The response to violence against women and fear of violence and the coping strategies of women in Corregidora, Mexico

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A B S T R A C T

This paper explores women's perceptions of sources of vulnerability to Violence Against Women (VAW) in urban public spaces and their response to this violence. The urban space of Corregidora municipality in Querétaro, Mexico was used as a case study. First-hand data on different types of VAW was gathered through 7 focus group discussions held with 50 women. The Socio-Ecological Framework (SEF) was used to analyse VAW at different levels, using a Social Construction of Space lens as a supportive conceptual framework to explore women's experience of VAW in public spaces. A Crime Prevention Through Environmental Design approach was used to develop targeted recommendations at each level of the SEF. The results show that improvements in infrastructure could be a way forward to prevent VAW in public spaces, such as the provision of lighting, reducing narrow access routes, sidewalks improvement and prioritisation of pedestrian mobility, rather than leaving the burden of responsibility of personal safety and protection to women.

1. Introduction

The configuration of the built environment and urban infrastructure has an impact on social interactions, and by extension, on the power relations that occur within the urban space (Brantingham & Brantingham, 1995; Khosla, 2009; McIlwaine, 2013). This can in turn influence the susceptibility to violence of members of a community, particularly women and girls (Brantingham & Brantingham, 1995; Khosla, 2009; McIlwaine, 2013). The multifaceted and context-specific nature of Violence Against Women (VAW), in conjunction with different subtle expressions of control, has led to the normalisation and condoning of less severe forms of violence and exclusion, which can be argued has contributed to the perpetuation of VAW (Frías, 2016).

The underlying causes of VAW are rooted in patriarchal relations and the social control exercised in the interests of dominant gender, class, ethnic, religious, sexuality and age groups over most women (Levy, 2013; McIlwaine, 2013). The burden of responsibility of this violence generally falls on women, as they are compelled to believe that their protection and wellbeing is dependent on how alert they are and their failure or success in avoiding vulnerable places, ultimately restricting their freedom of movement and agency (Lindsey, 1997; Radtke & Stam,

1994). Hampering women's autonomy in public spaces can lead to control and restriction of movement, fundamentally affecting women's well-being and their ability to participate in work, school and public life (Chant & McIlwaine, 2016; Levy, 2013; McIlwaine, 2013; Moser, 2004; UN Women, 2018).

Research into women's grounded perceptions of factors that may make them more vulnerable to violence, and the coping mechanisms and prevention measures that they adopt, should be included in public reporting on VAW, and used to inform effective prevention and intervention strategies. When designing cities, however, women's views and use of space are typically not considered or often viewed as not important by local governments (Purkayastha & Ratcliff, 2014). Poor crime recording practices, deficient data management and different types of VAW not considered crimes may mean that incidents of VAW do not get recorded (Garfias Royo et al., 2020; Zepeda Lecuona, 2017). This limits informed decision making at different government levels for the introduction of measures to make the built environment and cities safer for women and girls.

VAW in Mexico is a widespread, but often neglected, problem at national level (Frías, 2017), as demonstrated by the scarcity of official figures, despite countless unofficial accounts and anecdotal evidence

from women throughout the country. These high levels of VAW take place in a context of increasing rates of various forms of violence, exacerbated by an over a decade-long war on drugs and a social fabric that has been steadily deteriorating (Estévez-Soto & Pérez Esparza, 2017; Rodríguez Ferreira & Kuckertz, 2017). Rapid urbanisation in Mexico has also led to the proliferation of medium-sized cities, generating challenges for infrastructure delivery and development policies (Berdegué & Soloaga, 2018). There are aditionally many gaps in the data regarding the experiences of violence of women, and studies regarding VAW conducted outside Mexico City are scarce (Frías, 2017). This paper reports the findings of 7 focus group discussions held with 50 female participants on their views of vulnerability to violence and the coping mechanisms and prevention measures they adopt in response in a medium-sized city, Corregidora. In a context of weak official reporting and scarcity of data on VAW, this paper fills the knowledge gap by understanding the phenomenon of VAW from the perspective of women's experiences in a medium city in Mexico. This study also sought to explore the places where women experience fear to re-conceptualise VAW as a function of people and their environment. The work presented in this paper derives from a wider study that looked at the links between infrastructure and VAW in Corregidora municipality in Mexico.

1.1. Gender & violence

Violence is regulated by and in turn regulates existing social structures, norms, practices and subjectivities (Parkes, 2015). VAW is a type of gender-based violence perpetrated against people that socially identify as women as a result of their identity (Council of Europe, 2011; Shepherd, 2008). VAW in this study is understood as "any act or conduct, based on gender, which causes death or physical, sexual or psychological harm or suffering to women, whether in the public or the private sphere" (OAS, 1994). The Belém do Pará Convention is the most relevant treaty for defining VAW in the region (OAS, 1994). It also states that VAW "constitutes a violation of their human rights and fundamental freedoms, and impairs or nullifies the observance, enjoyment and exercise of such rights and freedoms" and is "an offense against human dignity and a manifestation of the historically unequal power relations between women and men".

Situational and cultural contexts influence the impact or meaning of and reaction to violent acts, which varies depending on the gender identity of the perpetrator and the victim (Frías, 2017; Russo & Pirlott, 2006). Considering the macrosocial context is therefore crucial when analysing gender relations and the power structures that assist them. Gender roles and expectations in conjunction with sexual objectification, masculinity performances, male entitlement and discrepancies in status and power are closely related to escalating VAW and have legitimised, sexualised, rendered invisible and helped in perpetuating this violence (Lindsey, 1997; Russo & Pirlott, 2006, p. 181). Additionally, the inclusion of women in male dominated spaces can be met with patriarchal backlash that increases gender oppression, most commonly in the form of violence (Berry et al., 2021; Macmillan & Gartner, 1999).

1.2. Fear of violence

Perceptions of risk and feelings of safety can have an effect on women's access to and experiences in particular parts of the city, as they can be perceived and/or experienced as hostile places for a variety of reasons, including the urban design and the environmental context (Belur et al., 2017; Dunckel Graglia, 2016; Loukaitou-Sideris, 2012; R. Pain, 2000; Valentine, 1989, 1992). Risk in cities is not homogenous; some studies have found that women are more likely to experience violence in certain environments and urban areas than in others (Dymén & Ceccato, 2012). Transportation nodes, city centres and areas of mixed land use tend to be more criminogenic than residential areas (Dymén & Ceccato, 2012). In terms of specific urban environments, sexual violence committed in public has been associated with spaces such as parks,

construction sites, vacant fields and buildings, narrow paths, public transportation, distant latrines and poor street lighting (Belur et al., 2016; Dymén & Ceccato, 2012; Parikh et al., 2015; Willman & Corman, 2013).

