

Effects of Perceived Safety on Women Mobility Habits for Sustainable Public Transportation

Asst. Prof. Dr. Deniz DENİZ

İzmir University of Economics
Faculty of Fine Arts and Design, Department of Industrial Design
Sakarya Cad. No. 156, 35330 Balcova, Izmir
Turkey

Abstract

Perceived safety and fear of personal victimization affect people's quality of life in many ways. Particularly, women who live in cities mostly isolate themselves from the facilities and opportunities of the city, because of personal safety and fear of criminal victimization issues, which reduce their quality of life. Feeling vulnerable for crime or anti-social behavior create problems as actual crime itself in public transportation areas among women. In this respect, planning and design decisions are crucial for creating safer and sustainable public transportation. Fear of crime not only limits people's access to opportunities and facilities, but also affects the livability and sustainability of the city. Although, studies from foreign literature prove that perceived safety is extremely related to the spatial and administrative issues, creating safer and sustainable public transportation through design concept has not been deeply considered with planning and design issues in Turkey so far. In this respect, the aim of this particular study is to analyze the effects of feelings of insecurity on women mobility and transportation habits in İzmir - as one of the biggest and crowded city in Turkey- for investigating the importance of perceived safety through public transportation to increase awareness on this subject in order to develop long term and sustainable solutions.

Keywords: perceived safety, women mobility, public transportation, sustainability, quality of life.

1. Introduction

1.1 Importance of Personal Security on Quality of Life

Through the worldwide, women are mostly frequent and regular users of public transport. Personal security is crucial for everyone, and there is a certain correlation between perceived safety and public transportation. In other words, fear of crime creates feelings of insecurity which keep people off the public spaces where crime or anti-social behavior are likely to occur, including public transit areas, subways, bus stops, etc. Researches on crime and fear of crime have emphasized that perceptions of safety also differ significantly between men and women in many cases. Feelings of insecurity and vulnerability to crime limit women's mobility habits through the streets and public transit. In other words, it can be expressed as a barrier to participation in the public life for both socially and economically.

In order to develop successful and sustainable public safety policies would reflect a commitment by all concerned parties, as well as professionals and local residents to recognize the importance of preventing crime or fear of crime in public transportation. It is obvious that, operational policies and legislations are an integral part of an effective strategy to improve perceived safety and security. In this respect, there is growing awareness of the safety and security concerns of women as they use public transport. Therefore, it is important that they perceive public transport as being safe and secure. However, there are many distressing incidents reported when women's personal security have been compromised while using public transport from both the developed and developing countries. This study is intended as a contribution to consider those wider debates to achieve safer public transportation options in terms of sustainable development by considering the main aspects of a whole journey including; access to public transport, the waiting environment and the in-vehicle experience.

Fear affects women's experience of safety in the public realm, which can be designed and planned in a way that reduces this fear of victimization for any criminal or anti-social behavior. Fear of crime affects their lifestyle and routines and the way they experience urban areas and the public realm in particular. Women's experience of perceived safety in urban areas also varies by location, time of day, mode of transport, etc. Studies have shown that women are more likely than men to modify their behavior to avoid the risk of crime and for their use of the public realm such as; limiting their activities or returning home earlier that reduce their quality of life and limits their contribution to public life. In this respect, the research also investigates that how females are socialized into vulnerability and their need for personal safety in urban environment particularly in public transportation areas and habits.

