Female restrooms in the tourist destination: how the socio-spatial conditions of public toilets influence women’s perception of safety

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ABSTRACT
This article attempts to conduct a spatial study on women’s public toilets, focusing on how the situational and spatial condition of the toilets influence and challenge the women to utilize, avoid, or delay using public toilets. The tourist destination of Kotatua Jakarta was selected for this research due to its strategic policy dimension for the provision of on-street public toilets. The research method was experience-based user interviews combined with spatial and locational studies, which focused on the surveys and mapping of attribute descriptions and observation behavior. It was found that as well as suitable social and cultural environments, to avoid crime and the fear of crime, female public facilities should have crime prevention mechanisms on the physical nodes (activity), the paths (route), and the edges (the boundary of awareness). The finding drew a spatial paradigm on the connectivity of public toilets to the busy urban street and square, which enhance the natural surveillance. The attendant’s role in women’s toilets and the presence of the mushola strongly influenced the feeling of security. The study suggested design innovation that reflects and reproduces deep-seated cultural norms in shaping the more inclusive on-street public toilet’s design.

1. Introduction
The limited availability of public toilets in an urban area is symbolic and physical evidence of the issue of the exclusion of the urban dwellers from the public sphere. Public toilet facilities are important for everyone, yet they generally appear neglected and of secondary concern. In the Global South, a discussion on public toilet facilities in cities might seem myopic when local governments are still focused on ensuring clean water, sanitation, and hygiene in urban slum areas. The critical need for suitable public toilet facilities was aroused when the Ministry of Tourism and Creative Economy want a piece of the global tourism cake and promoted the agenda of tourist destinations in Indonesia. The public toilet would improve the public health status and the image tourists have of Indonesian cities. As a major tourist attraction in Jakarta, the local government takes a proactive conservation and revitalization approach in Kotatua. In 2019, more than 200,000 tourists/day, on average, stayed in Jakarta (Jakarta Open Data 2019). The enthusiasm of Kotatua for the major place of interest at Jakarta has arguably led towards boosting and creating the exciting 24 hours city. This trend has resulted in more increasing of commercial, entertainment, and gathering activities mainly aimed at young and city travelers.

Recently, the concept of sustainable tourism development enforces the need to shift from a product-oriented to a service-dominant logic and placing more importance on the abstract value of consumption (Vargo and Lusch 2008). In this regard, the success of a tourist spot is determined by the object that becomes the tourist attraction and supported by the availability of various infrastructure components, one of which is a public toilet. In tourist destinations, the public toilet has no discernible ability to attract visitors – they are not attracted to a destination because it has public toilet facilities. However, having more public toilets in tourist destination areas will indirectly support more tourism activity in the region since the provision of the standardized public toilet means affording the amenity of visit.

For most people, going to the toilet in a normal situation is routine and instinctual. However, for many women, using an unfamiliar public toilet is not always easy. Despite having the desire to urinate, many will delay using the restroom when they are away from home, leading to urinary dysfunction and poor bladder health (Hartigan et al. 2020). The public toilet, conceived of as a series of walled enclosures nested inside a larger enclosure, purportedly accomplishes this objective through what Sheila Cavanagh (2010) terms the “hygienic imagination”: by dividing “clean” public space from the “dirty” realm of the abject body. Therefore, a range of negative emotional reactions such as embarrassment, disgust, fear, and anxiety might appear when using the public toilet.
Public toilets are public entities that should be the government’s responsibility as part of its stewardship over citizens’ bodies, for the reasons of both public health and personal morality. In many cities around the world, multiple factors may impact negative stigma on public toilets. The range of negative reactions, including the risk of assault, human interaction, and phobias, encourage the reluctance of women to use public toilets (Hartigan et al. 2020). The affluent women would rely on the off-street public toilets or facilities owned and operated by commercial enterprises such as cafes and restaurants to relieve their bladder. However, this free service carried a price. Women who use the restaurants or café’s toilets assumed that it would be offensive not to become customers and buy something. However, what about the majority of less-affluent women who have no choice and the availability of on-street public toilets is their only option?

Abundant research on public toilets has often been focused on empirical studies that provide a verifiable and grounded conclusion on statistical representation. In low- and middle-income countries, the topics concerning toilets mainly focus on the psychosocial impact of inadequate toilet access for girls and women living in densely populated urban slums and informal settlements (Schmitt et al. 2018; Sahoo et al. 2015). Other research on public toilets focused on discouraging and physical risk factors like unhygienic facilities, discomfort, and privacy (Reddy, Raghavan, and Vedala 2019; Coffey and Spears 2017; Anthony and Dufresne 2007). However, little scholarly work to based on the comprehensive study on how to access the on-street female public toilets in the tourist destination. This article attempts to conduct a spatial study on women’s public toilets, focusing on how they consider the situational influence and challenges to utilize, avoid, or delay using public toilets. The aim is to see how women respond to public toilets’ conditions when they have to use them, what feelings of fear arise, and how the experiences they have when using the public toilets. This place-based study focuses on women because gender aspects have long been associated with “personal space” due to their demands on physical and social conditions. Some research on poorly design public toilet proved that women were physically, psychologically, socially, and economically affected, that it consequently caused poor well being (Greed 2019; Jadhav, Weitzman, and Smith-Greenaway 2016; Khanna and Das 2016; O’Reilly 2006; Reddy, Raghavan, and Vedala 2019). All studies showed that when women away from home, their attitude towards using the public toilets reveals the complicated interplays of personal and behavioral strategies limiting the public toilet use and delaying voiding their bladder.

