Behind the Privative Space Obstruction. Investigating Visual Perception Privacy, Downtown Algiers' Mass Housing

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ABSTRACT

The present paper brings forth visual perception privacy issue in mass housing in Algiers. Considering a correlation between obstruction rates and visual perception privacy, the case study was selected to measure dwellers' satisfaction according to Altman's theoretical framework. A qualitative method was adopted and a semi-guided interview was conducted with 28 downtown mass housing residents in Algiers. On the other hand, to understand outsiders' perspective regarding downtown dwellings' perception, the qualitative method was supplemented by a survey involving 94 participants. Both methodological tools were structured according to previous non-participatory observation. Finally, the investigated area appears as being double-scaled: on an urban scale visual perception privacy measurement, people are satisfied, while on the residential scale, dissatisfaction prevails. From outsiders' perspective, dynamic motions combined to street furniture create a visual protective shield between dwellers and unfamiliar outsiders, as the later perceive environment on a cognitive dimension, while familiar outsiders perceive it on an affective-emotional symbolic dimension.

Keywords: Down-town, Dwellings, Housing, Obstruction phenomenon, Perception

Introduction

In Algeria, figures have shown that visual privacy is the primary concern regarding privative spaces (Benlakehal 2014), though designers keep considering it as an area for leisure (Smektala & Baborska 2022), leading to their classification as “a manifestation of the inconsistency between housing design and culture” (Rahim 2015). These spaces appear as exogenous satisfiers (inhibiting satisfiers) that can transition into endogenous (synergic) ones, through obstruction phenomena in Algeria (Benlakehal 2019).

According to Margulis (2011), three main theories about privacy exist. First Westin (1969) revolutionized the privacy concept with his avant-garde theory about personal data privacy, and then Altman established a relationship between privacy and culture with his regulation theory (1975, 1977), and finally, Petronio’s communication privacy management theory (CPM), is about data privacy in computing field (1990).

In their comprehensive review of work between 2000 and 2021, De Macedo & al 2022 observed a concentration of studies in three contexts: American, European, and Islamic. This corpus of research was categorized into four major themes: privacy, territoriality and personal space, crowding, and solitude. This study is taking part in Algiers, which make the Islamic category the adequate context for further investigations.

### Islamic contexts

**Privacy, religion and gender**

Manaf & al (2018), established a conceptual framework taking in count MVP Muslim Visual Privacy, based on Charia concepts. The author tried to adjust Altman’s theory to an Islamic context, and showed how this concept is related to Charia and to women as a social role. The relationship between this social role and privacy is emphasized in Abbasuglu & Dagli’s work (2019), the authors investigated privacy by comparing women’s visual privacy WVP in traditional versus modern settlements. They considered WVP in Islamic religion is more important than any other one.

They also stated out that some scholars considered women want more visual protection, and others thought that the degree of protection has decreased. In deed both standpoints are true, due to social and cultural changes initiated by colonialism movements in the past century.

Al Kodmany (2000), also conducted a comparative study between contemporary and traditional urban settings, he also considered that there is a holy bond relating women as a social role to privacy. He classified visual privacy VP as a subtype of seclusion.

Rahim 2015, based on both Westin and Altman concepts studied how Malay culture and Islam influence visual privacy. It turned out that behavioural norms and physical elements provide the required visual privacy level just as Altman stated in his regulation theory.

Najeed 2010 conducted a quantitative investigation in Jordanian capital to seek visual privacy satisfaction. He found out Oman’s dwellers are not quite satisfied with their visual privacy even though it is one of top priorities in dwelling criteria, and people are using physical protection mechanism even it is illegal. The population is crossing the law to protect its privacy; this illustrate the paramount importance of visual privacy protection on a sociocultural level.

In Algeria scientific papers exploring privacy are very few (Bouznada et Zarouala 2014, Rouag-Djenidi 2005), visual privacy in Algerian context is inexistent, even you can feel the importance of such concept in Algerian society, where scholars talk about privacy as being in relation to territoriality (Rouag-Djenidi, 2005) or appropriation (Benlakehal, 2014), or urban design, scholars are aware of how important and active privacy may be in Algerian social context, yet privacy-focused works are extremely rare.

### Traditional urban settings

Privacy is a concept that has significantly influenced the design of ancient dwellings in Islamic countries. Various studies have attempted to identify patterns allowing for optimal visual privacy in these contexts (Shabani & al 2010, 2011, Alizadeh 2012, Ghasmi & al. 2015, Al khazmi 2017, Moayed, 2019, Kauser 2018), we can notice that most of those settlements are deserted today, because societies...
have evolved since then and those dwellings are no longer suitable for their cultures.

On the other hand, comparative studies are conducted between traditional and modern settings (Al kodmany 2000, Sriti & Tabet Aoul, 2004, fallah & al. 2015) and all came to the same conclusion: modern dwellings lack the connection between the space and culture as Alizadeh 2012 stated "...the neglect of such a concept (privacy) has resulted in challenges for buildings in these citries (Islamic contexts) nowadays". However, all those studies tried to find out spatial settlements that made the connection possible again. In fact, society consistently manages to re-establish this connection; however, the manifestation of this restoration tends to create architectural / urban challenges. In Algeria, visual privacy protection contemporary manifestation is embodied in the phenomenon of obstruction (Benlakehal 2014).

