

The phenomenology of being a female pedestrian in an African and an Asian city: A qualitative investigation [☆]

Mohamed Seedat ^{a,*}, Sarah MacKenzie ^b, Dinesh Mohan ^c

^a *University of South Africa, Institute for Social and Health Sciences and MRC-UNISA Crime, Violence and Injury Lead Programme, P.O. Box 1087, Lenasia 1820, South Africa*

^b *University of South Africa, Institute for Social and Health Sciences, P.O. Box 1087, Lenasia 1820, South Africa*

^c *Indian Institute for Technology, Transport Research and Injury Prevention Programme, Room MS 808, Main Building, Hauz Khas, New Delhi 110 016, India*

Received 24 November 2004; received in revised form 10 June 2005; accepted 21 September 2005

Abstract

Building on our current knowledge about pedestrian behaviours, we present the details of a phenomenological investigation into the experiences of female university students in the African city of Johannesburg and the Asian city of Delhi. Data were collected by means of individual semi-structured interviews in the two cities. We delineated and organised the emergent essences within an interpretive framework that focused our attention to the gendered, safety and transportation dimensions of the students' pedestrian experiences and revealed the restricting effects of their respective transport cultures and social environments on their space, mobility, energy, time, social bonding opportunities and sense of identity as women. We detected broad similarities in the students' pedestrian experiences across the two cities. Whereas the Johannesburg participants foregrounded their experiences of inaccessibility, crowding and their fear of crime that tended to limit their mobility, the Delhi participants emphasised their exposure to crowding, congestion, air and noise pollution and sexual harassment. The outcomes of the analysis are used to formulate recommendations for further large-scale investigations and draw attention to the need for integrated transportation planning and crime prevention systems.

© 2005 Elsevier Ltd. All rights reserved.

Keyword: Pedestrian

1. Introduction

Pedestrians are among the most vulnerable road users, accounting for more than half of the traffic-related injuries and fatalities in less motorised countries (Peden et al., 2004). So building on the multi-disciplinary literature, informed primarily by north-American and European based studies we consider walking, namely

[☆] An earlier version of this paper was presented at the 7th World Injury Prevention Conference in Vienna and the Psychological Society of South Africa (PsySSA) in Johannesburg, 22 September 2004.

* Corresponding author. Tel.: +27 11 857 1142; fax: +27 11 857 1770.

E-mail address: seedama@unisa.ac.za (M. Seedat).

being pedestrian, as a form of travel behaviour from the phenomenological perspective. Our aim is to examine female students' concrete pedestrian experiences and associated cognitive meanings in the African city of Johannesburg and the north Indian city of Delhi. Phenomenology allows us to develop a nuanced understanding of the female students' pedestrian experiences in terms of the way in which they as social actors subjectively experienced travel within specific traffic and social environments (Willig, 2001). From within the phenomenological perspective we need not convert the students' articulated experiences into the language and concepts of quantitative methodologies and statistical sciences.

The multi-disciplinary body of literature, that spans the social sciences, health sciences and engineering, focuses among other issues on pedestrian injuries, pedestrian behaviours, pedestrian safety interventions, simulation models, and pedestrian beliefs (Foot, Chapman, & Wade, 1982; Untermann, 1984; Wigan, 1995). Epidemiological analysis and statistical studies, utilising data from police, transport, and health records tend to provide injury magnitude and risks information (e.g. Peden et al., 2004), and seem to represent the major focus in the literature. In highlighting the severity of pedestrians' vulnerability to injuries in the traffic environment, epidemiological studies draw attention to age and socio-economic status variables (e.g. Agran, Winn, Anderson, & Del-Valle, 1998; Hasselberg, Laflamme, & Weitoft, 2001), contributory environmental and psychosocial factors including alcohol involvement (e.g. Miles-Doan, 1996), driver behaviour and compliance to traffic regulations (e.g. De Veauuse, Kim, Peek-Asa, McArthur, & Kraus, 1999; Harre, 2003), daylight levels (e.g. Sullivan & Flannagan, 2002) and at-risk environments (e.g. Zajac & Ivan, 2003). Observational and naturalistic approaches include the covert filming of pedestrians to examine naturally occurring pedestrian behaviours in a given context (e.g. Dunbar, Hill, & Lewis, 2001; Zeedyk, Wallace, & Spry, 2002) as well as participant ethnographic methods where researchers immerse themselves in a particular culture (e.g. Vander Ven, 1998; Wolfinger, 1995). Studies analysing the determinants of children's pedestrian behaviours have tended to assume a developmental perspective and focused on children's attention, cognitive and perspective skills (e.g. Dunbar et al., 2001; Dunbar, Lewis, & Hill, 1999; Zeedyk et al., 2002), and the influence of parental interaction and pedestrian's behaviours on children's modelling pedestrian behaviours (e.g. Dunbar, Lewis, & Hill, 2002; Lam, 2001). Studies using experimental methods have assessed behavioural effects of environmental interventions like signage, speed control humps, and over-head bridges (e.g. Mutto, Kobusingye, & Lett, 2002; Untermann, 1984), retro reflective and fluorescent clothing (Lesley, 1995; Luoma, Schumann, & Traube, 1996), community action projects (e.g. Boyce & Geller, 2000) and various types of educational interventions involving children (e.g. Budd & La Grow, 2000; Cross, Hall, & Hawat, 2002). In addition, surveys have been used to investigate pedestrians' opinions, beliefs or attitudes about aspects of their own behaviours and those of other road users (e.g. Yagil & Aberg, 2000). Some studies have examined the deleterious effects of factors such as crime and violence (Keane, 1998; Ross, 1993), and crowding and noise (Ouis, 2001; Ruback, Pandey, & Begum, 1997) on pedestrians' behaviour in the traffic environment and their overall well-being. A smaller body of studies, that have adopted qualitative approaches, examine citizen's views of injury causes and solutions to road transportation injuries (e.g. Butchart, Kruger, & Lekoba, 2000; Mony, Krishnan, & Joseph, 2002), and the aesthetic dimension of the traffic experience in the city (Taylor, 2003). All of these and other such qualitative studies focused on pedestrians as social actors (e.g. Petit, 2002) implicitly or explicitly make two assumptions. First, that it may be difficult to integrate people's sensory experiences and cognitive meanings associated with the traffic environment into economic and statistical computations of measurable and countable risks and determinants (see Petit, 2002; Taylor, 2003). Second, that pedestrians' cognitive meanings and perceptions are significant determinants of pedestrian behaviours. So following this emerging focus and tradition of qualitatively analyzing the human experience of the traffic environment in the large complex city (see e.g. Bachelard, 1994; Norberg-Schulz, 1980, 1996, cited in Taylor, 2003), we employ the phenomenological approach to uncover and examine the essences underlying female students' pedestrian experiences in the cities of Johannesburg and Delhi.

