# Chapter 5 / Capítulo 5

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# Privacy, territoriality and neighbourly coexistence in the condominiums of Mazatlán

## Privacidad, territorialidad y convivencia vecinal en los condominios de Mazatlán

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**ABSTRACT**

Vertical condominium housing has grown rapidly in Mazatlán, Sinaloa, Mexico, yet the experience of its residents is rarely measured. Using the preliminary data cut from the pilot survey of project FZ-HAB-0013 on the Factoriza UAS platform, this study described the initial behaviour of a fifteen-item scale with three dimensions: Privacy in the dwelling, Control of shared space and Relationship with neighbours. With a cross-sectional design, 23 cases out of a target of 100 were analysed while data collection remained open. Descriptive statistics, Cronbach's alpha, McDonald's omega total, exploratory factor analysis and Spearman correlations between dimensions were estimated. Internal consistency was low for Privacy (α = .445) and Control of shared space (α = .287), and negative for Relationship with neighbours (α = -.132); omega was not interpretable in any dimension. The factor analysis, with KMO = .401 and a Heywood case, suggested five factors that did not reproduce the theoretical dimensions, one of them formed by the four reverse-worded items, which is consistent with a wording effect. Privacy and Control of shared space were positively associated (ρ = .514, 95% CI [.101, .775]). The findings do not yet provide structural validity evidence and point to revisions of the instrument.

Keywords: residential privacy; territoriality; neighbour relations; vertical housing

**RESUMEN**

La vivienda vertical en condominio ha crecido con rapidez en Mazatlán, Sinaloa, pero la experiencia de quienes viven en ella rara vez se mide. Este estudio describió, en el corte preliminar del levantamiento piloto del proyecto FZ-HAB-0013 de Factoriza UAS, el comportamiento inicial de una escala de quince reactivos con tres dimensiones: Privacidad en la vivienda, Control del espacio compartido y Relación con los vecinos. Con diseño transversal, se analizaron 23 casos de una meta de 100, con el levantamiento abierto. Se estimaron descriptivos, alfa de Cronbach, omega total, análisis factorial exploratorio y correlaciones de Spearman entre dimensiones. La consistencia interna fue baja en Privacidad (α = .445) y en Control del espacio compartido (α = .287), y negativa en Relación con los vecinos (α = -.132); el omega no fue interpretable en ninguna dimensión. El análisis factorial, con KMO = .401 y un caso Heywood, sugirió cinco factores que no reproducen las dimensiones teóricas, uno de ellos formado por los cuatro reactivos inversos, lo que es compatible con un efecto de redacción. Privacidad y Control del espacio compartido se asociaron de forma positiva (ρ = .514, IC 95 % [.101, .775]). Los resultados no aportan todavía evidencias de validez estructural y orientan la revisión del instrumento.

Palabras clave: privacidad residencial; territorialidad; relaciones vecinales; vivienda vertical

## INTRODUCTION

Vertical housing under a condominium regime has become one of the most visible forms of growth in Mexican coastal cities. In this type of housing, the boundary between the private and the communal is narrower than in single-family housing: walls, corridors, elevators, swimming pools and parking areas are shared. The quality of everyday life depends as much on the design of the building as on the residents' capacity to regulate contact with others, look after common spaces and reach agreements.

Consequently, the habitability of a condominium is not limited to the floor area or amenities of each apartment; it also encompasses psychosocial dimensions such as privacy, territoriality, and neighborly coexistence.

Mazatlán offers a particularly relevant case. Since 2018, the city has seen a real estate boom geared toward second homes and residential tourism, with a concentration of high-rise developments along the coastal strip and near the malecón (seafront promenade), changes in building regulations, and conflicts with residents of the affected neighborhoods (Mendieta Vega and Roldán Clarà, 2024).

Qualitative studies of this process have documented social tensions in the neighborhoods where the towers are being built and the inadequacy of the drinking water and sewerage infrastructure to serve the new density (Bojorquez Luque et al., 2023). They have also documented the replacement of traditional buildings and uses in the Playa Norte area by second homes, short-stay accommodation, and consumer-oriented businesses (Bojórquez Luque and Osuna Covarrubias, 2025).

These studies describe the condominium from the outside, as an object of urban transformation; the experience of those who live inside it has received far less attention.

International research offers clues about this experience from the inside.

The systematic review by Macedo et al. (2022) showed that privacy in the home is a need that organizes behavior in space and should be studied in its physical, social, and psychological dimensions. In high-rise buildings, anonymity can function as a privacy resource that enables residents to manage social proximity with a live-and-let-live attitude (Arviv and Eizenberg, 2021).

At the same time, noise from neighbors is among the most frequent annoyances in multifamily housing (Wang and Norbäck, 2021), and how it is perceived is associated with the quality of residents' relationships with their own neighbors (Benz et al., 2021).

Neighborhood networks, cohesion, and the use of common spaces, for their part, have been associated with neighborhood attachment and with less loneliness among apartment residents (Kleeman et al., 2023; Nguyen et al., 2025).

No Spanish-language instruments were identified that jointly measure privacy within the apartment, perceived control over shared spaces, and relationships with neighbors in condominiums in Mexican tourist cities. Project FZ-HAB-0013 of the Factoriza UAS platform set out to study these three dimensions in Mazatlán's condominiums using a 15-item scale: Privacy in the Dwelling, Control of Shared Space, and Relationship with Neighbors.

