

Transport Disadvantage and Gender Issues in South Asian Countries: A Systematic Literature Review

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Abstract:

Mobility is experienced differently by women and men, as they use different modes of transport for different purposes and in different ways depending on their socially determined reproductive, productive, and community related gender roles. Women's transport needs in south Asia are hardly sufficiently documented, let alone adequately addressed by transport planners and providers. A literature search was undertaken of the data bases, Google Scholar, JSTOR: Journal Storage, SpringerLink, SCOPUS and GEOBASE for papers published for different years. The search terms were 'gender', 'transport', 'mobility', 'travel behaviour', 'Transport Poverty', 'public transport accessibility and affordability', 'transport facilities', 'disadvantages', 'transport constraints', 'public transport'. The literature review revealed the unique barriers regarding transport accessibility as well as transport disadvantages that face urban and rural women in south Asia. This systematic review will help transport planners identify, design, and assess gender-responsive transport projects in order to solve the transport burden of south Asia.

Keywords: Women and Transport, Gender Issues, Travel Behaviour, Transport Disadvantage, Transport Poverty

1. INTRODUCTION

South Asia is the least urbanized sub region in Asia with an average urbanization rate of 32.2% in 2010, it is home to 4 of the 10 fastest-growing cities of the world— Delhi, Dhaka, Kolkata, and Mumbai (ADB, 2013). South Asia is going through a historic transition from a primarily rural and agrarian economy to an urban society (UN-HABITAT, 2007). However, South Asia female labour force participation is significantly increasing day by day. For example, female labour force participation is high in Nepal – 83% of women work, and paid employment for women outside of agriculture rose from 15% to 19% over the period 1998 to 2008. These new levels of participation in the workforce, as well as increasing educational levels, mean that women must be more mobile and independent in their travel (World Bank, 2015). However, the widening gap in the provision of infrastructure between rural and urban areas, as well as increasing congestion, pollution, and traffic accidents in the context of rapid urbanization, the transportation system is unable to keep pace with the access and mobility requirements of the population, particularly the needs of the female subpopulation.

Women in South Asia are responsible for a disproportionate share of the household's transport burden while at the same time having more limited access to available means of transport. For example, in Pakistan, 58 percent of births in villages with road access were assisted by a skilled attended, compared with 39 percent for women without road access (Babinard and Roberts, 2006). Poor connectivity is one of the factors that contribute to

household poverty, restricting access to markets and basic services (Lucas, 2004; Norman, 2013). That is why, transport should be seen as a service, which can reduce poverty by increasing economic efficiency and enhancing opportunities.

Transport infrastructure and services are often incorrectly considered “gender neutral” (ADB; 2013). It is often assumed that transport projects equally benefit men and women, that there is no significant difference in their travel patterns, modes of transport access, and utilization of transport infrastructure and services (Graeco, 2002; Peters, 2002; Moser and Moser, 2005; SIDA, 2005; van Riet, 2008; IFRTD 2010). In fact, mobility is experienced differently by women and men, as they use different modes of transport for different purposes and in different ways depending on their socially determined reproductive, productive, and community related gender roles. Women’s and men’s relative economic and social status and livelihoods also influence their different transport needs and utilization of transport services (ADB, 2013). However, inequitable distribution of benefits from improved transport exacerbates gender and income disparities. Transport planning in South Asia and other regions does not routinely address gender issues and sex disaggregated data is limited as is gender and transport expertise. Especially surprising is perhaps the lack of hard evidence on the variation of rural and urban women transport disadvantages in South Asian countries. The research should take into account a systematic literature review about the transport disadvantages and related gender issues in the south Asian countries.

To address this challenge, it is important to first understand the state of gender and transport in South Asia. A systematic review has been conducted to answer the following research questions:

- What research has been undertaken about the women’s transport disadvantages in urban and rural settings in South Asia?
- What is the state of gender and transport in South Asia?

2. METHODOLOGY

2.1 Search Strategy

The review began with a systematic search of the literature. Published studies were identified through searches of Google Scholar, JSTOR: Journal Storage, SpringerLink, SCOPUS and GEOBASE databases for different years. Keyword, title and abstract information were used. The main search terms were ‘gender’, ‘transport’, ‘mobility’, ‘South Asia (name of individual country)’ ‘travel behaviour’, ‘Transport Poverty’, ‘public transport accessibility and affordability’, ‘transport facilities’, ‘disadvantages’, ‘transport constraints’, ‘sexual harassment in public transport’. In addition, the list of references from review papers and articles included in this study and other relevant articles systematically reviewed. The focus of this review was to specifically address the unique barriers regarding transport accessibility as well as transport disadvantages that face urban and rural women in south Asia. The search was restricted to published articles written in English up to December 2016 and references cited in relevant articles were also searched.

2.2 Inclusion Criteria:

A priori inclusion criteria were established. To be eligible for inclusion, studies had to be primary research articles specifically addressing gender mobility and their transport disadvantages in south Asia. All types of women’s transport disadvantages, travel behaviour,

rural-urban movement problems of women related to transport accessibility as well as affordability were potentially eligible for inclusion.

2.3 Exclusion Criteria:

Studies were excluded if they did not focus on the transport disadvantages of women in south Asian countries, or if they addressed only gender mobility without recording transport issues. Studies were also excluded if they commented on the impact of different transport intervention, or reduction of transport poverty, or transport policy and transport planning in the future addressing gender. Published abstracts without complete articles were excluded because of the inability to obtain detailed information regarding specific women's transport barriers. In addition, unpublished studies, abstracts, dissertations, theses, book chapters and studies published in nonpeer-reviewed journals were not considered.

2.4 Results:

A total of 47 papers on relevant subjects were identified from the search strategy of which 10 were excluded because they did not meet inclusion criteria and 37 papers were considered for final review. This resulted in 135 citations of relevance to problems associated with women's transport disadvantages in South Asia.

3. SYSTEMATIC LITERATURE REVIEW: RESULTS AND FINDINGS

Transport and mobility have an important role to play not only in helping to meet women's practical needs such as access to maternal healthcare, but also in contributing to the strategic empowerment of women through promoting access to employment and socio-political development (Bamberger *et al.*, 1999). Transport research evidence highlighting differences in the availability, usage patterns, and burden of transport between men and women is already abundant, and still growing. Over the course of the last decade, transport planners, geographers, economists and policy makers all over the world have increasingly recognized that the differences in travel and activity patterns between men and women are a central and recurring feature in transportation systems all over the world. A growing body of academic literature has emerged over the last few years addressing the complex relationships between transportation/mobility and gender, both in developed (Rosenbloom, 1993; Terlinden, 1994; Hamilton *et al.*, 1991; Jones, 1990; Little *et al.*, 1989; Grieco *et al.*, 1989) and developing countries (Turner and Fouracre, 1995; Levy 1992; Fernando, 1997;).

