

SAFE ENVIRONMENT FOR FEMALE BUS USERS IN URBAN AREAS

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SAFE ENVIRONMENT FOR FEMALE BUS USERS IN URBAN AREAS

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DEDICATION

To my beloved husband Faizal Arshad, two kids Nur Qisya Raihanah and Muhammad Qays Rafif, my beloved parent Robiah Mydin, Sham and sisters.
Thank you so much for your support and love.

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ABSTRACT

Public bus service should be safe for all people anytime and anywhere. Previous studies have indicated that females who commute to work using stage bus services tend to feel unsafe and they are dissatisfied with the current travelling environment. Hence, it is important to see whether this feeling of being unsafe among female bus users is dependent on various attributes such as bus service, infrastructure and social characteristics. In this study, a self-administered survey underpinning the methodology was used and the sample were female stage bus users at major bus stops in residential areas in Kuala Lumpur. Data collected were analyzed using partial correlation and multiple regression analysis. Results of frequency analysis indicated that 80% of the respondents had the highest dissatisfaction towards the bus service attribute concerning 'punctuality of the bus'. For transport infrastructure, the highest dissatisfaction was recorded for the attribute, 'using the current infrastructure during night time' (84.3%). The transport infrastructure with the lowest mean was 'bus stop lighting during night time' with only 1.43 from the scale of 1 (very dissatisfied) to 5 (very satisfied). Further analysis on the social environment found that 65.3% of the respondents was worried about the crime committed by unemployed individuals in their residential area with a mean score of 3.6 from a scale of 1 (not worried at all) to 5 (very worried). Findings from partial correlation analysis indicated that three variables, namely bus service, transport infrastructure and social environment had significant effect on the level of fear as indicated by the female bus users. All these variables had a negative relationship with the dependent variable. In addition, these variables were found to be significant at 95% confidence level. The findings of the study have shown that the level of fear was dependent on the three variables, namely bus service, infrastructure and social environment.

ABSTRAK

Perkhidmatan bas awam hendaklah selamat untuk semua pada bila-bila masa dan di mana sahaja. Kajian sebelum ini menyatakan bahawa wanita yang berulang-alik ke tempat kerja menggunakan perkhidmatan bas peringkat cenderung untuk berasa tidak selamat dan mereka tidak berpuas hati terhadap keadaan perjalanan yang disediakan. Oleh itu, adalah penting untuk melihat sama ada perasaan tidak selamat dalam kalangan penumpang wanita ini adalah bergantung kepada ciri-ciri perkhidmatan bas yang disediakan seperti perkhidmatan bas, infrastruktur dan persekitaran sosial. Dalam kajian ini, soal selidik yang dijalankan sendiri berasaskan metodologi telah digunakan dan sample terdiri daripada bas peringkat wanita di kawasan perumahan di Kuala Lumpur. Data yang dikumpul dianalisis menggunakan korelasi separa dan analisa regresi berganda. Keputusan analisis kekerapan menunjukkan bahawa 80% responden telah menunjukkan perasaan tidak puas hati tertinggi terhadap ketepatan masa dalam perkhidmatan bas yang mereka gunakan. Bagi infrastruktur pengangkutan, rasa tidak puas hati tertinggi direkodkan dari sifat-sifat seperti menggunakan infrastruktur pada waktu malam (84.3%). Prasarana pengangkutan dengan markah purata yang rendah adalah berkaitan dengan penyediaan lampu di perhentian bas pada waktu malam dengan hanya purata markah 1.43 daripada skala 1 (sangat tidak berpuas hati) hingga 5 (sangat berpuas hati). Analisis lanjut tentang persekitaran sosial mendapati bahawa 65.3% responden menyatakan bahawa mereka bimbang tentang jenayah yang dilakukan oleh individu yang menganggur di kawasan perumahan mereka dengan skor minima keseluruhan 3.6 daripada skala 1 (tidak bimbang langsung) hingga 5 (sangat bimbang). Dapatan daripada analisis korelasi separa menunjukkan bahawa tiga pemboleh ubah iaitu perkhidmatan pengangkutan bas awam, infrastruktur pengangkutan dan persekitaran sosial mempunyai kesan yang signifikan terhadap tahap ketakutan pengguna pengangkutan awam di kalangan wanita. Semua pemboleh ubah ini mempunyai hubungan negatif dengan pemboleh ubah tidak bebas. Di samping itu, pemboleh ubah ini didapati signifikan pada tahap keyakinan 95%. Dapatan kajian menunjukkan bahawa tahap ketakutan bergantung kepada tiga pemboleh ubah iaitu perkhidmatan bas, infrastruktur dan persekitaran sosial.