This article reports the results of the first pilot survey, based on a small preliminary data cut; its scope is therefore limited to the initial review of the instrument and not the estimation of population parameters.

The overall objective was to describe the initial performance of a scale of privacy, territoriality, and neighborhood coexistence in the preliminary data cut from its pilot survey in Mazatlán condominiums.

The specific objectives were, first, to describe the distribution of responses to each item; second, to estimate the internal consistency of each dimension using alpha and omega coefficients; third, to explore the internal structure of the item set through exploratory factor analysis; and fourth, to examine the relationship among the scores on the three dimensions. The project did not state any hypotheses, so the study is descriptive and exploratory in scope.

## DEVELOPMENT

### PRIVACY IN VERTICAL HOUSING

In the literature, residential privacy is understood as the ability to regulate others' access to oneself, both in what others see and hear and in what one perceives of them.

Macedo et al. (2022) reviewed research on privacy and housing published between 2000 and

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2021 and found that studies are concentrated in American, European and Islamic contexts and have grown in number since 2018. They proposed studying privacy holistically, across its physical, social and psychological dimensions, and with a precise characterization of the context.

They also grouped the instruments into four families: behavioral analysis through questionnaires, interviews and observation; assessment of the built environment; characterization of users; and characterization of participants, including how they personalize space.

Visual privacy has been the most extensively studied facet from a design perspective. The review by Sheikhi Nashalji and Mehdizadeh Saradj (2025) grouped definitions of visual privacy into three domains (psychological, physical-environmental and religious-cultural) and compiled design strategies ranging from the configuration of the urban fabric to the interior layout, façade elements and materials.

Acoustic privacy, in turn, has been studied mainly through noise annoyance. In a national sample of multifamily buildings in Sweden, voices, music or footsteps from neighbors were among the most common sources of annoyance, and noise annoyance was associated with symptoms such as fatigue, headache and difficulty concentrating (Wang and Norbäck, 2021).

The meta-analysis by Gong et al. (2022) also found some evidence of an association between noise annoyance and poorer mental health indicators, albeit based on a small number of studies.

The Privacy in the Home dimension of the instrument under study captures these facets: the possibility of having a conversation without being overheard (R1), visual exposure from other apartments (R2, reverse-scored), the availability of a space to be alone (R3), the intrusion of noise from neighbors (R4, reverse-scored), and the possibility of coming and going without feeling watched (R5).

The composite combines acoustic, visual and spatial privacy; two of its items refer to exposure to the outside of the apartment, whereas R3 refers to the interior layout of the dwelling. The literature suggests that these facets are related but not interchangeable (Macedo et al., 2022; Sheikhi Nashalji and Mehdizadeh Saradj, 2025).

## TERRITORIALITY AND CONTROL OF SHARED SPACE

Territoriality refers to the set of behaviors and attitudes through which people delimit, personalize, and defend the spaces they consider their own. In residential complexes, its most relevant expression is found in semi-public spaces, which do not belong to anyone in particular but are not fully public either.

Nowzari et al. (2023) studied four residential complexes in Shiraz, Iran, from the perspective of human territoriality theory and found that spatial configuration was associated with the use of semi-public spaces; that vegetation, lighting, accessibility and furniture in common areas were related to greater social interaction; and that layouts without clearly defined spaces or territories performed worse.

In the Chinese-language literature, Dong (2023) analyzed residents' behavior in community public space from an environmental psychology perspective and noted that functionalist planning tends to overlook the psychological and interaction needs of residents, who expect such spaces to serve aesthetic, social and spiritual purposes in addition to functional ones.

Control of shared space also has an organizational dimension. In social vertical housing in Ciudad Juárez, Rodríguez Sosa et al. (2022) identified difficulties in the social organization needed to ensure the maintenance of multifamily units as a risk to the acceptance of this type of housing.

The instrument's Control of Shared Space dimension brings together items on appropriation, such as feeling that the hallway is one's own (R6) and being able to decorate the apartment entrance (R9); on collective care, such as residents' care of common areas (R7); and on surveillance and access control, such as the uncontrolled use of common areas by outsiders (R8, reverse-scored) and recognizing those who do not live in the condominium (R10). Once again, the content is heterogeneous, combining individual appropriation with collective management and access surveillance.

## NEIGHBORLY COEXISTENCE IN APARTMENT BUILDINGS

Relationships among neighbors in the same building combine sociability, familiarity, and anonymity. Felder et al. (2023) analyzed the social networks of four rental apartment buildings in Geneva, Switzerland, using a distance measure that incorporates the accessibility, visibility,

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and audibility arising from the building's layout and materials. They found that spatial proximity increased the likelihood of weak ties, such as greeting one another or chatting casually, and that sociability, familiarity, and anonymity are core dimensions of neighboring even at the scale of a single building.

Along the same lines, in a high-rise complex in Haifa, Israel, Arviv and Eizenberg (2021) showed that the anonymity the literature often treats as a negative feature of high-rise living can offer residents the privacy needed to manage social proximity.

Neighbourly coexistence has been associated with various well-being outcomes. Using structural equation modelling in four high-rise complexes in Hanoi, Vietnam, Nguyen et al. (2025) found that having more neighbours in one's social network was associated with greater social cohesion, and the latter with stronger neighbourhood attachment and fewer feelings of loneliness. They noted that these benefits depend on the urban context and on the availability of common spaces within and around the buildings.