Fear of attack and insecurities associated with VAW are one of the most influential constraints on women and girls' freedom of movement within the urban environment (Chant & McIlwaine, 2016; Dymén & Ceccato, 2012). This can be enhanced by personal physical vulnerability and can be higher for individuals who find themselves alone in the public space (Brantingham & Brantingham, 1995) or in spaces that seem unsafe by their very characteristics such as dark streets or parks at night time. Gender is the most consistent predictor of fear of crime, and it is independent of the time, place, ethnicity, race or social class of the person (Lane, 2013). Factors contributing to fear include generalised physical vulnerability; different gender socialisation, in which masculine attitudes and behaviours show less fear; perceived threat of rape and physical and emotional harm; and gender inequality and greater social and physical power among men associated with patriarchy (Lane, 2013). Solymosi et al. (2019) argue that many studies looking at fear of crime focus on individual factors, but there is little research considering fear of crime as a context-specific phenomenon. Therefore it is vital to better understand the contexts in which people experience fear in order to re-conceptualise the perception of crime and place as a function of people and their environment (Solymosi et al., 2019).

1.3. Coping strategies

Gender differences in the perception of risk can be noted in travelling patterns; trip times, purposes and destinations; transport choices; and work locations (Levy, 2013; Tripathi et al., 2017). As a result of fear of crime and perceptions of risk, many women adopt coping strategies for self-protection to address the risk of being a victim of crime and to minimise the feelings and realities of danger within the built environment (Ceccato, 2017; Chant & McIlwaine, 2016; Lane, 2013; Little, 1994; Nieder et al., 2019; Valentine, 1989, 1992). A study conducted in India by Nieder et al. (2019) categorised the mechanisms women use to ensure their safety into safety strategies[1], avoidance strategies[2] and empowerment strategies[3]. Similarly, Valentine (1992) categorised them into time space avoidance strategies[4], physical defence strategies[5] and environmental response strategies[6] (as summarised in Little, 1994, 64).

2. Method

Primary data collection was conducted to explore women's perceptions of sources of vulnerability to VAW in urban public spaces and their response to this violence. The urban space of Corregidora municipality in Querétaro, Mexico was used as a case study.

2.1. Case study

The ongoing war against drugs in Mexico has contributed to an increase of both petty and serious crime and complaints of violations of human rights by security forces, which has targeted by-standers and

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[1] Not going out alone, assessing risk factors, making fake phone calls, carrying pepper spray or sharp objects or running away from an assumed dangerous situation.

[2] Avoiding public spaces, avoiding attention or ignoring sexual violence.

[3] Practicing self-defence, showing self-confidence, sharing experiences with others and staying educated.

[4] Reducing the perceived threat by simply not going out, or at least not alone.

[5] Adjustment of physical appearance, including dressing "modestly" or to pass as a man, or the carrying of weapons for self-defence.

[6] Walking more quickly, being alert and aware of possible attackers, and conceptualising places as "dangerous" or "safe".

suspect criminals indiscriminately (Estévez-Soto & Pérez Esparza, 2017; Rodriguez Ferreira, 2016; Rodríguez Ferreira & Kuckertz, 2017). This increase in crime has undermined the collective sense of security, which—together with the failure to create law-abiding and effective police forces—have led to a decrease in crime reporting and overall erosion of social capital (Rodriguez Ferreira, 2016). The impunity that permeates the Mexican justice system has facilitated the expression of many different types of violence, especially for women, who have become targets of torture, disappearances and murder in alarming numbers (Redaccion AN, 2017).

The urban space of Corregidora municipality in Querétaro, Mexico, was used as a case study to explore the sources of vulnerability to VAW and women's response to this violence. The municipality has been steadily growing since the 1980s, when industrial development took place due to the construction of a Federal Highway (Joulia Lagares, 2011). In 2018 (when the sample size for this research was calculated), the urban area of the municipality had an estimated population of 172,754 inhabitants, of which 40 % were women over 20 years old. Later, the 2020 Census showed that the municipality had a 48.6 % growth since 2010 (IINEGI, 2021; INEGI, 2010). The municipality, like many other medium-sized cities in the country, has faced a rapid urban growth which has brought challenges in the planning and delivery of infrastructure (Garfias Royo et al., 2020; INEGI, 2015). Corruption, unplanned strategies and general lack of vision have had a negative impact in the development of planning policies and practices, which in turn has had a negative effect in the delivery of housing, provision of urban infrastructure and suitable land management (Kim & Zangerling, 2016; Marosi, 2017). The result is an unorganized, uncontrolled and exponential expansion, characterised by being dispersed, distant and disconnected (Kim & Zangerling, 2016).

The municipality has scarce official data regarding VAW. Official crime records are not published by the municipal police, including failure to report some types of VAW (Anonymous Government Official, personal communication, November 2017). More broadly, there is a lack of information about crime due to ineffective actions by the state and failure to follow procedures.

2.2. Focus group discussions

Data collection was carried out during March and April 2019, through 7 focus group discussions (FGDs) with 50 women that lasted 20 min to 1 h. The FGDs were held in 5 Cultural Centres, a Municipal Institute of Youth and a public library. Ethical approval was obtained from a UK University Ethics Committee and the Autonomous University of Queretaro (UAQ, for its acronym in Spanish) in Mexico.

The aim of the FGDs was to understand the role that the built environment and urban infrastructure play in the generation of VAW from the perspective of the participants. The FGDs were based on a semi-structured discussion administered and moderated by the first author. The interview guide asked questions on definitions of public space; perceptions of safe and unsafe spaces; experiences of violence; fear of violence and crime; understanding of VAW; and measures for safety[7].