If obstruction phenomenon reflects visual privacy protection, this would imply that low obstruction rate buildings should have lesser visual privacy issues.

**Case study Study background / study context**
To address this question and confirm the assumption aforementioned, we reviewed various sets of contemporary housing in Algiers. The aim was to discern mass housing instances, within the near-zero obstruction rate. This rate was pinpointed in two specific cases: promotional mass housing (urba 2000 el Achour, BESSA promotional housing Cheraga, Hasnaoui promotional housing Cheraga...) and downtown Algiers' dwellings facing the main street.

It seemed more interesting to focus on downtown mass housing, as social groups in promotional housing are relatively affluent, meaning they face fewer constraints than those in downtown Algiers.

Finally, two residential buildings were selected in Dr Sadane street according to these selective criterions:

- Habitations should have the lowest ratio of protection, and facing saturated environments (only habitations on main streets were considered here, in habitations on secondary streets the privative space protection is too high and is clearly due to the proximity of facing)

![Figure 1: Case study situation in the municipality of Algiers](image)

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1 In traditional settings the connection is established pre-designed while nowadays the connection is post-occupatory and not covered in the architectural or urban design.
The flat should be dedicated to dwelling (in downtown Algiers it is very common to use the flat as a financial resource as an office or a dentist's cabinet)

• The ownership of the habitation because when it is rented occupants cannot transform the space as they wish

• The occupation period should not be less than 10 years

The case study situation is illustrated in Figure 1 and Figure 2.

From visual privacy VP to visual perception privacy VPP

The concept of visual privacy is defined in relation to the sense of sight as stated by Jawder & El-wakeel 2022 “Visual privacy is associated with the sense of sight, which is considered to be one of the most important means of observing the actions of others”. Yet in the aforementioned works, visual perception is gauged through perceptual considerations. Here a crucial distinction arises between vision - encompassing the biological features of seeing -, and perception - linking these biological features to the cognitive dimension of the operation -

Zhang et al. (2023) beside Mandhan’s study 2016 on dynamic simulation of external privacy in arab muslim neighborhoods; (both based on Benedikt’s theory of isovist 1979), defined an indicator for visual privacy. It is comprehensible that those indicators are just guidelines in pre-designing housing.; but necessary to keep in mind considering the sense of sight only under its biological traits does not reflect the absolute reality. Studies on environmental perception (Linch 1960, Bailly 1977, Itelson 1978) are better-approaching the actual situation, this is why it would be more accurate to talk about visual perception privacy VPP than visual privacy VP.

A conceptual framework for privative spaces’ VPP in mass housing

De Macedo et al. (2022) agree with Margulis (2003) to say “the concepts proposed by Alan Westin (1967) and Irwin Altman (1975) continue to stand out as the core of contemporary theories on the subject”.

Altman’s regulation theory is the only theory taking privacy concept regarding the cultural dimension, and thus making it the most suitable theory for housing studies.

Altman 1975-1977, considered privacy as a regulatory process depending on circumstances and culture. He measured privacy by comparing actual privacy level APL to desired privacy level DPL. Three possible cases are raised as following:

- (DPL) < (achieved (A)) (crowding)
- (DPL) > (achieved (A)) (isolation)
- (DPL) = (achieved (A)) (optimal)

He also defined four types of privacy mechanisms: verbal, non-verbal, cultural practices and environmental. (Figure 3)

“Visual privacy is divided into two types within architectural spaces; between the occupants within a building and between the occupants and people outside a building”. 
In this context, two distinct forms of discomfort are delineated: the first form is opposing dwellers themselves to each other. The second form is opposing dwellers to outsiders. This investigation falls under the second form.

In most of the visual privacy studies, passers-by/watchers/outsiders/observers are gathered as a single entity. However, studies on environmental perception highlight that the mode of transportation (Jin & Wang 2021) and the familiarity to the site (Kalali, 2015) introduce significant perceptual divergences. Therefore, it is imperative to distinguish between next-door neighbors and those residing in the opposing buildings, between pedestrians, driving passersby, squatters...etc.

The bidirectional nature of visual privacy relations previously emphasized, become clearer when considering Friedman’s findings 2006. According to him, passersby/watchers perceive reciprocity as a prerequisite for fairness in VPP relationships, but this reciprocity takes on a disconcerting aspect, when seen through dwellers’ lenses (watched), and intrudes upon their privacy.

The diagram (figure 4) shows how dissatisfaction generates from undesired reciprocity that unleashes privacy mechanisms. Those mechanisms flip dissatisfaction into satisfaction.
**Method**

This study adopts basically a qualitative approach among 28 mass housing downtown dwellers, driven by the exploratory dynamics inherent in the observed/observer relationship; completed by a quantitative investigation toward the study area’s passersby, methodologically, it employs tools such as observation, survey and semi-structured interviews to delve deeper into the subject.

The following table (table 1) shows the value and the aim of each tool.