Researches from international literature show that women are fearful of particular situations including: use of public transport, in particular train travel at night, walking through or waiting at a bus stops or subway stations, etc. Women's fear is mostly affected by whether spaces are deserted leading to them feeling vulnerable to stranger attack because there are no others to pre-vent the attack. Therefore, levels of activity and potential entrapment spots are factors that affect levels of fear. Women are higher users of public transport and they are less likely to use personal cars to access them than men. In addition, they are more vulnerable to crime and anti-social behavior. Therefore, the public transportation spaces and modes of transport which women fear most are likely to be the ones they spend most time using. Not only actual crime but also perceived safety or fear of crime, have some significant consequences for women's daily lives leading them to utilize precautionary strategies that affect their mobility and travel patterns. These precautions mainly include choosing specific routes and transit environments over others to avoid particular transit environments and activities that make them feel unsafe and insecure. Some cities and municipalities around the world have begun to address this crucial issue by analyzing and eliminating these safety gaps in the built environment. However, a few of these studies in Turkey have considered transportation settings and tools strongly affect women's quality of life and, which need to be considered specifically focused on this aspect of women's safety.

Women's fear of transportation facilities mainly affects the way women engage in travel as well. Today, environmental planning and design have become more sensitive to the specified groups such as; women in response to the past tendency to exclude the experiences of women in urban transportation tools when acting for sustainable and safer planning issues. In this respect, the aim of this study is to increase awareness for safer and sustainable transportation systems and tools in cities by identifying the main concerns of women through the public transport system. To do that, this paper explores women's experience of perceived safety in public transportation and how it affects the transportation habits and mobility for accessing to the public realm as well as opportunities. Uckuyular district has been chosen as a case area by including one of the main public transportation hubs for bus and subway in the city of İzmir. In order to develop safer and sustainable solutions for public transportation and understanding the safety concerns of women mobility, a situational analysis was done through a survey of potential users as well as observations.

1.2 Effects of Perceived Safety on Women Mobility Habits

Women's fear of using public transportation causes them to modify their travel behavior (Loukaitou-Sideris 2009; Schulz and Gilbert 2000). Specific groups also argue that perceived violence constraining women's mobility that is a form of gender inequality embedded within the public transit system (Garibi et al. 2010; Valentine 1992; Wade 2009). Based on theories such as Oscar Newman's defensible space theory (1972), which states that spatial design is directly related to levels of crime as well as fear of crime which effects of environmental changes on women's fear of traveling. Amedee, Blumen and Crane argue that the global emergence of women-only transportation is a symptom of larger gender inequalities in cities, particularly surrounding issues of women's mobility which focuses on how public transportation limits women's equal access to urban resources and how this problem addresses by issuing transportation alternatives for women (Amedee 2005; Blumen 2010; Crane 2007). Women are more fearful of some crimes and locations than others. They feel less safe on public transport than in the general community (NSW Police Service Community Attitude Survey, 1996). The Centre for Cultural Risk Research (1998) reports that women's use of public space is less than men's in that they utilize a narrower range of locations and frequently limit use to the daylight hours. Other aspects of the environmental setting which increase levels of fear, including higher traffic flows, rapid change in a neighborhood, evidence of disorder or incivility in an area, signs of physical and social decay and lack of community cohesion, the dominance of males who are drunken and disorderly, and low levels of street activity.

Fear plays a part in the way women use public space when they use it and what locations they use. The impact of fear, whatever the cause, on women's use of public transportation tools and their travel habits has implications for the role that planning and design of the public realm can play in increasing the use of spaces by women and reducing levels of fear (Valentine 1990).

Studies has shown that women use public transport more than men and they are also more worried about using it as their personal security is frequently compromised. This is of huge concern for a variety of reasons. Women have the same right as men to access safe and secure mobility. They make a huge economic contribution, and often shape the travel patterns and attitudes of their children (Safe and Sound – International Research on Women's Personal Safety on Public Transport, 2016). Stated by United Nations (2015) there is an urgent need for a sustainable development in transportation particularly for specialized group of people including: elderly, disabled people, women etc. (United Nations, 2015). Perceived safety and accessibility are mainly defined as individual assessments of safer and easier accessibility and mostly believed that it is in relation to transport quality, safety, travel frequency, and age, looking for significant determinants (Lättman, 2015). Lattman (2015) also emphasizes that quantifiable measurement has been developed for perceived accessibility in public transport by emphasizing it is important than ever to bring together all forces towards an inclusive sustainable transportation system offering accessibility for all.