In the study by Kleeman et al. (2023) of apartment developments in Sydney, Melbourne and Perth, use of outdoor common areas was associated with more relationships with neighbors; residents who did not use indoor common areas were more likely to feel lonely; and neighbor relationships acted as a protective factor against loneliness.

Benz et al. (2021), for their part, identified relationships with neighbors and neighborhood satisfaction among the factors associated with annoyance from neighbor noise, a finding that links coexistence with acoustic privacy.

The instrument's Relationship with Neighbors dimension includes everyday sociability behaviors, such as greeting neighbors (R11); perceived support, such as being able to ask for help in an emergency (R12); conflict, such as the frequency of conflicts between neighbors (R13, reverse-scored); compliance with rules, such as respecting the agreements of the building management (R14); and participation, such as attending residents' meetings (R15).

These items cover both one's own behaviors and perceptions of others, and their covariation is not guaranteed: a person may greet all of their neighbors but not attend meetings, or may participate precisely because they perceive conflicts. Given the cross-sectional design, the relationships among privacy, territoriality, and coexistence should be understood as associations rather than as relationships of dependence.

## METHODOLOGY

### DESIGN

A quantitative, non-experimental, cross-sectional study with a descriptive and exploratory scope was conducted. The data come from survey LEV-0018, "Piloto condominios Mazatlán · Privacidad y convivencia," of project FZ-HAB-0013 on the Factoriza UAS platform, and from the frozen dataset DST-0020, with a data cutoff date of 9 October 2026. The survey is an independent sample and the only one in the project.

### POPULATION, SAMPLE AND DATA CUTOFF

The survey population was defined as individuals aged 18 years or older residing in condominiums in Mazatlán, Sinaloa. The condominiums were selected by the project lead; building selection was therefore non-probabilistic. According to the Factoriza log, 33 individuals opened the questionnaire and 23 completed it; no cases were excluded for quality control, so 23 cases were analyzed (Table 2).

The analyzed dataset is preliminary: it comprises 23 cases out of a target of 100, and data collection was still open (in the field) at the cutoff date. With 23 cases for 15 items, the ratio is 1.5 cases per item, far below the ratio recommended for item factor analysis, whose first requirement is to verify the adequacy of the data and the sample (Ferrando et al., 2022; Goretzko et al., 2021).

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## INSTRUMENT

**Table 1. Structure of the instrument.**

| Code | Dimension | Item | Reverse |
|---|---|---|---|
| R1 | Privacy in the home | Inside my apartment, I can have a conversation without my neighbors hearing me | No |
| R2 | Privacy in the dwelling | The interior of my home can be seen from other apartments | Yes |
| R3 | Privacy at home | I have a space in my home where I can be alone | No |
| R4 | Privacy in the home | Noise from my neighbors comes into my apartment | Yes |
| R5 | Privacy in the home | I can enter and leave my home without feeling watched | No |
| R6 | Control of shared space | I feel that the hallway leading to my apartment is my own | No |
| R7 | Control of shared space | We residents take care of the common areas of the condominium | No |
| R8 | Control of shared space | Non-residents use the common areas without control | Yes |
| R9 | Control of shared space | I can decorate the entrance to my apartment as I like | No |
| R10 | Control of shared space | I recognize people who do not live in the condominium | No |
| R11 | Relationship with neighbors | I greet my neighbors when I run into them in the condominium | No |
| R12 | Relationship with neighbors | I can ask a neighbor for help if I have an emergency | No |
| R13 | Relationship with neighbors | In my condominium there are frequent conflicts between neighbors | Yes |
| R14 | Relationship with neighbors | Neighbors comply with the condominium management's agreements | No |
| R15 | Relationship with neighbors | I take part in condominium residents' meetings | No |

Note. Privacy, Territoriality and Coexistence in Condominiums Scale. Five-point response scale (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree). Reverse-scored items have already been recoded in the delivered data matrix. Source: Factoriza UAS, project FZ-HAB-0013, survey LEV-0018, dataset DST-0020.

## PROCEDURE

Responses were collected through the survey questionnaire administered on Factoriza UAS, which records explicit online informed consent before the first item and does not collect identifying data. Factoriza froze dataset DST-0020 with a cryptographic hash, generated the data matrix with reverse-scored items recoded, and produced the descriptive and internal-consistency analyses (runs RUN-00102 to RUN-00108). The supplementary analyses were conducted using the data file and the item dictionary exported by the platform.

## DATA ANALYSIS

In the first stage, Factoriza UAS calculated the mean, standard deviation, skewness, kurtosis, and percentages of responses at the extreme values for each item, as well as the internal consistency of each dimension using Cronbach's alpha (Cronbach, 1951), together with the corrected item-total correlation and alpha if item deleted.

In a second stage, the program analisis_psicometrico.py, version 1.0, was run in Python 3.13.16 (Python Software Foundation, 2026), with NumPy 2.5.3 (Harris et al., 2020), SciPy 1.18.1 (Virtanen et al., 2020), and pandas 3.0.5. The program applies fixed, explicitly stated procedures, and the calculations involve no manual intervention.