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LIST OF ABBREVIATIONS

FOC	-	Fear of Crime
SS	-	Social Structure
WTS	-	Women Travel Safety
WW	-	Working Women
TC	-	Trip Chain
RA	-	Routine Activity
PT	-	Public Transport
FOF	-	Feeling of Fear
TS	-	Travel Safety
WOB	-	Women Only Bus
CPTED	-	Crime Prevention Through Environmental Design
RAT	-	Routine Activity Theory
SDT	-	Social Disorganization Theory
CPT	-	Crime Pattern Theory

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CHAPTER 1

INTRODUCTION

1.1 Background of The Study

This chapter discusses the main issues of the investigation that is what makes women experience a high level of fear while travelling by bus in an urban area especially while commuting to their workplace in a city centre. Although there are many factors that affect the level of fear among woman commuters who are travelling in an urban area, only certain aspects of travelling elements are seen as critical especially when involving women's fear. One of the first factors being discussed is the characteristics of the bus service. This is followed by a discussion on the infrastructure provision and the social environment, which are seen as additional factors causing higher indication of fear among woman commuters living and working in an urban area. The first discussion on the factors that could possibly affect the level of fear among woman commuters while travelling by bus is the level of satisfaction with the current bus service characteristics provided to them while travelling in an urban area. This is then followed by discussion on the level of satisfaction towards the infrastructure provision and the social environment while travelling by bus.

1.1.1 Bus Service Characteristics and Travel Safety

The quality of bus services, in this context of research, measures how well the service level provision that is delivered matches customers' expectations especially woman commuters on a consistent basis (Lai and Chen, 2011). Studies done in a few developed countries, by Davidson (1981) and Ryder *et al.* (2016) identified that factors in poor decision making in infrastructure and transport provision have significantly contributed to the safety problem of women in the urban area especially when they indicate a higher level of dissatisfaction towards the bus service provision in their area. They also concluded that although the crime itself does not directly reflect that it was transport-related, traditionally a high crime occurrence subscribes to the belief that the higher the crime rate in a particular area, the higher would be the chances of becoming a victim of crime in that particular area. In fact, Ryder *et al.* (2016) further agreed that the perceived risk of victimization is strongly associated with fear of crime and personal security while travelling by bus in the city centre of an urban area.

Apart from that, the failure of those involved in planning and transport provision to consider women's travel needs especially women in the employment sector worsens the problem (Grieco *et al.*, 1989). A study by Ratnayake (2016) pointed out that the traditional factors thought to influence women's travel pattern include matters such as perceived travel time and cost, the physical effort, journey convenience, service frequencies, transfers and waiting, comfort, knowledge or information of service provision and perhaps even the type of bus service used and the physical environment while travelling. Among the argument posted regarding the service characteristics by Lynch and Atkins (1988) was that one aspect of travel safety that has considerable influence on travel patterns and fear is associated with the safety and security element in the bus service provision. Therefore, they believed that in order to create a higher feeling of safety among these riders, the passengers must first be satisfied with the service provided to them. This is supported by Minhans *et al.* (2014) who stated that satisfied commuters will indicate a higher level of safety while travelling.

A study on women and their travelling needs in the Greater Kuala Lumpur by Minhans *et al.* (2014) concluded that it is extremely important to gain the knowledge about the needs of public transport users and to critically assess the satisfaction or the dissatisfaction of current public transport users as this will indicate the feeling of safe or fear while travelling. Knowing the satisfaction level will not only help the operator to plan, design, develop and operate an attractive public transport system but the satisfaction indication will also lead to a higher or lower perception of safety among the users.

Apart from the bus service provision that is evaluated as the factor that will affect the level of fear among the woman travellers, the factors of infrastructure provision is also analysed. This is due to the notion of the nodes, path and edges concept that a bus traveller experiences while travelling. Therefore, the infrastructure provision and travel safety indication are further discussed.

1.1.2 Infrastructure Provision and Travel Safety

In a recent study done by Pirdavani (2016) who focused on the road safety and travel demand shows that infrastructure significantly affects both the real and perceived safety by an individual. Department of Transport (2000) indicated that most key people and decision makers involved in transport planning have shown an increased interest in discovering the factors that affect the travel safety issues. They have recognised the major factor that affects the safety issues surrounding woman travellers lies on the differences in travel behaviour between men and women, especially regarding public transport usage. Furthermore, Rokiah (1986) claimed that women depend more on bus services. A further study by Colvin (2003) further summed up that transport policies were essentially tailored to the needs of men only. Earlier, Grieco *et al.* (1989) also indicated that the design of the facilities including the lighting, the waiting place and pedestrian walkways are not geared towards women travelling needs.

As an outcome of that, most women have to battle with the hardship of the inefficiency of local transport system that is tailored to the needs of the travels of working men to their work places (Colvin, 2003).