At a philosophical level, phenomenology posits that meaning occurs through subjective experiences of phenomena within specific situations and contexts (Lemon & Taylor, 1997; Silvers, 1982; Willig, 2001), and so phenomenological methodologists place the accent on examining and describing phenomena in terms of the meaning they have for social actors, namely those experiencing them (Giorgi, 1997), and providing a general description as encapsulated in the main connecting themes within each social actor's experiences (see Ivey & Simpson, 1998; Stones, 1986). So in constructing the pedestrian as a social actor, we signify, from

a phenomenological perspective, that the act of walking contains particular social import and meanings (Petit, 2002). Walking is employed either as a sole means of transport or as a way of accessing other forms of transport in many parts of the world, especially in low- to middle-income contexts where there may be inadequate road and public transport infrastructure and poverty.

In pursuit of our aims we incorporate relevant literature that has focused on the notion of place identity (Pretty, Chipuer, & Bramston, 2003), the gendering of spaces (Mazumdar & Mazumdar, 1999), and Bulhan's (1985) ideas about the foundations of human psychology. We begin our analysis below with a critical review of some of the contemporary notions and definitions of pedestrians. Thereafter we present a description of the cities of Johannesburg and Delhi and an overview of our adopted methodology and results in the form of key meaning units associated with the pedestrian experience. In our discussion we locate and critically review the students' pedestrian experiences within an interpretive framework emerging from existing research findings that focus on the influence of environmental stressors, including crime and violence, on pedestrian behaviour and more specifically Bulhan's (1985) six dimensions that may be regarded as the foundation of human psychology: identity, space, mobility, bonding, time and energy. Bulhan (1985) used these dimensions as key indicators for objectively studying the dynamics and impact of oppression. Accordingly Bulhan (1985) postulated that slavery, colonialism and apartheid all curtailed and violated oppressed peoples' physical and psychological space and expropriated oppressed people's time and energy to advance dominant socio-political and economic interests. Likewise the movements and bonding opportunities of the oppressed were curbed and highly controlled. Often oppressed people's identities were subverted, distorted and challenged.

Following the Bulhanian assumption that life is inconceivable without space, time, energy, mobility, bonding and identity, we apply these dimensions to attempt a critical understanding of the experiences of pedestrians living in democratic societies where road and urban design seem to privilege the interests of motorised road users. In placing the participants' emerging meanings associated with their pedestrian experiences within an interpretive framework that places the accent on these six dimensions, we are able to understand the extent to which pedestrians' psychosocial needs in the road environment may be frustrated.

1.1. Definitions of pedestrians as users of public space

The pedestrian may be defined as "someone who is walking, usually in public places, and particularly on or adjacent to public rights of way for vehicles" (Wigan, 1995, p. 7). Even though pedestrians together with cyclists are sometimes described as "vulnerable road users" by virtue of their increased exposure to the road environment, such definitions and related terms like "non-occupants" of motor vehicles (Weber et al., 2002), "human-powered transportation" (Komanoff, Roelofs, Orcutt, & Ketcham, 1993), "non-motorised transportation" (Wigan, 1995) and "jaywalkers", a term derived from the Old French "jai" meaning a gullible person or a fool (Mullen, Copper, & Driskell, 1990), oftentimes used to refer to the 'idiocy' of a person who ignores traffic regulations (Askoxford.com, n.d.), tend to typify pedestrians in relation to the absence of certain attributes and implicitly or explicitly construct pedestrians as obstacles to smooth traffic flow and as peripheral road users (Whyte, 1988 cited in Robertson, 1994).

Restrictive definitions that place the accent on the physical dimension of walking may also tend to devalue the status of walking as a mode of transport (Robertson, 1994; Untermann, 1984), and under-estimate the complex influences of psychosocial dimensions on pedestrians' experiences in cities like Johannesburg and Delhi (Bowman, Seedat, & Lekoba, 2002).

1.2. Johannesburg and Delhi: Connected through Vulnerability

Johannesburg, situated in the in-land province of Gauteng, is the largest city in South Africa and according to Statistics South Africa (2001) boasts a population of 3 225 812 people, representing a growth of 22.3% from the 1996 census which indicated the city's population figure to be 2 639 110. Johannesburg covers 1644 km², with the average density of 1962 persons per square kilometre. Whereas there are 217 000 residents in Johannesburg's inner city region, 53% of Johannesburg's population live in the three most southern areas of Soweto, Diepkloof and Orange Farm, reflective of apartheid legislation that continues to influence the structure and design of South African cities, residential townships and suburbs. In urban areas such as Johannesburg

apartheid legislation restricted black people to township residences such as Soweto and Alexandra, that were separated from the inner city of Johannesburg, but served as labour dormitories for the white-driven economy. Although such separations are no longer legally enforced economic inequities and resistance to the introduction of high density housing near business centres (Cox, 2004), may serve to delay the integration of different socio-economic communities and perpetuate racialised economic boundaries, requiring large sectors of the population to commute from the periphery to the city centre to places of formal and informal work. However, as a result of urbanisation Johannesburg is witnessing a shift in its' demographics and structure, elevating the city to one of Africa's economic, educational and cultural centres, and leaving some of Johannesburg's leaders and citizens overwhelmed by the increasing migration of people from the rest of the continent (Gotz & Landau, 2003). Apartheid generated inequities and recent trends in the rapid urbanisation of the population have contributed to the proliferation of informal settlements within proximity of city-bound roads where some 133 721 people reside and to the influx of an estimated 42 761 homeless people into Johannesburg (Statistics South Africa, 2001). The homeless people are predominantly black-Africans (Olufemi, 1998).

Delhi, situated on the bank of the Yamuna River on the northern Gangetic plain, has been the capital of India since 1947 (Ruback et al., 1997). The population of Delhi has grown rapidly from 3.6 million in 1971 to 5.3 million in 1981, to 8.8 million in 1991 (Ruback et al., 1997) and to 14 million in 2001 (Census of India, 2001). Delhi, described as "cities within a cities" (Tiwari, 2000), is a complex combination of a structured, spacious formalised city of 8–10 million people and a congested, cluttered informal city, that is home to some 4–6 million slum dwellers and an estimated 140 000 homeless people. The population density per square kilometre is 9294 (Census of India, 2001).

The road culture of Delhi is characterised by complexity and a high degree of heterogeneity, where high numbers of motorised forms of transport also include auto rickshaws, two-wheel vehicles and buses, alongside non-motorised forms including pedestrians, cyclists and cycle rickshaws. A recent report estimated that in 2000 there were 1 942 000 motor vehicles in Delhi, about 1 million of which comprised two-wheelers including motorcycles and scooters (Expert Committee on Auto Fuel Policy, 2002). Due to high rates of motorisation in recent years, the average age of the motor vehicle fleet in Delhi is about 4–5 years (Expert Committee on Auto Fuel Policy, 2002). By contrast, Johannesburg's road culture is more homogenous, where motorised transport includes conventional motor vehicles, buses, motor-cyclists and mini-van taxis, and other road-users are primarily pedestrians. As of October 2004 there was an estimated 963 381 registered motor vehicles in Johannesburg (J. Deetlefs, personal communication, October 25, 2004). Assuming a 10% growth per year compared to Johannesburg, Delhi therefore has lower motorisation levels per population.

