factors. The first factor in the cognitive dimension is concerned with the perceived security of the complex and its residents. In some studies, the topic of sense of insecurity and related motivating factors (including crime, drug addiction, etc.) and the impact exerted on the behavior of outsiders and local schools have been highly noticed (Wassenberg, 2004b; Tighe, 2010; Motley and Perry, 2013; Nguyen et al., 2013; Abdel-Samad et al., 2020; Berry and Wiener, 2020; Chou and Dancygier, 2021). The second cognitive factors are unit characteristics and physical aspects. The importance of such factors has also been mentioned in the literature (Palmer et al., 2004; Tighe, 2009; Arthurson et al., 2014; Price, 2017). Among the items of this factor, the lowest mean score belongs to facade design. The subject of building appearance of LIH has been frequently mentioned as a factor of stigma several times (Wassenberg, 2004a; Tighe, 2009, 2010; Price, 2017; Abdel-Samad et al., 2020; Ramzanpour et al., 2021)

10.3389/fbuil.2022.870240

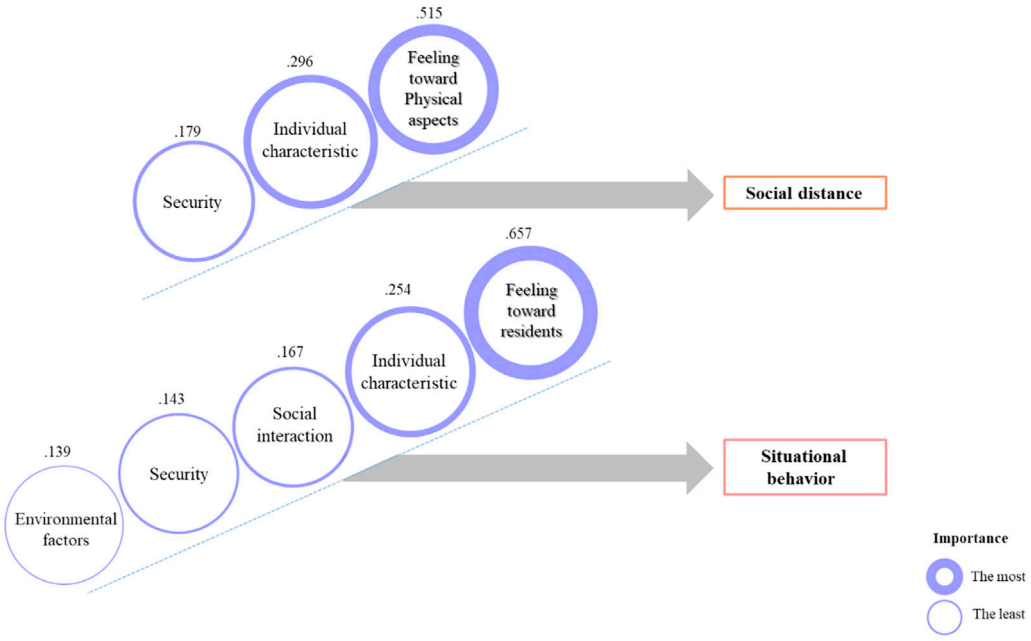

FIGURE 1
Effects of cognitive and affective factors on behavioral factors.

because it was implied that outsiders judge by observation of physical appearance. Perception of density is also considered as one such factor which is a reminder of concentrated poverty (Wassenberg, 2004b; Arthurson, 2012; Nguyen et al., 2013; Morton, 2020). Distance from the city center and lack of access to urban facilities and services are some of the items in the third cognitive factor which have been mainly referred to for their impact on territorial stigma (Gourlay, 2006; Tersteeg and Pinkster, 2016; Norris et al., 2019; Sharghi et al., 2021). Such exclusion may be accompanied by undermining the reputation of LIHs in the society (Gourlay, 2006; Kirkness, 2013). As researchers have also mentioned, perceived reputation might depend mainly on individual beliefs about physical and spatial characteristics (Permentier et al., 2011; Ramzanpour et al., 2019). Individual and demographic characteristics form the fourth cognitive factor so that individuals with a lower socioeconomic status may cause a negative attitude (Atiles, 1995; Nguyen et al., 2013; Wassmer and Wahid, 2019). Environmental factors are also important in outsiders' judgments. As usual, there is a high density of units with lots of residents in most of LIH which leads to high traffic and noise; this situation intensifies stigma (Atiles, 1995; Tighe, 2009; Scally and Tighe, 2015; Norris et al., 2019). Likewise, some researchers believe in the negative impact of such housing on local schools (Tighe, 2009; Price, 2017). Physical attractiveness can be related to the general attractiveness of a residential complex so that prepared green space and buildings' safety may improve outsiders' opinions and create a favorable image of that complex (Price, 2017; Wassenberg, 2004a; Watt, 2020). The seventh cognitive factor includes the moral and social relationships of residents, namely, how social relations are between residents and with other community members and whether they are good neighbors with favorable relations and committed to moral value or not? (Van Duin et al., 2011; Price, 2017; Raynor et al., 2020). Two factors were extracted relating to the physical aspect and residents in affective dimension. 'Feeling toward physical aspects' is the more important influential factor in affective public attitude. This finding confirms the studies (Wutich et al., 2014; Price, 2017). 'Feeling toward residents' is the second factor in this dimension. It can be claimed that visual and physical factors are highly important, and this confirms the findings of the literature (Sampson and Raudenbush, 2005; Ramzanpour et al., 2020; Abdel-Samad et al., 2020). Two factors of social distance and situational behavior were derived from the behavioral dimension. Based on the literature, social distances from LIH and related residents are considered as evaluation outputs of outsiders (Link et al., 2004; Blaison, and Hess, 2016; Tersteeg and Pinkster, 2016). Situational behavior is concerned with the behavioral tendencies of individuals on exposure to such housing. Social distance obtained a very lower mean score than situational behavior, namely, individuals who are exposed to LIHs may exhibit better reactions than when they determine social distance before project construction. If there is LIH in their neighborhood, most respondents tend to establish ordinary relationship with them, and they agree on the