Tourism provides positive economic developmental benefits, as are discussed at length in the literature by many tourist economic experts (Mihalic 2014). Tourism has stimulated the development of “economically backward” that was mainly considered to have positive effects. Some of the beneficial impacts of the tourism boom at Kotatua include the creation of employment, the revival of social and cultural life, and the promotion of the need to conserve the outstanding old buildings with aesthetic and cultural value. However, it will be impossible for Kotatua to resist the detrimental effects on society and culture, which can cause the major issue of security. Issues on the level of security in the tourist destination have attracted many researchers who revealed that the additional number of “strangers” potent to trigger the problem of the crime escalation. For that reason, the site of Kotatua was the right selecting site for this research due to its strategic policy dimension for the provision of on-street public toilets.

The research presumption is that the public toilet’s deficiency can result in some discomfort that women tend to avoid using them. Referring to the fact that the significant issue of Kotatua as the city tourist spot is the fluctuation of strangers that threatening safety, another premise is that women’s barrier to utilizing the on-street public toilet is predominantly the anxiety. The unwillingness to use the public toilet also potent to stimulate a serious barrier to prolong the women’s preference to enjoy Kotatua.

Since the violent attacks and the sexual harassment occur every day on women in certain spaces (Rose 1993), this paper focused on females, not only because they are the primary victims of violence in public spaces but also because they are especially vulnerable. The main question we sought to answer was: how the socio-spatial conditions of public toilets influence women’s perception of safety? In case of existing on-street public toilets operated by local authority, what situation and condition that women of less affluent find intolerable/tolerable which affect their intention to protect their bodily privacy?

The reseach aims to appeal the public authority attention, that in urban public area and tourist destinations, the less affluent of women also have the right to access the proper facilities to avoid delaying of voiding their bladders. The public toilets in the tourist destination also should be seen as a core component of urban policy and a key factor in the creation of sustainable tourist destination. Reinforced by the electronic word of mouth (eWOM) submitted on the media platform like tripadvisor site, Kotatua has been gaining popularity among foreign visitors who visit Jakarta, the capital of Indonesia. Consequently, Kotatua represented miniature or urban civilization of which its reputation of the nation internationally would be judged from way it disposes of its waste. The enthusiasm to develop the tourist destination at Kotatua could be ruined once the tourists need to relieve their bladder but there are not suitable toilet facilities provided. The research finding could also be useful for architects, town planners,
designers and local governments through the manipulation of the physical environment of the on-street public toilets that has the potential to reduce the opportunity for crime to be committed.

2. Literature review

2.1. Public toilet design

The privacy in toilet means using the toilet alone so that others cannot see in this case, the sense of privacy in toilet signifies the individual, the personal, the confidentiality and the secrecy (Magni and Reddy 2007). However, once the public toilet is installed, it never been entirely private, but situated within a public microcosm and to some extent it remains open to the rest of the world. Within this very nature, public toilets are places where there is high chance to be encountered by other people as someone enter, use or exit. Few references described the potential facts as a cause of crime in public toilets, but women take into account on the cognition of the possibility that the public toilet could be risky of assault based on the past personal experience. In Lebanon and Myanmar, gender-based violence is the key concern for girls and women who require to take a journey through unsafe areas during nighttime darkness as they depend on communal toilet facilities (Schmitt et al. 2018). The unpleasant, scary and uncomfortable situation drove women stigmatized the public toilets as the potential spots of crime, vandalism, anti-social behaviour and drug-taking. Therefore, many people and especially women, worry about the possibility of sexual abuse in public toilets (Kayser et al. 2019; Sahoo et al. 2015; Amnesty International 2010).

Privacy and safety in public toilet facilities in urban environments are a paradox as providing discretion could also induce fear and isolation. Therefore, even though the location of public toilets is a sensitive matter, planners rarely consider public toilets as a land-use matter. However, deciding on public toilet locations requires a delicate balance between providing natural discretion but ensuring the place is open enough to assuage the patrons’ fears of isolation (Greed 2007).

A few local governments and NGOs have commissioned professional architects to design innovative and friendly female public toilets, focusing on the "micro" design aspects and the surrounding toilet site contexts. For instance, in Thane India, architect Rohan Chavan designed public toilets to be constructed around a tree trunk and included a rest area where the women could relax and chat, a guard, and 24-h CCTV protection. Because of these facilities, the women began to congregate adjacent to the prominently secure toilet facilities, turning the power of the building into a safe gathering place (Wilkinson 2017).

Public toilet design within a wider urban design context was comprehensively described by Greed in her book “Public Toilets: Inclusive Urban Design” (Greed 2007), which provides a deeper understanding of public toilet facility issues and gives many useful suggestions and guidance to industrial designers, urban designers, architects and municipality technicians. Greed also mentioned that public toilets should be an integral and important component of modern urban design and town planning policy at city-wide, local, and individual site levels (Greed 2007).

2.2. Female Public toilets in Jakarta

Women have long been associated with the “private sphere”. While this has different connotations in different contexts, in this discussion, it refers to domestic life and the intimacy associated with this life (Wilson 2012) as against the public life or the social yet impersonal agendas that unfold in urban environments. When conducting interviews for research on “women and planning”, many respondents declared that “it all came down to toilets in the final analysis” (Schmitt et al. 2018). It showed how their access to cities was limited by the availability of public conveniences. Unlike men, women do not only need public toilets more often due to their biological reason but also alarm the anxiety experiences when they were using public toilets. Unfortunately, women are rarely consulted about toilet design (Greed 2007; Burzt, Nelson, and Ray 2016). Genders and cultures also affect toilet use (Del 2015; Tilley, Bieri, and Kohler 2013).

In Indonesian cities, there are well managed off-street female public toilets in many places, such as offices, schools, campuses, mosques and churches, and in public places such as shopping malls, cinemas, restaurants and other entertainment venues. Railway stations, gas stations, and long-distance public transport vehicles such as trains and buses also usually provide toilets that are relatively well maintained. However, in case of on-street public toilet in certain places, and especially in places that do not have proper management or maintenance, the toilets are operated at as low cost as possible, and when left unattended, become untidy and unhygienic. For that reason, it is very common in public places to find toilet’s supervision informally relies upon a janitor who requires users to pay Rp2,000 (USD 0.22) for using the restroom facilities. While the collected money should be spent on cleaning expenses, and even though the janitor usually just sits at the toilet entry, this does not mean that the toilet is always clean and sanitary.

