

Designing Safe Street for Women

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Abstract: *Urbanisation is increasing rapidly and street design are affected due to current needs which are depending on motorised vehicles. Street become a thoroughfare and pedestrian needs are neglected. The charm of old street where priority were given to pedestrian and cyclist has lost. Pedestrian needs are constantly affected by the changing of built environment especially for women. The way women perceive a safe environment is rather different compared to men even though men do face risk in the environment. In order to create a safe street, the elements are not merely on the street but physical and social elements around it. The design of built environment does affect the way people perceive and behave. The aim of this research is to explore women's perception of safety in the streets of Kuala Lumpur particularly at Jalan Tunku Abdul Rahman. The study adopted a mixed-method approach of qualitative and quantitative in order to understand the safety perception among women that will later establish the relationship between built environment and human psychology. Respondents were selected randomly around Jalan Tunku Abdul Rahman. Questionnaire survey forms were distributed and structured observation was conducted at interval period at these streets to examine and assess women's behavior. Finding shows that fear does affect women's perception and physical design of the streets are important in affecting their behavior.*

Index Terms: *Public Realm, Public Space, Street Design, Urban Design, Sustainable Development, Women's Perception.*

I. INTRODUCTION

The changes in economic, health, education and technology has affected the demographic trend especially for women [1]. Women's role in many sectors [2] are increasing due to accessibility to the above facilities. With this role play, women are more exposed to many issues in public spaces than before especially on the street where crime mostly happen. The push factor forces women to use public space i.e. streets as a way to commute daily for work.

According to previous research, crime are increasing in both developed and developing countries. Crime happen when there is an opportunity [3] for culprit and one of the factor is the built environment itself. Bukit Aman Crime Prevention and Community Safety Department [4] highlighted that there are 19,299 street crime nationwide where 13,671 cases involving gang robberies without firearms and 3249 cases involving weapons. Due to this, Royal Malaysia Police have provided frequent vehicle patrol in small lane along major city road.

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They are also working together with Kuala Lumpur City Hall on a 'safer city' programme with initiative like providing more lighting on back alleys and secluded area as well as making pedestrian walkways inaccessible to motorcycle. A good, well design and maintain built environment is crucial especially in rapid urbanization process. The urgency and needs of modern life caused an urbanized environment that gives priority to vehicular. Pedestrian are neglected during the design process where street become a thoroughfare instead of public realm.

Previous research and safety survey found that man feel safe walking on the street compared to women. Women's use of the public realm is characterised by higher use of shopping centres, parks, pathways, residential areas and public transport settings. Due to this, UN Women, UNICEF and UN Habitat [5] launched 'Safe and Sustainable Cities for All' joint programme involving many countries which addressed the need for a safer and sustainable cities for general public and for women specifically. UN Women Safe Cities Global Initiative has also taken steps to overcome safety issue especially for women in public spaces UN Women [6] identified that there is a need in gender approach in urban design to ensure the needs of women and men are taken into accounts throughout all municipal department's planning This research is investigating factors that are affecting safety perception among women on the street.

II. BACKGROUND

There are many challenges in urbanization where it creates many opportunities for development as well as damaging the existing spatial quality through urban sprawl [7], urban crime and other issues related to rapid urbanization. Under the Goal 11: (Sustainable Cities and Communities) [7], issues of safety are addressed as part of the goal that need to be improve. According to Mehta [8] street has been recognised as public space by modern urban societies rather than the town square or the piazza. According to Jacobs [9] the best streets are comfortable to walk along with leisure and safety. Street also shapes the form and comfort of urban community [9] and it is a political space. Street as social space are spaces for expression, for public to use not as thoroughfare but as public realm where they can use it safely at anytime. UN Habitat [10] has identified the contribution of street as public spaces on the prosperity of cities, which finds a correlation between a well-designed street grids and prosperity [10]. Street in modern setting is viewed as a contributor to public life. Vibrant street life relies on certain physical qualities of the public realm to host and strengthen activities and behaviours. Streets and public space are both a setting and an agent for social interactions that make a place interesting and engaging.