1.1.3 Social Environment and Travel Safety

Social and physical vulnerability are also correlated with fear of crime (Callanan and Rosenberger, 2015). They further added that those with close social ties in their neighbourhood experience lower levels of fear than those without such ties. It was also concluded by Shokoohi *et al.* (2012) that safety perception is partially dependent on socioeconomic status of household.

A sizable body of research has established that many other demographic factors besides gender are correlated with fear of crime. As found by Ferraro (1995) and Callanan and Rosenberger (2015), the poor and the lower income group tend to indicate a higher level of fear than those with a higher income. This is mainly due to the fact that they have to depend more on public transport as compare to higher income group.

Jackson (2005) appraised that any threat that happens would be influenced by both the beliefs about the crime and the subjective perceptions of the physical and social environment surrounding them. He also concluded that many perceptions on the social environment are made of attitudes towards the community cohesion namely the level of influence that a neighbourhood has the trust and support in the community. These issues on community cohesion and social control then relate to the issue of social environment.

Studies by Blau (1977) and Ponrahono *et al.* (2016) conceptualised social pattern as one of the distributors of a population among the different groups of social positions. They summed up that this social environment is ingrained in the social choices people make in their social connection. The distinctions in social patterns are expressed by ways of roles and positions, then on influencing social associations.

Besides, they also agreed that geographical factors such as population, environment, economics and culture are among the factors that influence the feeling of fear. This will then lead to the public being divided into several different types of category. In the simplest term, it is known as social environment attribute.

A social environment refers to how society is categorised into predictable relationships. Since the social environment theorists often view economically disadvantage group as the more likely to commit certain crimes, serious attention is then given to improve the social relationship amongst this group of the society and neighbourhood (Kawachi *et al.*, 1999).

One of their major findings concluded that crime rate is closely linked to the social cohesion that happens in the society. On the other hand, the works of researchers like Wilson and Kelling (1987) discovered that the crucial factor that leads towards crime occurrence focuses on the social environment such as middle-class neighbourhoods.

Kubrin (2009), on the other hand, pointed out the fact that crime incidence is not randomly distributed across the neighbourhood in the city area. The research highlights the fact that the incidence of criminal activities does not occur equally in all areas. Instead, Crime incidence is clustered in certain selected locations or areas. He further added that for that purpose, residents living in the neighbourhood can clearly identify the “good” or “bad” area. His discussion also drilled on the issue of the theory of social disorganization which highlights the factual of non-random crime distribution as a point of departure in explaining the occurrence of crime in certain areas. This is important because the occurrence of crime in a particular area of the resident will affect the fear of crime among the travellers.

1.1.4 Fear towards Crime

Many definitions are given on the concept of fear of crime. According to Ratnayake (2016), fear of crime is an emotion which is shaped by a range of factors such as gender, age, ethnicity, victimization experiences, neighbourhood characteristics, and environmental features. A study by Ismail and Ching (2016) identified that the back lanes in Kuala Lumpur city centre are always associated with crimes especially if they are dark and dirty. In addition to that, they have also agreed that petty crimes are often reported to happen in the back lanes of the walkways.

An earlier study by Jackson (2005) defined the concept of fear towards crime as a construct that combines human emotion, risk, perception and vulnerability. He further explained the context of crime of an individual that refers to an incident of an individual being attacked by a stranger either on the street, being robbed or mugged on the street, being harassed along the way and being threatened or verbally abused on the street when travelling takes place.

Several approaches have been made by a few researchers to determine the factors that affect woman travelling safety because women are considered as a group of people who would experience the highest risk of being victimized. However, up until today, there is still a lack of support towards women's travel safety issue given in Malaysia. As a result, women in Malaysian urban areas experience a higher feeling of fear of crime in a city (Hamid, 2012 in New Straits Times). A previous study by Heal and Laycock (1986) concluded that appropriate accessibility to safe and good public transport resources is critical especially to those living in the city centre. He further added that central to all movement surrounded women in a city is the concept of safe travel from the point of origin to the point of consumption.

A study by Lynch and Atkins (1988) recorded that the habit of many urban dwellers is much influenced by risk and fears of physical attack, harassment and other anti-social behaviour. They also agreed that women are more vulnerable.

Among the influential result in a study conducted by Focas (1989) in travel and safety issue is that if women are to travel safely, then the public transport system must first be geared towards their travel needs. Even though lots of work has been done previously to look at the overall issues, more studies need to be conducted to examine critically the real factors that contribute towards the women's travel safety issues, particularly in an urban area.

The issue of travel safety among urban woman travellers is not a new issue. It has gained many discussions on various studies conducted over the past 20 to 30 years because it relates closely with the feeling of safety and fear of crime (Evans, 1995). The first interest among the researchers in this area is to discover the source of "dark figure" in every crime incidence. This refers to the crime incidence that goes unreported. The researchers also theorized that the existence of fear towards crime is related to the experiences of victimization.