2.3. Participants

A total of 7 focus group discussions were conducted with 50 women, ranging from 4 to 9 participants, with an average of 6 participants. Participants were chosen on convenience sampling with no quota sampling, which allowed for the selection of participants based on their accessibility (O.Nyumba et al., 2018). The sample consisted of women over 18 years of age who were residents of the municipality of Corregidora. The mean age was 34.6 years with a standard deviation of 13.9 years, and the youngest participant was 17 years of age and the oldest

75. The recruitment of participants was carried out through a network of Cultural Centres, a local library that acts as a Cultural Centre and the Municipal Institute of Youth, which also provided access to their premises to conduct the sessions in a safe, neutral space. Table 1 shows the minimum, maximum, mean and standard deviation ages of participants per FGD. FGD7 was the group with the youngest average age and most homogenous age ranges, with participants being between 18 and 25 years old (see Table 1).

Fig. 1 shows a breakdown of the occupation of the participants. Overall, 44 % of all participants had a full or part-time job and 36 % did housework. Fig. 2 shows a breakdown of the participants' marital status. Almost half of the participants (46 %) were married. The socioeconomic status (SES) of the participants was captured through an established and standardised index used in the national census in Mexico[8] (AMAI; AMAI, 2017; INEGI, 2008). Most of the participants were scored on the higher spectrum of the socioeconomic scale, with about 67 % falling into the three highest levels (see Fig. 3).

2.4. Coding and analysis

The discussions were transcribed verbatim in Spanish by an in-country research assistant and reviewed by the first author. They were translated into English by the first author, who is bilingual and has native/bilingual proficiency in both Spanish and English. The transcripts were analysed thematically using a mix of selective and open coding (Corbin & Strauss, 1990; Ellsberg & Heise, 2005). The FGD programme questions were used to identify pre-determined themes and listed as coding categories and subcategories. These were later modified in an iterative process as the coding took place, to allow for data comparisons and for themes to emerge from the data. The qualitative data was coded by the first author using NVivo version 12. The coding categories and subcategories were discussed among authors to ensure connections between categories (Saldana, 2021). See Appendix A for an overview of the categories, definitions and anchor examples.

3. Framework for understanding VAW in the urban space

Conceptualising VAW as a "multifaceted phenomenon grounded in an interplay among personal, situational and sociocultural factors" can account for both why men become violent and why women as a class are often their target (Heise, 1998, p. 263). For this reason, the Social-Ecological Framework (SEF) was used to analyse and discuss the results. The SEF was used to analyse VAW at different levels, using a Social Construction of Space lens as a supportive conceptual framework to link the subjectivities of the community and societal levels of the SEF (see Fig. 4) on how women experience public spaces. Situational Crime Prevention strategies were used to assess the participants' coping mechanisms. The themes that emerged from the FGDs will be presented followed by a discussion on how these themes elaborate on the SEF as an explanation for VAW in the case study, providing solutions to VAW in public spaces at each level based on Situational Crime Prevention strategies.

The SEF suggests that the prevention of violence requires a better understanding of the risk factors that have an influence on its perpetration at different levels of analysis (Centers for Disease Control and Prevention, CDC, 2020). The framework suggests that there is no single factor that can explain why some people are at higher risk of violence, and sees violence as the interaction of many factors at 4 levels: individual, relationship, community and societal (CDC, 2020; WHO, 2020). An understanding of risk factors at these 4 levels, and acting across multiple levels, is more likely to have sustainable outcomes over time to prevent crime (CDC, 2020). It must be noted that the relationship level is

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[7] Focus group tool available from authors on request.

[8] The levels are divided in 7, from highest to lowest: A/B, C+, C, C-, D+, D and E (see AMAI, 2017 for more information on each SES level).

Table 1
Minimum, maximum, mean and standard deviation ages of FGD participants.

	All	FGD1	FGD2	FGD3	FGD4	FGD5	FGD6	FGD7
Min age	17	21.5	26	19	43	27	17	18
Max age	75	75	49	33	66	38	35	23
Mean age	34.6	43.6	36.7	25.9	57.5	33.3	29.8	20.9
Standard Deviation	13.9	18.5	7.2	5.4	9.6	5.6	8.5	2.1
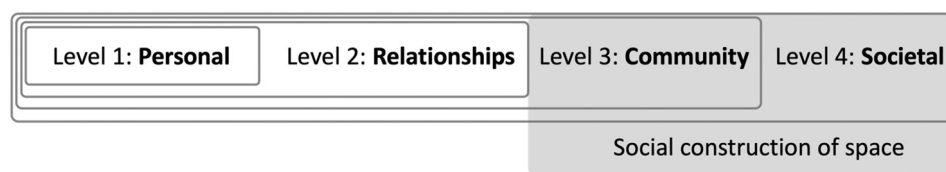
Fig. 1. Occupation of participants per FGD.
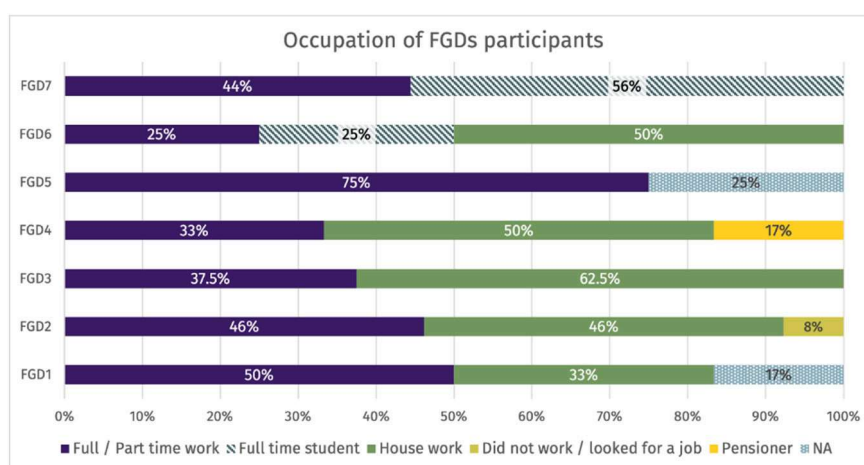
Fig. 2. Marital status of participants per FGD.
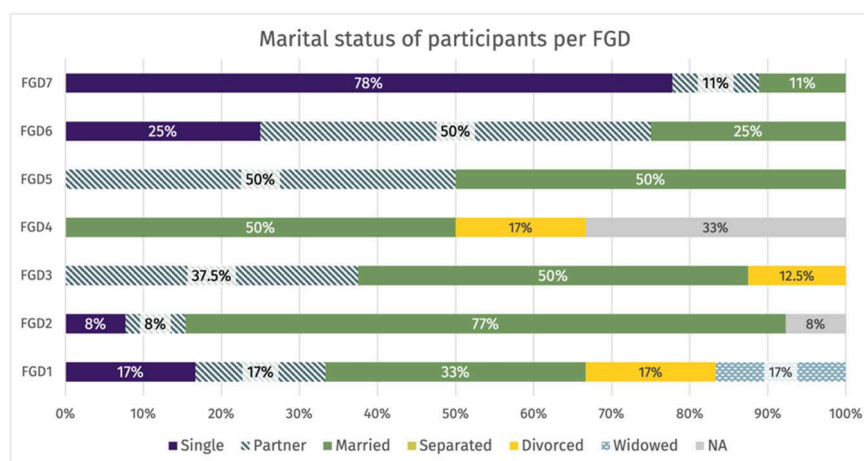
Fig. 3. SES of participants per FGD.