Current street design should incorporate sustainability of the spatial design and the street specifically as this is the back bone of a city where people use it on a daily basis. The effort of creating a safe environment should involve many parties from Local Government, designers, developer and even the public. One of the examples where Local Government taking an initiative is The Government of Scotland [11], where they concluded that street design should consider six qualities of successful places; distinctive, safe and pleasant, easy to move around, welcoming, adaptable and resource efficient. A significant amount of social activities within a community takes place in the external environment [11], and street design should encourage this by creating inclusive social spaces where for all groups of society, and other appropriate activities can take place safely. In order for this to occur, it is essential that vehicular traffic does not dominate the street.

Maintenance of the street and surrounding buildings are also important where they affect safety perception. Unkempt areas are one of the factors that trigger a culprit to commit their crime as implied in 'broken window' theory. It also affects women's safety perception.

Perceptions of safety are influenced by many factors such as social, economic, cultural, environment and demographic [12] and women were constantly reported as registering more fear of crime than men. Rapoport [13] highlighted that perception is the key process to connect people within the surrounding environment related to man and environment.

Gender has been found consistently and strongly as an important factor associated with fear of crime. Women in general feel fearful compared to men [14] and within the same street environment. Women use the street for many purposes from household-serving, traveling for work and leisure and at different times [15]. Therefore the feeling of fear is present especially for women who need to commute at night where crime might occur during this time.

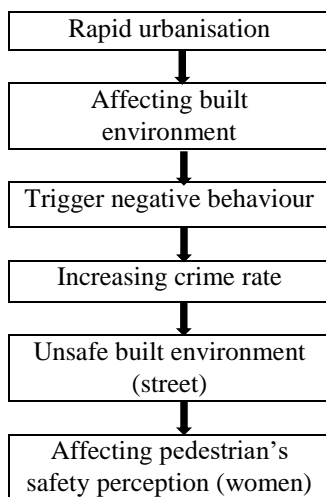


Fig. 1 Rapid urbanization impact on environment, social and behaviour

III. ISSUES IN STREET DESIGN

UN Habitat [10] addressed the issue of inefficiency or lack of urban planning and clearly suggests the high priority on early attention to planning when land is still inexpensive,

in order to avoid future gridlocks and congestion. Current needs in urban development led to a different typology of street design and building blocks. Fine grain of building blocks has been replaced by coarse grain with large buildings and grid-design streets are replaced with wider and longer streets. This change in urban pattern creates an environment where people are more dependent on vehicles and more priority is given to vehicles [16]. Advancement in technology and engineering gives way to traffic engineers and results in a traffic and motorised oriented street [17].

With the changes in demand of building more high rise and also development in economic sector, contemporary buildings are more designed to meet a single purpose and this led to a less pedestrian oriented environment with no five-foot walkway, disconnected sidewalk and less ground floor spaces for pedestrians. The trend in globalization with high rise buildings has also created an individualized or isolated building and no connection of linkages which is important in walkability and safety. Pedestrians should be able to walk from one point to another without any interruption especially for women who are more vulnerable. More walkable environment and streets should be provided with safety in mind. Comfortable and safe walking distance should be reconsidered especially with the current trend of urban development.

Various research shows that there is also a lack of gender consideration at the planning stage [14] that leads to the current issue of safety. Current needs of vulnerable groups especially women need to be addressed as what many Local Governments are introducing and implementing [17]. In order for women to feel safe, the environment itself should be designed to avoid any negative impact of crime. It has been addressed that many crimes happen on the street.

IV. METHODOLOGY

This study employed a mixed method approach with questionnaire survey, semi structured interview and structured observation. Due to the nature of this research problem, a mixed method is essential in order to investigate and obtain information needed [18]. Case study approach is adopted in order to gain in depth information of the problem [19]. Jalan Tunku Abdul Rahman in Kuala Lumpur is selected due to its characteristic which reflects traditional streets with modern and shop houses. Studies were conducted through a sequence with questionnaire survey, followed by structured interview and structured observation. The scope of this study is focusing on women as users therefore 120 respondents were randomly selected among pedestrians in Jalan Tunku Abdul Rahman for questionnaire survey. Semi structured interview followed with six informants which were selected among women who use the street. Structured observation was conducted from weekdays until weekend where the nature of activities and demographic is not similar. The environment and social activities were studied at a set of times of the day and night to fully investigate the problem.