The program estimated McDonald's omega total (McDonald, 1999/2013) for each dimension from a one-factor model, without reversing items; if any item correlates negatively with the rest of its dimension, the program does not report omega because the coefficient ceases to be interpretable. The internal structure was explored through exploratory factor analysis of the Pearson correlation matrix of the fifteen items, after checking the Kaiser-Meyer-Olkin measure of sampling adequacy (Kaiser, 1974), item-level adequacy (Lorenzo-Seva and Ferrando, 2021) and Bartlett's test of sphericity (Bartlett, 1950).

The number of factors was determined by parallel analysis (Horn, 1965) with 100 simulations and seed 2026; extraction was by minimum residual, and rotation was oblimin, which allows the factors to correlate. All loadings are reported, along with the communality and adequacy of each item. Finally, the program estimated the relationship between the mean scores of the dimensions using Spearman's coefficient and its 95% confidence interval, obtained through the

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Fisher transformation with the standard error of Bonett and Wright (2000).

Reference values for interpreting the indices, such as the 0.60 threshold for the KMO, are treated as guidelines rather than decision rules (Ferrando et al., 2022). No items were removed; the program flags problematic items and leaves the decision to the authors. Confirmatory factor analysis was not performed and is proposed as future work.

## ETHICAL CONSIDERATIONS

Participation was voluntary and anonymous. Factoriza UAS records explicit online informed consent and does not collect names, email addresses or any other identifying data. In a study on neighborhood coexistence, anonymity is particularly relevant, because opinions about neighbors or about the building management could affect relationships within the condominium if respondents were identified.

## STATEMENT ON THE USE OF ARTIFICIAL INTELLIGENCE

The following were used in preparing this manuscript: the Factoriza UAS platform, for data management and descriptive and internal consistency analyses; a Python analysis program with fixed, validated procedures, for omega, exploratory factor analysis, and correlations between dimensions; and the Claude Opus language model (Anthropic), for running that program, assisted literature searching, preparing a draft, and assembling the document from the results. The authors reviewed, corrected, and approved the entire text, verified every reference, and take full responsibility for the content of the article.

## RESULTS

## SAMPLE COMPOSITION

Table 2 summarizes the flow of cases. Of the 33 individuals who opened the questionnaire, 23 completed it and were analyzed, with no exclusions for quality control. The difference between questionnaire openings and completions indicates an appreciable proportion of unfinished questionnaires, which should be examined during field administration. Every analyzed case answered all fifteen items.

**Table 2. Sample composition.**

| Indicator | Value |
|---|---|
| People who opened the questionnaire | 33 |
| Completed questionnaires | 23 |
| Cases excluded by quality control | 0 |
| Cases analyzed | 23 |
| Items | 15 |

Note. Survey “Piloto condominios Mazatlán · Privacidad y convivencia” [Mazatlán Condominiums Pilot · Privacy and Coexistence] (LEV-0018); population: persons aged 18 years or older residing in condominiums in Mazatlán; territory: Mazatlán, Sinaloa, in condominiums selected by the project lead. Dataset DST-0020, fingerprint f28ceab13d9e8cf0. Source: Factoriza UAS. Preliminary cutoff: n = 23 out of a target of 100, with the survey still open.

## DESCRIPTIVE STATISTICS

Table 3 and Figure 1 present the descriptive statistics. For Privacy in the home, the lowest means were those of R1, the possibility of talking without being overheard by neighbors ($M$ = 2.70, $SD$ = 1.55), and R4, the intrusion of noise from neighbors in its recoded version ($M$ = 2.74, $SD$ = 1.42), with 39% and 30% of responses at the minimum value, respectively.

The highest mean in the dimension was for R2, the recoded item on visual exposure from other apartments ($M$ = 3.35, $SD$ = 0.78), followed by R3, having space to be alone ($M$ = 3.30, $SD$ = 1.46). Overall, acoustic privacy received the least favorable ratings in the dimension.

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In Control of shared space, the highest mean was for R7, residents' care of common areas (*M* = 3.74, *SD* = 1.25), with a distribution skewed toward high values (skewness = -0.98). The lowest was for R6, feeling that the hallway is one's own (*M* = 3.00, *SD* = 1.09).

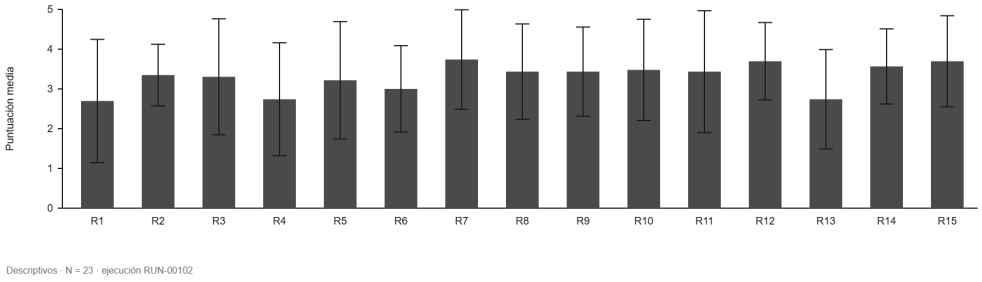
In Relationship with neighbors, the highest means were for R12, being able to ask a neighbor for help in an emergency, and R15, participation in neighborhood meetings, both with *M* = 3.70 (*SD* = 0.97 and 1.15). The lowest was for R13, frequent conflicts between neighbors in its recoded version (*M* = 2.74, *SD* = 1.25), indicating that the perception of conflict was not uncommon in the sample. The highest standard deviations, for R1 (1.55) and R11 (1.53), reflect widely dispersed responses.