A recent study by Lane and Fox (2013) reported that plenty of women, much more than men, are afraid of sexual victimization. The assumption was then disputed because many researchers in travel safety issues realized that there are many other influential factors that contribute to the feeling of fear towards crime.

1.2 Perception of Safety in Malaysia

Many safety issues have been put into consideration in every town planning including the National Key Result Area (NKRA) in Malaysia (Hishamudin, 2012 in New Straits Times). People safety is among the primary areas stated in the NKRA. Based on the safety perception index survey series under the NKRA, the number of respondents who felt safe decreased from 47.5% in 2011 to 39% in 2014 (Economic Planning Unit, 2014). A further analysis by the Economic Planning Unit (2014) on the crime occurrence in Malaysia shows that although crime occurrences in Malaysia have decreased in urban area, the perception of safety among Malaysians is still low.

A further analysis of the fear and safety perception among the bus riders shows that women always report a higher level of fear while travelling as compared to the male counterpart. A crime experience report by Criminal Department Unit (2012) highlighted that 87% of the total crime victims were identified as women in contrast to men with only 13% from the total crime occurrence in Malaysia.

This raises the issue of what actually causes women to experience a higher level of fear when travelling into the city centre. This is a concern especially to those women living in an urban area.

1.3 Problem Statement

An ideal situation in urban area travel is that everybody should indicate a higher level of safety while travelling using a public transport. Feeling of safe can be seen as a basic human need (Maslow, 1970) that must be fulfilled to allow individuals to realize their full potential (Marmot, 2004). Not surprisingly, research on fear of crime has become a central area of criminological investigation, as well as a key focus of crime policy throughout the world where women are always reported with a greater fear towards crime (Vauclair & Bratanova, 2016). Although it is agreed that levels of fear of crime vary across places (Semyonov *et al.*, 2012), there is still little empirical evidence that aims to explain why people feel more fearful in some places than in others. To date, research has mainly focused on examining factors of actual crime that may be associated with fear of crime.

Less attention has been given to assess the provision of transport supply, infrastructure and social environment while travelling on public transport. Therefore, this study can be distinguished in regard to the different levels of analyses addressed on woman commuters and their level of fear while travelling.

Fear of crime has wide-reaching consequences in regard to physical, psychological, behavioural, and social effects (Lane and Fox, 2013).

In Malaysia, the majority of woman travellers today who live in urban areas face more fear and challenges while travelling or commuting to work in their daily life (Jalil and Rahman, 2011). Therefore, Jalil and Rahman (2011) suggested that all parties including government, organizations and individual should take an extensive effort in ensuring women's safety when they are out of the house especially, at work or schools as they are also contributing to the development of the country.

It is also agreed by Jalil and Rahman (2011) that one of the major contributors of the fear is dark bus station and scary travelling environment in the urban areas. Added with the feeling of being less capable than men to defend themselves if physically attacked, women face greater fear and anxiety about the potential for criminal victimization (Callanan and Rosenberger, 2015).

The inefficiency of transport supply provision also leads to fear of crime (FOC) such as harassment, abuse, assault, snatch crime and many more that prohibit many women from moving around freely especially after dark (Morris, 1980). The situation is believed to be even worse for women who are working and staying in the urban area because Jalil and Rahman (2011) also revealed that women living in the urban area face the highest victimization rate. This is due to the fact that they have to leave the house and travel alone every day including in the early morning and late at night without being accompanied by any of their family members or female friends which potentially exposes them to an insecure situation including sexual assault by men along the way. Added with little research that has been conducted in regional cities to understand how gender influences sense of safety worsens the problem (Ratyanake, 2016). In addition, he added that how one perceives the likelihood of crime is affected by a few important variables. Among the variables being discussed are how an individual belief about the crime incidence, incivilities, crime consequences, control and worry about crime as well as the perceptions on the community cohesion.

One of the most consistent findings in the large body of literature on fear of crime is that women express significantly higher levels of fear in comparison to men (Callanan and Rosenberger, 2015).

This issue has grown in importance due to the high involvement of women in the employment sector in the urban area who have to depend on the public bus to commute to work (Mohit *et al.*, 2010). Added with the statistics by Economic Planning Unit (2015), female labour force participation rate in Malaysia shows an increase from 46.4% in 2009 to 53.6% in 2014. This figure was estimated to further increase to 55% in 2015 which indicates that more women will be on public places for working purpose.

Therefore, it is becoming increasingly difficult to ignore the safety issues while travelling as Heal and Laycock (1986) and Peter (2013) further claimed that it is not sufficient to only ensure that people are transported from A to B, but it is also important to ensure that they are not assaulted on the way. This is because women now make up an increasingly higher percentage of wage earners, both in formal and informal economic settings. This means that women now have to manage even more complex travel patterns that can expose them to a higher risk of being victimized.