According to the WHO World Report on Road Traffic Injury Prevention (Peden et al., 2004), in 2002 the majority (90%) of road traffic-related mortalities occurred in low- and middle-income countries, with a notable world regional variations. For 2002 the WHO African Region showed the highest traffic mortality rate at 28.3 per 100 000 population, followed by the WHO Eastern Mediterranean Region's low and middle income countries (26.4 per 100 000 population), the South-East Asia Region (18.6 per 100 000 population) and the Western Pacific Region (18.5 per 100 000 population). Studies cited in the same report also point to significant pedestrian vulnerability to traffic-related injuries. For instance, in the city of Nairobi, Kenya 64% of road users killed in traffic crashes between 1977 and 1994 were pedestrians. Similarly in Mexico City 57% of deaths from traffic crashes involve pedestrians (Hijar, Kraus, Tovar, & Carrillo, 2001); and in Kumasi, Ghana, the most common mechanisms of injury (40.0%) to children were pedestrian knock-downs (Abantanga & Mock, 1998). These and other such studies indicate that pedestrian fatality rates range from a low of about 1 per 100 000 persons in cities like Tokyo and London to about 2–3 per 100 000 per population in Mumbai and Mexico City, and 10 per 100 000 in Sao Paulo. Road crash fatalities in the city of Delhi totalled 1696 in the year 2002 (Delhi Traffic Police, n.d.), as compared to Johannesburg's figure of 1341 in the year 2002, representing 26% of all non-natural deaths (C. Harris, personal communication, October 20, 2004).¹ So relative to population, Johannesburg's traffic fatalities (42.2 per 100 000 population) were higher than those of Delhi (12.2 per 100 000 population). As in other less motorised contexts, in both cities the majority of these fatalities involve

¹ Christine Harris is the co-ordinator of the South African National Injury Mortality Surveillance System (NIMSS) that provides routine data on the epidemiology of non-natural deaths. The NIMSS has 40% national coverage for all causes of non-natural death which includes full coverage for the five South African metropolitan cities (Durban, Cape Town, Johannesburg, Tshwane and Port Elizabeth).

vulnerable road users. In Delhi 75% of the total fatal road traffic crashes involved pedestrians, bicyclists and motorised two-wheel vehicles (Mohan, 2002), Pedestrians accounting for 6.5 fatalities per 100 000 persons. In Johannesburg pedestrians, bicyclists and motor-cyclists accounted for 43.8% of the total traffic-related fatalities in 2002 but 25% of the total road crash fatalities reported do not specify the road user-type (e.g. pedestrians, passengers) (C. Harris, personal communication, October 20, 2004).

Social problems such as violent crime also mark both cities. Violent incidents are the leading cause of non-natural death in South Africa, accounting for nearly half (48%) of the figures for this type of fatality (Matzopoulos, 2002). In the year 2002 violence-related fatalities in Johannesburg totalled 2522, representing 47.7% of the total number of non-natural deaths (including suicide and transport-related deaths). In the same year pedestrian fatalities accounted for 10.6% of all non-natural deaths in Johannesburg. So based on a population of 3 254 844, representing a 0.9% growth on the 2001 census figure the rate for violent deaths was 77.4 per 100 000, and the pedestrian fatality rate was 17.2 per 100 000 for Johannesburg in 2002. The *South African Police Services Crime Statistics* (n.d.) reported 1612 rapes and 18 530 incidents of robbery including aggravating circumstances and a total of 436 cases of kidnapping and abduction for Johannesburg for a one year period (April 2002–March 2003).

Delhi is commonly considered to have the highest crime rate in India. The *National Crime Records Bureau in India* (2002) reports that there were 531 murders (3.8 per 100 000 persons) and 502 robberies in the year 2002. For 2002 pedestrian fatalities rates are about double that of murders. Gender based violence and crimes against women are particularly prevalent in India, including abduction of women, rape and dowry deaths. According to the *National Crime Records Bureau* (2002) there were 403 rapes and 1323 kidnappings and abduction in Delhi in 2002. Victimisation, commonly termed “eve-teasing”, which tends to be under-reported to the police, and involves overt and subtle forms of sexual harassment by a lone man or gangs of men in Delhi’s public spaces, has also received increased media attention as a major social concern in recent times (Ramasubramanian & Oliver, 2003). All these figures, however, suggest that Delhi is a relatively safer city than Johannesburg.

2. Method

2.1. Participants

In Johannesburg, the participants consisted of ten self-selected black African graduate and under-graduate female students attending a university located within close proximity of the city centre. The ages of the participants ranged from 18 to 26 years. In Delhi, the nine participant interviewees were graduate and under-graduate Indian female students whose ages ranged from 21 to 35 years. Both groups of women walked on a regular basis to the campus from areas within the inner city, which included student housing complexes in Johannesburg and residential areas in Delhi. In selecting female students for the study the authors considered them to be among the most visible and upwardly-mobile members of the population who tend to experience vulnerability in gendered and sexualised public spaces (see Baxi, 2003).

2.2. Procedure

The first two authors conducted the interviews separately in each country. The process of data collection was the same in both cases. When approaching students as prospective respondents the researchers selected only those that walked on a daily basis to/from campus and who volunteered to participate in the study. In order to address the restrictive costs of cross-language translations, we only selected those students who possessed a good expressive command of the English language. Once the purpose of the research project was explained and the students were assured of anonymity and confidentiality, they were requested to recount their pedestrian experiences in the respective cities. The interviewer in each instance asked clarification questions and requested further elaboration from the participants when necessary. Each interview lasted between 30 and 45 min. The qualitative approach enabled the interviewers in both cities to capitalise on the cultural preference for narrative and story-telling and transcend the hesitancy among students to participate in

questionnaire-type surveys that are sometimes perceived as time-consuming and intrusive and/or directive by virtue of the structured nature of questionnaires.