Table. 1 Timeframe for structured observation

Time	Justification
Weekdays (8.30-9.30am) (12.30noon-2.30pm) (5.00pm-7.00pm) (8.30pm-9.30pm)	Behaviour pattern during working days Demographic pattern
Weekend (8.30am-9.30am) (12.30noon-2.30pm) (5.00pm-7.00pm) (8.30pm-9.30pm)	Different pattern of street activities Demographic pattern

Data from all these techniques are triangulate in order to compare the findings and to complement each other and to further understand the phenomenon of being studied.

V. FINDINGS

From the study that has been carried out, it is evidence that physical and social elements contributes to safety perception among women in the street. Findings from questionnaire survey indicates that physical and social elements are important and affecting their safety perception. One of the main characteristic of the case study area is the mixture of building use where 87% respondents agreed that they feel safe when there are many types of building along the street. This finding is validated through observation where there is mixture of building use along the street that lead to variety of activities and occupation of the building until at least 8.00 pm daily.

Table. 2 Mixture of building use

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	22	18.3	18.3	18.3
Agree	87	72.5	72.5	90.8
Disagree	3	2.5	2.5	93.3
Don't know	8	6.7	6.7	100.0
Total	120	100.0	100.0	

From the above table, it indicates the significant contribution of planning, economic and relationship towards social aspect where various pattern of activities happens along the street and it definitely attract more user which then make the street feel safe by women.

Table 3 indicates that the provision of CCTV is important where the main street is well lit but the side lane connecting to the street still need to be improve. Results of questionnaire surveys shows that 44% agree that the provision of CCTV makes them feel safe while 31% strongly agree with this. Findings from interview validate the need of CCTV in the area. Therefore, it correlates with previous research that CCTV is part of contributing factors.

Table. 3 Provision of CCTV (source: fieldwork, 2018)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	31	25.8	25.8	25.8
Agree	44	36.7	36.7	62.5
Disagree	15	12.5	12.5	75.0
Don't know	30	25.0	25.0	100.0
Total	120	100.0	100.0	

Frequency of visit affect familiarity of the street and its surrounding where certain character and images stored in our mind and gives a certain que. Respondents was asked about their frequency visiting the area and whether they are willing to change their route whenever they feel unsafe (Table 4). Behavioural modification is predicted and addressed in various research where it is stimulated or affected by the environment. Base on questionnaire survey, it is found that there is a relationship between frequency and the way women use the street. In this study it shows that women will change the route whenever the find that the area is not safe.

Table. 4 Frequency of visit and change of route

	frequency	changed route
frequency	Pearson Correlation	1
	Sig. (2-tailed)	.042
	N	120
changed route	Pearson Correlation	.042
	Sig. (2-tailed)	.649
	N	120

The above table shows the relationship between the two variables. Base on the interview, informants feels that they will change the route especially when they are familiar with the area.

Table. 5 Elements that affect safety perception (source: fieldwork, 2018)

Technique	Physical	Social
Questionnaire (n=120)	Visibility Mixture of land use Street pattern Lighting Accessibility Maintenance Provision of CCTV Orientation of the buildings Incivilities	Overcrowding Presence of foreigners Deserted area News and stories Presence of police Past experience Familiarity
Interview	Sidewalk Crowded Side lane Conflict between pedestrian and vehicles Vehicle's speed Provision of CCTV	Overcrowding Presence of foreigners Presence of police Familiarity Time
Observation	Disrupted linkages Quite side and back lane Lighting	Overcrowding Incivilities

Table 5 shows the elements that affect safety perception from all the techniques that has been tested and the themes that emerged from the interview that has been conducted. The findings suggest that the width of the sidewalk is wide enough for the pedestrian but the linkages is disrupted where there are too many food stalls in front of the shopping mall. In terms of design, the sidewalk has been upgraded with landscaping and street furniture which invites pedestrian to fully utilized it for social activities.