The scenario is worsened due to the fact that the perception of unsafe among women especially in central business district area is high (Sandberg and Rönnblom, 2015). Furthermore, they have also mentioned that the physical structure and design of many modern cities typically include areas that people avoid using, particularly after dark. Notably this areas is always perceived as being insecure. Therefore, it is important to investigate the actual fear of crime concerns in the city centre.

Due to little research that has been directed towards the open environment of woman travelling component in Malaysia, women living in Malaysian urban areas might also face the same risk. The same goes to the discussion of the social environment. On top of that, public security has further prompted the matter as an urgent need.

Moreover, the issue of decreasing level of safety among Malaysian has become a national agenda when Malaysian government set the target to increase the perception of safety from 39% in 2014 to 60% in 2020 (Economic Planning Unit, 2015). This scenario happens in spite of the decreasing crime rate reported in Malaysia.

Crime prevention efforts taken by Malaysian Government have resulted in a decline of crime rate from 166,300 cases in 2011 to 128,540 cases in 2014 as reflected in the crime index (Economic Planning Unit, 2015). Therefore, it can be said that the reduction in the perception of safety that woman travellers experience might be caused by many unknown factors. One of the possible reasons is the combination of all discussed factors above in which until today, there is still a lack of research that combine all the three factors and travel safety issue among the woman travellers.

Whether the supply of transport provision and surrounding environment including infrastructure and current social environment have become one of the factors contributing to the occurrence of crime in the urban area or not remains an open question.

Therefore, it is the intention of the current research to look at how the factors mentioned above interrelate to each other concerning the fear towards crime while travelling or commuting to work. The research attempts to fill this gap in this area of study.

1.4 Aim and Objectives

The main aim of the research is to determine the factors that affect the level of fear for working woman commuters who live in an urban area, and describe their interrelationship.

Specifically, the objectives are as follows:

- i. To identify factors that significantly affect level of fear among female commuters.
- ii. To develop a model that will reduce the level of fear among female commuters.

1.5 Research Questions

The study would answer the following research questions:

- a. Do bus service characteristics affect level of fear?
- b. Does infrastructure affect level of fear?
- c. Does social environment affect level of fear?
- d. How do public transport service, infrastructure and social environment interact with each other in relation to level of fear?
- e. How to reduce the level of fear among female commuters while travelling into the city centre?

1.6 Hypotheses

Listed are the hypotheses to be tested in this study:

H1: There is a relationship between bus service characteristics and level of fear.

H2: There is a relationship between infrastructure and level of fear.

H3: There is a relationship between social environment and level of fear.

H4: There is a relationship between bus service characteristics and infrastructure in relation to level of fear.

H5: There is a relationship between bus service characteristics and social environment in relation to level of fear.

H6: There is a relationship between infrastructure and social environment in relation to travel safety.

1.7 Justification of the Study

The current bus operating systems adopted by many towns and cities, especially those in Malaysia, are not appropriate and equipped to address the needs of the passengers, socio-demographic and trip characteristic of good urbanization process (Ponrahono *et al.*, 2016).

Added with a poor quality of bus services and unreliability, the public bus services tend to contribute to the worsening of the transportation system in urban areas (Rohani *et al.*, 2013).

1.7.1 Why Working Women?

Studying this is especially important for woman travellers, as they have become the most important group that contribute towards the Malaysian economic and social development (Noraznin and Norehan, 2006). They further indicated that women's participation in the economic sector has increased rapidly, and women have constituted to almost half of the total population in Malaysia. Their study also reported that the participation of women in the labour force has increased since 1990. This is then supported by Jalil and Rahman (2011) who indicated that women in Malaysia have gone through rapid changes in their lives, education, careers and life style compared to the past.

Jalil and Rahman (2011) also added that women are recognized in contributing to the development of the nation as students, workers, professionals and others where most of them have to leave the house and travel alone every day including in the early morning and late at night without being accompanied by family members. Thus, Jalil and Rahman (2011) concluded that this situation has potentially exposed them to an insecure situation, especially sexual assault by men.

The findings are further backed up with the recent statistics reported in the Eleventh Malaysian Plan, which indicates that female labour force participation is projected to increase to 55% in 2015 (Economic Planning Unit, 2015). In addition to that, another study by Zeinab and Farah (2012) further highlighted the issue of women and their vulnerability in urban areas, the importance to pay attention to these people in the urban area and to free them from fear.

They have also highlighted that one of the major challenges in designing urban public spaces is paying more attention to issues such as infrastructure, architecture and the economy than observations about people and their way of life and their interaction with the environment. Similar to Zeinab and Farah (2012), the study by Ferraro and

LaGrange (1987), found that the strongest predictor of fear is gender. This is because women, as compared to a male counterpart, always think that they are vulnerable to attacks if they go out alone at night.