There are some notable gaps in the literature of gender mobility and their transport disadvantages in developed and developing countries. The vast majority of gender aware transport research and development projects in less-developed countries have focused on the rural realm. Most of it has concentrated on Sub-Saharan Africa (Barwell, 1996; Barwell *et al.*, 1993; Dawson and Barwell, 1993; Howe and Bryceson, 1993; Barwell and Malmberg-Calvo, 1989; Doran, 1996; Malmberg-Calvo, 1994), and to a much lesser extent on other locations in Africa, in Asia or Latin America (IFRTD, 2010; Ahmed, 2000).

However, the bulk of previous work on gender and transport in developing countries focused on rural travel and infrastructural development (Uteng, 2011). Initial research focused on the travel needs of rural women, based on observations that rural travel is dominated by walking and head-loading done by women in the course of household maintenance, and that greater availability of intermediate vehicles such as wheelbarrows and bicycles could save them large amounts of time and energy (Riverson and Carapetis, 1991; Bryceson and Howe, 1993). Besides highlighting the specific problems faced by women in the rural context, these and other

studies also highlighted the extent to which common cultural norms and practices can lead to similar experiences in more urban environments (Venter *et al.*, 2007). However, there have been a few recent research and/or development projects that have specifically looked at the issue of gender and mobility in the urban realm, most notably in the context of the World Bank's Urban Transport Projects in Dhaka, Bangladesh (Shefali, 2000; Paul-Majumder and Shefali, 1997), in Ashgabat, Turkmenistan and in Lima, Peru (Gomez, 2000). The British Transport Research Laboratory also sponsored several studies, such as Astrop's (1996) study on Pune, India. Women's transport disadvantage in developing countries including south Asia in rural and urban areas are not as well understood.

The current knowledge gap needs to be bridged and tools will have to be designed using information about how women act and interact with transport systems, the natural environment and the socio-economic and traditional context. The purpose of this study is to explore the transport disadvantages and related gender issues in South Asian countries through systematic literature review. The study also aims to identify the current state of transport system and associated problems in the study area.

3.1 Travel Behaviour and Patterns:

Over the past several decades, there has been an increase in the literature on the gender differences in travel behaviour (Letherby and Reynolds, 2009; Gustafson, 2006; Clifton and Dill, 2005; Rosenbloom, 1993; Tivers, 1985; Giuliano, 1979; Forer and Kivell, 1981; Lopata, 1980). The differences in men's and women's travel behaviour and attitudes were recognized long ago (Thynell, 2016; Hasson and Polevoy, 2011; World Bank, 2015). The travel patterns of women differ from those of men (World Bank, 2015). These differences are linked to gender inequality within the home and the labour market, urban and rural structures, and the processes of socialization and education. In addition, the literature on gender differences in travel-activity patterns has documented many significant and interesting differences among women and among men, for example, by age, marital status, income, place of residence, mode used on the work journey and so on (Curtis and Perkins, 2006; Rosenbloom, 2006; Shearmur, 2006).

Travel behaviour is disaggregated both at the levels of income and gender. Productive and reproductive gender roles are increasingly becoming physically separated in urban contexts. Urban Women, particularly in manufacturing and service sector jobs, are commuting more for work, with long commuting times disadvantaging their family commitments. In some contexts, women may also have to commute with their children into urban areas to bring them to and from school. Hence, women's urban mobility often depends on service reliability, scheduling, affordability, and physical and personal safety of public transport (ADB, 2013). In addition, economically-oriented approaches tend to stress women's inability to pay for better transport as one of the main reasons for gendered travel patterns. In some rural areas, women's mobility patterns are closely associated with collection of water and fuel (e.g., firewood) for daily household consumption, which is both physically challenging and time-consuming (Venter, *et al.*, 2007). In some scenarios, women can face forced mobility where essential services are absent in order for them to carry out their daily gender roles. For example, inadequate water and sanitation in low-income communities may mean that women have to make long trips to access and collect water (ADB, 2013). Lack of mobility disadvantages women workers disproportionately. In Delhi, when 700,000 squatters resettled on the periphery of the city, female employment fell 27 percent because travel time increased three-fold. Male employment in the same location only decreased by 5 percent (GTZ, 2007). Mobility seems to be less negotiable for women, whose time burden is greater and whose employment may also be seen to be less of a priority in the household.

Women's willingness to pay was substantially higher than their current expenses on transport, suggesting that women may very well be interested in special services. According to the World Bank gender and transport study in Dhaka, women's mean monthly travel expenditures were Tk.167, as opposed to Tk.377 for men, and while men's averaged willingness to pay was actually lower than their current averaged expenditures, women were prepared to pay an average of 226, that is an additional Tk.59 per month on transport (Paul-Majumder and Shefali, 1997).

A review of the literature indicates similar travel patterns for women, whether they live in developed or developing countries, in large cities, suburbs, or rural areas (Hasson and Polevoy, 2011). Women's trip scheduling and trip chaining are more complex (Gordon *et al.*, 1989; ADB, 2013) and heterogeneous than men's (Meloni and Spissu, 2009); less likely to have a mobile workplace (Hanson and Pratt, 1995); they are also less likely to engage in work-related overnight travel (Presser and Hermsen, 1996; Malgieri, *et al.*, 2012) women are more likely to use public transportation especially when they are lower-income (Peters, 1999; World Bank, 2010; Rosenbloom, 2006; Venter, *et al.*, 2007; Malgieri, *et al.*, 2012; Turner, 2012; Rahman and Islam, 2013; Thynell, 2016), engage in more non-work travel (Vance and Iovanna 2007), and make more multi-stop journeys, travelling off-peak hours with greater variety of destinations than men's (Astrop, 1996; Vasconcellos, 1998; Abidemi, 2002; Anand, 2002; Hasson and Polevoy, 2011; Malgieri, *et al.*, 2012; Thynell, 2016), travel less after dark (Hamilton *et al.*, 2000; Golden, 2008; Scottish Executive Central Research Unit, 2000), run household errands and escort other passengers (Murakami and Young, 1997; Root, 2000; McGuckin and Nakamoto, 2005; Crane, 2007).

3.2 Trip Purpose, Distance and Rates

Women's travel is characterized by trip chaining (Peters, 2011; ADB, 2013). Trip chaining is a series of travel segments that follow one another and are anchored by the home and place of work. Trip chains are generally characterized in the literature as travel having stops of less than 30 minutes (McGuckin and Nakamoto, 2005; Hamilton *et al.*, 2000). Trip-chaining of women in South Asia is more complex than that of men, primarily because more of their travel is unrelated to employment. Women's daily trips are a product of their responsibility for multiple tasks connected to caring for their family, as they incorporate stops at health facilities, shopping areas, educational institutions (to escort children), visits to parents, and the like (Blumen, 2007; Thynell, 2016). The Sustainable Development Goal 11 states "When compared to men, women move about cities at different times, for different reasons, in different ways, and have fewer financial resources; they are less able to afford many of the transportation options available to them" (United Nations Chronicle, 2015). In India, in general, women have lower incomes and suffer from spatial constraints and less mobility than men since costs of safe and secure transport are too high for them (Tiwari, 2014). In Delhi, for example the relocation of squatter communities to the outer periphery of the city has been especially damaging to women's ability to earn a living. Female unemployment in these locations rose by 27% compared to 5% for men (Moser and Peake, 1987).