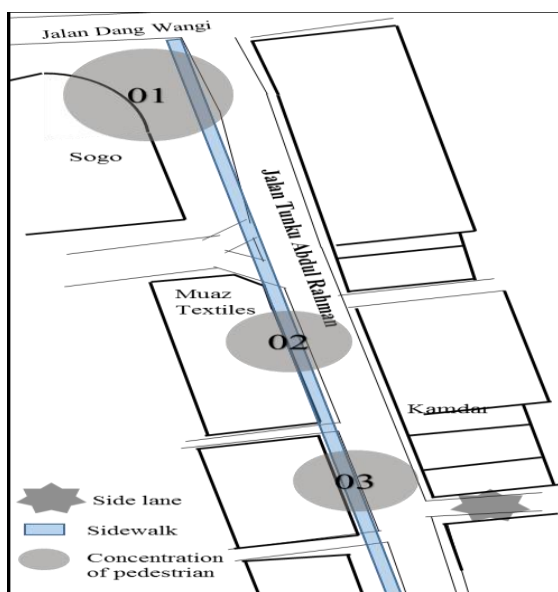


Fig. 2 Case study area of Jalan Tunku Abdul Rahman, Kuala Lumpur (source: field work, 2018)

Sidewalk in front of the shop houses are wider therefore it provides better ambience for pedestrian, as indicated in

Figure 2. Main entrance of Sogo is attracting more pedestrian due to its size and further down, the concentration of pedestrian is still visible. Shop houses on the right side of the street are still maintaining its five-foot walkway with smaller sidewalk. Therefore, the walking experience is different and according to interview data, some women feel unsafe walking on a five-foot walkway compared to sidewalk due to the many foreigners who work in these shop houses along the street.

Side lane where activities are provided such as stalls creates more vibrant public space compared to side lane which only dedicated for motorcycle parking. But due to the overcrowding, some pedestrian avoids this side lane and data from interview confirmed that women do feel unsafe when the street is too crowded. This is correlate with the theory that overcrowding affect safety perception. Data from interview shows that informant felt it is unsafe along the sidewalk of Jalan Tunku Abdul Rahman due the presence of many foreigners and they avoid walking in the five-foot walkway.

"..I feel insecure because there are so many foreigners along this sidewalk, especially for me with my kids. I feel like there is no freedom and I don't feel like we are living in Malaysia"



Fig. 3 Crowded side lane with many shops and pedestrian (source: field work, 2018)

Human presence is important not only on the main street but along the side lane where there are connected to parking area and leading to public transport. From observation it is found that there is side lane which is quite due to the design. It is dedicated for motorcycle parking and there is no visual surveillance from inside of the building as shown in Figure 4.



Fig. 4 Side lane (source: field work, 2018)

Linkages are visually clear but at certain time it is disrupted by activities especially in front of Sogo where access for pedestrian became narrower.



Fig. 5 Disrupted linkages in front of Sogo (source: field work, 2018)

In terms of demographic usage of the street, it is mostly dominated by women from morning until night time where most of them are workers and students. Data from observation concurred that women needs for safety is crucial in order for them to feel safe while using the street.

VI. CONCLUSION

From the above study, it was found that both physical and social factors are important in designing a safe street for women. Physical factors are important in creating and affecting a safe environment due to its permanent nature compared to social factors. Findings from both data shows confirmed that physical design of the street and the buildings affect safety perception among women. The street has been up graded with street furniture and landscaping by the Local Authority but somehow the perception of feeling unsafe is still felt by women. Social factors which is crowding especially among foreigners are making women feel unsafe, however at certain area, less presence of pedestrian does also affect their feeling. The issues of foreign men dominating the street as workers at the shop along the streets need to be address by policy makers in relevant field because their presence is changing the demographic of the area and creating an unpleasant experience for the women due to their behavior.

Therefore, it is important for architects, town planners, policy makers and stakeholders to investigate, consider and address the issues and needs of safety for general public and for women especially.

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