**Table 3. Descriptive statistics of the items.**

| Item | M | SD | Skewness | Kurtosis | Floor | Ceiling |
|---|---|---|---|---|---|---|
| R1 | 2.70 | 1.55 | 0.16 | -1.43 | 39% | 17% |
| R2 | 3.35 | 0.78 | -0.08 | -0.29 | 13% | 4% |
| R3 | 3.30 | 1.46 | -0.39 | -1.19 | 17% | 26% |
| R4 | 2.74 | 1.42 | -0.01 | -1.48 | 30% | 9% |
| R5 | 3.22 | 1.48 | -0.41 | -1.21 | 22% | 22% |
| R6 | 3.00 | 1.09 | 0.46 | -0.29 | 4% | 13% |
| R7 | 3.74 | 1.25 | -0.98 | 0.19 | 9% | 30% |
| R8 | 3.43 | 1.20 | -0.61 | -0.34 | 9% | 17% |
| R9 | 3.43 | 1.12 | -0.56 | 0.31 | 9% | 17% |
| R10 | 3.48 | 1.27 | -0.45 | -0.68 | 9% | 26% |
| R11 | 3.43 | 1.53 | -0.74 | -1.06 | 22% | 26% |
| R12 | 3.70 | 0.97 | -0.29 | -0.75 | 13% | 22% |
| R13 | 2.74 | 1.25 | 0.09 | -0.79 | 22% | 9% |
| R14 | 3.57 | 0.95 | -0.03 | -0.76 | 13% | 17% |
| R15 | 3.70 | 1.15 | -0.53 | -0.29 | 4% | 30% |

Note.N = 23. Floor and ceiling indicate the percentage of responses at the minimum and maximum values. The item-total correlation column across the fifteen items is omitted because it combines three dimensions; the item-total correlation by dimension is presented in Table 4. Run RUN-00102 of Factoriza UAS. Preliminary cutoff: n = 23 out of a target of 100, with data collection still open.

**Figure 1. Mean scores by item with one-standard-deviation error bars.**




## INTERNAL CONSISTENCY

Table 4 summarizes the item analysis by dimension computed by Factoriza, and Table 5 presents the coefficients from the complementary program. The alpha values matched in both calculations and were low in all three dimensions: α = .445 for Privacy in the home, α = .287 for Control of shared space, and α = -.132 for Relationship with neighbors.

Omega is not reported for any of them, because all three contained items that correlated negatively with the rest of their dimension: R2 in Privacy; R8 in Control; and R11, R13 and R15 in Relationship with neighbors.

The item-level analysis pinpoints the problems. In Privacy in the home, R2 showed a corrected item-total correlation of -.117 and R5 one of .041, and removing either item would raise alpha to .535 and .532, respectively; R1, R3 and R4, by contrast, showed correlations ranging from

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.384 to .431.

In Control of shared space, R8 showed a correlation of -.098, and its removal would raise alpha to .442, whereas R9 had the highest correlation (.396), and its removal would bring alpha to -.006. In Relationship with neighbors, the negative alpha indicates that the mean inter-item covariance was negative: R13 (-.290), R15 (-.206), and R11 (-.028) correlated negatively with the rest of the items, and only R12 (.270) and R14 (.192) correlated positively. In this dimension, the total score does not represent a common attribute and should not be interpreted as such.

**Table 4. Item analysis by dimension.**

| Dimension | Item | Corrected item-total r | α if item deleted |
|---|---|---|---|
| Privacy in the home | R1 | .431 | .213 |
| Privacy in the home | R2 | -.117 | .535 |
| Privacy in the home | R3 | .396 | .256 |
| Privacy in the home | R4 | .384 | .270 |
| Privacy in the home | R5 | .041 | .532 |
| Shared space control | R6 | .076 | .292 |
| Control of shared space | R7 | .203 | .174 |
| Control of shared space | R8 | -.098 | .442 |
| Control of shared space | R9 | .396 | -.006 |
| Control of shared space | R10 | .158 | .221 |
| Relationship with neighbors | R11 | -.028 | -.157 |
| Relationship with neighbors | R12 | .270 | -.543 |
| Relationship with neighbors | R13 | -.290 | .239 |
| Relationship with neighbors | R14 | .192 | -.414 |
| Relationship with neighbors | R15 | -.206 | .107 |

Note.N = 23. Scale from 1 to 5; reverse-scored items R2, R4, R8, and R13 are shown recoded. Run RUN-00102 of Factoriza UAS. Preliminary cutoff: n = 23 out of a target of 100, with data collection still open.