**Table 1: methodological tools aims**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Aim</th>
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<tbody>
<tr>
<td>Observation</td>
<td>• Exploring observers / observed behaviors to establish interviews and survey</td>
</tr>
<tr>
<td></td>
<td>• Validation tool to verify interviewees statements and surveyed passersby</td>
</tr>
<tr>
<td>Semi-structured</td>
<td>• Measure residents' satisfaction with VPP.</td>
</tr>
<tr>
<td>interviews</td>
<td>• Identify privacy mechanisms erected by residents</td>
</tr>
<tr>
<td></td>
<td>• Identify reel and potential discomfort</td>
</tr>
<tr>
<td>Survey</td>
<td>• Probe passersby perception regarding the surrounding residential buildings, in order to compare it with dwellers' statements</td>
</tr>
<tr>
<td></td>
<td>• Enumerate potential factors conducive to satisfaction situation</td>
</tr>
</tbody>
</table>

**Non-participatory observation**

This methodological tool serves two crucial functions in this research:

- **Exploration**: Besides being a research method on its own, observation has been described as a data collection method in several scientific papers (Baker, 2006; Powell & Connaway, 2004; Williamson, 2000). In this case, observation allows us to explore the field investigated. In this study observation is useful to familiarize ourselves with the site and to categorize the type of observer, but also observing dwellers’ behavior and their frequencies. This initial phase spanned 15 days from 9 November 2022 to 23 of the same month. This exploring phase allowed to discern several types of potential watchers based on their mode of movement, purpose and their belonging to the area. The identified groups include
  - Motorists
    - Drivers
    - Passengers
  - Transients
  - University students
  - Squatters
  - Facing-buildings’ dwellers

Furthermore, the analysis considered the variations in pedestrian flow based on different days of the week, time of the day and frequency; was useful to establish study case choice.

Additionally, the observation of dwellers behaviors, revealed activities most pertinent to VPP. We noted that the shaking of laundry/rugs/beddings requires complete exposure. This controversial situation needs explanations especially among obstructed residences.

- **Validation**: qualitative researches are often considered as biased and subjective. However, researchers developed multi techniques to avoid these bias and validate results. Non-participatory observation has been used as an additive data collection technique in order to bring further accuracy through triangulation to the results (Chatman, 1992). Non-participatory observation helps in confirming the statements' accuracy made by individuals during the semi-structured interviews, and surveyed passersby answers. This part took place during the first week of May 2023.

**Qualitative analysis: exploring the relation from dwellers’ standpoint**

**Sampling**

The buildings under study contain fifty apartments facing the main street, but only twelve apartments met our selection criteria. The entire population (all occupants aged 18
years or older) was surveyed, in order to seize differences across different age groups, and genders even inside the same household.

The apartments were coded using sequential alphabetic characters, and their occupants were assigned alphanumeric identifiers for a systemic organization of the sampling units and affiliated population.

The composition of the examined sample is summarized in table 2 and figure 5.

**Table 2. Sample’s composition according to age and gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18-35</td>
</tr>
<tr>
<td>17 females</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>C3, C4</td>
</tr>
<tr>
<td>11 males</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>I2, I3, J2</td>
</tr>
</tbody>
</table>

*Semi-guided interview: process and coding*

This phase extended over a 20 days period, from December 24th 2022 till January 12th 2023. Interview sessions spanned durations ranging from 38 min to 1h32 min.

Initially, general questions were posed regarding household composition, encompassing age, gender, residence duration...etc

In the next section, investigation was turned toward VPP satisfaction through hypothetical scenarios², built on discomfort sources previously defined (next-door neighbors, facing building neighbors and different passersby’s types).

Questions inviting participants to imagine different situations regarding outsiders, to reveal further discomfort situations and to cease the difference between men and women, young and aged...etc

The next step is to identify privacy mechanisms as defined by Altman. First an actual-situation of physical mechanisms reporting was planned. However as the investigation was going forward, reporting included past and future situation.

Satisfaction is a subjective construct, this is why caution must be exercised in interpretation of interviewees assertions, recognizing the inherent potential for inaccuracies in self-reported satisfaction. The delineation between absolute satisfaction and perceived satisfaction emerges as a critical imperative.

² Hypothetical scenario is a methodological tool conceived to push investigation further. This tool was used in Friedman 2006 work, it faces participants to controversial situations, in order to define a better analysis.
Distinction should be operated in the nature of responses and consideration should be given to whether the response is spontaneous (SR) or triggered by the investigator, additionally, a further distinction drawn between triggered-responses alongside narrative descriptions (TAN) of real situations, and those triggered without corresponding narrative elements (TWN).

Triangulation through methodological diversification (facing answers to non-participatory observations, using hypothetical scenarios, identifying privacy mechanisms) brings to a certain point some validity to those self-reported satisfactions.

Inquiries were also raised regarding VPP in relation to household chores, with a specific attention given to shaking rugs/bedding in obstructed dwellings. The focus arises from the necessity of clearing obstructive elements for the completion of such tasks, which appears paradoxical in light of fundamental principle of privacy protection through obstruction.

The semi-directive interview is an intuitive and constructive tool, endowing it with freedom and flexibility. New emerging questions during the interview are presented in Appendix 1

**Exploring the relation from outsiders stand point: the street as interface**

**Facing streets as interfaces**

Perceptual is different from visual as stated earlier in this study. When it comes to perception we need to understand that it is combination of several human senses with cognitive aspects such as memories, mood, thoughts ...etc, we need to understand that perception goes along with attention and focus, and this attention depends on cognitive contributes.