2.3. *Data collection and analytical steps*

We combined the methodological approaches of Giorgi (1997), Lemon and Taylor (1997), and Silvers (1982), to assume an integrated eight step data collection and analytical approach: (1) We began with the phenomenological stance of bracketing, consciously attempting to suspend prior knowledge gained through a reading of the literature in order to approach the experiences of pedestrians with an open mind; (2) We then proceeded to gather verbal data through semi-structured interviews, in order to gain a detailed depiction of the female students' experiences of being pedestrian in the cities of Delhi and Johannesburg respectively. Following Willig's (2001) view that in order to retain congruency with the phenomenological approach and enter the "life-world" of the research participant, we began each interview with an open-ended and non-directive question: "Tell me all about your being a pedestrian in this city?" (3) We then transcribed the recorded interviews verbatim, thereby rendering the data into a clear format that was readily accessible for analysis; (4) One of the authors, serving as the primary analyst, then subjected the transcribed data from Johannesburg and Delhi to a global reading in order to gain a sense of the students' entire pedestrian experiences. As she read the data, she attempted to remain mindful of the influences of preconceptions so as to gain proper insight into the pedestrians' experiences; (5) After retaining the respondents' original language, she then separately divided the data from Johannesburg and Delhi into parts according to emergent meanings, extracting significant statements describing the pedestrian phenomena in Johannesburg and Delhi and producing blocks of data referred to by Giorgi (1997) as "meaning units"; (6) The primary analyst then restated and described the meanings that characterised these units in her own words. In this step the meaning units were transformed from the subject's words into the analyst's words; (7) The analyst then formulated the meanings of the divided data into the language of psychology. The meanings were eventually grouped and organised along thematic lines, which were synthesised and summarised into an interpretive framework embedded in psychological terminology and the works of various writers including Bulhan (1985). This step allowed the authors to identify commonalities, namely connecting themes between the meaning units for Johannesburg and Delhi; (8) In order to check the credibility of the analysis, selected transcribed interviews were viewed and read by one of the other authors who sought to ascertain and confirm the plausibility of meaning units and themes discerned by the primary analyst. Here it bears noting that within phenomenology the aim is not to eliminate subjectivity of the researcher. Instead the focus is on researchers reaching consensus in their understandings of the phenomenon under study (see Giorgi, 2002). In the case of this study the co-author accordingly sought to obtain clarity about the terms and labels used by the primary analyst in her enunciation of the meaning units embedded in the students' pedestrian experiences.

3. Results

3.1. *Pedestrians' experiences across the two cities: Essential meanings*

Despite variations in emphases between the Johannesburg and Delhi socio-environmental and traffic cultures all our participants represented their walking experiences, namely being pedestrian, as a multi-dimensional gendered phenomenon that embodied the dimensions of space, mobility, time and energy, and at an implicit level alluded to the restrictions imposed on their place identity and social bonding opportunities. As such we were able to discern connecting themes in our participants' pedestrian experiences across the two cities and detect certain particularities in emphasis that arose out of the participants' experiences in their own specific African and Indian socio-cultural and traffic environments. Whereas the Johannesburg participants' focused strongly on inaccessibility, crowding and the restrictions imposed by the magnitude of crime on their mobility, the Delhi students placed the accent on crowding, congestion, air and noise pollution, and sexual harassment. Below we present the key common meaning units and highlight the differences in emphases associated with our participant students' pedestrian experiences in the cities of Johannesburg and Delhi.

3.1.1. *Pedestrian space in the two cities' traffic environments*

As pedestrians our participants occupied marginal spatial locations in the transport environment within which they experienced motorists as dominant. Motorists showed little regard for traffic regulations, and assumed right of way at intersections, even when it was the pedestrians' turn to cross the road:

At the junction, say if you go, you're supposed to pass, there are cars maybe in the same direction, whatever. So if it's like busy, lots of cars, even if the robot is green, they just go (Johannesburg Respondent Number Two).

So if you have to think of crossing a road, even at a legal crossing, nobody would stop at the stop line. So if you want to cross, and you really don't know how many people (referring to motorists) will actually stop at the red light (Delhi Respondent Number Two).

The Delhi participants emphasised that they experienced strong feelings of insignificance on the roads and felt that they were disregarded by other motorised road users. In highlighting the dominance of motorised vehicles some of the Johannesburg participants regarded motorised vehicles as preferable modes of transport over walking. Alongside the physical difficulties experienced in crossing the roads due to the dominance of motorised transport, participants found their respective road environments to be crowded and noisy. Both the Johannesburg and the Delhi participants placed a strong accent on the volume of traffic and people on the road:

I mean, generally, roads are not well maintained and there are, you know, potholes in between. Although, I mean, general cleanliness is not bad, I mean not all areas but most of the areas and then, as I, apart from that, you know, congestion, very clear congestion, traffic congestion and... (Delhi Respondent Number Five).

Everybody's in a hurry, and in their own rush, we're bumping into each other, and people are full in the streets, I hate that (Johannesburg Respondent Number One). I just feel there's so much congestion, you know... everyone's hooting and noise, there's cursing (Johannesburg Respondent Number Four).

Even though population is far more concentrated in Delhi than in Johannesburg, for both groups of our respondents congestion, over-crowding, and noise and air-pollution including unhygienic conditions (e.g. littering) on the streets placed limits on their sense of personal and psychological space which in turn evoked intense psycho-emotional discomfort, stress and fatigue and worry about possible deleterious health effects:

I thank God that I didn't get killed by a bus or I didn't get touched by a van. And I'm sure that's the road that gives me that fear, you know (Delhi Respondent Number Four).

Even if you're walking, you might have to be just pushed out, even at a foot path, as you know, it's not allowed, the pavement or something like that. So it, it's a struggle, trying to get through (Delhi Respondent Number Two).

It's impinging on my right to fresh air... my right to live in peace (Delhi Respondent Number Four).

Oh, that really is troublesome even when I'm standing and waiting, or if I'm walking, maybe noises in particular of vehicles or honking or what is it, some kind of automobile which has got a lot of smoking, it definitely does affect me (Delhi Respondent Number Nine).

3.1.2. *Vulnerability to crime and victimisation: A gendered dimension*

In addition to over-crowding, congestion and pollution, the threat and fear of crime and victimisation placed further burden on the respondents' physical and psychological space even though the nature of crime varied across the two cities. In Delhi our participants tended to be exposed to relatively minor and infrequent

incidents of purse and jewelry snatching and regular harassment by men. In contrast, our Johannesburg participants expressed concern about the commonplace threat and exposure to muggings, armed robbery and other serious violent crimes. All of the Johannesburg participants perceived the threat of crime to be a major constraining issue in their pedestrian experiences and expressed feelings of fear and a lack of overall safety when walking in the streets of Johannesburg:

Ja. I even have a fear that, ok, I'm walking along, in the morning I walk along. And I walk and I think, ok, I'm walking in the street, it's quite busy, what if somebody just pulls up or comes and just tells me, look give your gun, um, give me your bag and what not. Ok, that's real scary, you know (Johannesburg Respondent Number One).

And the problem is walking back, if you've got classes late or you play a certain sport, it's not safe to walk at night, because, ja, it's not very safe. You sometimes walk into some guys who demand your cell phone or your money (Johannesburg Respondent Number Two).

I'm always afraid, especially because sometimes like, I like get off school late, like about five o'clock and I have to walk alone its kind of scary (Johannesburg Respondent Number Six).

The Johannesburg participants' fearfulness on the streets and mistrust of other road users, had a substantial basis in reality as half of the respondents were direct victims of crime, ranging from being pick-pocketed to being robbed at gunpoint:

...so I was like going with some friends and when I was in Wanderers (Street) they took my jewelry...and they just took everything, they pointed with a gun and took everything (Johannesburg Respondent Number Seven).

It was in Jo'burg, the CBD, Joubert Park, the small park in Joubert Street. Ja they came to me and they asked for my phone. And I told them that I didn't have one and they told me that they weren't kidding, they wanted my phone and they saw that I had one. So I just gave it to them (Johannesburg Respondent Number Five).