**Table 5. Internal consistency by dimension.**

| Dimension/ Items | n | α | ω | Observation |
|---|---|---|---|---|
| Privacy in the home | 5 | 23 | .445 | Reverse-worded items: R2; ω not interpretable |
| Control of shared space | 5 | 23 | .287 | Reverse-worded items: R8; ω not interpretable |
| Relationship with neighbors | 5 | 23 | -.132 | Reverse-keyed items: R11, R13, R15; ω not interpretable |

Note.N = 23. The corrected item-total correlation excludes the item itself from the total of its dimension. Cronbach's α for each full dimension (5 items each): Privacy in the home = .445 (run RUN-00103); Control of shared space = .287 (RUN-00105); Relationship with neighbors = -.132 (RUN-00107). A negative alpha indicates that the mean covariance among the items of the dimension is negative. Source: Factoriza UAS, Tables 4, 6, and 8 of the package, combined without modifying values. Preliminary cutoff: n = 23 out of a target of 100, with data collection ongoing.

## INTERNAL STRUCTURE

The exploratory factor analysis could be estimated, but the data conditions were less than favorable. The overall measure of sampling adequacy was KMO = .401, below the indicative benchmark of 0.60, and several items showed low individual adequacy values flagged by the software (Table 7).

Bartlett's test was significant, $\chi^2(105) = 131.75$, $p = .040$, indicating that the matrix is not an identity matrix, but this is not sufficient to justify factoring. Parallel analysis indicated retaining five factors (Figure 2), which together explained 58.87% of the variance, with individual contributions ranging from 12.97% to 9.20% (Table 6). The interfactor correlations from the oblimin rotation were low, with a maximum of .293 between Factors 1 and 4.

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**Figure 2. Scree plot with parallel analysis.**

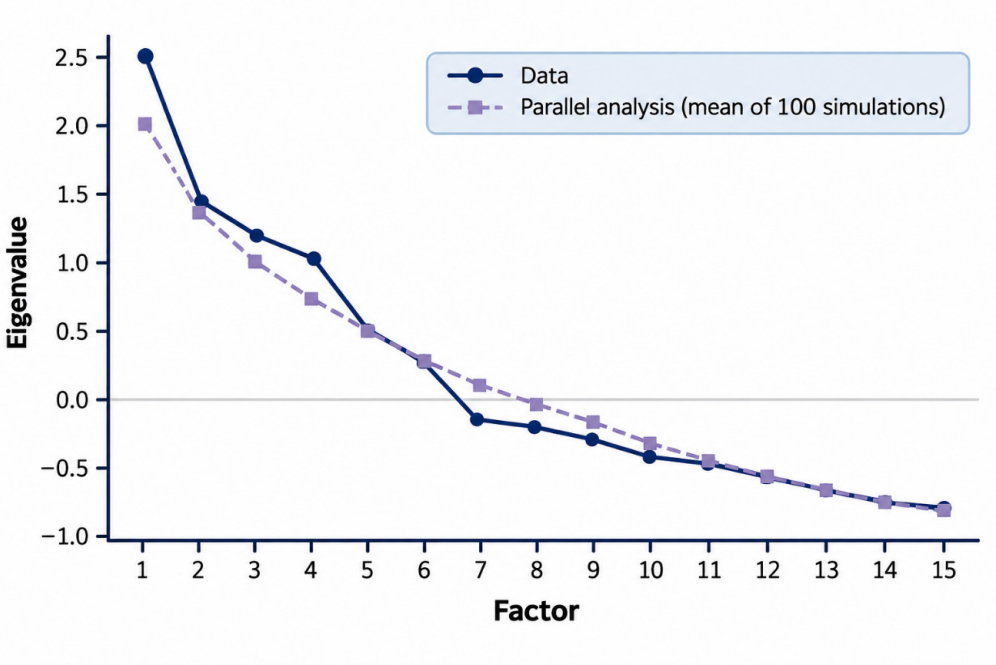



**Table 6. Variance explained by the factors.**

| Factor | Sum of squared loadings | % of variance | Cumulative % |
|---|---|---|---|
| 1 | 1.94 | 12.97 | 12.97 |
| 2 | 1.89 | 12.63 | 25.60 |
| 3 | 1.87 | 12.47 | 38.07 |
| 4 | 1.74 | 11.59 | 49.66 |
| 5 | 1.38 | 9.20 | 58.87 |

Note. Eigenvalues of the reduced data matrix compared with the mean of 100 simulated matrices of the same size (seed 2026). Source: prepared by the authors using analisis_psicometrico.py 1.0 (Python 3.13.16), dataset DST-0020_FZ_HAB_0013. Preliminary data cut: n = 23 of a target of 100, with data collection still ongoing.

The pattern matrix (Table 7) did not reproduce the three hypothesized dimensions. Factor 1 grouped items from two dimensions: R9, being able to decorate the entrance (.734); R1, talking without being overheard (.669); R5, coming and going without feeling watched (.455); and R11, greeting neighbors (.401), with a negative loading of R2 (-.658).

Factor 2 grouped the four reverse-worded items, R4 (.938), R8 (.550), R13 (.485), and R2 (.352), drawn from all three dimensions. Factor 3 combined R6, feeling that the hallway is one's own (.843), with R12 (.677) and R14 (.631), from the neighbor-relations dimension. Factor 4 was defined by R7, care of the common areas (.979), and R3, space to be alone (.573); Factor 5 was defined by R10, recognizing outsiders (.684), and R15, participation in meetings (.637).

The solution yielded a communality greater than 1 for R7 (1.007), that is, a Heywood case indicating an improper solution. The software also flagged eleven items requiring a decision by the authors because of low adequacy, cross-loadings or opposite signs. For these reasons, the loading matrix is presented to document item behavior, not as evidence of the dimensionality of the instrument.