Safety and accessibility are positively connected to many travel outcomes, such as well being (Parkhurst & Meek, 2014) as well as transport-related social inclusion (Farrington, 2007; Stanley, Vella-Brodrick & Currie, 2010). There is also no doubt that insufficient or poor accessibility and lack of safety may cause social exclusion (Hui & Habib, 2014; Kenyon, 2011) that makes accessibility as a key issue for sustainable planning for public transportation. In addition, accessibility has been linked to the mobility and defined and operationalized through objective measurements. This aspect is not completely accurate not only because of the lack of individual perspectives, but also as targeting increased mobility for certain groups of individuals in a society (Kenyon & Lyons, 2003). Women's mobility and travel patterns affect their access to the public realm. They have higher levels of use of public transport, which is considered to be one of the least safe urban settings and where they have high levels of fear (Martens, 2012) as a result of age and lower levels of car ownership than men do. In terms of housing and residential neighborhoods, women as the dominant elderly population group are over-represented in public housing. They are more likely to be pedestrians and require access to public transport therefore the design of neighborhoods for safety from the home to transit stops and facilities.

Perceived safety is also necessity to live a satisfactory life using the public transportation system, which includes accessibility while using the public transportation systems. Since previous research has proved that connections between public transport quality and safety (Redman, Friman, Gärling, & Hartig, 2013). There is reason to believe that additional quality attributes also are important to accessibility (Friman, 2010). Researchers have also begun to acknowledge safety aspects in their studies on individual accessibility, such as; women's fear and insecurity while in the public transport environment (Loukaitou-Sideris, 2009). Feeling vulnerable to crime and perceived safety also refers to the emotional backgrounds of the individual (Redman, Friman, Garling, Hartig, 2013). Ease of getting to the transport system safely and easily also increase the mobility of individuals particularly for specified groups of people who are more vulnerable to crime or anti-social behavior.

Insufficient accessibility may also results to inability to reach different travel modes and thus exclude people from various opportunities and activities. As a result, the members of community who are unable to use public transportation tools because of safety or other issues may lower their well-being and quality of life. Although, the main focal point in transport planning has shifted from mobility to accessibility still not including individual or specified groups' perspectives (Halden, 2011; Preston & Rajé, 2007; Qviström, 2015). Accessibility to important activities is influential for subjective wellbeing (Parkhurst & Meek, 2014). Martens (2012) is also aware of this link reduce travel hardships with the aim of increasing accessibility in a cost-effective manner. In this respect, there is an argument that in order to improve social inclusion and quality of life, it is crucial to understand what drives perceived safety and accessibility for using this knowledge to make it easier for people to be a part of society (Bekiaris & Gaitanidou, 2012; Kryvobokov & Bouzouina, 2014; Lucas, 2012; van Wee & Geurs, 2011). Leavitt defines that women mostly face problems significance in cities and society that gen-der cannot be ignored in planning practice (Leavitt, 1986). Cooper Marcus Sarkissian (1986) and Stimpson (1981) also mention the importance of gender as a focus in planning practice.

Feminist perspectives on the patterns of inequality in both space and culture, acknowledge fear to be a more important concept in the theory of social control than violence itself (Valentine, 1989). According to Currie and Stanley (2008) the risk of being socially excluded has negative effect on subjective well-being. Social inclusion is dependent on the ability to use the transport system for social activities, as much as for getting to work. Thus, it is important to capture these aspects when measuring transportation tools safety and accessibility.