not explored, as it was not included in the original study as it dealt with stranger violence.

The concept of space as a social construct is crucial for understanding woman's exclusion from the urban spaces (Koskela, 1999). Places are culturally relative, socially constructed, politicised, local and historically specific, and have multiple spatial constructions (Rodman, 1992). According to the Social Construction of Space, an individual's use of space is a product of social and gendered power relations (Massey, 1994), where "space is not just a medium for interaction but is also produced by this interactions" (Koskela, 1999). Age, class, gender, ethnicity and cultural values influence how a person navigates and interprets the urban space (England, 2018). Spaces and places reflect and affect the ways in which gender is lived, constructed and understood, which includes exclusion by violence (Massey, 1994). This is
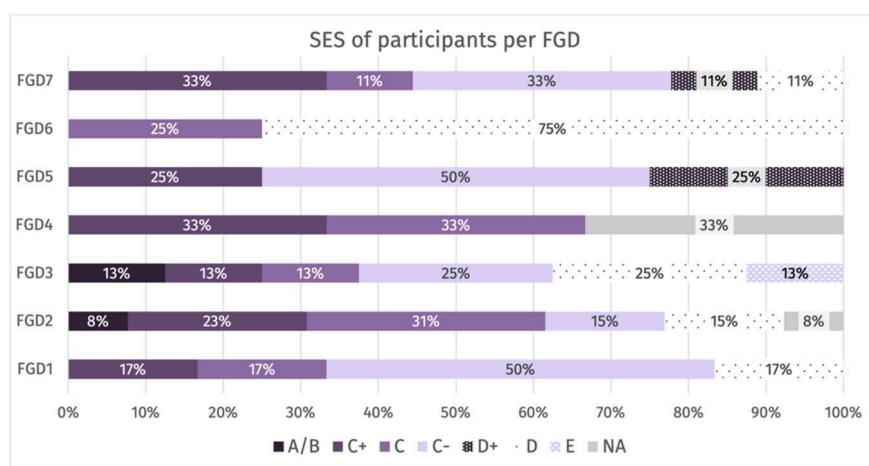
Fig. 4. Levels of the SEF.

particularly relevant to understand the nuanced interactions between the Community and Societal levels of the SEF, and as a lens to provide recommendations for improving safety in the urban space.

A Crime Prevention Through Environmental Design (CPTED) approach was used to strengthen the recommendations for reducing opportunities for crime and violence and increasing risk for offenders at each level of the SEF. The CPTED approach suggests that infrastructure improvements and influencing the design and maintenance of an environment can have an effect on the reduction of opportunities for crime and violence (Armitage, 2018; Nangia et al., 2019; Willman & Corman, 2013). CPTED encourages surveillance, the reduction of areas of conflict through physical control of access or movement, managing and maintaining spaces, introducing physical security measures and promoting territoriality as a way for planning and designing environments that can reduce the possibility of crime (Rau et al., 2018). These strategies are most efficient in combination with social components aiming for behavioural and social norms changes.

4. Results

There was a total of 34 personal stories of harassment and violence shared during the FGDs, with the most common types of violence being catcalling, stalking or being followed, groping and flashing. VAW perpetrated in public spaces in Mexico is generally known as street harassment, therefore participants were asked if they knew the definition of this violence. All the women in all the discussion groups were aware of street harassment and defined it through examples, ranging from whistling, offensive sexual remarks and lewd stares to more aggressive incidents like physical violence and rape. When asked about their personal experiences, differences were noted in the responses of each group. The FGD held with participants with the lowest SES levels seemed reluctant to discuss personal incidents of VAW. In contrast, during the FGD held with the youngest participants—mostly students of diverse SES—shared personal incidents of catcalling without prompting and regarded it as an act of violence.

Many participants expressed the fear of VAW caused by constant, recurrent events; or instilled through reports of VAW in news outlets and social media: "if you see in the news that I don't know how many girls have been kidnapped and how they are killed and how they are found, well imagine, it [...] induc[es] fear, no?" (Participant in FGD7). There were also accounts of the current insecurity that permeates Mexican daily life, as suggested by a participant in FGD2: "you feel more vulnerable outside because of everything that is happening right now" – presumably speaking about news regarding crime, *narco* wars and reports of femicide. However, some participants seemed to reject the narrative of living a life of fear: "I don't think you can live with the fear of whether you will be whistled at, you won't go out anymore, you have to go out" (Participant in FGD3).

4.1. Vulnerability to becoming a victim of VAW

Participants held discussions on the factors that make women appear and be more vulnerable in the eyes of perpetrators when using public spaces and moving around the city. The Socio-Ecological Framework was useful to categorise the factors into personal factors, socio-cultural factors and situational factors. These factors, in addition to feelings of fear discussed above, were quoted to have an influence on women's behaviour and coping mechanisms.

4.1.1. Personal factors
Age was the most contested feature of vulnerability discussed in the groups. Most women seemed to think that age was not a factor for becoming a victim of violence. Participants in FGD4 and FGD7 thought that all women faced violence, regardless of their age. A participant in FGD3 agreed, believing violence cut across, "because if you are big, young, or an old lady, there is always someone that tells you 'bye lady', 'how beautiful' or that will whistle at you". At the same time, many women thought that it was the younger women who faced the most violence, particularly girls, as a participant in FGD3 suggested:

I do think sometimes girls are the ones who are harassed the most, because they cannot defend themselves, they are scared.