**Table 7. Factor loadings from the exploratory factor analysis.**

| Item | 1 | 2 | 3 | 4 | 5 | $h^2$ | MSA |
|---|---|---|---|---|---|---|---|
| R1 | .669 | .299 | .086 | .168 | -.042 | .666 | .454 |
| R2 | -.658 | .352 | .209 | -.053 | -.286 | .729 | .548 |
| R3 | .063 | .196 | .335 | .573 | -.103 | .586 | .371 |
| R4 | .031 | .938 | -.037 | .102 | .027 | .914 | .586 |
| R5 | .455 | -.154 | -.035 | -.030 | -.293 | .294 | .235 |
| R6 | -.011 | -.002 | .843 | .111 | .050 | .735 | .505 |

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| Item | 1 | 2 | 3 | 4 | 5 | $h^2$ | MSA |
|---|---|---|---|---|---|---|---|
| R7 | .051 | -.006 | -.042 | .979 | .075 | 1.007 | .307 |
| R8 | .123 | .550 | -.010 | -.437 | .104 | .391 | .433 |
| R9 | .734 | .154 | .185 | .054 | -.022 | .654 | .698 |
| R10 | .152 | .074 | -.099 | .083 | .684 | .533 | .365 |
| R11 | .401 | -.387 | .119 | -.078 | -.244 | .369 | .623 |
| R12 | .174 | -.044 | .677 | -.016 | -.258 | .595 | .532 |
| R13 | -.020 | .485 | -.116 | -.216 | -.276 | .390 | .229 |
| R14 | -.026 | -.150 | .631 | -.250 | .304 | .520 | .226 |
| R15 | -.107 | .014 | .210 | .071 | .637 | .448 | .415 |

Note. KMO = .401; Bartlett's test of sphericity: $\chi^2(105) = 131.75$, p = .040. Number of factors according to parallel analysis: 5. Source: Prepared by the authors using analisis_psicometrico.py 1.0 (Python 3.13.16), dataset DST-0020_FZ_HAB_0013. Preliminary data cut: n = 23 out of a target of 100, with data collection still open. Given a KMO below the reference value and 1.5 cases per item, the solution is presented only as a preliminary exploration.

## RELATIONSHIP BETWEEN THE DIMENSIONS

Table 8 presents the Spearman correlations between the mean scores of the three dimensions, based on 23 cases. The relationship between Privacy in the home and Control of shared space was positive and moderate, ρ = .514, 95% CI [.101, .775], *p* = .012, and it was the only one whose interval excluded zero.

The relationship between Control of shared space and Relationship with neighbors was positive and weak, ρ = .212, 95% CI [-.224, .577], *p* = .331. The relationship between Privacy in the home and Relationship with neighbors was practically zero, ρ = .104, 95% CI [-.323, .496], *p* = .636. Because the Relationship with neighbors score had a negative alpha, its correlations with the other dimensions lack a clear substantive interpretation.

**Table 8. Correlations Between Dimensions.**

| Dimension pair | n | ρ | IC 95 % | p |
|---|---|---|---|---|
| Privacy in the Home and Control of Shared Space | 23 | .514 | [.101, .775] | .012 |
| Privacy in the home and Relationship with neighbors | 23 | .104 | [-.323, .496] | .636 |
| Control of Shared Space and Relationship with Neighbors | 23 | .212 | [-.224, .577] | .331 |

Note. Pattern matrix. Minimum residual extraction and oblimin rotation (γ = 0) on the Pearson correlation matrix; 23 complete cases. $h^2$ = communality; MSA = measure of sampling adequacy per item. All loadings are shown. Source: Prepared by the authors using analisis_psicometrico.py 1.0 (Python 3.13.16), dataset DST-0020_FZ_HAB_0013. Preliminary cut-off: n = 23 out of a target of 100, with data collection still open. The intended dimension and observations columns have been moved to this note to fit the table to the page width: R1 to R5 correspond to Privacy in the Home, R6 to R10 to Control of Shared Space, and R11 to R15 to Relationship with Neighbors (Table 1). The communality of R7 exceeding 1 indicates a Heywood case and, therefore, an improper solution; the matrix is presented to document item behavior and not as evidence of structure. Program observations by item: R1, low MSA; R2, cross-loading; opposite sign; R3, cross-loading; low MSA; R5, low MSA; R7, Heywood case; low MSA; R8, cross-loading; low MSA; R10, low MSA; R11, cross-loading; R13, low MSA; R14, cross-loading; low MSA; R15, low MSA.

## DISCUSSION OF RESULTS

The purpose of this study was to describe the initial performance of a scale of privacy, territoriality, and neighborhood coexistence in condominiums in Mazatlán. The central finding is that none of the three dimensions behaved as a homogeneous scale in this cross-section: alphas were low or negative, omega was not interpretable in any dimension, and exploratory factor analysis, which also showed insufficient sampling adequacy and a Heywood case, suggested a five-factor structure that cuts across the theoretical dimensions.

With 23 cases, part of this pattern may be attributable to sampling error; the simulation literature on the alpha and omega coefficients has been developed with much larger samples (Malkewitz et al., 2023). However, the consistency of the pattern across the different analyses offers substantive clues worth examining before data collection is concluded.