Perceptual relationships are of paramount importance when approaching VPP, which is why understanding the focused perception would be insightful. El Mushayt studied the relationship between focused perception and street interfaces. Before proceeding further, an analysis of the passersby’s perception in the facing street in our study case according to El Mushayt method, would be informative to know if passersby are focusing on the street or elsewhere.

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3 Denault & al. Analysed spontaneity as an indicator of credibility in various witnesses’ statements, within the Canadian legal system. Findings show that spontaneity emerges as a significant factor in the assessment of testimonies, wherein spontaneity during trials seems to be correlated with truthfulness

4 El Mushayet has studied perceptual interaction in the street in Barcelona, and he defined five categories of interfaces by using eye-tracking glasses.
First, the opposite street would be defined according to the potential visual field in the investigated buildings as illustrated in the following diagram - figure 6, figure 7 - and then, this section should be classified under El Mushayt’s interfaces -figure 8-

There are 2 sections corresponding to the potential visual field.

On the other hand, Zhang et al (2022, 2023) distinguished between focused visual perception and peripheral one, which means that people pay more attention when the perceived object is aligned with the FOV (focus of vision). Figure 9 shows the possible places where the studied building is falling right on the FOV.

According to Al Mushayt’s work, section II has the greatest chance for passersby to look elsewhere when passing, and it happened also to be a section aligning with the FOV, this is why in the survey the interrogated people should be asked from there.

Sampling

The following table – table 3 - presents the surveyed individuals composition. In this complementary section, the respondents were initially asked to describe surroundings perceived elements. This question aimed to cease spontaneous answers for more credibility.

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Transit. P</th>
<th>Students</th>
<th>Squatters</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Driver</td>
<td>15 Male</td>
<td>15 Male</td>
<td>4 Male</td>
</tr>
<tr>
<td>15 Passer</td>
<td>15 Fem.</td>
<td>15 Fem.</td>
<td>0 Fem.</td>
</tr>
</tbody>
</table>
Results
Exploring the relation from dwellers’ standpoint
Assessing the satisfaction level
At first glimpse, participants’ answers reflect general satisfaction, but later, hypothetical scenarios revealed extra dissatisfaction cases and extra discomfort sources as detailed below.

A. Spontaneous answers.
Satisfaction prevailed in spontaneous answers as presented in table 4; however, three male B2, C1 and F2 respondents showed discomfort concerning passersby B2 and F2 and squatters C1. One of them B2 followed his inconvenience by narrative elements, while the others could not remember any happening incidents.

A female participant A2, highlighted her next-door neighbor as being the major source of discomfort. It is important to know that the narrated events in her case were unfold in the recent past, and not currently.

B. Hypothetical scenarios
Further questions were asked regarding different discomfort sources (passersby and neighbors). Using hypothetical scenarios revealed further discomfort situations regarding next-door neighbors and passing neighbors as detailed in the following section.

1. Dwellers / next-door neighbors
As expected, next-door neighbors were considered as very inconvenient. Men expressed restraining going out when a woman is already there, and vice versa, with the exception of E1 who declared no discomfort.

Then participants were prompted to recall situations of experienced discomfort. A1, B1, B2, D1, F1, H1 and H2 were able to evoke instances from previous discomfort situations while the others could not point at any situation.

Next, the respondents were asked to assess the encounters frequency with next-door neighbors on their own privative spaces

The responses vary between occasionally, rarely, and never. A noteworthy testimony stated by dwellers from 1962, aged over 60 D1, D2, E1, F1, G1, H2, J1, L1, L2, about underscoring more frequent social-interactions.
In the past. These responses align with our notes, recorded in the non-participatory observation. As shown in the following diagram, some dwellers have not appear over a fortnight A1, A2, H1, H2, due to their health condition, while for the others outing is very limited. This low frequency in social interaction may indeed contribute to the heightened sense of satisfaction.

2. Dwellers / facing-building neighbors discomfort

The surveyed individuals showed no discomfort towards facing-building neighbors, and no one succeeded to provide experienced situations. This could probably be attributed to two factors:

The first one, lies in the relative positioning of the building to one another. Zhang & al. 2022 explained the relation between the visual field and privacy: when the observer is not on the visual focus FOV the target do not feel bothered and this may be the case in this situation.

The second factor is the distance exceeding 25 meters, which is considered sufficient to protect dwellers from privacy intrusion (Zhang & al 2022). Figure 10.

![Figure 10. Distances between the studied building and his surrounding buildings](image)

3. Dwellers / passersby discomfort

The next section is to assess dwellers discomfort regarding passersby. Respondents assured feeling satisfied. (Except for B2, F2, C1 who deliberately declared being bothered by passersby) however, two women over 60 B1 and F1 specifically mentioned discomfort toward male neighbors (passing-neighbor). Based on this answers we asked the remaining participants how they feel about their neighbors as passersby. Male respondents showed no reaction, but female respondents except for E1, D2, J2, L2 find the situation disturbing. A2, I1 et K2 affirm they had experienced such situations before.