I just like I was walking and then one guy came and then he pretending like he's asking me a question like, 'Where can I find the lane?' and he actually just wanted to stop me so that his friend could come in-between. And then take my phone (Johannesburg Respondent Number Three).

The Delhi participants also expressed concerns about criminal victimisation on the streets related to "chain snatching" (Delhi Respondent Number Seven), and other minor incidents of theft, however their vulnerabilities to criminal victimisation mainly centred around their exposure to "eve-teasing". The variety of unwelcome behaviours including lascivious stares, suggestive and lewd remarks, and men's attempts to make physical contact generated intense mistrust, fear, helplessness, humiliation, and a sense of being objectified among our women participants in Delhi:

It's humiliating. It's like you, you're used and somebody looks at you like a, I mean, to be very frank it's like you're just a breast and vagina, and without any brain (Delhi Respondent Number Four).

The Delhi respondents indicated that exposure to "eve-teasing" occurred on a fairly frequent basis, and so evoked an overall wariness and suspicion among our women participants about men on the streets:

I definitely don't trust the mentality of Indian men (Delhi Respondent Number Two).

The culture here is totally, I want to use the word nauseating. I mean, especially as regards the male, it concerns male members. I mean, wherever you go, it's not only in the street, when you travel in the buses or, you know, even busy market places and all that. Nowhere it has, have I come across, you know, a very comfortable atmosphere or a proper or decent atmosphere (Delhi Respondent Number Five).

I think the people are, let's say, unnecessarily take advantage of you. So I never sit, even if I have to sit, like if there is a place beside a man, I would prefer to stand, I won't sit (Delhi Respondent Number Six).

Because then you feel that there is nobody here and if there are five, six, there's a group of boys around or there's just absolutely nothing, and there's nothing, nothing around. You want to get out, because that does not make you feel safe. That something wrong that might happen here, it's not very comfortable (Delhi Respondent Number Two).

Similarly, in view of the perceived and real threats of crime, the Johannesburg participants were particularly concerned about their vulnerability as women in the traffic environment. They felt they were much "weaker" and expressed worry that "women get mugged easily and raped" (Johannesburg Respondent Number Ten). Many of our Johannesburg respondents thought that fewer male pedestrians were victimised compared to women. A few of the respondents felt that the onus was on women to take responsibility for their own safety, especially if they did not want to be judged as persons who brought on attacks to themselves:

In my area people they usually say that, 'oh, you're asking for it, I wouldn't be surprised if you come back home saying you were raped, with that mini skirt' (Johannesburg Respondent Number Five).

I mean you know as a woman, you know if it's a woman they know you're supposed to be in a group or get a guy that's going to walk with you. So if you walk on your own, you also think as a woman, 'Oh my gosh, I've just asked to whatever happens to me' (Johannesburg Respondent Number Four).

But then, I think, ja, no no, in a way, with women, it is actually a problem because they think, ok this is a woman, guys just bump into you and expect you to be like... I'm sorry I particularly don't like that, you know. So ja maybe in a way it is a bit different for women than it is to guys because guys can actually stand their ground because they're a bit bigger and taller than us (Johannesburg Respondent Number One).

While they recognised that women were being blamed for the violent sexual attacks, the participants nonetheless explained that they took the necessary precautions which included the adoption of certain dress codes in order to avoid unwanted attention:

And I've also found you can't really be yourself, you have to, kind of in a way, dress down. You know, you cannot wear gold jewelry, or you know what I'm saying. You have to kind of substitute whatever you've got with something that's, you mustn't stand out in the crowd. You feel as at times you have to try to look normal to the people around you. Or even less, go unnoticed, if possible, so to say (Johannesburg Respondent Number Four).

Especially if you know, sometimes wearing a mini skirt it can cause problems because the drivers will be "oh, hi baby" and stuff like that (Johannesburg Respondent Number Five).

3.1.3. Mobility and coping strategies

Our participants' mobility patterns seemed to have been constrained and influenced by the coping strategies they were required to assume in response to the fairly unaccommodating traffic environment characterised by dominant motorised vehicles, pollution, crowding and victimisation related to sexual harassment and crime.

The Johannesburg participants indicated that the practice of "jaywalking", albeit a transgression of road regulations, was for them a common means of overcoming hazards presented by over-crowding, congestion, and inaccessible road environments:

And you know the thing that you cross robots without actually taking note of the robots if it's red or green? (Johannesburg Respondent Number Five).

...sometimes you even avoid the robots (traffic lights), because they are not helping (Johannesburg Respondent Number Two).

In order to prevent criminal victimisation the Johannesburg participants preferred busy areas in the downtown city centre, avoided places they perceived to be unsafe and walked with friends whenever possible as they experienced safety in numbers:

Because I prefer Park Station because it's safer there because there's more people than this other side, up here in Braamfontein, because it's quiet (Johannesburg Respondent Number Eight).

So to be safe to walk around you have to walk around with some guy especially at night. It's safer if you walk with a guy. You know that, ok, not much can happen if I'm walking with somebody (Johannesburg Respondent Number Two).

Like it's safer, you know, like you feel safe, because we're in a group, so ja, they will be scared to like approach us (Johannesburg Respondent Number Six).

Similarly, in an attempt to avoid petty crime and in particular sexual harassment, the Indian women in Delhi avoided walking after dark, attempted to ignore men and their lewd remarks, and often maintained physical proximity from men on the streets. In addition, a few of the Delhi women indicated that they were prepared to use retaliatory self-defensive strategies, including openly and assertively confronting eve-teasers or violent aggressors:

I'm very careful if someone, I'm walking on the road, I know that if a person, if someone is coming near me, I'm very much unsure that if he do anything with me, I'll give him a big bite (Delhi Respondent Number Three).

I am an expert in kicking and annoying people (Delhi Respondent Number Two).

You get defensive . . . You've, the very fact that I carry a knife with me when I go on the road shows how insecure I am (Delhi Respondent Number Four).

3.1.4. Walking as time and energy consuming

Since respondents faced a physically and psychologically challenging traffic environment their pedestrian experiences were rendered time and energy consuming. Walking including coping responses to hindrances, presented by over-crowding and the fear of victimisation, tended to place enormous demands on our respondents' physical resources, often leaving them fatigued and stressed:

Somehow I'm investing some more of my energy into that, you know, even if I am stressing or if I'm trying not to get into it . . . most of the time it's unproductive. It goes into a waste (Delhi Respondent Number One).

Anyway, you do get tired. Your body gets tired like to walk on the streets. You know, especially for me as a student, I do need like my energy. So, it's not like nice to walk. Because like you arrive tired (Johannesburg Respondent Number Three).

So, but for me the problem is to walk, walking, for me to walk because I get tired (Johannesburg Respondent Number Eight).

So time, I don't want to waste, you know, any extra time on the road because it's not a very pleasant experience (Delhi Respondent Number Five).