According to Peters (2013), it is widely acknowledged that women's travel patterns are different from men's, and they are characterized by persistent inequalities. Within urban setting, women have inferior access to public transport. In addition, Lattman explains that the perceived accessibility scale was developed with the aim of capturing how easy it is to live a satisfactory life with the help of designated travel mode (Lattman, Olsson, Friman, 2015). Without reliable measures of perceived accessibility, it is argued that evaluating and following up goals and visions regarding accessibility, from a user perspective, will be difficult, thus creating a broad and generalizable measure of perceived accessibility was needed in order to investigate or compare accessibility between different transport modes, between different groups of people, in different areas, for different purposes, or in different transport systems (Lattman, Friman, Olsson, 2016). Duchene (2011) also emphasizes that the difficulties faced by women regarding their mobility are a form of social exclusion, which affects all aspects of their lives and their economic output and health as well.

Studies which state that spatial design is directly related to levels of crime, the effects of environmental changes on women's fear of traveling were examined and led to research such as on the effects of CCTV cameras or better lighting in public transportation in order to improve women's commuting experiences (Loukaitou-Sideris 2008) and further studies mostly focused on how public transportation limits women's equal access to urban resources (Amedee 2005; Blumen 2010; Crane 2007) and how this problem were addressed by issuing transportation alternatives for women. Understanding public transportation as a place for man helps them to explain the levels of violence towards women in public transportation. Therefore, it normalizes masculine and anti-social behaviors within these spaces, such as sexual harassment and violence towards women that forces women to change and adapt to the situation (Koskela and Pain 2000).

Cresswell and Uteng (2008) define that many of the researches on how mobility shapes by gender has its origins in the observation that mobility lie at the core of traditional gender ideologies, which are infused with notions of space and mobility. These ideologies equate women and femininity with the home, and domestic spaces and restricted movement although they equate men and masculinity with non-home, public spaces and expanded movement. Similarly, Rosen-bloom (2006) defines women are more likely than men to work at home and less likely to have a mobile workplace. Hanson and Pratt (1995) emphasize that women also less likely to engage in work-related overnight travel and they locate them closer to home than men do (Hanson, 2003). Women's travel habits also differ from men's in many ways such as; women are more likely to use public transportation (Rosenbloom, 2006) and escort other passengers like children or elderly (Van Vliet, 1983). In addition, Presser and Hermsen (1996) imply that gender differences in travel-activity patterns has also documented significant differences among women and among men, depending on age, marital status, income and place of residence and their preferences on public transportation.

2. Method

The quality and safety level of public transport create possibilities and ease of engaging in activities. Many factors including quality, safety, frequency of use, and gender, etc. affect perceived safety in public transport. Through the study it is aimed to find out the impact of security issues of the chosen transport modes, frequency of use, age gender, and safety on perceived safety. In order to analyze that, the data was collected in the İzmir City as one of the biggest cities in Turkey. The main location was selected for the study where people gather for using several public transportation hubs (bus/subway) in the city of İzmir/Uckuyular District.

To understand the safety concerns and fears of women in public transport, a situational analysis was done through a face-to-face survey of potential users. Baseline surveys of female commuters along the selected pilot area were conducted to understand women's travel patterns, their daily travel experiences, and the key differences in their travel patterns. The survey also aimed to understand women's perception of their journey across different modes and steps that could be taken to make them feel safer.



Figure 1: a.b. The main public transportation hubs (subway/bus) of İzmir Metropolitan City

Data collection and observations went on for two days, between 8.00 am and 22.00 pm approximately. The 100 participants were asked to complete a questionnaire while waiting for the public transportation tools (bus and/or subway), coming from the (bus and/or subway), or sitting on the (bus and/or subway). As this was the first approach to studying links between perceived safety occurring at different stages of travel (before, during, arrival), this initial data collection involved only public transportation travelers. The participants were aged between 17 and 72; the majority was on their way to home or from work, school or social activities.

The survey consisted of three sections included questions on passengers' demographic de-tails, travel preferences and frequency, perceived safety and accessibility items, as well as their past experiences related to women safety. Through the research period, the responses gathered were based not only on women's perceptions of safety and danger while they are in and around public transportation tools, but also on real-life experiences. The data collected in the research process were analyzed under the several main topics. According to the 100 survey respondents in İzmir who said that they had experienced some form of criminal act (46%) that made them feel uncomfortable, (37.2%) of respondents' experienced anti-social behavior or sexual harassment almost weekly.