The clearest clue is the grouping of the four reverse-worded items on a single factor. R2, R4, R8 and R13 belong to three different dimensions and yet loaded together on factor 2, whereas two

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of them (R2 and R8) and R13 correlated negatively with the rest of their dimension. This pattern is consistent with a wording effect, that is, with variance associated with the direction in which the items are worded rather than with their content.

Steinmann et al. (2022) showed that scales with items keyed in both directions require more careful reading and responding, and that some respondents respond inconsistently to the positive and negative items of the same dimension, which can produce wording-related effects.

García-Batista et al. (2021) documented that detecting and removing these inconsistent responses appreciably reduces wording effects in mixed scales. With such a small sample, this effect cannot be distinguished from other explanations, such as incorrect recoding.

The second clue is the heterogeneity of content noted in the theoretical framework. In Privacy in the Dwelling, R5 (entering and leaving without feeling observed) showed low covariance with the dimension and loaded together with R1 on a factor that also included the possibility of decorating the entrance, which suggests a component of control over the apartment's threshold that is distinct from interior privacy.

That acoustic privacy had the lowest means within the dimension is consistent with the literature placing neighbor noise among the most common annoyances in multifamily housing (Benz et al., 2021; Wang and Norbäck, 2021) and with its possible relationship to mental health (Gong et al., 2022).

In Control of shared space, individual appropriation (R6 and R9), collective care (R7) and access surveillance (R8 and R10) loaded on different factors, as would be expected if territoriality in semi-public spaces depends on the physical and organizational components that delimit those spaces (Nowzari et al., 2023; Rodríguez Sosa et al., 2022).

For Relationship with Neighbors, the negative alpha indicates that, in this cross-section, the dimension groups behaviors and perceptions that do not vary together. Participation in meetings (R15) and greeting neighbors (R11) correlated negatively with the remaining items, as did the perception of conflicts (R13) after recoding.

One possible substantive explanation is that participation in meetings and the perception of conflicts coexist, since meetings are often where conflicts are voiced; another is that neighbourhood coexistence combines distinct dimensions, such as sociability, familiarity and anonymity, which need not covary (Felder et al., 2023).

In turn, the grouping of R12 and R14 with the sense of ownership of the corridor (R6) on factor 3 suggests a component of trust in the immediate neighbourhood environment, consistent with studies that associate neighbourhood networks with cohesion and attachment (Nguyen et al., 2025).

The positive association between privacy and control of the shared space is the most robust finding of this wave, although its confidence interval is wide and both scores have low internal consistency. It is consistent with the idea that residential privacy is regulated within the apartment as well as at its thresholds and in the semi-public spaces surrounding it (Macedo et al., 2022; Nowzari et al., 2023).

In any case, the cross-sectional design precludes establishing the direction of this relationship. Finally, response quality should be reviewed before the final analysis, because in small samples careless response patterns can distort correlations (Ward and Meade, 2023).

## CONCLUSIONS

The study met its objective to the extent permitted by a preliminary sample of 23 cases. In its pilot administration, the privacy, territoriality and coexistence scale of project FZ-HAB-0013 showed low internal consistency for Privacy in the dwelling ($\alpha$ = .445) and Control of shared space ($\alpha$ = .287), and negative internal consistency for Relationship with neighbors ($\alpha$ = -.132).

The exploratory factor analysis, with insufficient sampling adequacy (KMO = .401) and a Heywood case, suggested five factors that do not reproduce the theoretical dimensions; one of them consisted of the four reverse-worded items. The only relationship between dimensions whose interval excludes zero was the positive association between Privacy and Control of shared space. The results do not yet provide evidence of structural validity; their main use is to identify the items and design decisions that should be revised.

The limitations are substantial. The sample of 23 cases, against a target of 100 and with 1.5 cases per item, makes the statistics and the factor solution unstable; data collection was still ongoing, and some of the people who opened the questionnaire did not complete it.

The condominiums were selected by the project lead without a probabilistic procedure,

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and no information is available on their characteristics or on those of the residents, such as tenure, length of residence, or permanent versus temporary residence status. In a city with a high proportion of second homes, these factors may alter the experience of coexistence. The cross-sectional design precludes establishing dependence relationships, and no confirmatory factor analysis was performed.

These results point to several decisions for the authors. The first is to verify the recoding of the four reverse-worded items and, if it is correct, to consider whether they should be reworded in the positive direction or retained, with the wording effect modeled using a sufficiently large sample. The second is to review the Relationship with Neighbors dimension, particularly R11, R13 and R15, and to consider whether everyday sociability, conflict and participation in condominium management should be separated.

The third is to review R5 in Privacy and R8 in Control of Shared Space, and to assess whether privacy at the thresholds of the apartment constitutes a distinct facet. The fourth is to record each respondent's condominium and tenure characteristics. None of these decisions was made in the present analysis, which retains the original fifteen items.

For future work, we propose completing data collection up to the planned target, repeating the exploratory factor analysis with the final dataset, and then evaluating the resulting structure through confirmatory factor analysis in an independent sample.

The measurement could be complemented by a physical characterization of the condominiums, such as the layout of corridors and common areas and the sound insulation between apartments, so that perception can be compared with building conditions. An instrument with documented validity evidence would make it possible to monitor the habitability of vertical housing in Mazatlán and to inform its design, its regulation, and the management of coexistence in condominiums.

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