4. Discussion

4.1. From meanings to interpretations

Unlike definitions that tend to reduce the pedestrian experience to a physical activity, the meaning units that emerged from our phenomenological approach suggest that walking as a mode of transport, vis-à-vis

being pedestrian is a complex experiential phenomenon that involves more than the use of public space for the purposes of travel. As a phenomenon the pedestrian experience for the participant-students involved concerns about violent crime, sexual harassment, over-crowding and pollution. The students' pedestrian experiences encompassed all of the dimensions discerned to constitute the core of human psychology: identity, space, mobility, bonding, time, and energy (Bulhan, 1985). Extrapolating from several writings including Pretty and colleagues' (2003) view that "place identity develops from acts of locating oneself within environmental contexts throughout daily routines as well as during exceptional circumstances" (p. 275), the daily activity of walking and the experience of particular environments as related to the dominance of motorised vehicles, over-crowding, pollution, sexual harassment and crime influenced our participants' implicit sense of identity. The respondents in our study appear to have experienced themselves as the dominated "other" and "weaker sex", whose needs for spatial accessibility, mobility and social interaction were subordinated to those of motorised vehicles, and whose safety was compromised by criminals and males who tend to engage in victimising behaviours against women. Resonating with other research findings (Day, 2000), a subordinated "place identity" may be indicative of the internalisation of vulnerability arising from repeated exposure to uncompromising traffic environments, patriarchal dominance, sexual harassment and crime. Whereas for the Johannesburg women the constant fear and threat of sexual and other crimes evoked a sense of vulnerability, for the Indian women repeated exposure to sexual harassment in the form of "eve-teasing" evoked humiliation and fear and sometimes a readiness to take self-defence retaliatory actions against the perpetrator. While the expressed vulnerability of the students in Johannesburg may be fully appreciated in the context of the murder and violence rates in that city, the high level of reported subjective vulnerability to threats of violence by the student-participants in Delhi, where official statistics reveal low levels of violence compared to Johannesburg, may be better understood within the firm possibility that certain types of victimisation such as harassment in public are under-reported (Keane, 1995). Subtle forms of sexual harassment, which includes unwelcome sexual remarks and touching, are not always taken into consideration in official statistics (Keane, 1995; Ramasubramanian & Oliver, 2003; Vander Ven, 1998). The low official priority accorded to the prevention of rape and sexual harassment, police inaction and insensitivity, and the absence of surveillance are among the many factors that discourage women from reporting instances of sexual violation to the police (Baxi, 2003).

Fears of victimisation among the Johannesburg group also highlight the constraining influences of real or perceived crime on pedestrian behaviour in a city that experiences high levels of crime. For the Delhi women, threats of sexual harassment alongside extreme over-crowding and pollution in a heterogeneous traffic environment, raised issues about the health and status of women in gendered societies, where many women tend to be subjected to specific cultural norms defining their social roles and public location (Manzo, 2003; Mazumdar & Mazumdar, 1999).

Ross (1993) suggests that social factors such as the threat of crime and anxiety about the impact of other negative experiences (e.g. sexual harassment, over-crowding) may also have serious behavioural consequences if and when fear decreases the pedestrians' overall mobility and inclination to walk. To the extent that women may construct their physical space as a "unit of environmental experience" (Pretty et al., 2003, p. 274) fear of victimisation appears to have a greater inhibitory effect on female pedestrian behaviour than that of men and, as was the case with our participants, women may tend to use temporal (e.g. avoiding walking at night) and spatial (e.g. change of route) coping strategies in order to deal with the stress of such fear (Keane, 1998; Vander Ven, 1998). The fear of victimisation and the sense of being the subordinated "other" may render women unwilling to make full use of their surrounding environment, impacting on their sense of freedom, mobility and enjoyment in the public arena (see Day, Stump, & Carreon, 2003).

Even though certain places may provide opportunities for increased social contact and foster a sense of community (Pretty et al., 2003; Robertson, 1994; Untermann, 1984), the nature of the traffic and social environments that our respondents report being exposed to may ultimately, as Ross (1993) detected elsewhere, influence the pedestrians' social interactions and bonding experiences. In Johannesburg, the fear of victimisation through crime seems to restrict social contact especially when pedestrians tend to avoid walking at night, avoid strangers and curtail their social activities. Similarly our Delhi respondents' worry about sexual victimisation is echoed by Baxi (2003) who described how Delhi university students follow a "rape schedule" which entails restricting their movement and time on the campus on a daily basis so as to avoid the places and times that they perceive as dangerous. With specific reference to Delhi it has been argued that the gendering of pub-

lic spaces has divided the city into permissible spaces and sexualised zones where women are extremely vulnerable to various forms of sexual crimes including rape (Baxi, 2003). When female pedestrians due to financial constraints have no choice other than to walk as in Delhi and Johannesburg, they employ other coping strategies including working in groups and physical retaliation. However, ultimately the effect of either avoidant or protective behaviour is to further alienate female pedestrians from the social world in the larger traffic and public environment. We may surmise from our own data that fear of walking may in fact inhibit women's socialising and employment seeking behaviours, and their use of public transport since each public transport trip involves two walking access trips.

Likewise, it should be noted that even though walking as a form of exercise has numerous health benefits for the individual (Ross, 1993), such benefits may be restricted, in traffic and socio-cultural environments like Johannesburg and Delhi, characterised by sexualised and high-crime zones, and motorised forms of transport emitting carbon dioxide and toxic pollutants (Roberts, 1998).

5. Conclusion

Although the range of findings we present here do not make the reported pedestrian experiences reflective of a large set of pedestrian travel experiences (either for Delhi or Johannesburg), the study does allow us to regard the results as general trends and hypotheses that can be investigated further through larger follow-up studies. The main value of the study is that it alerts us to the hidden dimensions inherent in the female students' pedestrian experiences. Walking was a complex phenomenon that encompassed concerns about safety (e.g. sexual harassment, crime, violence), space (e.g. over-crowding), health (e.g. pollution and noise), and constraints on mobility, and identity. The female students felt that their needs were subordinated to the interests of motorised vehicles. Walking, as a complex phenomenon, was shown to be more than a form of transport in the public space. So it would be instructive to investigate whether the experiences reported in this study are also those of larger representative sampled groups of other marginalised (e.g. cyclists, two-wheelers) and frequently maligned groups (auto-rickshaws, mini-van taxi drivers) within the public transport and social environment.