Privacy is viewed as a regulation process in Altman’s theory, which people use in uncomfortable confrontations. Through answers, it seems that there are two levels of satisfaction:

- a general level expressed through spontaneous level
- a punctual level triggered by hypothetical scenarios.

Next-door neighbor is the only predefined type of outsiders considered as a discomfort source, but also the passing-neighbor was revealed by hypothetical scenarios.

Satisfaction evaluation through Altman’s privacy mechanisms

Investigation in the current study revealed two distinct mechanisms previously defined by Altman. Those mechanisms are environmental (physical) and non-verbal (behavioral).

Environmental mechanisms appears as the obstruction through curtains. In this study, the connection between life cycle (families with teenage girls) and the use of curtain was eminent. Behavioral mechanisms were addressed
through four types in this case: inspection, withdrawal, lowering the gaze and putting on hijab. These mechanisms are of a complementary nature rather than rivalry.

A. Obstruction through curtains and family life cycle

Obstruction ratings is relatively low in this building. Curtain is the environmental mechanism noted installed in two habitations.

The first one C1, confirmed installing the curtain for privacy sake, the second one A1, claimed obstructing the privative space to decrease sun effect on the inside of his home; however, his wife A2, declared the curtain being very useful in privacy protection. In this specific situation, curtain was first installed for sun obstruction, but after that, the wife used it for privacy sake as discomfort came with their new neighbors two years ago, as stated earlier.

Potential future obstructions investigation brought no further positive results except for one male respondents F2 who tied up this eventuality to the future situation of his daughters.

Regarding past obstruction, several respondents F1, F2, H1, H2, J1, J2, K1, K2, confirmed previously using curtains when raising daughters. However, as these daughters grew older and get married and left their father’s houses, the curtain’s role diminished and was removed.

B2 who has declared being bothered by passersby and neighbors, was asked about the usage of curtain, and his own privacy mechanisms deployed to achieve satisfaction, the respondent condemn the hideous appearance of the curtain, and informs us of using a non-permanent protective screen (hanging a blanket at the level of the balcony railing so it would be invisible from outside), during family leisure moments on his private space.

At this point a clear connection between curtain usage and life cycle is drawn. All male respondents who chose curtain as privacy mechanism are fathers. Manaf & al (2018), established the connection between privacy, female as “awra” and “mahram” as defined in “Islamic charía”. A curious thing is that relationship seems to be only working for the family life cycle fourth type as defined by Murphy and Staples (1979). Here it is obviously the protective role of the father that is in relation to this mechanism.

Respondents then were asked to narrate past incidents, to assess the reasons behind obstruction, and no one could evoke a particular event. We can understand here that curtain is installed for preventive reasons rather than curative and also for cultural alignment.

Additional questions were asked to investigate the curtain as a privacy mechanism, in the context of laundry hanging and rug shaking. C2, C3, C4 confirmed that laundry hanging aligns seamlessly with the curtain privacy prevention, however, it is noted that rug shaking is incompatible to this mechanism and needs full exposure to the completion of such task.

The other participants when they were asked about shaking rugs they declared several responses.

B1, F1, G1, K1 and L2 have no rugs anymore.

A2 and H2 don’t shake the rug themselves because they are no longer able to, their daughters or grand-daughters or daughters in law do this task.

D2 and I1 they regularly vaccum the rug and once a year (I1) or once a semester D2 they deep-clean it in an appropriate place adding that they all in the family pay great attention to keep it clean as they have no children living with them or visiting them.

B. Behavioral privacy mechanisms

1. Inspection:

The inspection involves discreetly surveying the immediate surroundings before full emergence into the private space.

In previous answers, multiple inspection indicators were spontaneously identified. A2, B1, B3, C2, C3, C4, D2, F1, G1 and H2 talked about the inspection when they talked about discomfort with their next-door neighbors (A2, B3, D1,
G1, H2), neighbors walking down the street (B1, F1) or squatters (C2, C3, C4).

All the other female respondents (except for E1) confirm practicing discreet inspection before going out to the privative space. This confirmation was triggered by the investigator, and respondents were unable to provide any narrative elements.

Male respondents (J2, B2, C1, F2, D1, H1, K1) also confirmed practicing inspection, after the investigator asked them without further narrative elements.

2. The withdrawal:
Several respondents (A2, B1, D1, F1, H1 and H2), spontaneously defined withdrawal after an uncomfortable encounter, in their previous statements.

Also withdrawal was confirmed by the others respondents (except for E1) as a privacy mechanism when avoiding uncomfortable encounters, without providing narrative elements.

However, a distinction between complete withdrawal and partial withdrawal is detected in respondents answers.

3. Lowering the gaze
Another behavioral privacy mechanism is revealed in previous declarations is lowering the gaze.

All of B2, D1 and H1 spontaneously declare in their previous statements that they lower their gaze when facing a female neighbor.

The other respondents (except for E1) when asked about lowering the gaze they confirmed practicing this mechanism when facing the opposite gender. A particular situation is redundant; it is the encounter in the stairs, and not in the privative space.

Lowering the gaze in respondents' statements have a relation with horma, moreover, lowering the gaze is related to Islamic religion as previously discussed in Al Kodmany and Manaf work. Here people are talking about cultural consideration rather than religious one.

