Minimizing the gender difference in perceived safety: Comparing the effects of urban back alley interventions

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A B S T R A C T

Urban alleys are perceived as unsafe, especially by women. We conducted a photograph-questionnaire survey to examine gender difference in perceived safety of alley scenes. Photograph simulation technology was used to create three categories of intervention scenes: Cleaning, Vegetation, and Urban Function & Vegetation. For the existing (Baseline) and Cleaning scenes, perceived safety remained low for both genders, though men's perceived safety was significantly higher than women's. Vegetation scenes were perceived as moderately safe for both genders, but men's ratings were still significantly higher. For Urban Function & Vegetation scenes, perceived safety was high for both genders, and the gender difference largely disappeared. Geometric vegetation yielded higher perceived safety than naturalistic vegetation for both genders. These findings provide clear evidence to support the efforts of policy makers, environmental designers, and community associations seeking to create safe and vital back alley environments for men and women in high-density cities across the world.

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1. Introduction

Urban alleys are neglected but valuable urban spaces in high-density cities with limited open space. Rapid, intense urban development that maximizes profitable construction areas and minimizes unprofitable public spaces frequently results in hundreds, even thousands of narrow alleys in high-density cities. The media commonly portrays back alleys as dark, dirty, and dangerous spaces—hot spots for deviance and crime. The frequent presence of "physical signs of incivility and minor forms of misbehavior" further contribute to the sense that alleys are unsafe (Ferraro, 1996, p. 175). Fearing victimization, women in particular alter their routine activities to avoid using back alleys (Ferraro, 1996; Smith & Torstensson, 1997). Avoidance behaviors lead to further degradation, as fewer people are present to supervise and maintain back alleys.

Back alleys are associated with multiple environmental and social problems, but they have received little attention in the fields of urban planning and landscape architecture. Although some cities such as Baltimore, Chicago, Hong Kong, and Turin have developed pilot projects to revitalize back alleys, no empirical studies have evaluated the effect of proposed back alley interventions on perceived safety.

Many studies have reported gender disparity in perceived safety of public spaces such as back alleys. Compared to men, women's use of public spaces is more often inhibited by worries of personal safety (Ferraro, 1996; Fujita et al., 2004; Gilchrist, Bannister, Ditton, & Farral, 2008; Gover, Tomsich, Jennings, & Higgins, 2011; Jorgensen, Ellis, & Ruddell, 2013; Koskela & Pain, 2000; Krenichyn, 2004; Madge, 1997; Pain, 1997, 2001; Snedker, 2012; Sreetheran & van den Bosch, 2014; Steinmetz & Austin, 2014; Sweet & Ortiz Escalante, 2015; Yavuz & Welch, 2010).

Creating back alley interventions where men and women feel similarly, if not equally, safe is an important and challenging issue that has not been addressed in previous literature about urban alleys (Seymour, Wolch, Reynolds, & Bradbury, 2010; Wolch et al., 2010). To fill this gap, we examined the differences in men's and women's safety perceptions of existing alley scenes and different

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intervened scenes. We ask, to what extent do interventions based on different criminology theories minimize the gender difference in perceived safety?

1.1. Gender and perceived safety in urban spaces

Gender has been a consistent predictor of fear of crime in past research (Maas et al., 2009). Many studies have noted that perceived safety varies between genders. Compared to men, women typically have lower perceived safety in public spaces. They have greater fear of being alone (O'Brien, 2005), of being in concealed spaces (Jorgensen et al., 2013; Steinmetz & Austin, 2014), and of being in spaces where strangers are loitering (Madge, 1997).

1.1.1. Women's perceived safety in urban public spaces

A widely accepted notion is that although women may be afraid of many criminal activities, they are most fearful of sexual assault. Research suggests that compared to women, men's greater physical strength and stronger sexual drive leads to more sexually indiscriminate behavior, more casual sexual relationships, and greater likelihood of committing sexual assault (Felson, 2014). For women, the fear of sexual assault is the core fear that influences how they perceive the safety of public spaces (Ferraro, 1996; Smith & Torstensson, 1997). This fear is especially strong for young women. Research found young women are often targeted by potential attackers, even after controlling for opportunities and vulnerabilities (Felson, 2014). A study reported that 15-29-year-old victims of robbery and homicide were frequently sexually assaulted during the crime (Felson & Cundiff, 2012).