As indicated by Ewald (2012), women have been recognised as a group that face the highest victimization rate. Pearson *et al.* (2015) revealed that if women perceive that the surrounding is unsafe for them to use, they would either avoid the trip or totally give up using the facilities.

Therefore, if all women perceive that the public bus is unsafe for them to use, the congestion problem in the city centre in the future would worsen due to high usage of private vehicles. To overcome the problem, Lusk (2003) contended that women's perception of crime and feeling of safety while travelling must firstly be recognised to determine further the real factors that lead towards the feeling of fear among them.

In line with that, Amir *et al.* (2015) who had conducted a study on the pedestrian in Kuala Lumpur also supported that safety is in fact the second highest need above basic need as suggested in Maslow's Hierarchy of Needs.

Most importantly, Peter (2013) identified that working women (WW) contribute to the highest income earners in a society.

It shows that WW have a more complex trip chain (TC) to cope with. He also summarized that working women always have difficulties in getting around the cities.

Another study by Sideris (2013) highlighted that among those who merely witnessed harassment or assault on public transit, 93 percent reported that the victims were female. The demographic or gender trend has a definite effect on the transport needs especially on the trip generation by women (Howie, 2000).

Based on the theory of transport as a derived demand, the increasing figure of females involving themselves in the employment sector may also indicate that women's need for public transports is also at an increasing rate (Cidell, 2012).

Besides that, a theory of routine activities suggests that general disorder is related to everyday patterns of social interaction (Cohen and Felson, 1979).

The theory suggests that women who are in the everyday routine activity face a higher risk of being victimized.

In addition to that, a recent study by Jazayeri *et al.* (2016) concluded that one of the most fundamental problems of our modern societies is the threats and dangers that affect the daily life of citizens in urban areas.

Among the important fact discussed by Assistant Superintendent (ASP) Ismail Arouf (personal communication, October 5, 2014) on Malaysian crime scenario is the occurrence of street crime that is also considered as the most traumatic crime haunting every woman that will lead to a higher fear towards crime due to chronic physical and mental injuries. He further confirmed that most of the crimes happen during travelling to and from work, followed by travelling to a shopping centre and going out for lunch.

Added with statistics showing that the motorcyclists on the road commit 83% of the street crimes in Malaysia, the issue of safe on the street leaves a big question mark.

Researchers have not treated public bus usage and road safety in much detail leaving the problem of walking, waiting and usage of the public transport in an urban area in a much critical situation.

Theoretically, a recent high involvement of women in an employment sector will increase the need to be and to travel on the road using the public transport as transport is considered as a derived demand or a means to an end.

Moreover, public bus is considered as the main blood stream of every urban area in Malaysia catering almost all working women from middle to lower income group earners due to its cheaper rates as compared to other mode of public transport in the urban area.

Furthermore, Rahman *et al.* (2014) also highlighted that public transportation (PT) issues, especially a stage bus service, will affect people's satisfaction, and it can also become a cause for a majority of people to give up using it. Therefore, a thorough investigation on the public transport provision is deemed critical especially when it comes to bus service.

Therefore, the study would focus only on working women who depend on public transport in the urban areas as a routine travel mode to commute to work because it is believed that crime happens while women are on the road either while walking or waiting at the boundary of the street.

1.7.2 Why Kuala Lumpur City Centre?

Kuala Lumpur urban areas have been selected as a study area because a study by Ariffin and Zahari (2013) concluded that in many urban areas, public transportation system deals largely with issues and problems regarding transportation services, operation, infrastructure and facilities and the capital city of Malaysia is no exception in facing the same issue.

Contrary to the urban areas, the determinants of service in rural areas are not driven by factors such as income level and trips pattern because the transport services in rural areas are more of social obligation in nature (Noor *et al.*, 2014).

Moreover, census report produced by Department of Statistic Malaysia (2010) indicated that the proportion of the urban population has increased to 71% in 2010 from 62% in the year 2000. Based on these statistics, urban areas have been selected as a study area. On top of that, an early study by Shaw and McKay (1942) also discovered that the zones closest to the central business district or known as city centre experience the highest crime rate.

In addition, Evans (1995) indicated that fear towards crime varies depending on the places where one lives. He concluded that women who live in an urban area

tend to indicate a higher level of fear due to higher crime rates. Furthermore, Horton (1988) added that 60% of the people in large city indicated their fear while walking alone at night as compared to only 30% to small town areas.

Department of Statistics Malaysia (2010) also concluded that big cities like Kuala Lumpur experience a 100% of urbanization process. A further analysis on the population density in Malaysia has also indicated that Kuala Lumpur (6,891 people per square kilometre) is among the densely populated areas identified.