The major reason that women travel is to get to work or a place of education (Behrens, 2004; Tara, 2011). Their travel behaviour therefore relates to the location and forms of available employment—formal, informal, part-time, unskilled, self-employment (Momsen, 1991; Hanson, 1996; Hanson and Pratt, 1995). Other factors that influence women's mobility are responsibility for caring for children or elderly or infirm relatives (Camstra, 1996; Hanson, 1996). Furthermore, because a larger proportion of women are employed in low-wage professions (care giving, secretarial work, service work), it does not make economic sense for

them to travel great distances to work (Wachs, 1998). For example, many households in Pakistan are willing to nominate female members for vocational training, but transport to the trainings is an important constraint to doing so (Cheema *et al.*, 2012). In Pakistan and Bangladesh, putting female-specific transportation in place, or easing entry for women into sectors where working is acceptable, may constitute an important policy option for increasing Female Labour Force Participation (ADB, 2015). A poor access to transport resources and the resultant time–poverty circumscribes employment options at shorter distances from home. Their ability to alleviate poverty is severely curtailed by their limited mobility and the constrained accessibility to the transport system of the city (Jain, 2013).

Trip rates typically decline with increasing distance from the city centre, suggesting that outlying low-income (non-car-owning) residents find it harder to substitute walk trips with other modes, and subsequently travel less (Venter *et al.*, 2007). It appears that leisure and social trips, in particular, are repressed if public transport is not available or expensive. Women in central locations with better accessibility are more likely to both make more trips and travel farther for work trips (Jain, 2013). In the case of Chennai (India), living in a central zone allowed for more parity in the travel costs and times of men and women (Srinivasan, 2004; Srinivasan and Rogers, 2005). Travel behaviour of residents who are otherwise very similar (in terms of socioeconomic status) is likely to be different if they live in locations with differing employment and transportation opportunities (Moser and Peake, 1987; Turner and Fouracre, 1995; Abidemi, 2002).

3.3 Modal Choices of Transport

The distinction between the rural and urban transport poor is somewhat problematic. It is well known that in many cases strong links exist between urban and rural areas – people migrate, temporarily or permanently, and income and resource flows within and between households cross rural-urban boundaries. Nevertheless, people’s opportunities for sustainable livelihoods do differ depending on their urban or rural location.

Urban public transport in south Asia is mainly comprised of buses, while rail-based public transport exists primarily at the intercity level. Some cities have supplemented the intercity railway by urban rail network (like Mumbai), and few cities have recently embarked upon BRT, Metro, Light rail and other forms of multimodal public transport systems. Public transport systems are usually complemented by taxis, autos and NMTs (public modes like rickshaws, pedicabs, rehri, thela or push cart), buggy/tonga or animal-drawn carts, inland boats and ferry and private ones such as walking, bicycles, roller-skates/ skateboards etc.) (Peters, 2002; Jain, 2013). In addition, less than half of the major roads in most Indian cities have pavements, and those that exist are frequently occupied by street vendors, encroached upon by shop premises, or blocked by parked cars, motorcycles and bicycles (TEPA and JICA, 1992; Malik, 2004; World Bank, 2015).

Women and men make different use of a shared system of transportation (Transgen, 2007; Hasson and Polevoy, 2011). In urban areas, low income women spend more time travelling on slower modes of transport to access work, and a significantly higher percentage of trips are made by foot than men (Sarmiento, 1998; Anand and Tiwari, 2006, Srinivasan, 2004, Tanzarn, 2008; Thynell, 2016); as women live in closer proximity to their jobs due to their time constraints and reduced access to a private car (Turner, 2012; Olde-Kalter *et al.*, 2009; Duchene, 2011; Hamilton *et al.*, 2000; Golden, 2008).

For many women in developing countries including south Asia, walking remains the predominant mode of travel, particularly in rural areas, because other transport modes are often not available, are too expensive, or are located too far away from home for women to access.

In some contexts, women and children head-loading may also act as a form of freight transport for agricultural production (World Bank, 2010; ADB, 2013). In addition, where women do use vehicles or transport services, they are more heavily reliant on slower, non-motorized transport (NMT) or intermediate modes of transport (IMTs, such as bicycle, cycle, motorbike-taxi, tricycle, rickshaws, and animals or animal-drawn carts). For example, in Pune, almost 20% of women reported using bicycles at least at some time, compared to about 70% of men. Still, cycle trips only account for about 2% of female and 12% of male trips in Pune (Astrop, 1996; Peters, 2002). A recent study estimates that in Rajkot (Gujarat) 22 per cent of trips (400,000 passengers per day) are by Chakda (3 wheeled, diesel powered auto rickshaw) catering mainly to the urban poor, working class, women and children.

3.4 Public Transport Participation

Women make up the majority of the users of informal transport, such as mini bus, vans, three wheelers etc. These also connect the peri-urban and congested neighbourhoods that are otherwise inaccessible or are not served by buses (Jain, 2013). Urban women are also more likely to walk than men, but are heavily reliant on public transport systems to carry out their multiple gender roles. Vulnerability of pedestrians to accidents and personal violence particularly affect women, children, and the elderly, and may deter trip-making (World Bank, 2015). In Chennai, 83% of women walked to work, compared with 63% of men (Uteng, 2011). In a Delhi slum, 52% of women walked to work, compared with 26% of men (Anand and Tiwari, 2006). In Chengdu, 59% of women walked, compared with 39% of men; 32% of men and 19% of women cycle (Uteng, 2011). In Dhaka, 71% of women workers made 1–2 trips per day, 7% made 3–4 trips per day (Zohir, 2003). Factory women walk 4–5km each day. Without effort they have formed a line. This is why they are so visible. They form the silver lining of a road. They walk to save daily commuting costs. The situation is worse at night because of the fear of being raped. This adds mental stress to physical stress (Abser, 2000). Other surveys show that women tend to choose less polluting forms of transport than men and it is well known that public transport is often preferred by women if it is safe (Thynell, 2016). The lack of safe, reliable transport may prevent women from joining the labour force or to work as much as they would like, as is the case in villages in Pakistan and Afghanistan and in other cities across Asia (Hasson and Polevoy, 2011).