Similarly, participants in FGD1 and FGD5 believed that younger women were or appeared more "vulnerable" or "defenceless"; while another participant in FGD4 suggested that:

Maybe they are more vulnerable by size, by weight, [so] a man can overpower them in physical size or strength, but also then they are already vulnerable not only because of sex, man – woman [but age].

Another participant in FGD4—the group with the oldest average age—suggested that "maybe for the people, the stalkers, we are not their target object, right? I mean, they prefer other [women that have] the element of surprise that is precisely part of what is attractive for them." The participant suggested that as they are older and more experienced, they are possibly able to predict what the perpetrators are likely to do, thus not surprised at their behaviour, and seemed to imply this is why men prefer younger women.

4.1.2. Socio-cultural factors
Participants in FGD7 thought that women with lower socioeconomic status (SES) were more vulnerable to violence as compared to middleclass women. A possible explanation includes women in lower SES

levels walking and using public transport more often than women in higher SES levels, exposing them to increased risk of incidents of VAW. Another possibility includes offenders stereotyping poorer women thereby exacerbating their vulnerability, as this participant in FGD4 explained: "I think that the important element there is that the aggressor feels that their prey is more vulnerable than him [...] the aggressor is the one that determines which is the vulnerability of their victim."

A participant in FGD4 stated that an influence on vulnerability could be "women themselves [feeling] more vulnerable because of their inferior socioeconomic status" (SES). For this participant, it is a woman's awareness of their own lower SES that increases their vulnerability, rather than their SES position on its own. However, some women may not associate a higher SES position or economic power with less vulnerability to an incident of VAW. Some participants also suggested that women in higher SES positions were more likely to be listened to and believed when becoming victims of VAW. A participant in FGD5 stated that "it is not the same that something happens to someone that has more economic possibilities [...] than to someone that does not have the resources, what are they going to say? Well, they [the authorities] won't even listen to us".

4.1.3. Situational factors

The vulnerability of becoming a victim of VAW was also linked to situational factors which depend on the time of the day, the urban design/layout, the presence guardians or of infrastructure in a specific location (Brantingham & Brantingham, 1995; Felson & Clarke, 1998; Willman & Corman, 2013). Time of day a contested feature of vulnerability among participants. Some participants felt that there were no specific times when the likelihood of victimisation was greater. A participant in FGD5 stated that "before we used to think that there were certain times of the day [or night]. Now we know there are not. I mean it can happen to you at midday" (Participant in FGD5).

Other participants suggested that incidents are more likely to happen at night; however, these incidents occur at the intersection of spatial and temporal factors. For example, participants in FGD2 suggested that women are victims of attack when their shifts at the factories are over, as the areas outside the factories are generally lonely and badly lit. Some of these factories have guardians at their entrances, but this could make women even more vulnerable, as these guards are sometimes the perpetrators of violence. This was noted by the experiences of a participant in FGD1, who expressed "apparently you feel safe because there are guards and it's not true [that you are safer]", for this very reason.

A participant in FGD3, thought that the apprehension and reality of being a victim is dependent on the environment and those in it, particularly if they are men:

> if you go out at night and you are in a very dark street, there is not much lighting … for example you see one person, two, three men or even one man that is there standing... I mean a person that is drinking or doing drugs, you do think "should I pass or not?"

Other participants contributed by saying that "if lighting is poor and is very alone or it's on the riverbank" (Participants in FGD3) they might think the area is insecure.

The design of the streets may make women more vulnerable. For example, a woman in FGD2 stated that "there are many neighbourhoods or streets even that make you feel more unsafe because they are more reduced [in size], you feel cornered". With regards to public transport, participants living on the fringes of the city complained that "when there is no transport and [...] you have to come up [the hill where the neighbourhood is located] and it is very lonely around here" (Participant in FGD1), which increases their fear of attack, and possibly their vulnerability to being victims of attack. Another example was public transport stops that may be very distant from one another or not well planned. A participant in FGD5 offered her thoughts regarding the distribution of bus stops alongside long streets: "I think [long streets] are a vulnerable point [...] having to expose yourself to such a long journey".

4.2. Coping mechanisms to avoid being victims of VAW

Discussions were held on how the constant fear that most participants experience on their daily lives and the factors that increase their vulnerability influence their behaviour, coping mechanisms and fear management strategies. These measures were consistent with those mentioned in the literature (Valentine, 1992 as summarised in Little, 1994, p. 64), and were grouped into four categories:

1. Time-space avoidance strategies.
2. Physical defence strategies.
3. Environmental response strategies.
4. Other active measures to increase personal protection.

4.2.1. Time-space avoidance strategies

Some women shared that other people's stories of VAW led to slowly changing their habits and daily schedules: "you start changing certain activities and you start doing them later or when there are more people or you definitely stop doing them and don't take risks" (Participant in FGD2).

Women disclosed not going out at night as the safest practice: "during the day I have to go out, out of necessity, to go to work, but at night I don't [go out]" (Participant in FGD1). This was seconded by another participant, particularly due to the nature of the location of her house:

> Not going out at night, because where we live, on one side there is an empty lot, full of branches, and that is the danger, that there is no light [...] we lock ourselves in (Participant in FGD1).

A participant in FGD4 also made suggestions regarding staying inside the home after dusk, "not risking going out at night, I mean, always be accompanied, that you are not alone, that you go to places that are illuminated".

Being in the company of another person was a safety mechanism suggested by a few participants. A participant in FGD7 said that she and her friends have a rule that after a certain time at time her friends tell her "'it is late, we will walk with you, we won't allow you to go by yourself'. Even at work too, even though it is always the same route, they try to accompany me".

4.2.2. Physical defence strategies

In relation to personal appearance, some participants are mindful of what they wear, as expressed by a participant in FGD6: "You say, 'oh no! how will I go in shorts?' What if I find somebody that will whistle at me or will say profanities? So yeah, one takes care of their clothing."

Another participant in FGD1 said that she tries not to wear "flashy things". A participant in FGD7 added an important consideration regarding clothing, by stating that she was "in favour of everyone dressing as they like, but it makes you prone to people staring at you. So it also counts as a form of self-safety."