Studies report greater fear of crime for women than men in a variety of built environments: campuses, urban wooded areas, public train transit, and public housing complexes (Gover et al., 2011; Mazey, 1983; Steinmetz & Austin, 2014; Yavuz & Welch, 2010). The gender disparity is especially profound when the environment is in a neglected or abused condition (O'Brien, 2005). Women feel safer in spaces that show clear signs of management. Women report a higher preference than men for spaces with visually obvious management and law enforcement (Ho, Sasidharan, Elmendorf, Willits, Graefe, & Godbey, 2005; Richardson & Mitchell, 2010). Their fear decreases to a greater extent when there are other legitimate visitors in the public space (Jorgensen et al., 2013).

Women are particularly fearful of secluded, visually concealed, or dark urban spaces. One possible explanation for this fear is that men prefer to assault female victims in secluded, concealed areas to avoid societal condemnation and punishment. Many societies severely condemn men's violence against women and perceive women as needing protection (Felson, 2014), and perpetrators will seek secluded spaces to avoid this condemnation.

Avoidance behavior is more prevalent among women than men when they perceive a risk of victimization (Yavuz & Welch, 2010). Women tend to spend less time walking in public spaces they perceive as unsafe, while men's walking behaviors are less influenced by safety concerns (Foster, Hillsdon, & Thorogood, 2004). These avoidance behaviors further intensify the gender disparity and may impair women's mental and physical health as they are less willing to spend time in outdoor public spaces.

One explanation for the gender disparity is that urban spaces are gendered (Laurie, Claire, Holloway, & Smith, 2000). To some extent, the built environment is structured according to gendered understandings of space, particularly in relation to "public" and "private" spheres (Ekinsmyth, 2002; Mazey & Lee, 1983). Very often, women's spaces are thought of as private and domestic (homes, residential areas), while men's spaces are thought of as public (businesses, streets, central areas of cities) (Ekinsmyth, 2002). Women tend to hold a stronger perception than men that public space is dangerous and private space is safe (Pain, 1997).

1.1.2. Men's perceived safety in urban public spaces

Men's perceived safety in urban public spaces has received far less attention from researchers than women's perceived safety (Yavuz & Welch, 2010). Some argue that men may have similar fears as women, but they tend to underreport their fear in surveys. This is largely because men are socialized in many cultures to not express their fear and worries, to be protectors and to be in control in an environment (Yavuz & Welch, 2010). Indeed, researchers found women tend to "rationally" report their fear but men tend to "irrationally" discount their fear (Smith & Torstensson, 1997). Researchers also argue women's higher levels of self-reported fear make sense because women have a stronger tendency than men to generalize their experiences across time, space, and type of victimization.

Other literature suggests men may have special safety concerns that are different from women's. Men may be more sensitive to losing control in a physical environment or social circumstance. Thus, men tend to be more concerned about violent assault, direct confrontation with other men, and lack of knowledge of a place or a situation (Yavuz & Welch, 2010). Men are more threatened by the presence of groups of men while women tend to be more threatened by the presence of a single man or being alone (Pain, 1997) (Crime Concern, 2004). Men showed more trust in electronic surveillance techniques such as CCTV while women show more trust in the presence of a security guard (Yavuz & Welch, 2010).

1.2. Theories exploring how environments impact perceived safety

Many studies have shown that environmental design can play a significant role in promoting perceived safety for both women and men. In many cases, designers' work is based on intuition and practical experience, not on criminology theory or literature on gender and safety. In this study, we used criminology theories to identify design interventions and evaluate how they impact the perceived safety of both women and men.

1.2.1. Disorder and the broken windows theory

Compared to traditional criminology theory that mainly focuses on promoting safety through legal penalties, the broken windows theory (Wilson & Kelling, 1982) emphasizes promoting safety by repairing "broken windows," a metaphor for disorder or incivility (Skogan, 2012). The "broken windows," or disorder, in a space decrease the stability of urban neighborhoods, indicate a lack of social control, deter investment in the neighborhood, and induce fear of crime (Skogan, 2012).

Disorder can be both physical and social. Physical disorder includes "overt signs of negligence or unchecked decay as well as the visible consequences of malevolent misconduct" (Skogan, 2012, p. 175). Social disorder includes "unsettling or potentially threatening and perhaps unlawful public behaviors" (Skogan, 2012, p. 175). While signs of physical and social disorder can exist independently, they are often related. For instance, physical disorder (broken windows) can be a consequence of social disorder (unlawful behavior), and social disorder is more likely to occur where physical disorder is present (in abandoned buildings, for instance). Therefore, the broken windows theory suggests that environmental clues can reasonably be used to indicate both physical and social disorder in urban spaces (Skogan, 2012).

Back alleys are notorious for disorder. They deliver a strong message of social decline and lack of social control. This message deters legitimate visitors and encourages deviance and crime. Social incivilities (e.g., prostitution, public urination, crime) and