Figure 2: a.b. The general views from public transportation hub

Among the respondents who had experienced form of inappropriate behavior in the previous months, majority of them reported that they had been sexually harassed at night times (after 19.00 pm) when they feel more vulnerable and invisible to others. In addition, (26.0%) of them also emphasized that they felt uncomfortable or harassed by men's behavior while commuting on a public bus or subway, and almost (20.0%) of them are through their travel. There was also correlation between frequency of use of public transportation and the likelihood of being harassed. Through the research, one-third of survey respondents who had used the public transportation almost every day said that they had felt sexually or verbally harassed at least once in a week. According to the results, those using public transportation daily or often were subjected to sexual/verbal harassment or feeling vulnerable for being a victim of crime and violence more frequently than those who only used the public transportation rarely. The survey data also revealed that most of the female commuters either were students or were working.

Majority of respondents also emphasized that although they need to use public transportation tools to engage in economic and related activities for their lives, they usually hesitate to use them in order to protect themselves from any types of criminal activity. The data also revealed that younger women aged 17 to 38, (who are mostly students or workers), were more likely to be harassed than elder women. The main reasons for that, in addition to their usage for public transportation frequently and more often, elder women are more fearful to use these transportation tools because of safety and security issues, thus they mostly travel for limited and certain times which make them feel relatively safer.



Figure 3: a.b. Entrance for Subway and Bus Stops

This particular study has shown that there is certain difference in the travel patterns of women in the city life. The data derived from the study helped in highlighting that women spend less time than they need on travel because of security issues. They are more concerned about safety when choosing their mode of transport and they limit their movements mostly on daytime. Women also tend to travel lesser and more often with dependents in order to prevent themselves to be a victim of any types of crime or anti-social behaviors.

3. Results and Recommendations for Further Studies

Understanding differences is crucial for considering all the necessary steps to develop safer and sustainable public transport not only for men but also for women and other specific groups who are more vulnerable to crime and anti-social behavior, such as; elderly or disabled people. In this case, there is an urgent need to understand the differences in travel patterns to plan and also to operate better public transport services for needs. Study also helped to find out the distinct problems that are faced by women during different steps of the journey.

According to the results derived from this particular study, there is a correlation between frequency of public transportation use and the likelihood of being a victim for verbal or sexually harassed. Most of the respondents were either students or workingwomen, using public transportation to engage in opportunities and activities that would build their economic or human capital. As one of the remarkable findings, those who had experienced sexual or verbal harassment and abuse reduced their use of public transportation as a result of these negative experiences which means that they keep themselves off from public life and opportunities in order to protect themselves. Stated above, women's mobility habits and preferences mostly being affected by safety and security issues. In this respect, restricting their freedom by isolating themselves from the opportunities they put some barrier their access to social and economic activities in order to provide their safety.

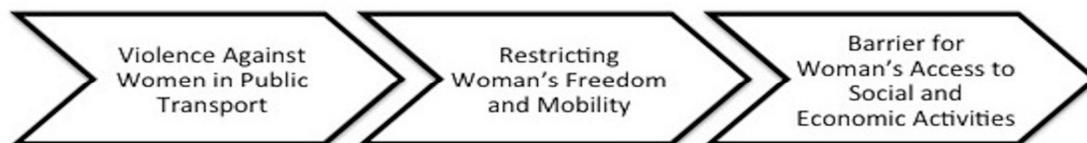


Figure 4: Effects of Perceived Safety on Women's Mobility Habits

Physical or verbal abuse and harassment in public transportation is a common concern for women in cities. On the other hand, the data show that women are frequent users of public transportation and thus there is an urgent necessity to keep public transportation networks safe for them. Women not only experience these insecurity problems waiting for their transportation tool, but also have a possibility to be a victim of criminal act while they are travelling the vehicle as well as at their destination point. The fear that covers all steps of public transportation mostly stops them to join public life and activities.