B2, C1 and F2 have expressed uncertainty and doubt regarding the behavior of other young male neighbors in relation to lowering their gaze.

Two women
Investigating privacy mechanisms unfold multiple sorts of strategies, deployed by dwellers according to different situations.

Using curtains appears clearly to have a relation to family cycle.

Otherwise participants used alternative behavioral mechanisms especially when curtain fails to provide the needed protection as discussed in the case of rug shaking, women are swinging to inspection mechanism as rug shaking demand for full exposure.

Exploring the relation from outsiders' standpoint
Passing neighbors perception

During qualitative investigation progression, the emergence of a distinctive outsider type was noticed – the passing neighbor. Consequently, a complementary set of questions was addresses to participants, in order to capture the neighbors' perception, when assuming the role of a passerby in the street. See appendix 1.

All the participants confirmed directing their visual focus towards their own habitation when they are walking in the street. This visual fixation is even anticipated in the statements of some respondents, indicating the expectation to perceive their home even before actually glimpsing it. Those answers validate the neighbors’ concerns, mentioned in the previous section, regarding the passing-neighbor, as they are aware that the latter focus on their own dwellings, as emphasized by a female participant: "on my way back from the market, I deliberately focus on my balcony, I presume this is a common practice among all neighbors.

Then, interviewees were invited to share insights about surrounding buildings existing on their usual trajectories. It is noticeable that their attention was focused on ground floor activities, and interviewees were able to provide details such as the sequence of businesses along with their path. However, they struggled to identify details related to textures or color nuances.
When participants were asked about upper floors in the same buildings, the majority encountered difficulty presenting a clear answer, and those who managed to provide an answer, had a pre-existing relationship with dwellers (friendship, relatives) in those buildings, or had previous interactions with specific establishments, such as medical or dental office, biological laboratory, lawyer offices...

Table 4. Satisfaction level evaluation and privacy mechanisms in downtown Algiers’ case study

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Codes</th>
<th>Spontaneous</th>
<th>Insatisfaction</th>
<th>Privacy mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Spo</td>
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<td></td>
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</tr>
<tr>
<td>Males</td>
<td>18-35</td>
<td>I2</td>
<td>TWN</td>
<td>NDN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I3</td>
<td>TWN</td>
<td>NDN</td>
<td></td>
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<td></td>
<td></td>
<td>J2</td>
<td>TWN</td>
<td>NDN</td>
<td></td>
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<tr>
<td></td>
<td>36-60</td>
<td>B2</td>
<td>TAN</td>
<td>P</td>
<td>TAN</td>
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<tr>
<td></td>
<td></td>
<td>C1</td>
<td>TWN</td>
<td>Sq</td>
<td>TAN</td>
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<td></td>
<td></td>
<td>F2</td>
<td>TWN</td>
<td>P</td>
<td>TWN</td>
</tr>
<tr>
<td></td>
<td>&gt; 60</td>
<td>A1</td>
<td>TAN</td>
<td>NDN</td>
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<tr>
<td>Females</td>
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Spo: spontaneous  
TA: triggered answer  
D: discomfort  
TWN: triggered without narratives  
TAN: triggered alongside narratives  
P: passersby  
Sq: squatters  
NDN: next-door neighbor  
PN: passing neighbor  
TWN: triggered without narratives  
TAN: triggered alongside narratives  
Pr: present  
Pa: past  
F: future  
I: inspection  
W: withdrawal  
GL: gaze lowering
Table 5. perceived elements according to outsiders categories

<table>
<thead>
<tr>
<th></th>
<th>Drvr male</th>
<th>Psengers</th>
<th>passersby male</th>
<th>students male</th>
<th>F</th>
<th>squatter</th>
<th>Total (%)</th>
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<td>The road</td>
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<td>9</td>
<td>8</td>
<td>9</td>
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<td>passersby</td>
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<td>15</td>
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<td>Stone wall</td>
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<td>7</td>
<td>6</td>
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<td>6</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>47</td>
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<tr>
<td>university</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>2</td>
<td>7</td>
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<td>58</td>
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<td>benches</td>
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<td>1</td>
<td>1</td>
<td>3</td>
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<td>Végétation</td>
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<td>7</td>
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<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
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<td>Surround. buildings</td>
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<td>1</td>
<td>1</td>
<td>2</td>
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<td>Pigeons</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
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Unfamiliar outsiders perception, and perceived elements contributing in VPP protection

First, participants were asked to define the perceived environmental elements during their trajectory or stop. The perceived elements include the road, pedestrians, tunnel, fountain, university, stone wall, vegetation, benches, sidewalk condition, stairs, and surrounding buildings the results are presented in the table below.

The data indicates residential buildings are rarely noticed, and in this low percentage it is obvious that surrounding buildings are attracting attention from individuals acquainted with the area – surrounding buildings’ dwellers or their acquaintances, individuals spending significant time in the area such as squatters.

In this section, the perception through familiarity is becoming clearer.