A participant in FGD7 suggested that women "should know how to defend [themselves] because there is not always going to be someone accompanying you". Some participants referred to the use of props, like this participant in FGD6:

> I am always carrying a stick or something on my hand, an umbrella or something [...] if someone approaches, then I can give them something, a blow, at least, because then they can't run.

Another participant found that buying a bicycle as a mode of transportation allowed her to feel safer "the only security measure that I was able to take was to buy a bike and [...] go on the other side of the street" (Participant in FGD7).

4.2.3. Environmental response strategies

Women quoted the speed at which they walk as a fear management

mechanism, like this participant in FGD3:

> Outside my house, there is a factory [...] all the trucks are always parked there. So that street is dark since about 9 at night, ... and I have to go to the store far away, so I have to go through there, so I have to run because I am scared. But if I cross the road, there is [a wine shop], and there are all the drunkards. So I better go through the trucks, and I just run.

Others prefer just walking briskly and confidently, particularly young participants in FGD7. A participant in FGD4 recommended "show[ing themselves] sure of the [...] pace [they] take", in contrast to "walking with the head down, like they don't want to see anyone, like they avoid [people]" (Participant in FGD5), as a way to reduce vulnerability. A participant in FGD4 summarised a view expressed by several other participants, mainly in FGD5 and FGD4, regarding how the body language women use in public spaces and walking around the city may increase their vulnerability of attack: "If you are fearful, I feel like you are more vulnerable to be attacked. But if you are more sure [of yourself] and they tell you something and you stop, they shut up."

Participants talked about the possibility of changing routes if this was available for them, or "not taking certain routes at certain times" (Participant in FGD7), as a participant in FGD7 suggested. Other participants described how some route options can be 'unsafe' by being longer and therefore feeling more exposed. For some participants this is not always an option: "sometimes you cannot change [...] the route because there is no other route, […] then you cannot say well, I am never going out in life" (Participant in FGD5).

Participants shared that they preferred to walk in places that are more crowded: "personally I look for crowded spaces [...] I try to make short trips and transport [...] routes, the most common, where there are more people" (Participant in FGD2). Another participant added that when she takes the bus she takes care of which seat she chooses (Participant in FGD2), while another commented that she prefers walking in the opposite direction of traffic (Participant in FGD3). A participant in FGD4 also suggested that cars made her feel uncomfortable when walking, and if a car approaches the sidewalk while she is walking, she tends to move away from the edge. Many participants in various groups repeated that they are always aware of who is walking either besides or behind them and what is happening around them. As expressed by this participant in FGD5:

> Be more aware of who walks by next to you, I personally do. Every time I go out […] I see someone behind me and I am turning or I wait for them to come pass me and then I keep on walking.

A participant in FGD3 also said she actively moves away when she feels she is being followed "for example if I see that someone is following me, [...] I try to change sides or move to a place where there is more people". This was also suggested by another participant in FGD1, who suggested she "generally change[s] sidewalk sides if [she] see[s] many men because of the insecurity [she] has always felt", which speaks of how women prefer to avoid men altogether. When using vehicles, a participant described being mindful of her surroundings when parking her personal car, possibly to try to protect her property, but also as a way to protect herself when walking towards her car.

4.2.4. Other active measures to increase personal protection

Being in the company of another person was a safety mechanism suggested by a few participants. A participant in FGD7 said that she and her friends have a rule that after a certain time at time her friends tell her "'it is late, we will walk with you, we won't allow you to go by yourself'. Even at work too, even though it is always the same route, they try to accompany me".

A couple of participants, in FGD5 and FGD1, suggested that their safety mechanism is to approach other people, neighbours or street vendors, so they are seen talking to someone.

A participant in FGD1 suggested that using taxis as a mode of transport made her feel safer, particularly as she had to start work very early and the area she had to go through was very empty:

> There are times when I have to work and I have to leave very early, I better take a taxi because I don't like going down here anymore, […] it is very empty.

Some participants in FGD5 suggested women in higher SES levels with access to a car are safer: "you expose yourself less using your car than when using public transport or on the road". Although another participant in the same group contested that notion by saying that "you also expose yourself in your car, too, I don't know, the *limpia vidrios* or someone like that, to tell you something, because they do exist as well" (Participant in FGD5). A *limpia vidrios* is a person who approaches to clean your car window shield at a traffic light stop to ask for money. This is a common practice in Mexico, together with people selling products at traffic lights, which is part of the country's informal economy. In this instance, the car forms a physical barrier, however the woman still believes that it will not protect her from this man if he decides to attack her.

Other measures, such as keeping in contact with someone when travelling or travelling alone, a practice that is becoming increasingly common elsewhere, did not come up in any of the FGDs – except for a participant in in FGD6 suggested that her husband asks her "to write down the plate number and send them to [him]" whenever she takes a taxi. In fact, in FGD3, participants agreed that not using mobile phones nor headphones while walking was the safest choice, while a participant in FGD7 added that it was also important to "not being distracted on the mobile phone, that is, not being constantly looking at it, [but looking] to the sides, not just being focused on walking forward" (Participant in FGD7). As for the use of headphones, a participant in FGD4 said that she does "walk with headphones and everything but, I use them at low volume to listen to the outside and I am aware of my surroundings always".

4.2.5. Links between urban infrastructure and VAW

The perceived links between infrastructure and VAW were evident in across the different coping mechanisms used by FGD participants to avoid being victims of VAW. Participants cited a lack of lighting as allowing men to hide at night to expose themselves to women passing by. In a story shared by a participant, she mentioned how a man stopped exposing himself in her neighbourhood as soon as the municipality installed street lamps and improved the avenue. Another participant expressed that at night she runs through a dark place in front of her house to go to the shop, due to the fear this space instils in her. Many participants expressed they changed sidewalk sides whenever they see a man. Also, FGD respondents commented that, in their experience, men were able to grope them due to the reduced sizes of the sidewalks (either through forcing them to walking close by or by leaving them in reach of a passing bicycle, motorbike or car), and if the sidewalk was wider, allowing for more space for them to walk through, maybe these instances could have been prevented. In terms of better sidewalks, however, it was not a straightforward solution for some participants. For example, participants in FGD6 did not equate better sidewalks with safety, as it seems they use the road for walking instead. One participant mentioned that if the streets were improved she would be able to "run fast and not trip with rocks" (Participant in FGD6).