Public toilets in Indonesia are also often sited adjacent to mushola or Muslim prayer rooms where people go for their five mandatory daily prayers or other prayers in (or without) small congregations, but not for large congregations such as Friday prayers.
Mushola is equipped with a place for ablutions or the pre-praying cleansing ritual called “wudhu”, which generally consists of a row of water taps with drainage to carry the greywater to the main drains. In many places, the public toilets in Indonesia can be easily recognised by a sign saying “toilet, lavatory, WC, and kamar kecil” (literally means small room). Although western-style toilets have become more popular, traditional squat-style toilets are still the norm in Indonesia. These squat-style fixtures have well-designed places to position the feet and are provided in various colours. Though western-style toilets are popular, many Indonesians feel that it is not hygienic to place themselves on a toilet seat, someone else has just vacated. In the public buildings with western-style toilets, there is a sign telling people not to stand on the seat; however, the toilet seats are often scratched up and dirty from being stood on.

Public toilets do not provide toilet paper but often have toilet sprayers and toilet flushes, with the sprayer being used to washing the private parts with left hand. In squat-type toilets, if there is no toilet sprayer, there is often a water tap with running water in a bak (tank for holding water) with a plastic scoop, so in the squat position, the right-hand uses the scoop, and left-hand cleans the private parts, flushes the toilet and washes down the floor on completion of the ablutions. Because of the large amount of water that gets splashed around in squat-style restrooms, the floors are almost always wet. A floor drain is generally located at the side or behind the toilets, and there is usually a rag outside the toilet door to wipe it when exiting.

In high-end shopping malls in big cities such as Jakarta, the public toilets or female restrooms are in the same “remarkable” category as luxurious toilets in the homes of the well to do as they are bright, clean and despite their small size, give the impression of spaciousness. The toilets are generally modern western style, dry and clean with disabled access, baby chairs, and toilet paper. A spray water hose mounted right next to the toilet for spray a bit and get a squeaky clean afterward. The area for washing the hands is spacious with luxurious washbasins and wall to wall mirrors equipped with hand dryers, paper towels and trashbins, and there is often a hydroponic plant on the washstand table to give a sense of freshness. A cheerful lavatory attendant in a uniform from a professional cleaning service company cleans the toilet each time it is used as the restroom management is part of building management.

2.3. Female fear of crime

Fear of crime is a feeling of insecurity and vulnerability towards crime (Scott 2003; Tandogan and Ilhan 2016) and is a psychological disorder that decreases the quality of life and limits social and cultural activities. Although men generally have more experience with physical violence, they are often less affected by fear than women (Blöbaum and Hunecke 2005). In qualitative research examining the female fear of violence and the changing relationships to space, Koskela argued that the spatial exclusions in women’s lives reflected gendered power relations (Koskela 1999). Fear of crime limits female movement and daily activities in a city as they feel unsafe outside, especially after dark.

Fear of crime can be engendered by the physical aspects of a building and the environmental design (Newman 1995). Jacobs claimed that environments should be appropriately designed to reduce the fear of crime and criminal acts (Jacobs 1961). Public spaces should be designed to attract people and create communal spaces where people can engage and interact, which in turn provides natural surveillance and social cohesion to the environment that reduces crime. It had been found that it is essential to design spaces so that people do not feel entrapped, and where they can observe their surroundings (Newman 1995; Zhao and Tang 2018; Ceccato 2015). Lighting is also important as it allows people to see a stranger and control their surroundings (Blöbaum and Hunecke 2005). A study revealed that an environment that makes people feel entrapped and concealed increases the fear of crime (van Rijswijk and Haans 2018). These spaces limit movement and behaviour and, when concealed by dense trees, walls, buildings, or columns, hinder the ability to observe the surroundings. These two entrapment and concealment aspect can allow offenders to hide and remain unnoticed by prospective victims. Blobaum and Hunecke examined the connections between crime and illumination (Blöbaum and Hunecke 2005) and found that lighting played an essential role in providing a sense of security. However, it only applied to certain contexts, such as when the environment allowed people to escape quickly. In 1972, as a response to the high crime rate in a neighbourhood in the US, Oscar Newman created a defensible space theory that consisted of territoriality, surveillance, and image (Newman 1995) and pointed out that environmental design needed to function as a crime prevention tool. Newman’s defensible space theory was further developed into the six Crime Prevention Through Environmental Design (CPTED) points (Cozens, Saville, and Hillier 2005). Newman’s theory has been regarded as being universally relevant for different social cultures and has become a model for the prevention of crime in many residential areas around the world.

2.4. The potential fear of crime in Kotatua

As the consequence of urban transformation in the old inner-core city area, the housing in surrounding
Kotatua has long been faced the displacement pressure, that the area of Kotatua displayed the character of impersonal environment due to the absence of neighborhood community. Another negative impact is the closeness of Kotatua to Kalibesar, a well-known for late night venues such as bars, nightclubs and karaoke that it bears the reputation as the area with the highest crime rate in Jakarta. The entertainment activities in combination with gathering places drew people from larger geographic areas and led to uncontrollable use and movement. In turn, it contributed the encouragement for potential offenders to come and go with no control, resulting opportunities for the would-be offenders to select targets and commit crimes. The unlimited flow of strangers has been potent to raise the illegal activities such as prostitution and drugs, the condition that assumed to be associated with nuisance, deterioration and criminality. In short, while there are distinct social and economic advantages of Kotatua for gaining the popularity as the tourist destination, there are some contexts in which the establishment of entertainments can contribute to negative impacts as it will increasingly attractive target for criminals (Bras 2015).