On the other hand, data shows that the most noticed elements are road, other passersby, and vehicles. All these elements share a common feature, which is the motion

Discussion

The validation of the results in this study employed a multi-faceted approach:

Methodological tools triangulation

a. Post-interview non-participative observation served to validate specific statements, such as the frequency of privative space usage, and declarations regarding rug shaking.

b. A consideration of the perceptual relationship, from both dwellers and outsiders, facilitated the juxtaposition of statements, and providing a comprehensive understanding. Notably, dwellers assure gazing at their homes each time perceiving it, this aligned with residents’ expressed concerns.

c. The perception of residential buildings depend on familiarity with the site consistent with Kalali’s findings (2015)

d. satisfaction with facing-building neighbors aligns with Zhang’s research 2021

e. lowering the gaze as a privacy mechanism aligns with Rahim’s findings (2018).

f. Residents’ statements when adopting the role of outsiders, parallel the findings of El Mushayt & al. (2021)

The major bias in this work is population proportions, as it is noticeable, our population is compound in its majority by old women, even this problem was alleviated by past situation investigation, the validation of the link between using curtain and family life cycle must be verified by further investigation among a larger fair-proportioned population.
Conclusion

The inception of this research was guided by the assumption linking obstruction phenomenon to VPP. The conceptual framework, based on Altman’s theory, revealed obstruction phenomenon bond with the fourth family life cycle as defined by Murphy and Staples (1979).

Initially, VPP relationships were framed as a bidirectional opposition between dwellers and outsiders, but in fact, dwellers are facing their own perception of these outsiders, depending on their own family life cycle.

On a spontaneous level, people were generally satisfied. However, digging deeper through hypothetical scenarios revealed a general situation of annoyance. In fact, there are two distinguished levels of satisfaction: general and punctual.
In this work the outsiders pack was dismantled into categories, and a new classification was offered according to satisfaction level. We can distinguish between residential scale outsiders RSO (next-door neighbors and passing neighbors) where dissatisfaction prevails; and urban scale outsiders USO (car / bus drivers, squatters, transients, students...) which is satisfying on a general level figure 11, figure 12.

This double-scaled space is perfectly elucidated in one respondent statement she said: “a funny thing, when I was a student I was always waiting for students transportation right in front of the building over several years, but strangely I never paid attention to its existence; and after getting knowing my husband I could not see anything but it”. This situation illustrates the passage from being an urban scale outsider to a residential scale outsider.

Despite the fact that the overall felt satisfaction (mentioned spontaneously through the interview) is due to the population proportions (final stage families) combined to the observed weak interaction in privative spaces, the street-level survey revealed physical elements that contribute to VPP satisfaction and protection. Elements such as cars and passersby (both expressing movement), besides street furniture and textures played pivotal roles in redirecting urban scale outsiders' gaze.

This offers potential solutions to enhance neighborhoods and city design, and emphasizes the imperative integration of privacy considerations in the early conceptual phases, in order to establish the symbiosis again, between our society and its dwellings.

References


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the indoor environmental quality of dwellings. *Sustainability*, 12(16), 6453.


Abbreviations

CPM : communication privacy management
MVP : Muslim visual privacy
WVP : women visual privacy
VP : visual privacy
VPP : visual perception privacy
I-PVEI : improved-potential visual exposure index
APL : actual privacy level
DPL : desired privacy level
SR : spontaneous response
TAN : triggered answers alongside narrative description
TWN : triggered answers without narrative description
FOV : focus of vision
USO : urban scale outsiders
RSO : residential scale outsiders

Appendix I

<table>
<thead>
<tr>
<th>codes</th>
<th>interviewees</th>
<th>statements</th>
</tr>
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<tbody>
<tr>
<td>B1 male 43</td>
<td>«passersby are extremely annoying... Once a man kept staring at me... and he did not stop until he got into a taxi... »</td>
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<tr>
<td>C1 male 58</td>
<td>«it is unthinkable to stand like that in front of someone’s home but what can you expect, they are thugs... there has never been an incident, but I really would not want it to come to that. I think there is a high probability of an awkward situation if we do not protect ourselves -referred to curtain- »</td>
<td></td>
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<tr>
<td>F2 male 46</td>
<td>«passersby bother me a lot. Here downtown, it is always jam-packed, and my wife has to do chores. Generally, she prospects the best shot to accomplish her tasks, but in some situations she must go out and retrieve laundry when it is raining for instance. No incidents happened so far but we do our best to keep it this way.»</td>
<td></td>
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<tr>
<td>A2 female 78</td>
<td>«usually, I clean up in the morning, but when the neighbors moved into next door - two young men - they used to smoke on the balcony and take a coffee brake there... even I had the curtain to hind behind it but I could not, their presence was annoying me enough... I had to reorganize all my tasks and always check before going out»</td>
<td></td>
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<tr>
<td>E1 female 61</td>
<td>«it does not bother me at all, my former neighbors are like family to me, and I am happy to see them and I greet them each time I have the chance...the new neighbors do not bother me either, and when I am on my balcony and neighbors come out at the same time, if I am bothering them, then they can just withdraw themselves»</td>
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### Interviewees' most representative statements