5. Discussion

The qualitative evidence presented is important to show the perceived links between infrastructure and the facilitation of violence – evident in the coping mechanisms used by FGD participants to avoid being victims of VAW. The SEF in combination with the social construction of space were used for discussing women's feelings of vulnerability and the adoption of coping strategies at each level (see Fig. 5). The personal level of the SEF embodies the experiences of women and their response to violence, namely the coping mechanisms they adopt to
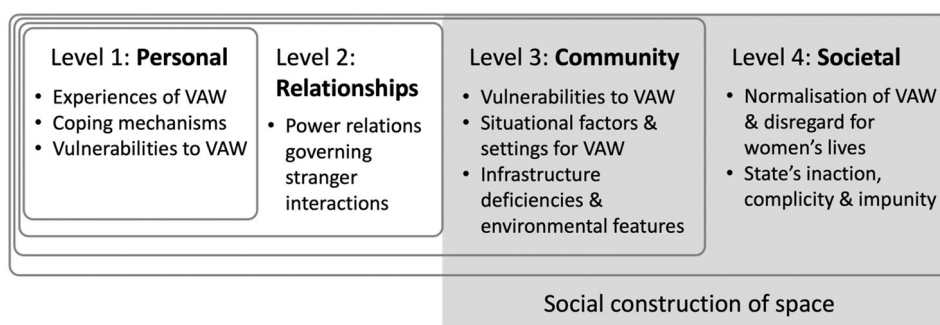
Fig. 5. Results according to the socio-ecological framework.

avoid being victims of VAW. The relationship level of the SEF was not explored as most of the cases of VAW reported were perpetrated by a stranger. However, the implications of the power relations governing stranger interactions are discussed on the societal level section. The community level reviews the situational factors and settings where incidents of VAW took place, including some aspects mentioned by participants regarding vulnerability factors. The societal level discusses social attitudes towards VAW such as social interventions and the state's inaction and complicity, which also addresses the factors women quoted as making them more vulnerable to VAW. The SEF was also used to argue solutions to VAW require strategies at all levels, rather than leaving the burden of responsibility of safety and protection to women. Recommendations for reducing the opportunity of crime and increasing risk for offenders at each level are provided based on CPTED principles.

5.1. Personal level

Traditional gender roles shape women's fear of public spaces, as violence and harassment tend to emerge as a response to deviation from these roles and women's personal behavioural expectations (Dunckel Graglia, 2016). The coping strategies that women adopt in Corregidora to avoid VAW were consistent with measures found in the literature. The most quoted strategy in several studies was reduced mobility due to avoidance behaviour; i.e. women avoiding going out altogether (Foster & Giles-Corti, 2008; Little, 1994; Lorenc et al., 2012; Loukaitou-Sideris & Eck, 2007; Nieder et al., 2019; Pain, 1997; Valentine, 1989, 1992). The coping strategies discussed in the FGDs were categorised as time-space avoidance, environmental response, physical defence strategies and other active measures to increase personal protection. Some of the participants, particularly those living in areas that had reduced lighting, quoted not going out at night altogether. Participants also suggested going out in the company of somebody else as a way to minimise the likelihood of being a victim of VAW in public spaces. It could be argued that these solutions reinforce patriarchal values, and make women exercising independence targets for criticism, attack or victimisation, and remove their agency to move freely through the city (Valentine, 1989). In Mexico City, there are initiatives to raise awareness of VAW while using public transport (c.f. Dunckel Graglia, 2016). In the context of Corregidora, these efforts appear limited to self-defence classes provided by the municipality and other private institutions (Trueba, 2020). Ultimately, the coping strategies that women adopt to avoid being victims of violence places the burden of responsibility for protection on women, rather than addressing the root causes of VAW. Becoming a victim of VAW is dependent on the aggressor's perspective (Clarke, 1995; Tilley & Sidebottom, 2018). Under this premise, while women may take precautionary measures to avoid being victims of VAW and their personal characteristics may play a role, it is the aggressor who determines who they perceive as vulnerable.

5.2. Community level

Fear of violence influences how women navigate the city (Loukaitou-Sideris, 2016; R. Pain, 2000; Painter, 1992). The conversations held with the FGDs participants pointed towards the constant and prevalent fear women face while using public spaces in Corregidora. Fear and concerns about safety negatively influence travel decisions for women and impact measures they take to ensure their own safety, affecting their participation in urban life (R. H. Pain, 1997; Painter, 1992; Tripathi et al., 2017). Women's experiences and perceptions of violence contribute to how different social spaces are constructed, as a perception of risk or danger may lead women to avoid certain areas of the city or not engage in particular aspects of public life (Low, 1996; Painter, 1992). Some participants' experiences were critical to highlight how the use of public spaces and urban infrastructure are subject to social constructions, including how spaces may not necessarily be used in the way they were intended by those who designed them. This is especially the case for the participant that implied she used the street to walk rather than the sidewalk. It is not possible to know whether she did this because of fear of being too close to buildings and using the road as a way to add space between her and a perpetrator or due to the poorly delivered and maintained infrastructure that makes it physically dangerous to walk on the sidewalk. It however emphasizes the importance of understanding a community's use of space and the underpinning relationships to create safer spaces, both socially and physically.

Some of the response strategies women adopt solely represent a response to the built environment as it currently exists rather incorporating the notion of changing the nature of the urban space (Little, 1994). The lack of access to public spaces and infrastructure (e.g. sidewalks, lack of lighting or public transport) can reinforce forms of structural violence, yet access to infrastructure may not necessarily exempt women from violence (Datta & Ahmed, 2020). If a state facilitates violence by addressing it in limited ways, a culture of violence is produced, "which in turn normalises the escalation of violence in everyday life" (Purkayastha & Ratcliff, 2014, p. 23). Violence can be further aggravated through the poor planning and delivery of urban infrastructure, based on outdated building requirements that do not consider the safety of women, resulting in the creation of opportunities for crime and the perpetration of VAW, and the lack of maintenance of existing infrastructure. Gender expertise in the ways in which economic investments and urban design decisions contribute to gender inequality, including fear of violence, is necessary for building inclusive cities (Cosgrave et al., 2019). Both the built environment itself and its gendered meanings or uses must be considered in order to reduce VAW (R. Pain, 2000). Planning spaces that inadvertently restrict mobility through physical obstacles, poor visibility and generally poor infrastructure, can create opportunities for crime by obstructing visibility and reducing guardianship.