There is scarcely any evidences based on the official crime statistic at the public toilet was being report at Kotatua. However, since Kotatua has the stigma of being a vulnerable place, despite its popularity among visitors, the public toilets at Kotatua reasonably bear the stigma of being vulnerable. The signs of disorder displayed by the absence of community neighborhood at Kotatua can be more important determinants of crime-related fear than the actual incidence of crime in the area. In this case, Jackson and Gray (2010) suggested that “worry about crime is stimulated by weak informal provisions of social control: if local social controls are not seen to have been exerted, then a sense of insecurity may be engendered” (p.12).

According to Gabriel and Greve (2003) the dispositional fear of crime is the result of a long-term (ontogenetic) developmental process that is influenced by personal conditions and attributes (such as anxiousness, perceptive tendencies and coping resources) on the one hand, and by individual experiences of fear-relevant situations on the other, as well as by the interaction of these two factors (Gabriel, page 602). In this case, the possibility that the female public toilet could be risky based on the appraisal process that takes into account when women use the public toilet and aware of its potential to be encountered by strangers. Some may have these concern based on past personal experience, others thought about the dangers of using the public toilet without a history of being assaulted (Hartigan et al. 2020).

Most of the visitors of Kotatua were local tourist of millennials and youths, who enjoy the ambiance and the style of the buildings that looked ancient yet captivating. They visit Kotatua using the public transportation. For families or old age groups, lack of parking space hinders their preference to choose Kotatua to hang out. In addition, the negative stigma that Kotatua is a vulnerable tourist area is also the reason why they are not interested to lengthen their visit to Kotatua, except when there are big events. On the other hand, young people show a high interest in spending time in Kotatua, especially since Kotatua is the only public place in Jakarta that is open for almost 24 hours.

The hot spot theory of crime postulates that spaces, where tourism activities converge, are particularly prone to incidents of tourist victimization as they are “criminogenic” locations with greater exposure to risk (Tarlow 2014). The movement patterns of both the potential victims and the offenders were explained by Brantingham and Brantingham (Brantingham 1984) who emphasized three interrelated concepts: 1) activity nodes or centres of high activity in which people spend a majority of their time; 2) pathways or routes that connect the activity nodes; and 3) physical and perceptual edges or boundary that cannot easily be traversed. This theory can assist in understanding the micro-spatial movements of both the offenders and the victims. Crime in this paper is focused on Situational Crime Prevention (SCP), that is minor deviances (e.g., littering) and standard crimes (e.g., burglary and robbery) (Lee 2010), which outlines the situational factors that can stimulate crime and the factors that can reduce crime.

### 2.5. The situation of public toilet in Kotatua

Kotatua is located in the Northern part of Jakarta and has a total area of about 334 hectares. This study focused on the area inside the city wall covering Fatahillah, Kali Besar, Roa Malaka, Galangan, Museum Bahari and Sunda Kelapa. Most historic buildings in Kotatua have been preserved and repurposed as museums and other tourist destinations, although there are still some old buildings that are empty and unrestored (Figure 1). With the increasing of visitors, some of the old building’s owners renovated their assets for commercial activities such as restaurants and coffee shops. The growing numbers of visitors in Kotatua have also attracted marginal traders. They have set up informal street stalls in the streets, sidewalks and squares selling food, drinks and various products for visitors, residents and local office workers (Figure 2, 3). Due to a lack of organisation, control management, and community empowerment, Kotatua has become an ideal place for illegal street vendors and hawkers, who are present on almost every strip and corner. Fatahillah Square is the most popular area within Kotatua, and during the holidays, more than 1,000 visitors attract the street vendors to set up...
as close to the square as possible. The research found that there were at least 500 street vendors in Kotatua and double that number on weekends and holidays (Sujatna 2018).

Within its rich history spanning over several centuries since establishment in 17th century, most of the old traveller’s notes depicted the landscape and architecture buildings of Batavia or old Jakarta, yet there was scarcely any historical evidence on the early effort to install the public toilets. During the heyday of Kotatua, when the city’s public life was dominated by men, urinating against convenient walls and stinking up the urban streets would not seem judge the men as uncivilized individuals. In 1974, when revitalisation programme for Kotatua had initially and formally announced, the absences of the public toilets were not the main concern. It was from 2014, when the Jakarta government has been struggled to enact the revitalization programs, public toilets for both male and female started to become the matter of interest. In the core zone of Kotatua, there are only four public toilets operated outside commercial enterprise, or more accurately accessible for the urban dweller without being policing and ejection as they are corresponding to the public right of access. (Figure 1). Other semi-public toilets being located in museums and commercial venues such as cafes, restaurants and mini-markets; however, as it is necessary to spend money to use the toilets in these places, these are not public toilets. There are also other public toilets at the train station on the station platform, which means that visitors have to buy a train ticket for access.

This study only focused on these four public toilets which are as follows: 1) the Tempat Penyeberangan

Figure 1. (a) Map of Kotatua; (b) location of accessible general public toilet; (c) Abandon/empty building; (d) Adaptive Reused Building.

Figure 2. Crowds at Kotatua: (a) street vendors in the core zone; (b) Visitors to Fatahillah Square.
Orang (TPO) public toilet or T-01; 2) the Fatahillah Public Toilet or T-02; 3) the Kali Besar Public Toilet or T-03; and 4) the Ketumbar Public Toilet or T-04. The T-01 public toilet was provided as part of TPO or the crossing facility. T-02 and T-03 are in empty buildings that were not originally designed as public toilets and are adjacent to abandoned buildings. T-04 was designed and built as a public toilet but located in an inappropriate location since it was surrounded by empty land. The only reason for choosing this location was simply because the land is owned by the government. All public toilets were provided by government under UPK (Unit Pengelola Kotatua) or Area Management Unit of Kota Tua Jakarta.