When we focus on the road cultures of Johannesburg and Delhi, as experienced by our participants, our findings seem to support the call made to urban designers and transportation planners to take cognisance of heterogeneous traffic patterns and mixed land use patterns in Delhi in particular (Patel, Tiwari, & Mohan, 1994), the gendered and sexualised nature of public spaces (Baxi, 2003), and the overall vulnerability of women to crime, violence and sexual harassment. So it may be that urban planners in both cities need to consider developing safer roads and public spaces in collaboration with the public safety and crime prevention departments within a multi-sectorial integrated planning approach. Pedestrians' traffic related safety and mobility may be attained through temporal separation (e.g. pedestrian crossings, traffic calming measures, traffic lights), that integrates pedestrians with vehicular traffic, horizontal separation (e.g. sidewalks, city layout) that separates pedestrians from motorised traffic and vertical separation that includes foot bridges and under-passes (Ribbens, 1996). Public safety and security may be promoted by measures like better lighting, visible policing, and embedded and natural forms of surveillance such as transparent front shop windows which allow store owners to look out onto the streets. The presence of vendors who are the "eyes" of the street may be untapped resources in our attempts to prevent sexual harassment and crimes in public. City planners and law-enforcement agencies are challenged to pay special attention to the prevention of rape and sexual harassment and address social practices that perpetuate the division of public spaces into sexualised zones and objectify women's bodies (Baxi, 2003). Whereas infrastructural measures may help to increase pedestrian mobility and traffic related safety and enhance resistance to sexual harassment, the two cities may also need to introduce psycho-educational programmes and public campaigns to prevent the aggressive expressions of masculinity and promote gender and social equality between the sexes.

In summary, our study offers insights into possible trends and hypotheses that need to be investigated further to garner evidence to support the call for greater linkages between transportation planning and urban design and between public safety and transport safety interventions and to create greater awareness among policy-makers about the multi-dimensional experiences of pedestrians in large rapidly expanding cities such as Johannesburg and Delhi.

Acknowledgements

We thank all the participants and Dr. Biswajit Mohanty who graciously helped to recruit students in Delhi. The study was formulated during the first author's tenure as visiting professor at the Indian Institute for Technology, New Delhi.

References

- Abantanga, F. A., & Mock, C. N. (1998). Childhood injuries in an urban area of Ghana: A hospital-based study of 677 cases. *Pediatric Surgery International*, 13(7), 515–518.
- Agran, P. F., Winn, P. G., Anderson, C. L., & Del-Valle, C. (1998). Familial, social, and cultural factors in pedestrian injuries among Hispanic children. *Injury Prevention*, 4(3), 188–193.
- Askoxford.com. (n.d.). Retrieved October 18, 2004. Available from <http://www.askoxford.com>.
- Baxi, P. (2003). *Rape and Delhi's urban environment*. Retrieved August 8, 2004. Available from <http://www.indiatogether.org/cgi-bin/tools/pfriend.cgi>.
- Bowman, B., Seedat, M., & Lekoba, R. (2002). *Unisa at the crossroads: A pedestrian safety risk assessment*. Occasional Paper: Unisa Institute for Social and Health Sciences.
- Boyce, T. E., & Geller, E. S. (2000). A community-wide intervention to improve pedestrian safety: Guidelines for institutionalising large-scale behaviour change. *Environment and Behaviour*, 32(4), 502–520.
- Budd, J. M., & La Grow, S. J. (2000). Using a three-dimensional interactive model for teaching environmental concepts to visually impaired children. *Review*, 32(2), 83–94.
- Bulhan, H. A. (1985). *Frantz Fanon and the psychology of oppression*. New York: Plenum Press.
- Butchart, A., Kruger, J., & Lekoba, R. (2000). Perceptions of injury causes and solutions in a Johannesburg township: Implications for prevention. *Social Science and Medicine*, 50(3), 331–344.
- Census of India 2001 census. (2001). Retrieved October 18, 2004. Available from <http://www.censusindia.net/>.
- Cox, A. (2004, September 23). Upmarket suburb residents resist high density housing [Electronic version]. *The Star*.
- Cross, D., Hall, M., & Hawat, P. (2002). Using theory to guide practice in children's pedestrian safety education. *American Journal of Health Education*, 34(5), 42–47.
- Day, K. (2000). The ethic of care and women's experience of public space. *Journal of Environmental Psychology*, 20, 103–124.
- Day, K., Stump, C., & Carreon, D. (2003). Confrontation and loss of control: Masculinity and men's fear in public space. *Journal of Environmental Psychology*, 23, 311–322.
- Delhi Traffic Police road accidents and prosecution. (n.d.). Retrieved October 18, 2004. Available from <http://www.delhitrafficpolice.nic.in/road-accidents-and-prosecution.htm>.
- De Veause, N., Kim, K., Peek-Asa, C., McArthur, D., & Kraus, J. (1999). Driver compliance with stop signs and pedestrian cross-walks on a university campus. *Journal of American College Health*, 47(6), 269–274.
- Dunbar, G., Hill, R., & Lewis, V. (2001). Children's attentional skills and road behaviour. *Journal of Experimental Psychology*, 7(3), 227–234.
- Dunbar, G., Lewis, V., & Hill, R. (1999). Control processes and road crossing skills. *Psychologist*, 12(8), 398–399.
- Dunbar, G., Lewis, V., & Hill, R. (2002). Parent-child interaction and road behaviour: An exploratory study. *British Journal of Developmental Psychology*, 20(4), 601–622.
- Expert Committee on Auto Fuel Policy. (2002). Study Reports. Government of India, Delhi. vol. 1, pp. 1–395.
- Foot, H. C., Chapman, A. J., & Wade, F. M. (1982). Pedestrian accidents: General issues and approaches. In A. J. Chapman, F. M. Wade, & H. C. Foot (Eds.), *Pedestrian accidents* (pp. 1–37). Chichester: John Wiley.
- Giorgi, A. (1997). The theory, practice and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology*, 28(2), 235–260.
- Giorgi, A. (2002). The question of validity in qualitative research. *Journal of Phenomenological Psychology*, 33(1), 1–18.
- Gotz, G., & Landau, L. (2003). Forced migrants in the new Johannesburg: Towards a local government response. *Forced migration working paper series 6, forced migration studies programme*. Retrieved October 13, 2004. Available from <http://www.wits.ac.za/fmsp>.
- Harre, N. (2003). Discrepancy between actual and estimated speeds of drivers in the presence of child pedestrians. *Injury Prevention*, 9(1), 38–41.
- Hasselberg, M., Laflamme, L., & Weitof, G. R. (2001). Socio-economic differences in road traffic injuries during childhood and youth: A closer look at different kinds of users. *Journal of Epidemiology and Community Health*, 55(12), 858–862.
- Hijar, M. C., Kraus, J. F., Tovar, V., & Carrillo, C. (2001). Analysis of fatal pedestrian injuries in Mexico City, 1994–1997. *Injury*, 32(4), 279–284.
- Ivey, G., & Simpson, P. (1998). The psychological life of paedophiles: A phenomenological study. *South African Journal of Psychology*, 28(1), 15–20.
- Keane, C. (1995). Victimisation and fear: Assessing the role of offender and offence. *Canadian Journal of Criminology*, 37, 431–455.
- Keane, C. (1998). Evaluating the influence of fear of crime as an environmental mobility restrictor on women's routine activities. *Environment and Behaviour*, 30(1), 60–74.