The process of urbanization and high-density is often associated with increasing crimes in cities that will lead to a higher feeling of fear (FOF) among urban dwellers (Mohit *et al.*, 2010). Due to this statement, the research is directed to examine the scenario by selecting only Kuala Lumpur urban areas as a study area.

1.8 Significance of The Study

This section discusses the significance of the study from a few perspectives.

1.8.1 Contribution To The Body of Knowledge

This research contributes specifically to the growing body of literature regarding the identifying factors from service characteristics, infrastructure and social environment that affect women's travel safety, particularly in Malaysian scenario.

By choosing the Kuala Lumpur Metropolitan Regions as the study area, the research would be able to present the relative effects of each perspective and the connection between each in explaining the travel safety issues among women commuters in urban area.

Other than that, the research also examines the effect of different levels of bus service, infrastructure provision and social environment on each area and the connection with their safety issues.

Therefore, this research would contribute to a needed theoretical framework especially in identifying the critical factors that affect women's level of fear for the benefit of the society on the whole.

This research would critically analyse women's level of fear. It would not only be focusing on transport service characteristics that have become the factors affecting women's travel safety but also if there are women's personal fear levels that have contributed much towards their safety issues and also the existing social environment.

Therefore, the main contribution of this research would focus on factors that affect women's level of fear in an urban area. As indicated by Atkins (1989), it is important to study travel safety (TS) because it has the potential to radically shape social life. Therefore, he suggested that reducing the level of fear among the women travellers would improve the quality of life of urban dwellers especially for working society. Moreover, a study by Jalil and Rahman (2011) in Malaysian scenario also highlighted that in public transit, women combine various activities in one day, especially in Klang Valley areas, such as care-taking responsibilities, travelling during peak hours with male passengers and getting off at multiple destinations. Therefore, they might be exposed to unsafe situations such as dark areas of taxi stands, bus stations and others.

By applying some of the environmental criminology theories, the research can examine the scenario on the level of fear while travelling in Malaysian urban areas not only theoretically but also empirically. Moreover, all of the findings from this research, in turn, would contribute to the body of knowledge that would reflect the scenario in Malaysia particularly in urban areas.

1.8.2 Contribution Towards The Stakeholder

Since research on women and travelling safety aspect specifically concerning the level of fear while travelling in Malaysia is still lacking, the findings of the current research would contribute much towards the transportation industry. This is because some of the suggestions made in this research could be considered as a new strategy that can be applied to the Malaysian transportation system to achieve not only world-class standard services but also to be perceived as safe transport services in urban areas.

Apart from the contribution stated, the research would also benefit organizations that deal with transportation and crime prevention which include:

1.8.3 Benefit To The Transport Industry

Since research on women and travelling safety in Malaysia is still lacking, the findings of the research would contribute much towards the betterment of local transportation industry.

This is because some of the suggestions made in this research could be considered as a new strategy that can be applied to the Malaysian transportation system especially concerning the software development for the public transport monitoring system.

1.8.4 Benefit To The Government

A study to determine factors that affect women's travel safety is relevant to the government for many reasons.

By identifying the specific factors from service characteristics, infrastructure and social environment, the knowledge and awareness would be expanded. This is because the most important aspect of the study is to avoid poor planning decisions especially concerning allocation of transport infrastructure because in the current scenario, women also make an equal trip using public transport as men do. However, in some situations, women's trip is much more complex than men's trip because men only travel to work whereas according to a survey conducted by Howie (2000), women in Scotland make not only trips to work but also trips to send children to school and to buy house goods, medical trip for old women and many others. Therefore, provision of transport service facilities needed by women is essential to ensure safe travelling throughout the entire journey. All of the decisions on transport infrastructure should take into account the needs of women while travelling.

Findings of this research would contribute towards the design of guideline for national transport policy where public transport delivery standards can be outlined especially on the standard of bus stop design, vehicle design and surrounding environment that would reduce or eliminate the fear level while travelling.

1.8.5 Benefit To The Planners

Findings from this research would assist the planners in their planning design that can integrate the element of safe travel for women in an urban area. This is for the benefit and safety of all women who have to make trips not only in daytime but also at night. According to Sideris (2014), fear affects mobility of woman travellers whether they are travelling by bus, automobile or other modes.

Among the discussion of women's fear of transportation facilities includes parking structures, buses, train cars and bus stops that affect the way they engage in travel and may preclude them from a basic right to the city. Therefore, she also stated that planners should benefit from this study when they can focus on the street designs that enable woman travellers to move freely from origin to destination without creating the worry that a 'wrong choice' of mode, transit setting or time of travel might have

consequences on their level of safety. This is supported by the Criminal Department Unit (2012) which stated that most crimes happen at the boundary of public transport supply facilities.