3. Study methods

Using case studies in Kotatua, this research was conducted using a combination of observational surveys and in-depth interviews to the young female respondents who represented the majority of Kotatua visitors. The female students were deliberately chosen as respondents for their reliability to absorb the situation of the public toilets and recount their experiences during the interview. Hitchcock (2001) mentioned that group of women varied by culture-socio-economic status may differ in terms of perception of safety, but in their actual possibility to exposure hazards, they have the same access in the potentially compensating benefits associated with any risk of harms. For that reason, the female university students were valid to represent the local/non-local visitors of less-affluent majority of women who have different background, yet generally speaking, they have the same perception of safety. Because this study was using the in-depth qualitative approach, there was no minimum limit on the number of respondents. Eventually, 10 female respondents of university students had voluntary selected with the criteria of familiarity that they had been visited Kotatua several times. Although almost all respondents are accustomed to use toilets at restorants and café, in this research they were asked to visit and compare all four existing public toilets, not only during the day but also at night.

The data were collected to focus on the correlations between the toilet users and the female fear of crime. All participants were not informed of the study background, but they were only asked to subjectively evaluate different female public toilets focusing on the six theories of friendly outdoor design categories: familiarity, legibility, distinctiveness, accessibility, comfort, and safety (Burton and Mitchell 2006). After completing the task, the participants were separately interviewed and recorded by the authors. Each interview was analiticaly conducted and lasted between one and two hours. By showing the sketch and drawings depicting each public toilet’s situation that had been prepared before the interview, the respondents can clearly describe the situation and evaluate the female toilets based on Burton’s theory. Data gathered from the individual interviews were collated and constructed into narratives based on the users’ experiences in the public toilets. Using this approach, it was possible to gain some impression of the feelings they had when approaching and using public toilets.

The survey observation was conducted by the authors through the measurement of the space and mapping of all attributes and situations in the areas surrounding the public toilets. To answer the research question on the physical and social conditions of the
existing public toilets, the toilet facilities were reviewed based on the CPTED theory of territoriality, surveillance, access control, activity support, image and target hardening (Cozens, Saville, and Hillier 2005), Newman’s theory of defensible space: image, surveillance and territoriality (Newman 1995); and Brantingham’s theory of nodes, paths and edges (Brantingham 1984). As analysing behavioural responses and physical manipulation is a complex process, the headings applied were not mutually exclusive.

4. Discussion

The respondents acknowledged that the T-01, T-02 and T-03 public toilets were distinctive as they are located in the prominent location of a tourist spot and surrounded by various landmark buildings. T-01 is the best place among the respondents, as a respondent said: “I think not all the public toilets here were acceptable and in case of emergency I know the best public toilet is T-01”. The position of T-01 was well-defined, clearly marked but open precinct and circulation corridors typically found in standard public buildings. In front of the public toilet the circular restroom seat becomes a place for chitchat and gathering. The T-04 is the worst public toilets in term of position, since it located in unsavoury side busy road. Although T-04 is close to Fatahllah Square, it is completely invisible from the square, thus inaccessible for those with urgency. It surrounded by empty land and close to the empty building.

All respondents felt that the condition of the footpaths to all the public toilets were good, but the lack of public seating and a place to rest while walking from a nearby destination was seen as a possible problem for elders and the less physically able. The T-01, T-02 and T-03 public toilets are near a mushola and are easily identified by a big clear, readable sign “toilet and mushola”, which gives a sense of familiarity and minimises visitor confusion, with the closeness of the mushola to the toilets creating a sense of control. As prayers are performed five times a day (near dawn, noon, afternoon, after sunset, and nightfall) at the mushola, there is a natural surveillance. Therefore, the constant presence of people in the mushola increases the safety of the adjacent public spaces. All the public toilets are also managed by an attendant who sits close to the entry and charges each user Rp. 2,000, which also adds to the sense of security.

The public toilets are in line with the majority Indonesian culture, with the T-01, T-02 and T-03 public toilets being the traditional squat style (Figure 4); however, T-04 is a western-style toilet. Respondents commented that although they felt comfortable approaching and using T01, T-02 and T-03, these toilets would be more problematic for the disabled, pregnant woman and children as all the squat-style toilets have a step/level change between the toilet floor and the squat toilet. All respondents said that although T-01, T-02 and T-03 were modest, they functioned well and were relatively hygienic, all had door latches, hooks for belongings during usage, nighttime lights, water taps, trash bins and washstands. As the floors and walls are ceramic, they were also easy to wash and clean. While there is no toilet paper provided in any public toilets, T-01 and T-04 have toilet sprayers and T-02 and T-03 have water taps and a bucket with a plastic scoop. The respondents commented that the lack of toilet paper was not a problem as they preferred to use water to manually flush afterward. They also commented that the lack of toilet paper helped to avoid messiness.

Getting familiar to use off-street restroom, respondents expressed another angle of signaling the problem of social order when using the lower standard of hygiene and unglamorous public toilets. The former served welcoming feeling as they served by the diligent attendants while the latter served by the passive attendant who seem less care about the cleanliness of the toilets. A respondent said: “Woman like me who grown up in middle class neighborhood with proper toilet at home often labelled the on-street public toilet unacceptable so that we have to set up strategies to

Figure 4. Plan and section of the TPO Public Toilet (T-01).
resist using them, such as seeking alternative’s locations like café or restaurant. When I know there was no any acceptable toilet, I have to ensure using toilet before leaving home”. Nevertheless, all respondents mentioned that the level of hygiene in all toilets are “acceptable” means there was no situation for deciding not to enter the toilet cubicle due to the problem of cleanliness. There was problem with the number of toilet cubicles as a respondent said: “The contrast between semi public and public toilet is that in the former place I could spend some time checking and adjusting my clothing and appearance while in the latter I could not do that. It was not only because there is no such luxuries like appropriate mirror or the like, but also because it is impossible to do so. Even it was difficult to do handwashing since many people were standing line in front of the cubicles for queueing”.

4.1. Fear of crime in public toilets at Kotatua

The safety issue and the possibility of fear of crime in women were based on the analysis of each public toilet.