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<th>codes</th>
<th>interviewees</th>
<th>statements</th>
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<tbody>
<tr>
<td></td>
<td>B1 female 72</td>
<td>«it disturbs me when i notice male neighbors of my age in the street below. I withdraw because i would not want them to see me out on my balcony»</td>
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<tr>
<td></td>
<td>F1 female 72</td>
<td>« it is quiet annoying when i step out onto my balcony and i run into my neighbor… it happened several times with my neighbor may his soul rest in peace, but i have to admit he was one of his kind and he was very respectful, he was always lowering his gaze…»</td>
</tr>
<tr>
<td></td>
<td>H2 female 78</td>
<td>« it is truly improper when one encounters somone already occupying the balcony first. You are supposed to wait until they are gone before going out, but unfortunately some people severely lack civic sense».</td>
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<tr>
<td></td>
<td>D1 male 75</td>
<td>« Several times, I have refrained from going outside, because I perceived that my female neighbor was already on the balcony, so i did not go out and postponed it for later».</td>
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<tr>
<td></td>
<td>H1 male 79</td>
<td>« it is really the bare minimum of courtesy : when someone is already out, you do not put your foot out there, you just wait»</td>
</tr>
<tr>
<td></td>
<td>C1 male 58</td>
<td>« …we are somehow obligated to install the curtain, to protect our privacy. I have two daughters, you know, and these yong men do whatever they want. They are disrespectful, they do nothing with their lives, and they come sit right in front of my house…»</td>
</tr>
<tr>
<td></td>
<td>A1 male 80</td>
<td>« i installed the curtain to block the sun rays because on our balcony it really heats up, so the curtain helps lower the temperature a little bit»</td>
</tr>
<tr>
<td></td>
<td>A2 female 78</td>
<td>« …fortunately, the curtain served as a screen for me during my inspection before going out»</td>
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<td></td>
<td>F2 male 46</td>
<td>« back then, my late father had installed the curtain, but it was removed in 2017 as façade renovation works took place…I don’t know if i will put it back up one day, maybe when my daughters grow older, we’ll see until then»</td>
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<tr>
<td></td>
<td>H2 female 78</td>
<td>« as soon as we mooved into our apartment back in 1962 we immediately installed the curtain. Over time all my daughters got married and it became inconvenient. It was more of a dust-collecting rag than anything else »</td>
</tr>
<tr>
<td></td>
<td>J1 female 69</td>
<td>« when we moved in here, the curtain was already installed, and we left it, it didn't bother us, but after it got very damaged and we removed it »</td>
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<tr>
<td>codes</td>
<td>interviewer</td>
<td>statements</td>
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<tr>
<td>Environmental mechanisms curtain</td>
<td>K2 female 77</td>
<td>« the curtain was installed in the past. Before, everyone would hang a curtain in front of any opening that faced the outside, even the front door had a curtain; that’s how we used to live in the Casbah and that’s how thing remained... Afterwards, the curtain was removed because it no longer served any purpose, now I live alone with my husband, and we don’t go out much anymore, and when façade renovation works begun, it was removed »</td>
</tr>
<tr>
<td></td>
<td>B2 male 43</td>
<td>« despite my discomfort, I could never install the curtain take my neighbor for instance it looks so ugly and so unpleasant...if one day I am called upon to protect my privacy, I will consider a more beautiful solution, perhaps verdant panels...sometimes when we have our afternoon snack, we temporarily drape a linen above the railing to relax and enjoy some family time in privacy, which we remove right after »</td>
</tr>
<tr>
<td></td>
<td>B3 female 42</td>
<td>« sometimes when I am in hurry, and I can't find my hijab I just use the inside curtain of the window as a screen... »</td>
</tr>
<tr>
<td></td>
<td>L2 female 62</td>
<td>« I use the inside curtain as a scarf on my head when the task doesn’t take long time like shaking the bed sheets or picking up something from my balcony... »</td>
</tr>
<tr>
<td>Dweller / Passing neighbor</td>
<td>A2 female 78</td>
<td>« You know it happened before, where I am on my balcony, and a male neighbor around my age is passing by on the street below. In those cases I immediately retreat inside out of respect of my husband...I can't even tell you how many times I dealt with those kinds of situations, but let's just say it happened all the time ».</td>
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<tr>
<td></td>
<td>I1 female 70</td>
<td>«When this situation happen it bothers me, but not enough to make me leave the balcony and stop what I am doing. I tell myself as long as I am there purposefully, and dressed appropriately, there nothing I should be ashamed of... when my neighbor is on his balcony, I withdraw because it is different, and he is closer »</td>
</tr>
<tr>
<td></td>
<td>K2 female 77</td>
<td>« I wouldn't like to face this situation. I would not like it if my neighbor passes by on the street below and sees me on my balcony. It’s not appropriate I come from an era where el Horma (privacy) was holy »</td>
</tr>
<tr>
<td>Passing neighbors perception</td>
<td>B1 female 72</td>
<td>« ... I start watching my balcony to admire my beautiful plants ... I guess everybody else do the same »</td>
</tr>
<tr>
<td></td>
<td>C1 male 58</td>
<td>« I stare at my balcony from the street below my home, usually on my way back from work... »</td>
</tr>
<tr>
<td></td>
<td>D1 male 74</td>
<td>« indeed I do stare at my balcony when I am outside...sometimes I don't have a clear view of my balcony, but I still stare at our building »</td>
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