Therefore, with new planning design, it would create a safer environment and ease away the feeling of 'fear' inside every woman who makes a trip using bus services in an urban area. Moreover, Howie (2000) in a study in Scotland revealed that the development of policy to accommodate the need of woman travellers, would have benefits not only to women but across the community.

Other than that, the research is also important because it helps to solve the current situation of the service condition in an urban area and then, to propose some strategies that can give major improvement to the entire transport system.

In other words, the actual level and perceived fear of crime along the journey by bus services could be reduced and subsequently, achieving the safety element being proposed in National Key Result Area if proper problems are identified accordingly.

1.8.6 Benefit to the Society

This research would also create a benefit to the society as a whole and not only to women because the improvement on the transport delivery would enhance the perceived level of safety while travelling by bus for everyone. This is because if 'women' who are considered as the most vulnerable group of being a crime victim can feel safe, so will the rest of the society.

Considering that if presently women give up the entire night trip or avoid the usage of the bus after dark because of fear of crime, with an appropriate improvement, they can now move freely and participate in social activity.

In other words, appropriate planning design would enhance their level of confidence towards the system and thus enhance their perception of feeling safe. The perception of having safe public transport especially the bus service in urban areas

would attract more people especially non-user to consider buses. As far as commuting to work is concerned, delivering a service, infrastructure and environment needed by women are essential to encourage more usage of bus service in the future.

Indirectly, when people are attracted to a safe public transport especially bus, they would shift from using private car to using public transport. Consequently, this would reduce the urban thrombosis that is currently facing many urban areas with a high-density population.

Furthermore, the suggestion on the women-only buses to cater the needs of working women would certainly create a new pleasant experience for most women living and working in an urban area.

1.9 Scope and Limitation

The scope of the study focuses only on the trip generated by female commuters in urban areas who use stage bus services to commute to their workplace. The study looks at the factors that affect travel safety for women from the point of origin to the point of destination.

The study only focuses on the issue of female commuters who travel by bus from Kuala Lumpur urban areas into the city centre.

Therefore, the respondents would only be the working women living in urban areas and the ones who have not reached the age of senior citizen. Women living outside the urban area are not considered as a respondent in this study.

Scope of safety in this research would only include the feeling of fear among female commuters in an urban area.

1.10 Definition of Key Term

This section highlights the definition of key term used in the study.

1.10.1 Bus Service Characteristics

In this study, the definition of service characteristics is adopted from Howie (2000) who defined service characteristics as the bus service operation on the supply side that would enhance or has major influence on women's travel safety aspect.

1.10.2 Infrastructure Design

The definition of infrastructure design is adopted from Albright (1996) who defined the infrastructure as the environment employed for movement connecting the point of origin and destination.

1.10.3 Social Environment

The definition of social environment is adopted from Cox *et al.* (2007) who defined social environment as a set of description of facets in the organization of society which include a few elements of social environment such as demographic structure, urban rural structure of race and ethnicity and income structure.

1.10.4 Fear of Crime

The definition of fear is adopted from Jackson (2005) who described fear of crime as an empirically distinct feeling that exists in the individuals and related constructs that combine a few attributes such as emotion, perception of risk, vulnerability, and environmental perception.

1.11 Research Design

This study embarks on a quantitative approach where female commuters living in urban area and working in the city centre of Kuala Lumpur were surveyed to determine the factors that affect their feeling of fear while travelling using a stage bus service. A stated preference survey underpinned the methodology of the data collection in which Kuala Lumpur main bus terminals were selected to conduct the survey using a set of questionnaire.

Based on Krejcie and Morgan's (1970) table, the target sample size for this study was 384 respondents. During the actual survey, a total of 400 questionnaires were distributed. However, from the total of 400 questionnaires distributed, only 312 questionnaires were valid. Most of the questionnaires were invalid due to missing information.

Thus this study proceeded with a sample size of 312 female commuters within the working age of 18 to 55 years old (Ismail *et al.*, 2012) who were living in an urban area, working in the city centre and using a stage bus service to commute to their workplace. The data were further analysed using a statistical package of social science using the descriptive analysis, partial correlation and regression analysis to form a model of safe environment for female commuters in an urban area.

1.12 Summary

This chapter defines the background of the study, issues in bus service, infrastructure provision and social environment while travelling faced by women while travelling in Kuala Lumpur urban area. In addition to that, this chapter also highlights the problem statement and gap of the study, objectives, research question and the six hypotheses to be tested in this study.

Besides that, this chapter also summarizes the justification of the study especially on why the study focuses only on female commuters. Apart from that, the chapter also highlights the significance of the study, scope and the definition of the key terms to be used as a guideline in order to proceed with the study.

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