4.1.1. TPO public toilet (T-01)

TPO is an underground crossing hub that connects Jakarta Kota railway station, the Trans-Jakarta Kota bus stop, and the Kotatua area. As it supports transit activities, the TPO is always crowded with commuters using public transportation or passers-by. The TPO has several stores and booths that attract people to the area.

T-01 has an attendee who sits in front of a table with the money box. He watches all visitors to ensure that every user puts money in the box. As the toilet is adjacent to the mushola, there are always some visitors sitting on the bench in front of the toilet, which they use to remove their shoes before putting them in the shoe locker before their ablutions (wudhu), all of which adds another layer of surveillance to the area and gives visitors a positive sense of security. The security officials said that there had never been any violence towards women in the toilets. However, the victims of the pickpockets and petty theft crimes that occurred in the toilets and the prayer room were mostly women and occurred because these areas were crowded (Figure 4).

The observation of the toilet layout and its surrounding areas revealed that there were no areas that would induce a feeling of entrapment or concealment that could evoke fear of crime in the women. People around the area can see the toilet entrance, it only has one entrance and exit access, and the women’s toilet door is directly facing the waiting area and the toilet attendee. Therefore, this configuration allows the toilet attendee to keep an eye on the surroundings of the women’s toilet. Both the area around the mushola and the toilet are well lit during the day and night, and although the toilet is enclosed for privacy, the entrance is not blocked by any barriers such walls, which allows the toilet to be watched over by the security guards and anyone else roaming around. Therefore, there is no blind spot where offenders could hide and attack female users (Figure 5).

When referenced against the CPTED, Newman’s theory and Brantingham’s theory, the public toilet privacy design has all the requirements: 1) excellent location in a high activity node with a strong edge that has natural surveillance and access control to protect victims from possible offenders; 2) crowds of people and toilet attendants as part of the formal surveillance and to add a “human” touch to the toilet; 3) a defined territory between the male and female toilets to give a greater sense of privacy; 4) a prayer room adjacent to the public toilet, which gives it a positive image and a sense of security for women; and 5) a security guard watching the toilet.

All respondents stated that they did not have any fear of crime when in the toilet facilities, but they were worried about possible pickpockets in the mushola, where visitors have to be alert as expert pickpockets often seek to steal belongings while people are focused on praying. Although security officials wandering around to panapickpocketized the potential of offenders, they are generally not effective enough to prevent crime at musholla. A respondent said: “In many cases, crimes such as pickpockets also occur in public spaces such as prayer rooms, if the victim is

Figure 5. Surroundings to the TPO Public Toilet: (a) entrance to the mushola and toilet; (b) toilet attendant; (c) crowds in front of the toilet and mushola zone.
careless. I heard the thefts are particularly interested in any item that is portable, handy, and left unprotected by the owner. I know that I should take care my cellphone and put my belonging in front of me when I pray at public mushola”.

4.1.2. Fatahillah square public toilet

This public toilet is located close to the centre of Kotatua in Fatahillah Square, which attracts many visitors; therefore, the public toilet is always crowded and active. The women visitors have to queue for a long time to use the toilet. The public toilet and nearby mushola were built in the vacant interior of an old unused building. The street vendors and their customers in front of the building add natural surveillance and provide a positive image for the toilet. The attendant was also a vendor selling drinks and various knick-knack and sits at the toilet entry to collect the fee; however, as the public toilets were less clean and untidy, it did not appear that there was much spent on maintenance (Figure 6). These public toilets and mushola are poorly designed. For example, the female toilets are located at the rear so that the women have to go through the male toilet area to reach the female toilets. As this layout also could allow offenders to hide and attack women without being noticed by the outside crowd, this toilet allows for concealment and entrapment and therefore, could increase the probability of unnoticed violence against women.

However, the toilet attendant and the security guards claimed that there had never been any violence towards women in the toilet and surrounding areas, with the main crimes being pickpockets and theft due to the crowds and the general anonymity in the area (Figure 7).

The illumination of the public toilets and mushola is also poor, with neither facility being well lit during the day or the night. As dimly lit toilets reduce surveillance, this could lead to a fear of crime in women. The illumination of the toilet building and its surroundings at night is very poor, even though the Fatahillah Square area is well lit because of the various attractions until late in the night. As the toilets occupy an unused building, the old building next to the toilets is dark and empty, which evokes the fear of crime in women. One respondent who did not only observe the toilet but also have to go to the toilet said: “When I entered the toilet at night, I could feel a sense of fear, it was dark and stuffy, especially because it was next to an empty building. But once I finished, I felt relieved not only because I already emptying my bladder, but also because I encountered many people gathered and I could hear they outcry people enjoyed the event in Fatahillah square”.

When referenced against the CPTED, Newman’s theory and Brantingham’s theory, these public toilets have the following qualities: 1) the location cannot be defined as an activity node but is close to an activity

![Figure 6. Plan and Section of Fatahillah Square Public Toilet (T-02).](image)

![Figure 7. Fatahillah Square Public Toilet (T-02): (a) crowd in front of the mushola and toilet; (b) unclear territory between the female and male toilets; (c) crowds of people entering mushola.](image)
centre that has clear physical and perceptual edges, which gives the area natural surveillance and access control; 2) the pathway that connects to the activity node is short but hidden, so could be an escape route for victims; 3) there are crowds of people outside and a toilet attendant, which form part of the formal surveillance and adds a “human” touch to the toilet area; 4) there is a poor division between the male and female toilet areas; 5) there is a prayer room adjacent to the public toilet, which provides a positive image and sense of security for women; and 6) the toilets are poorly arranged and poorly lit, with the closeness to the empty building arousing fear of crime in women when inside the toilet building, which diminishes when they come outside the building.