3.5 Transport Burden

The travel patterns of women are influenced not just by the roles of women in modern society as mothers and primary caregivers, but also by barriers – physical, environmental, or technological – that impede access to public transportation (Hasson and Polevoy, 2011). It is not only the availability, but also the quality and safety/security, of transport infrastructure which is important for women's mobility and travel pattern (Emond *et al.*, 2009). Much of the gender and transport literature shows that poor women often face a higher transport burden than men: when they do travel, women often travel for longer distances, use more inconvenient and physically exhausting modes, and spend more time doing it. In cities the situation can be as bad, for example, poor women on the outskirts of Calcutta, India, who travel into the city for work spend almost 12 hour a day outside their homes; their trips include 90 min of walking on average and 1 hour simply waiting for rail or bus services (Mukherjee, 2002).

In both rural and urban areas women tend to face higher mobility constraints due to the demands on their time from their multiple roles in 'production' (as workers), 'reproduction' (responsible for child care and managing the household), and 'community management' (responsible for maintaining community and social networks) (Moser, 1993; Malmberg-Calvo

and Venter, 1994; Grieco *et al.*, 1989; Mashiri, 2001; Bryceson and Howe, 1993; Venter *et al.*, 2007). The nature and extent of the mobility constraints faced by women depend on factors such as cultural attitudes (including practices of female seclusion), household structure, and household size (Venter *et al.*, 2007).

3.5.1 Multiple roles and time poverty

Women have less access to funds and less access to personal means of transport such as bicycles, motorcycles or cars. As a result they may be more inclined to walk than men for shorter journeys and they may use public transport more than men when the latter have the option of private transport (Starkey and Hine, 2014). In general women do not travel as far as men for work. Poorer women tend to find work closer to home, often in the informal sector, such as street vendors, looking after children, working as domestic servants or doing jobs like office cleaning or working in a factory (Zhong *et al.*, 2003).

Transport arrangements in peripheral urban areas do not suit women's needs since they may have to visit scattered facilities and public transport service frequencies are less. Furthermore the fare structure makes multiple stops more costly, making it difficult to combine household errands (Booth *et al.*, 2000). Turner and Grieco (2000) argued that because of their more complex multi-purpose trips women are 'time poor' and face many more constraints than men in fitting their busy schedules into the day. In the Sanjay slum of Delhi, a study by the United Nations Human Settlements Programme (UN-HABITAT) found 75% of men working within 12 kilometers of their homes, while women worked within 5 kilometres of their homes, indicating their mobility constraints due to household responsibilities, cultural norms, and unsafe and inaccessible transport services. The stress of commuting often takes a toll on their health and well-being, as well as that of their families, as they are left with a lack of time to interact and provide care for their families. Women commuters had many suggestions for improvement, including more buses/trains, a double-decker train, dual tracks for two-way journeys, better street lighting, cemented walkways, roadside toilets, more direct bus routes, new roads to shorten journeys, and more women-only compartments (Mukherjee, 2002).

3.5.2 Poverty, access and isolation

Poverty tends to correlate with rural isolation, the poorest people having least access to transport networks (Booth, *et al.*, 2000; Porter, 2002). As such, they are forced to rely on options such as walking and cycling, often over long distances and in unsafe conditions. A study in Bangladesh found that in some cases, gains from rural road projects were significantly higher for poor than non-poor. Evidence from Nepal showed that while many of the benefits from transport infrastructure would go to poor households, they would not be large enough, or targeted efficiently enough to appreciably reduce income inequality in the area (Jacoby, 2000).

Regarding mode use, studies across several countries have shown that women are more likely to walk or use public transport than men and less likely to have access to a private car (Turner and Fouracre, 1995) in urban settings. The fact that public transport is often less than satisfactory on non-radial and non-peak routes, on which women rely more than men, can severely limit the time available for other activities (Bamberger *et al.*, 1999; Fernando and Porter, 2002). On the other hand, a great deal of the transport time of rural women is spent on paths close to the village that are used to access water, fuel wood, fields, pastures and village amenities (Mehretu and Mutambirwa, 1992; Bryceson and Howe, 1993; Fernando and Porter, 2002; Lema, 2007). Footpaths are also the main way in which most rural women start their journeys to connect to the road network, transport services and towns. The problems and the

isolation of rural people can be exacerbated by poor footpath condition and/or the lack of bridges that would allow the safe crossing of rivers (Starkey *et al.*, 2013).

3.5.3 Poor infrastructure and limited transport services:

In both rural and urban settings, poor infrastructure and limited transport services constrain male and female mobility but women face additional socio-cultural constraints. Rural women are responsible for nearly all the domestic tasks such as processing food, providing firewood and water, and caring for the young, elderly, and sick (Malmberg-Calvo, 1994; Peters, 2002; Peters, 2011; IFRD, 2010; Porter, 2002). Women can travel alone by foot in the village but they can only travel in covered motorized vehicles with a male family member. The further a women travels the greater her obligation to travel with an escort. A study of transport infrastructure in Asia found that, while all villages surveyed had primary schools, many students had to travel outside of the village for post-primary education. Children, in particular adolescent girls, may be prevented from attending school because of parental fears for their safety on the journeys between school and home (Porter, 2002). Thus Investments in transport and infrastructure more broadly may facilitate the improvement and equity of health and education services. In Pakistan, poverty and poor rural connectivity were correlated, with the lowest income quintile having, on average, poorer access. Twenty percent of villages in Pakistan were not connected by all-season roads and this lack of connectivity was correlated with lower school attendance (particularly for girls), less immunisation and poorer maternal health statistics (Essakali, 2005). Shrestha and Workman (2008) identified transport problems as a major cause of peri-natal mortality in the hills of Nepal (where most journeys were on foot) and with worst outcomes among the most disadvantaged ethnic groups (thought to be associated with insufficient money and lack of awareness). A UNICEF study found that when 700,000 squatters were resettled on the periphery of Delhi, male employment increased by 5%, while female employment fell by 27% because their travel time to their old jobs increased threefold (WHO and UNICEF, 2010).

3.5.4 Social and cultural constraints

In south Asian rural settings, male-dominated prevailing local cultures also tend to portray women's use of bicycles as inappropriate and unwomanly, branding the more daring, dissenting women as "loose," "behaving like men" and "unfit for marriage" (Grieco *et al.*, 1995, Overton 1996). The mobility of rural Afghan females is limited by social constraints while that of males was limited by unreliable transport, poverty, and a lack of opportunities. A survey carried out in 2008, found that high poverty, poor security, and unreliable, irregular transport constrain rural mobility. Girls cannot not travel to school outside of their villages; boys can but often drop out to work. Women's access to health services is limited to childbirth and they travel in passenger cars. Men, boys, and girls' access health services for various ailments, using various modes of travel but girls, unlike boys, never travel alone. Public transport services are externally managed and not trusted (Ahmed, 2009; Holste, 2009).