5.3. Societal level

The experiences shared by women point towards wider, social attitudes problem in which men are raised in a society in which they are taught that public spaces belong to them and are no place for women (Dunckel Graglia, 2016; Pain, 1997; Massey, 1994; Painter, 1992; Valentine, 1989).The levels of impunity the *narco* wars in Mexico have exposed, paired with the increase in femicide cases, have highlighted how most perpetrators of violence face no consequences (Lakhani, 2016; Redaccion AN, 2017). As a result, people, particularly men, may feel encouraged to commit acts of VAW with impunity, knowing that the risk facing justice is very slim. A state also facilitates VAW by allowing the continued association of members of the police forces who are perpetrators, as reported in the FGDs. The state has a responsibility of ensuring the security of all its citizens, including women, which is clearly failing to do. The Belém do Pará Convention offers a legal avenue for holding the state accountable, and has previously been used to condemn the Mexican State for violating the human rights of three murdered women (Medina Rosas, 2010).

Some participants were reluctant to discuss personal incidents of VAW, and it is uncertain whether this was due to a lack of recognition or acknowledgement that what they had experienced could qualify as VAW, including failing to acknowledge less severe forms of VAW (such as catcalling) as violence. Recognising VAW in all its forms as a human right's issue and as discrimination against women are crucial steps for ending this type of violence (OAS, 1994).

5.4. Urban planning recommendations

Many of the prevention strategies adopted by women presented in this paper focus on increasing the effort and risks and reducing provocations for offenders. It is hoped that by providing mitigation strategies at community and societal level, the responsibility of personal protection can be moved away from women. Examining how infrastructure can enable VAW through the triangulation of victims' accounts (both qualitatively and quantitatively), crime data (including georeferencing) and the analysis of power relations at the different locations is critical for understanding links, patterns and plausible causes of VAW enabled by the physical environment.

Incorporating CPTED approaches into future infrastructure design and planning decisions of public spaces could ensure the reduction of opportunities for VAW and other criminal activities (Rau et al., 2018). The inclusion of a gender perspective into planning and infrastructure delivery that is sensitive to the needs of the population in issues such as safety, violence, crime reduction and changing gender norms is required (Cosgrave et al., 2019; Kwami & Cosgrave, 2018; Parkes, 2015). The results from this study show that that improvements in infrastructure could be a way forward to prevent VAW in public spaces, not only in Mexico, but in other settings. The development of programmes and allocation of investment aimed at crime reduction and prevention strategies could be informed by examining the infrastructural layout of the different locations where VAW is reported and the inclusion of female residents' voices, improving resource investment. Understanding the needs of individual locations could lead to more efficient and strategic use of resources, rather than instituting one-fits-all solutions. Intervention measures could include social components aiming at behavioural and social norm changes regarding VAW, including policing and monitoring (especially at night-time) or community initiatives to foster greater social cohesion, as well as infrastructural interventions, such as road paving, construction or widening of side-walks, public lighting,

better policies for the removal of obstacles in roads and public spaces [9], or a combination of the above (Garfias Royo et al., 2020; Nangia et al., 2019). Increasing the width of footpaths or sidewalks, allowing space for 2 or more people to walk through without being in contact with one another, could reduce the opportunities for situational incidents. Pedestrian mobility should also be prioritised, including public transport solutions which respond to public transportation needs, as well as better management and maintenance of existing public infrastructure.

Work towards increasing communication and advocacy campaigns that focus on education, raising awareness and messaging that challenge VAW and social norms that facilitate it (Fairbairn, 2020) as well as encouraging reporting (Green et al., 2020) is needed. Urban planning could therefore include from the outset interventions that foster the use of public spaces by all and integrate attitudinal interventions to change social norms and community structures, such as better understanding of inappropriate behaviour, what is understood as VAW or deterring attitudes that foster the exclusion of women from public spaces.

5.5. Limitations

This research was based on a single municipality, Corregidora in Querétaro, Mexico. The stories shared in the FGD are not representative of the entire female population of Mexico. It also does not account for the experiences of women outside of urban settings or of women that do not have access to Culture Centres. The sampling strategy might also not be the most adequate tool to measure socioeconomic level at urban level. Additionally, while discussions were held among authors regarding the coding categories, the coding was carried out by one person. The coding would benefit from further tests to ensure reliability.

6. Conclusions

This article analyses women's perceptions of vulnerability to VAW in Corregidora, Mexico and how they responded to these perceived risks. The perspectives of women affected by VAW in public spaces gives an account of violence faced by women that is under-reported and invisibilised in official public reporting. Drawing on the Socio-Ecological framework, our findings show that sources of vulnerability can be divided into personal, socio-cultural and situational and design factors, including infrastructure. To mitigate these vulnerabilities, women adopt different strategies and coping mechanisms for their safety, which include time-space avoidance, environmental response, physical defence strategies and active measures to increase personal protection. Women's analysis of and responses to VAW focuses on individual factors, rather than addressing causal factors at the community and societal levels. The identification of factors that increase the risk of violence and victimisation are important for developing urban prevention and intervention strategies. Future research should focus on documenting the experiences of women in different parts of the urban environment, to further understand infrastructural vulnerabilities that put women at risk. There is also an urgent need to integrate qualitative data to facilitate informed and holistic solutions for women's vulnerability to VAW that can be addressed from a multi-agency perspective. This work highlights how VAW can be seen as a function of people and their environment and the potential that improvements in infrastructure (i.e. road paving, street lighting, removal of obstacles in roads and public spaces and footpath and sidewalk width) in combination with attitudinal intervention programmes (e.g. behavioural and social norm changes regarding VAW, sensitive policing and monitoring and initiatives to foster community cohesion) could have in the reduction of VAW.

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[9] For example, not allowing the expansion of the front of houses or improving drainage and rainwater systems to avoid flooding mitigation strategies such as building dicks in front of house or raising building steps invading and reducing the size of sidewalks (Ahmad & Afzal, 2020).

Funding sources

CRediT authorship contribution statement

Margarita Garfias Royo: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization, Project administration, Funding acquisition. **Priti Parikh:** Conceptualization, Supervision, Project administration, Writing – review & editing. **Julian Walker:** Methodology, Supervision, Writing – review & editing. **Jyoti Belur:** Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

Acknowledgments

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cities.2022.104113.

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