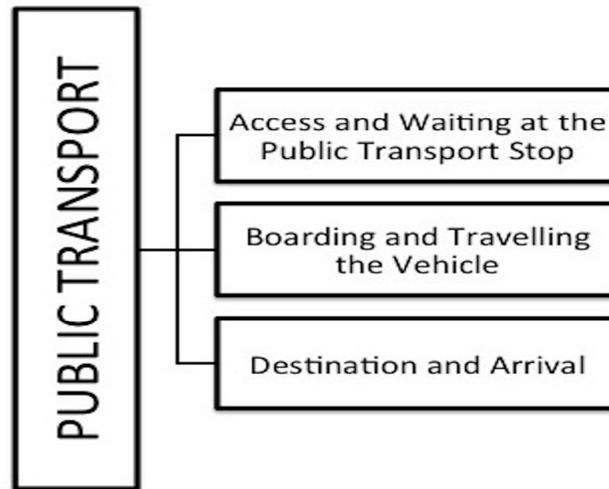


Figure 5: Steps for Public Transportation Safety Issues

Better planning and design for the environment to combat crime or anti-social behaviors on public transportation should include cooperative works and public safety policies requiring public transportation operators as well. To achieve long-term solutions, public safety policies should also include precautions such as; closed circuit television, good lighting, and ensuring optimal passenger capacity at peak hours to prevent overcrowding by analyzing and documenting data on crime hot spots. In order to develop successful and sustainable solutions planning and design decisions- as well as applications-would reflect a commitment by all concerned parties, professionals and also local residents (Figure 6) to recognize the importance of preventing crime or fear of crime in public transportation. It is obvious that, operational policies and legislations are an integral part of an effective strategy to improve perceived safety and security.

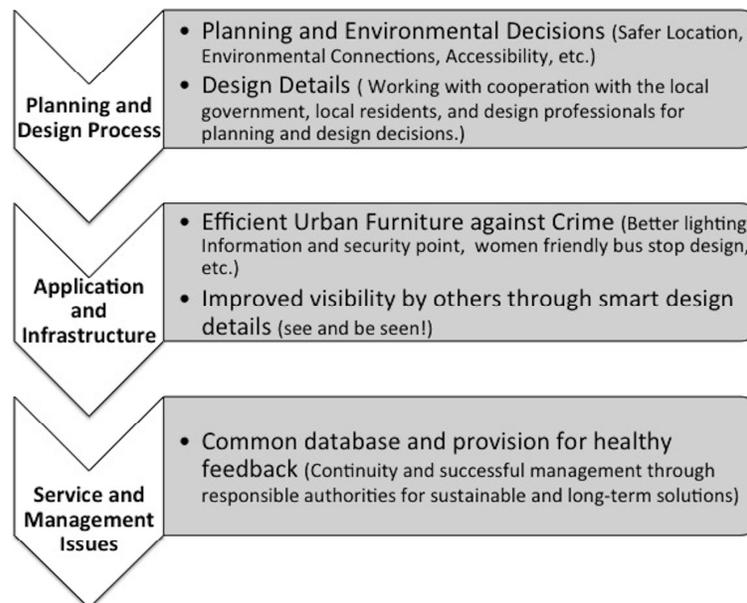


Figure 6: Categorization of Issues for Safer and Sustainable Public Transportation

Consequently, there are remarkable issues, which together contribute to women feeling un-safe and restricting their freedom of movement and in order to develop a successful model for safer transportation, the solutions need to be holistic and sustainable.

It is obvious that, since each particular city and locations have their own dynamics, there is no single valid solution for solving public transportation security problems and working with co-operation including all the necessary actors (municipalities, planners, designers, local residents, etc.) and contribution of potential users is essential to effectively solve the problem.

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