- Komanoff, C., Roelofs, C., Orcutt, J., & Ketcham, B. (1993). *Environmental benefits of bicycling and walking in the United States. Transportation research record no. 1405: Pedestrian, bicycle and older driver research*. Washington: National Academy Press.
- Lam, L. T. (2001). Parental risk perceptions of childhood pedestrian road safety. *Journal of Safety Research*, 32(4), 465–478.
- Lemon, N., & Taylor, H. (1997). Caring in casualty: The phenomenology of nursing care. In N. Hayes (Ed.), *Doing qualitative analysis in psychology* (pp. 227–243). Hove: Psychology Press.
- Lesley, G. (1995). Enhancing the daytime conspicuity of pedestrians through the use of fluorescent materials. *Color-Research and Application*, 20(2), 117–123.
- Luoma, J., Schumann, J., & Traube, E. C. (1996). Effects of retro reflector positioning on night time recognition of pedestrians. *Accident Analysis and Prevention*, 28(3), 377–383.
- Manzo, L. C. (2003). Beyond house and haven: towards a revisioning of emotional relationships with places. *Journal of Environmental Psychology*, 23(1), 47–61.
- Matzopoulos, R. (2002). A profile of fatal injuries in South Africa: Third annual report of the National Injury Mortality Surveillance System. Tygerberg: Medical Research Council.
- Mazumdar, S., & Mazumdar, S. (1999). Women's significant spaces: Religion, space and community. *Journal of Environmental Psychology*, 19, 159–170.
- Miles-Doan, R. (1996). Alcohol use among pedestrians and the odds of surviving an injury: Evidence from Florida law enforcement data. *Accident Analysis and Prevention*, 28(1), 23–31.
- Mohan, D. (2002). Traffic safety and health in Indian cities. *Journal of Transport and Infrastructure*, 9(1), 79–92.
- Mony, P., Krishnan, R., & Joseph, A. (2002). Using qualitative research to address road transportation and safety issues in Vellore town, South India. *Injury Control and Safety Promotion*, 9(2), 137–140.
- Mullen, B., Copper, C., & Driskell, J. E. (1990). Jaywalking as a function of model behaviour. *Personality and Social Psychology Bulletin*, 16(2), 320–330.
- Mutto, M., Kobusingye, O., & Lett, R. (2002). The effect of an overpass on pedestrian injuries on a major highway in Kampala—Uganda. *African Health Sciences*, 2(3), 89–93.
- National Crime Records Bureau Crime in India. (2002). Retrieved October 18, 2004. Available from <http://ncrb.nic.in/crime2002/cii-2002/home.htm>.
- Olufemi, O. (1998). Street homelessness in Johannesburg inner-city: a preliminary survey. *Environment and Urbanisation*, 10(2), 223–234.
- Ouis, D. (2001). Annoyance from road traffic noise: A review. *Journal of Environmental Psychology*, 21, 101–120.
- Patel, R., Tiwari, G., & Mohan, D. (1994). *Introduction to traffic calming*. New Delhi: Centre for Biomedical Engineering.
- Peden, M., Scurfield, R., Sleet, D., Mohan, D., Hyder, A., Jarawan, E., & Mathers, C. (2004). World report on road traffic injury prevention [Electronic version]. Geneva: World Health Organization.
- Petit, J. (2002). Characterising travel behaviour as a social experience. *Recherche Transports Sécurité*, 76, 190–207.
- Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology*, 23(3), 273–287.
- Ramasubramanian, S., & Oliver, M. B. (2003). Portrayals of sexual violence in popular Hindi films, 1997–99. *Sex Roles: A Journal of Research*, 48(7), 327–336.
- Ribbens, H. (1996). Pedestrian facilities in South Africa: Research and practice. *Transportation Research Record*, 1538, 10–18.
- Roberts, I. (1998). Reducing road traffic: would improve quality of life as well as preventing injury (Editorial). *British Medical Journal*, 316, 242–243.
- Robertson, K. A. (1994). *Pedestrian malls and skywalks: traffic separation strategies in American downtowns*. Aldershot: Avebury.
- Ross, C. E. (1993). Fear of victimisation and health. *Journal of Quantitative Criminology*, 9(2), 159–173.
- Ruback, R. B., Pandey, J., & Begum, H. A. (1997). Urban stressors in South Asia: Impact on male and female pedestrians in Delhi and Dhaka. *Journal of Cross Cultural Psychology*, 28(1), 23–43.
- Silvers, R. J. (1982). A silence within phenomenology. In V. Darroch & R. J. Silvers (Eds.), *Interpretive human studies* (pp. 231–248). Washington: University Press.
- South African Police Services crime statistics. (n.d.). Retrieved October 18, 2004. Available from http://www.saps.gov.za/statistics/reports/crimestats/2004/crime_stats.htm.
- Statistics South Africa census 2001. (2001). Retrieved October 18, 2004. Available from <http://www.statssa.gov.za/census01/html/default.asp>.
- Stones, C. R. (1986). Phenomenological praxis: A constructive alternative in research in psychology. *South African Journal of Psychology*, 16(4), 117–121.
- Sullivan, J. M., & Flannagan, M. J. (2002). The role of ambient light level in fatal crashes: Inferences from daylight saving time transitions. *Accident Analysis and Prevention*, 34(4), 487–498.
- Taylor, N. (2003). The aesthetic experience of traffic in the modern city. *Urban Studies*, 40(8), 1609–1625.
- Tiwari, G. (2000). Traffic flow and safety: Need for models for heterogeneous traffic. In D. Mohan & G. Tiwari (Eds.), *Injury, prevention and control* (pp. 71–88). London: Tyler & Francis.
- Untermann, R. K. (1984). *Accommodating the pedestrian: Adapting towns and neighbourhoods for walking and bicycling*. New York: Van Nostrand Reinhold.
- Vander Ven, T. M. (1998). Fear of victimisation and the interactional construction of harassment in a Latino neighbourhood. *Journal of Contemporary Ethnography*, 27(3), 374–398.

- Weber, J. E., Maio, R. F., Blow, F. C., Hill, E. M., Barry, K. L., & Waller, P. F. (2002). Alcohol and/or drug use among adult non-occupant motor vehicle crash victims. *Alcohol and Alcoholism*, *37*(5), 468–471.
- Wigan, M. (1995). *Treatment of walking as a mode of transportation. Transportation research record no. 1487: Non-motorized transportation research, issues and use*. Washington: National Academy Press.
- Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and method*. Buckingham: Open University Press.
- Wolfinger, N. H. (1995). Passing moments: Some social dynamics of pedestrian interaction. *Journal of Contemporary Ethnography*, *24*(3), 323–340.
- Yagil, D., & Aberg, L. (2000). Beliefs, motives and situational factors related to pedestrians' self reported behaviour at signal-controlled crossings. *Transportation Research—Part F: Traffic Psychology and Behaviour*, *3*(1), 1–13.
- Zajac, S. S., & Ivan, J. N. (2003). Factors influencing injury severity of motor vehicle-crossing pedestrian crashes in rural Connecticut. *Accident Analysis and Prevention*, *35*(3), 369–379.
- Zeedyk, M. S., Wallace, L., & Spry, L. (2002). Stop, look, listen, and think? What young children really do when crossing the road? *Accident Analysis and Prevention*, *34*(1), 43–50.