Use of particular transport services will be affected by culturally-prescribed gender norms, e.g. by whether it is acceptable for women to travel on bicycles or public buses, and whether particular institutions – for example, *purdah* – restrict women's mobility. Gender relations determine whether men or women gain from new transport infrastructure and transport services, e.g. by affecting which market and non-market activities become less time-consuming as a result of better transport conditions and improved mobility. For example, it is quite possible for women in Pune (India) to ride bicycles. Yet while just under 70% of men regarded it as a "safe" mode, less than half of all women thought so. Women also rate bicycles as less acceptable

and less comfortable compared to men. Even 24% of the females who did use bicycles in Pune (India) named lack of safety as a major concern, and another 28% of them thought was “uncomfortable.” Still, over 50% of all women and over 60% of all men regarded bicycles as an “acceptable” mode of transport in Pune (Astrop, 1996).

In many cities and towns with large Muslim populations, the social institution of *pardah* (sometimes also spelled *purdah*) refers to the practice of gender-segregating access to public areas, with certain Muslim societies even more strictly stipulating against any mixing of nonrelative females and males in public. This makes it extremely difficult if not impossible for women to share crowded public transport with men, resulting in additional calls for women-only train cars and/or women-only bus services in many Muslim cities (Paul-Majumder and Shefali, 1997). In Dhaka, Bangladesh, where *pardah* is key factor of public life, women heavily rely on cycle rickshaws for convenient door-to-door travel. In December 2002, as part of the World Bank-funded Dhaka Urban Transport Project, cycle rickshaws (responsible for 20 per cent of all trips) were banned from several major routes to improve conditions for motorized transit (responsible for under 10 per cent of all trips) which negatively effects the urban women, especially since bus drivers gave preferential service to men (Zohir, 2005). Improved mobility for women can make a significant difference in their ability to effectively manage their time, access services, and increase social interaction. Cultural barriers to women’s cycling exist in some regions in south Asia.

3.5.5 Lack of employment in transport sector

Labour-based road schemes can bring social benefits to women, in addition to short-term incomes. The employment of women for road construction and maintenance within community-based organisations and small-scale contractors may improve their social standing and offer entrepreneurial opportunities (ILO, 2010). Concrete examples of this have been provided from Nepal (Starkey *et al.*, 2013), but men are still the main beneficiaries of these jobs. Women who do benefit from these employment opportunities often face a double burden, with responsibilities to both work and family (ADB, 2012; World Bank, 2015). Similarly, the Bangladesh Second Rural Infrastructure Improvement Project specifically targeted poor rural women for employment creation and income generation, by providing them with training and pilot contracts to plant, nurse, and protect roadside greenery along a specified section of the road during and after the road construction period (ADB, 2006).

3.5.6 Inaccessibility in public transport

In many Asian cities women spend a large part of each day in public space, travelling on buses and trains or walking and bicycling on roads (Thynell, 2016). With the rapid entry of women into the urban workforce, problems of taunting and harassment in public spaces, euphemistically called ‘eve teasing’ in India, have been on the rise. In India, the number of working women has doubled in the last 15 years, and reports of violence and abuse against women have been on the increase (Peters, 2011). Therefore, women can be deterred from using public transport, or even travelling on foot if they do not feel safe. They may not want to wait for public transport for fear of harassment and therefore are less likely to use services with a random or unreliable schedule. Reliable return services home are particularly vital (ADB, 2013). Bus stops that are outside residential areas, in bad or remote neighbourhoods, or in empty parking lots all affect a woman’s decision about how and when to use public transportation (Scottish Executive Central Research Unit, 2000; Transgen, 2007; Golden, 2008; Todes *et al.*, 2009).

The lack of safe, reliable transport may prevent women from joining the labour force or to work as much as they would like (Mehndiratta and Quiros, 2014), as is the case in villages in Pakistan and Afghanistan and in other cities across Asia. In Dhaka, for instance, 75 percent of the people on the streets are men and amongst other things this, reflects the lack of safety and security for women (Kahn, 2009). Unsafe roads and the price of travel are often strong deterrents for women to use transport. For instances, the World Bank supported the National Transport Management Strategy of Nepal to better understand women's needs in transport through a field-based study in 2012. A 2013 survey showed that 26% of female respondents aged between 19 and 35 had experienced some form of sexual assault on public transport. The study found perceived heightened risk and lack of safety for both women and men using rapid transit after dark and in the early morning, especially while waiting for and walking to buses. One in four women and one in ten men in the study reported "inappropriate touching" on public transport. Young women also reported experiencing a range of harassment and abuse, including touching by older men and verbal harassment from young men (World Bank Group and Australian Aid, 2013). As a solution, in Dhaka and New Delhi, men and women travel separately in taxis and on public transport. Some big cities offer women-only services, or 'pink solutions' and provide buses or metro cars exclusively for women and children (Peters, 2011). Whether segregating the population is a good solution has been debated and questioned by many, however, as a temporary measure, it increases women's mobility in settings where they are constantly targets of sexual harassment and assaults (Uteng, 2011).

3.5.7 Lack of safety and security

Safety issues hit women more intensely than men. Safety concerns can be broadly divided at two levels: first is the case of poor physical infrastructure provision (absence of footpaths, poor location of bus shelters, absence of street lightings etc.); the second case concerns sexual harassment on public transport services or walking down poorly lit streets, subways, connecting path between the slums and bus stops etc. remains a common theme in many developing countries. The case of Bangladeshi garment workers is an appropriate example, where movement-related fear is pervasive and one of the biggest quoted concerns (Anand and Tiwari, 2006; Tazarn, 2008).

Women's use of public space or public transport is often contested. A study from Delhi shows that 85 per-cent of women reported having faced harassment or violence in public space (Jagori and UN Women, 2011). In 2012, the rape and murder of a woman on a bus in New Delhi brought the media's attention to the traditional treatment of women (Roychowdhury, 2013) in public transport. In New Delhi, 54 percent of women reported feeling unsafe when using public transport (Jagori and UN Women, 2011). Poor lighting, poor infra-structure, absence of footpaths, overcrowded or deserted streets, lack of toilets or bus stops and car parks that lack guards all make walking unsafe for women, especially during the night. For instance, women find it difficult to use bicycles due to fear of harassment, hooting or personal security (Maunder *et al.*, 1999; Jain, 2013). There may also be little accommodation for the needs of pedestrians. Weak law enforcement may also make public space insecure, particularly for women (Thynell, 2016). Another problem is that the frequency of bus services, route options and stop locations may not respond to women's needs. For example, South-East Asian cities have the highest ratio of buses per 1,000 residents, followed by Latin America, Africa and South Asia, but maximum are not gender responsive.