4.1.3. Public toilet at Kali Besar
Kali Besar is the second main important feature after Fatahilah Square. In 2018, the canal was revitalised and designated as the place for strolling and hanging out. Along the eastern and western banks of Kali Besar are rows of heritage buildings that were formerly warehouses and other large commercial buildings. While a few of these buildings have been renovated, there are still many old, neglected buildings, some of which are extremely poor. During the weekend, the office buildings in the area are inactive.

The old buildings along the Kali Besar are a typical strip row of buildings adjacent to the street. Street vendors occupy the periphery of the buildings and attract the crowd, which means that the public area along the strip can become very active. Similar to the public toilets at Fatahilah, the Kali Besar public toilet occupies part of the ground floor of an old building that was modified into a row of (rental) small decent offices with toilets and a mushola. However, only half the old building was modified, while the other part (including the upper floor) is empty. As the toilets are located at the end of a corridor, visitors must walk down a corridor that is dimly lit, especially during the night. The public toilet is entered through a gate, where the attendant sits and collects the toilet fee or watches visitors enter the toilet or mushola. As only two toilets are available, there is no separation between the male and female toilets. The respondents expressed confusion regarding to this unisex style of toilet, as one respondents said: “the squat toilet was descent but fairly clean that there is no issue of hygiene but it was so uneasy when I exited and found a man was awaiting to use the toilet after me”.

The toilets face the mushola, with the visitors intending to pray, removing their shoes before their ablutions in the back yard, concealed and in a blind spot. Although this toilet has an attendant, there is also a guard who watches the money box. Some neighbouring shop attendants also often hang around near the entrance, unconsciously providing surveillance in the area. The prayer room also attracts many people and provides a sense of convenience and safety (Figure 8).

Because people can easily see the exit route, the toilet layout does allow for entrapment; however, the arrangement of the surrounding rooms allows for the concealment and there are several blind spots (marked with an X) where women are unable to observe their surroundings. The Kali Besar area is quite crowded, which means that there is anonymity, with pickpocketing often occurring in the crowd outside the public toilets. The respondents said that the anonymity heightened their suspicion and increased their fear of crime and that the low intensity of visitors to the toilet could allow offenders to conceal themselves in a blind spot (Figure 9). Respondent said a possible fear of situational crimes, such as sexual violence against women, as one said: “When I walked in this public toilet, suddenly I remembered the rape in the restroom that I had often heard about in many news. It was horrible to imagine what it would be like here at night. I have to confess that I could not dare to visit this public toilet after dark, eventhoughyou asked me to do so”.

Regarding the issue the potential of crime the attendant said: “I am not able to identify whether someone is an ordinary toilet visitor or a potential offender. A bad guy might enter this place and pretend to do prayer at
4.1.4. Public toilet at Ketumbar Street

This public toilet is close to an abandoned building and surrounded by empty land. Unlike the other toilets, the building was designed as a public toilet and had western-type toilets with a shower and a flush. Compared to the other toilets, the condition was relatively clean and tidy. Although the location is quite close to Fatahillah Square, this toilet does not face the square but is on the main busy Ketumbar Street, which has heavy traffic and almost no sidewalk activity (Figure 10).

During the day, the toilet is well illuminated from natural light; however, although the toilet itself is well illuminated at night, the surrounding area is not lit, with the only source of lighting being the street lights. Although the area has the least number of people around, during the day and night, some street vendors rest on the toilet terrace and often chitchat with the toilet attendant. Although this gives a sense of surveillance and a positive image that this toilet is well maintained, the respondents said that they felt insecure because there was no life in the surrounding area. Unlike the other three toilets, this toilet does not have mushola or any other community element, which means that the only source of “security” are the street vendors and the toilet attendant.

The absence of a mushola added to the fear of crime in the respondents. The entrance of this toilet is in front of the building and faces the main road, so
there are no entrapment elements; however, there is a blind spot that offers concealment. The fence bordering the toilet site offers some protection, but as the fence is short and does not block the view, there is less sense of privacy, and if a female were attacked, nobody would help as there are few passers-by (Figure 11). All respondents have the similar views that if the toilet attendant were absent, they would be reluctant to use the public toilet during the day, and at night, they would only have the courage to use the toilet if accompanied. One respondent explained: “For the purposes of this research, I needed to ask somebody to go to this toilet at night. Previously I came alone during the day, and I felt a sense of protection, because there was a security guard. But when I return back to inspect the toilet at night, I really did not dare go there, so the next day I invited my friend to accompany me and asked him to wait in front of the toilet”.

Natural surveillance refers to the condition of relatively high number of people that will provide a less attractive for a criminal act in the area for the designated function or activity (York and MacAlister 2015). Unlike the other three cases, in the context of T-04, small group of men hang around the toilet, might be considered as a threat for a woman. It was understood that respondent need the third parties to observe them and act as the witnesses in the toilet location. Therefore, in the case of T-04, focusing on “eyes on the street” may relatively ineffective since those who passing the road cannot observe what was going on in the public toilets and defend against criminal behaviours.

When referenced against the CPTED, Newman’s theory and Brantingham’s theory, these public toilets: 1) are in a poor location and lack a connection with an activity node, which means that there is no natural surveillance or access control; 2) have a poor pathway and edge with no escape route for a victim, which increases the fear of crime; 3) have an attendant and regular street vendors; however, they only provide a minimum contribution to formal surveillance and a “human” touch; 4) have a well-defined public-private territory for privacy; 5) do not have mushola nearby which reduces the sense of security; 6) have poor or no illumination in the surrounding areas that increase the fear of crime during the night; and 7) have a fence as a physical barrier, which only has a minimum impact on the fear of crime.

In summary, the observation of the four female public toilets at Kotatua found that each public toilet had some similar aspects that contributed to or worked to prevent crime; however, the fear of crime in each toilet area was different.

1. The TPO (T-01) public toilet was the safest as it met all the requirements to prevent crime. However, the crowd intensity and anonymity attracted pickpockets and thefts in the toilet and the nearby mushola.