residence of these individuals in addition to the rest of the community.

According to descriptive analyses, it can be found that attitudes toward physical and environmental aspects of LIH may be more negative than factors relating to the residents. Among physical factors, spatial reputation, unit characteristics, physical attractiveness, and feeling toward the building and environment devoted the lowest mean scores. Among all the items, the façade design, distance from the city center, and building safety also obtained the lowest score. Regarding demographic aspects, outsiders' attitude toward residents' jobs possesses a lower mean score. Among items relating to an environmental factor, attitude toward noise was more negative. Also concerning social relations, the outsiders mainly imagine the residents have no good relationship with each other. In affective attitude toward the building, ugliness and exclusion of the housing complex were more negative. In terms of behavioral tendencies, the social distance factor is more visible in outsiders if the residents are tenants rather than owners.

Stigma that may be related to poverty and visible disruption signs can impact the behavior of individuals (Sampson and Raudenbush, 2005). As the literature referred to the relationship among attitude components and impact of affective and cognitive dimensions on behavior, the findings of this study might also confirm it. The highest correlation was obtained between social distance and the feeling toward physical aspect, while the highest correlation was found among situational behavior and the feeling toward residents (Figure 1). This means outsiders are further influenced by physical factors of the building and environment when making distance-related decisions. When making decisions about exposure to these housings, the same individuals refer to their feelings toward residents.

Conclusion

Negative attitudes lead to the exclusion of various groups and the creation of class-related gaps and several problems. This study was conducted in order to measure public attitude toward LIH in three dimensions. Out of the answers given by 308 respondents, who resided in northern small-/medium-sized cities of Iran, 11 attitudinal factors were extracted. This tool is deemed important for several reasons. First, it provides a comprehensive method for the evaluation of outsiders' attitudes that can be used in multivariate studies on attitude. Second, three main aspects of attitude were considered in the preparation of questions and extraction of factors. Third, it can introduce a method by which the type of future interventions concerning the planning and design of LIH can be determined. Fourth, this tool can provide a technique for tracing public attitudes over time and create a proper perception on the improvement of these housings. The first and foremost determinant factor of attitude is security evaluation in the cognitive dimension and feeling toward physical aspects in the affective dimension. The noticeable finding is that outsiders' attitude toward LIH and the related residents in Iran have a low status, and this weakness is mainly related to physical aspects of the building and environment. The lowest score was derived for the variable of the beauty of the building and the given façade design in cognitive and affective dimensions, and it might play a basic role in the creation of a more negative public attitude. Outsiders mainly consider physical perceptions in social distance. Therefore, compared to social characteristics, physical factors are more important. In this regard, it seems to pay attention to reformations and modifications in the physical aspect, especially at building scale (architecture), in order to reduce stigma toward LIHs. One of the limitations to this study was that it did not examine the remaining small- and medium-sized cities due to the difficulty in access and lack of time. Since attitude depends on the beliefs and stereotypes in any society, it is necessary to evaluate it in different areas. Due to the importance of people's opinions, sampling should be more targeted, and outsiders should be accurately grouped so that the results can be attributed to each specific group.

Due to the emphasis on the relationship between affective, cognitive, and behavioral factors in the background, it seems important to deal with relationships among these components with each other and also along with other factors (e.g., respondent characteristics and experience) in future studies. The complexity of attitude and the relationship between the components requires conducting extensive studies that make it salient to pay attention to the definition of attitude and its measurement. The research sampling rather consisted of young people with high education levels so that it can be evaluated for a vast variety of responses in future studies. Furthermore, "familiarity" with the object of stigma is an item that affects a person's attitude, which can be considered in the future.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material; further inquiries can be directed to the corresponding author.

Author contributions

The authors confirm contribution to the manuscript as follows: study conception and design: MR and AN; data collection: MR; analysis and interpretation of results: MR, AN, and AS; draft manuscript preparation: MR. All authors reviewed the results and approved the final version of the manuscript.

Acknowledgments

This article is based on the doctoral thesis of the first author, which was being conducted by Dr. Ali Sharghi and consultant Dr. Abdolmajid Nourtaghani in the Dept. of Architecture and Urban Planning, Shahid Rajaee Teacher Training University, Iran.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fbuil.2022.870240/full#supplementary-material

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