3.5.8 Sexual harassment on public transport

Risks of sexual harassment, gender-based violence and crime are major constraints on urban female mobility, education, and economic opportunities, particularly in the urban periphery

(World Bank, 2010). Women may also face issues of sexual harassment when travelling on public transport and they may feel more vulnerable when walking or waiting for transport at night in poorly lit areas (Starkey and Hine, 2014).

Sexual harassment of women on public transport is a widespread problem within South Asia, which creates a variety of negative impacts, including physical and psychological harm, limitation of access to the wider public sphere, and entrenchment of gender differences within society. As a result of the threat of Violence Against Women (VAW), women identify dangerous areas, routes and time periods to avoid, which is used to justify the restriction of their movements and the creation and maintenance of male-dominated areas (Koleska, 1999; Mitra-Sarkar and Partheeban, 2009), which ultimately means that many women spend their lives under "a virtual curfew" (Pain, 1997; Koskela, 1999). In terms of sexual harassment in the context of public transport, ActionAid (2011) highlights several variants experienced by women in Nepal, which include groping, teasing, verbal humiliation, staring, whistling, public exposure, masturbation, intimidation, vulgar comments and humiliation. This illustrates the wide variety of sexual harassment offences that women are exposed to within an environment that may be considered every-day, or even mundane. The 2006 Delhi Human Development report notes that macho behaviour from police, bus drivers and bus conductors, among others, has created a feeling of vulnerability in women (Government of NCT of Delhi, 2006). However, in a survey of women in Chennai, where only 8 per cent of women experiencing sexual harassment asked a ticket checker or conductor on the bus to intervene on their behalf, 44 per cent of those women found these individuals to be helpful when they sought assistance (Mitra-Sarkar and Partheeban, 2009).

4. DISCUSSION AND CONCLUSION

The conclusions and other elements in this systematic review may well be subject to further discussion and can be used to derive subjects for further research.

Firstly, this systematic review highlights that women are particularly vulnerable to the risks associated with the way transportation is planned, designed and implemented in south Asia, hence exacerbating transport poverty in south Asia. Inadequate transport services restrict women's opportunities for employment and access to markets and put them at risk of sexual harassment in overcrowded buses and trains. Further research should consider gender-responsive physical design features and gender-specific planning of mass transit rail or bus infrastructure systems which can improve transport service accessibility, safety and security, convenience, and affordability.

Secondly, the review confirms that gender analysis are vital to understand the nature of transport disadvantage and take into account men's and women's different perspectives, needs and priorities in designing and implementing transport development policies and projects. Women and men have contrasting needs and constraints and are affected differently by transport services. Well-designed gender-responsive transport services can (i) improve women's access to education, health, and social services; (ii) provide easier and faster access to markets and employment; (iii) improve mobility and time savings for women; (iv) reduce workload and improve welfare; (v) increase returns with higher usage uptake as women are often the main users of public transport; and (vi) better respond to demand for all users, both men and women.

Thirdly, from a policy perspective, the review has resulted in findings that have clear implications for future research. It is now apparent that women transport constraints have not been adequately investigated in previous research. Transport planning and policy should

consider gender perspectives such as separate buses or female sections; ensure well-lit stations, bus stops, and surrounding areas for security and safety; consider separate seating spaces at stations, especially in some cultural contexts; assess affordability of transport services and multimodal ticketing; consider bus and train schedules that meet needs of both women and men (during peak and off-peak hours) etc.

Finally, and most importantly, the results of this analysis have implications for the development of better strategies for eliminating present transport constraints within south Asia. Making transport planning and policy more responsive to the needs of women requires developing a structured approach to understanding their needs, identifying instruments to address those needs, analysing the costs and benefits of those instruments, and establishing an appropriate policy framework.

To that end this systematic review will help transport planners identify, design, and assess gender-responsive transport projects in order to solve the transport burden of south Asia.

5. REFERENCES

- Absar, S.S. (2000) Conditions, concerns and needs of garment workers in Bangladesh, *Development Bulletin 51*, pp. 82-84.
- Abidemi, A. (2002) Gender differences in intra-urban travel behaviour: A preliminary survey in Ibadan, Nigeria. A.A. Balkema Lome — 12-15 November 2002.
- ActionAid (2011) Women and the City: Examining the Gender Impact of Violence and Urbanisation. A Comparative Study of Brazil, Cambodia, Ethiopia, Liberia and Nepal, ActionAid International.
- ADB (2006) Bangladesh: Second Rural Infrastructure Improvement Project. Manila.
- ADB. (2012) Bangladesh: Greater Dhaka Sustainable Urban Transport Project. Manila.
- ADB (2013) Gender Tool Kit: Transport. Accessed here: <http://www.adb.org/sites/default/files/gender-tool-kit-transport.pdf>.
- ADB (2015) Women in the workforce: An unmet potential in Asia and the Pacific, Mandaluyong City, Philippines: *Asian Development Bank*, 2015.
- Ahmed, M. (2009) Gender Sensitive Access and Mobility in Afghanistan. *National Rural Access Program*. World Bank, South Asia Sustainable Development, Transport Unit.
- Ahmed, N. (2000) Study on Gender Dimension in Rural Roads and Markets Improvement and Maintenance Project. [sic] *Consultant Report*. Washington, DC: The World Bank.
- Anand, A. (2002) Access to livelihood and the inherent mobility issues for poor women in Delhi, in: Godard and I. Fatonzoun (Eds.) *Urban Mobility for All*—Proceedings of the Tenth International CODATU Conference, pp. 67–72 (Lisse, the Netherlands: A. A. Balkema).
- Anand, A., Tiwari, G. (2006) A Gendered Perspective of the Shelter–Transport–Livelihood Link: The Case of Poor Women in Delhi. *Transport Review*. 16 (1). pp. 63–80.
- Astrop, A. (1996) Urban Travel Behavior and Constraints of Low-Income Households and Females in Pune, India. Proceedings from the Second National Conference on Women's Travel Issues, Baltimore, October. Washington, D.C.: Federal Highway Administration.
- Babinard, J., and Roberts, P. (2006) Maternal and child mortality development goals: what can the transport sector do? Transport paper TP-12, World Bank, Washington DC, USA. 50p. Available at: <http://documents.worldbank.org/curated/en/2006/08/7065270/maternal-child-mortality-development-goalscan-transport-sector>.