2. The Fatahillah Square (T-02) public toilet had the highest number of toilet users, but the tangible and intangible aspects mean that it is less safe for women. When the area is not crowded, there is a high potential for certain crimes, such as sexual harassment. However, when the area is crowded, this risk is reduced but there is a higher potential for pickpockets and petty theft.

3. The Kali Besar (T-03) public toilet was not so safe for women because of its lack of lighting. Despite having a low entrapment level, this toilet is located at the end of the hallway with a poorly lit corridor that increases the fear of crime in women. However, the surrounding area has high crowd intensity, which reduces the risk of certain crimes such as violence against women.

4. The Ketumbar Street, or T-04 public toilet, which was the only intentionally designed public toilet, had the poorest location, making it the least safe for women. The presence of street vendors, toilet attendants, security guards, a fence, and an exit route directly to the main street did not reduce the fear of crime in women.

The findings highlighted that the three main crime theory notions: the node, the path, and the edge, are very suitable for analysing public toilets’ safety aspects. The case study examinations revealed that public toilets’ spatial design needed to consider the reactions of both offenders and victims. The narratives from respondent’s own worlds indicate the different level of situation that stimulate their expectation of security.

Figure 11. Ketumbar Street Toilet during the night; (a) toilet seen from the street; (b) terrace of the toilet building; (c) a pedestrian in front of the toilet.
Their experiences and perception helped to develop broader issues and ideas for more useful toilet facilities which summarized in the next concluding remarks.

5. Concluding remarks

The female public toilets in tourist destination signified the strong distinction between the high and low of socio-economic status in public realm. For the affluent who feel uncomfortable using the on-street public toilets, the rivalled off-street and customer’s own public toilets would provide the more comfortable “service” with safety assurance. Although all on-street toilets had some similar aspects that contributed to prevent crime, as the source of insecurity, they exposed different quality regarding the gender separation, lighting and access. The condition of on-street public toilet ironically signified the certain class division from the affluent and less-affluent. This separation convinces to foster the perceptive social understandings that in the public realm the affluent women are inherently vulnerable and in need of protection, while the predominantly less-affluent women were fallen outside this recognition.

Physically and spatially, the on-street female public toilets in tourist destination at Kotatua has generally acknowledged the separation of human bodies from one another to ensure privacy, but in term of safety, each public toilet exposed different degree of acceptance. This fact might substitute the rule of thumbs of on-street public toilet design that might be different from the off-street public toilet. Neither screening arrangements avoiding the visibility from outside nor provide the path of the female/male users do not cross each other might not give into consideration. The public toilets may abandon these boundary-laden solutions, and instead, they draw another spatial paradigm, the connectivity of public toilet to the busy street and/or square which enhance the natural surveillance for a clear line of sight between possible observers and possible criminals. Finding of this research revealed the strong relationship between design and the fear of crime, to the effect that this kind of ignorance in public toilet is no longer acceptable.

Another problem is the crowdedness. This study indicated that much effort should be focused on the design of multiple cubicles for multiple simultaneous occupants. In response to this situation, the female public toilets need a barrier-free open precinct that encourages all embodied subjects to freely and safely engage with one another. As founded in this study, the street vendors, who have long been stigmatised because of their “messiness” in Kotatua, were found to have a positive natural surveillance impact. Yet, street vendors present an interesting paradox since the local government regularly conducts sweeps against them. In fact, using empty buildings as female public toilet facilities and their proximity to abandoned buildings means a high potential for crime. However, many street vendors are a type of crime prevention guardians in what Hillier (2004) mentioned that they act as a natural “policing” mechanism and help reduce the fear of crime in women.

The fear of crime is also reduced by the attendants. Their role as the caretaker in women’s toilet strongly influences the feeling of security. Although their duties are not intended to be “a police control”, their presence helps diminish the risk of sexual assault on women. However, this study revealed that the attendant failed to prevent pickpockets and petty thefts in the female public toilets, which means that visitors need to remain alert when conducting their business. The attendants also merely represented the human presence in the form of a caretaker to collect the money and maintain orders but they are not responsible for the cleanliness.

This study found that the presence of the mushola enhanced the positive image of the public toilet and served to significantly reduce the fear of crime. The public toilets need to be subdivided into activity zones that are inflected by culture/religion to accommodate the dual activities: ritual cleaning and praying. Locating public toilets with a mushola could be generally the norm in the cities with Muslim majorities as nature “relieving bladder and bowel” is inseparable with the wudhu or pre-praying cleaning ritual. This fact is effective to be considered as the contextual common in designing the public toilet in Indonesia. Since these two different activities required independent areas yet open to one another, the study suggested not only on design innovation but also on legislation that would rewrite building and plumbing codes. Making these changes requires acknowledging the pivotal role that building codes play in shaping the public toilet identity through design, as well as acknowledging that such codes are not neutral functional objectives but rather reflect and reproduce deep-seated cultural beliefs that shape the design of the spaces of our daily lives.

The study has several limitations. First, we recruited respondents who are not represented the majority of non-affluent women who utilized the on-street public toilets. This might lead to selection bias as certain demographic subgroups may be more likely to utilize community services. Our study findings, however, provided a snapshot of how general public used the female public toilets, and tapped into a neglected the issue of inclusive public facilities in Indonesia. Second, we conducted the study in the tourist destination in Jakarta. Our study findings may have limited representativeness of the tourist destination in other cities in Indonesia, but they may reflect to some extent the situation in developed areas in the country. Finally, the revitalisation of Kotatua has boosted the economic
activities in the area and created an exciting day and night gathering place for young male and female city travellers. The previous sparsely populated Kotatua suddenly get an influx of large numbers of tourists who all might want to go to the toilet within a short space of time. To anticipate this condition, the current fragmented and inadequate nature of public toilet provision should be improved through overall toilet strategy which includes all sources of on-street and off-street public toilet.

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