- Bamberger, M., Lebo, L., Gwilliam, K., Gannon, C. (1999) Gender and Transport: A Rationale for Action. PREM Notes No. 14, January (Washington, DC: World Bank).
- Barwell, I., Malmberg-Calvo, C., (1989) Makete Integrated Rural Transport Project, The Transport Demands of Rural Household: findings from a Village-Level Travel Survey. (Main Report and Annexes) Geneva: ILO.
- Barwell, I., Tony, A., Strandberg, T. (1993) Local-level Rural Transport in Sub-Saharan Africa, Final Report on Rural Household Travel and Transport Patterns. The World Bank Sub-Saharan Africa Transport Policy Programme (ILO, I.T. Transport Ltd.).
- Barwell, I. (1996) Transport and the Village, Findings from African Village-level Travel and Transport Surveys and Related Studies. Sub-Saharan Africa Transport Policy Program, The World Bank and Economic Commission for Africa (SSATP Working Paper No. 23).
- Behrens, R. (2004) Understanding travel needs of the poor: towards improved travel analysis practices in South Africa, *Transport Reviews*, 24(3), pp. 317–336.
- Blumen, O., (2007). Transportation and Gender: The Trip to Work. Lecture presented to the Women's Budget Forum and the Commission for Form in the Public Transportation System at the Israel Ministry of Transportation, July (Hebrew). <http://wbf.org.il/uploaded/BlumenOgenderandtransportation.pdf>.
- Booth, D., Hanmer, L., Lovell, E. (2000) Poverty and Transport: Report prepared for the World Bank in collaboration with DFID Overseas Development Institute, London, UK 156p. Available at:<http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/3554.pdf>
- Bryceson, D. F., Howe, J. (1993) Rural household transport in Africa: reducing the burden on women? *World Development*, 21 (11): 1715-28. Abstract at: <http://www.sciencedirect.com/science/article/pii/0305750X93900790>
- Camstra, R. (1996). Commuting and gender a life style perspective. *Journal of Urban Studies*, 33, 283-300.
- Cheema, A., Khwaja, A., Naseer, F., Shapiro, J. (2012) PEOB Phase 1 Baseline Household Survey Report, Mimeo, Center for Economic Research in Pakistan.
- Clifton, K. J., Dill, J. (2005) Women's travel behaviour and land use: will new styles of neighbourhoods lead to more women walking?, in: US National Research Council, Transportation Research Board (Ed.) *Research on Women's Issues in Transportation, Report of a Conference, Vol. 2: Technical Papers*, pp. 89–99. Washington, DC: Transportation Research Board.
- Curtis, C., Perkins, T. (2006) Travel Behaviour: A review of recent literature, Working Paper No 3: Travel Behaviour, *Department of Urban and Regional Planning*, Curtin University.
- Crane, R. (2007). Is there a Quiet Revolution in Women's Travel? *Journal of American Planning Association* 73:3. Chicago, Illinois, 299.
- Dawson, J., Barwell, I. (1993) Roads Are Not Enough, New Perspectives on Rural Transport Planning in Developing Countries. London: I.T. Publications.
- Doran, J. (1996) *Rural Transport*. (1996) London: I.T. Publications & UNIFEM.
- Duchene, C. (2011). Gender and Transport. Discussion Paper No. 2011-11. *The International Transport Forum* at the OECD.
- Emond, C.R., Tang, W., Handy, S. L. (2009) Explaining Gender Difference in Bicycling Behaviour. *Transportation Research Record* 2125, 16 - 24.
- Essakali, M. (2005) Rural access and mobility in Pakistan: a policy note. Transport Note TRN-28. World Bank, Washington DC, USA. 8p. <https://openknowledge.worldbank.org/handle/10986/11781>.

- Fernando, P., Porter, G. (eds.), (2002) *Balancing the load: women, gender and transport*. Zed Books, London. 320p. ISBN 1 85649 982. Summary chapter available at: http://www.ifrtd.org/new/res/pubs_btl.htm
- Fernando, P. (1997) *Balancing the Load, Gender issues in rural transport*. London: *International Forum for Rural Transport and Development (IFRTD)*.
- Forer, P. C., Kivell, H. (1981) Space–time budgets, public transport, and spatial choice, *Environment & Planning A*, 13(4), pp. 497–509.
- Grieco, M., Jeff, T., Kwakye, E. (1995) “A Tale of Two Cultures: Ethnicity and Cycling Behavior in Urban Ghana.” *Transportation Research Record No.?*
- Giuliano, G. (1979) Public transportation and the travel needs of women, *Traffic Quarterly*, 33, pp. 607–616.
- Gordon, P., Kumar, A., Richardson, H. (1989) Gender differences in metropolitan travel behaviour, *Regional Studies*, 23, 499-510.
- Golden, S. (2008) *Gender Mainstreaming in Transport for London*. Transport for London.
- Government of NCT of Delhi (2006) *Delhi Human Development Report 2006: Partnerships for Progress*, Oxford University Press.
- Gomez, L. (2000) Evaluation of Urban Transport in Metropolitan Lima - Gender Analysis of December 1997, *Household Survey*. (Draft August 2000). Washington, DC: The World Bank (online under www.worldbank.org/gender/transport).
- Grieco, M., Lauri, P., Richard, W. (1989) *Gender, Transport and Employment*. Aldershot: Avebury Press.
- Graeco, M. (2002) *Gender, Social Inclusion and Rural Infrastructure Services*. Washington, D.C.: World Bank.
- GTZ (2007) *Gender and Urban Transport: Smart and Affordable. Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities. Module 7a*.
- Gustafson, P. (2006) Work-related travel, gender and family obligations, *Work, Employment & Society*, 20(3), pp. 513–530.
- Hamilton, K., Linda, J., Gregory, A. (1991) *Women and Transport: Bus deregulation in West Yorkshire*. Bradford: University of Bradford.
- Hamilton, K., Ryley, H. S., Jenkins, L. (2000) *The Public Transport Gender Audit*. HMSO, London.
- Hanson, S., Pratt, G. (1995) *Gender, work and space*. New York: Routledge.
- Hanson, S. (1996) *The geography of urban transportation*. New York: The Guilford Press.
- Hasson, Y., Polevoy, M., (2011) *Gender Equality Initiatives in Transportation Policy: A Review of the Literature*, Isreal: The Hadassah Foundation. July.
- Holste, S. (2009) *Gender and the Rural Access Program in Afghanistan*. World Bank. Transport Week. Working Session for Transport Task Teams on Gender Mainstreaming. April 13. Washington D.C.
- Howe, J., Bryceson, D. (1993) *Rural Household Transport in Africa: Reducing the Burden on Women?* *African Studies Center*, Leiden, Holland.
- IFRTD, (2010) *International Forum for Rural Transport and Development (IFRTD). Health and Transport: A Pioneering Partnership*. Forum News 15(2) September.
- ILO (2010) *Women in infrastructure works: boosting gender equality and rural development*. Gender and Rural Employment Policy Brief 5, International Labour Organisation, Geneva, Switzerland. 4p.
- Jacoby, H. (2000) *Access to markets and the benefits of rural roads: Volume 1*. World Bank Policy Research Working Paper 2028.

- Jagori & UN Women. (2011) Safe cities free of violence against women and girls' initiative (Report of the Baseline Survey Delhi 2010). New Delhi: Signate G Press.
- Jain, A. K. (2013) Sustainable Urban Mobility in Southern Asia, s.l.: The United Nations Human Settlements Programme, Available at: <http://www.unhabitat.org/grhs/2013>.
- Jones, P. (ed.). (1990) Developments in Dynamic and Activity-Based Approaches to Travel Analysis. Aldershot: Avebury Press.
- Khan, R. (2009) How safe are the walkers in Dhaka City? Paper presented at the 45th ISOCARP Congress 2009, Porto, Portugal.
- Koskela, H. (1999) Gendered Exclusions: Women's Fear of Violence and Changing Relations to Space, *Geografiska Annaler. Series B, Human Geography*, Vol. 81, No. 2 (1999), pp. 111-124.
- Lema C. (2007) Makete Integrated Rural Transport Project: a case study of MIRTTP and its impacts on rural transport policies in Tanzania. *International Forum for Rural Transport and Development (IFRTD)*, London. 55p Available at: [http://www.maketetree.org/docs/Makete Study-Tanzania Case study \(2\).Pdf](http://www.maketetree.org/docs/Makete%20Study-Tanzania%20Case%20study%20(2).Pdf).
- Letherby, G., Reynolds, G. (Eds.) (2009) *Gendered Journeys, Mobile Emotions*. Burlington, VT: Ashgate Publishing Co.
- Levy, C. (1992) The importance of gender in planning urban transport in: *Gender and development, a practical guide*. Edited by Lise Ostergaard. London: Routledge.
- Little, J., Linda, P., Richardson, P. (1989) *Women in Cities - Gender and the Urban Environment*. New York: New York University Press.
- Lopata, H. Z. (1980) The Chicago women: a study of patterns of mobility and transportation, *Signs*, 5, pp. S161–169.
- Lucas, K. (2004) *Transport and social exclusion: A survey of the group of seven nations*. London: FIA Foundation, Transport Studies Group.
- Malgieri, P., Maffi, S., Rosa, C. (2012) *The role of women in the green economy: the issue of mobility*, Brussels: European Parliament, European Union. Accessed at: <http://www.europarl.europa.eu/studies>.
- Malik, Z. (2004) *Mass transit in Karachi: Moving in a right direction*, Islamabad, Presentation in Chartered Institute of Logistics and Transport, Pakistan Annual Seminar, Karachi Mass Transit Cell, City District Government, Karachi.
- Malmberg Calvo, C. (1994) *Case Study on the Role of Women in Rural Transport: Access of Women to Domestic Facilities*. SSATPP Working Paper No. 11.
- Mashiri, M., Venter, C. (2001) *Gender & transport surveys: An assessment of gender neutrality and/or bias in a selected sample of transport surveys*. Gender & Rural Transport Initiative (GRTI), World Bank.
- Mehretu, A., Mutambirwa, C. (1992) *Gender differences in time and energy costs of distance for regular domestic chores in rural Zimbabwe: A Case Study in the Chiduku Communal Area*. *World Development*, 20 (11): 1675-83.
- McGuckin, N., Nakamoto, Y. (2005) *Differences in Trip Chaining by Men and Women*. *Research on women's issues in transportation*. Report of a conference. Vol 2: Technical Papers: 49-56. Transportation Research Board of the National Academies, Washington, D.C., 2005.
- Meloni, I., Bez, M., Spissu, E. (2009) *Activity-Based Model of Women's Activity-Travel Patterns*., *Journal of the Transportation Research Board*. Washington, D.C., 26.
- Mitra-Sarkar, S., Partheeban, P. (2009) *Abandon All Hope, Ye Who Enter Here: Understanding the Problem of "Eve Teasing" in Chennai, India*, *Women's Issues in Transportation*, pp.74-

- 84, Summary of the 4th International Conference, VOLUME 2: TECHNICAL PAPERS', October 27–30, 2009 Irvine, California.
- Momsen, J. H. (1991) *Women and Development in the Third World* (London: Routledge).
- Moser, C., Peake, L. (1987) *Women, human settlements and housing: A conceptual framework for analysis and policy-making*. London: Tavistock.
- Moser, C. (1993) *Gender Planning and Development: Theory, Practice and Training* (London: Routledge).
- Moser, C., Moser, A. (2005). Gender mainstreaming since Beijing: A review of success and limitations in international institutions. *Gender & Development*, 13(2), 11-22.
- Maunder, D. A.C., Pearce, T.C., Babu, D. M., Nyachhyon, N. B. (1999) The safety of public transport services in Nepal and India in an environment of deregulation and privatization, Transport Research Laboratory.
- Murakami, E., Young, J. (1997) Daily Travel by Persons with Low Income, Paper for NPTS Symposium, Bethesda, MD, October 29-31, 1997.
- Mukherjee, M. (2002) From Dawn to Dusk: Transportation of Rural Women to and from the Metropolis: Calcutta, India. In P. Fernando and G. Porter, eds. *Balancing the Load: Women, Gender and Transport*. London: Zed Books.
- Norman, K. (2013) *Social Dimensions of Transport – a resource for Social Impact Appraisals*, s.l.: The Department for International Development.
- Olde-Kalter, Marie-Jose, Lucas, H., Peter, J. (2009) Changing Travel Patterns of Women in the Netherlands. Contribution to 31st Iatur Conference of the International Association for Time Use Research.
- Overton, K. (1996) Using the Bicycle for Women's Empowerment in Africa, *Sustainable Transport*, No. 6, Summer 1996, pp. 6-10. New York: *The Institute for Transportation and Development Policy* (ITDP).
- Pain, R. (1997) Social geographies of women's fear of crime, *Transactions of the Institute of British Geographers*, 22:231- 44.
- Paul-Majumder, Pratima, Shefali, M. K. (1997) Examining Gender Dimension of Transport in Dhaka Metropolitan Area. Consultant Report for the World Bank Dhaka Urban Transport Project, March 1997. Washington, DC: The World Bank.
- Peters, D. (1999) Gender Issues in Transportation: A Short Introduction; Available at: http://www.cityshelter.org/13_mobil/25tend.htm. Accessed on 8 December 2009.
- Peters, D. (2002) Gender and Transport in Less Developed Countries. Paper commissioned by United Nations Environment and Development (UNED) Forum for Expert Workshop on Gender Perspectives for the Earth Summit 2002, January 10-12. Berlin: Germany.
- Peters, D. (2011) Gender and Sustainable Urban Mobility. Thematic Study Prepared for Sustainable Urban Mobility: Global Report on Human Settlements. 2010.
- Porter, G. (2002) Living in a Walking World: Rural Mobility and Social Equity Issues in Sub-Saharan Africa, *World Development*, 30:2, 285-300.
- Presser, H., Hermsen, J. (1996) Gender differences in the determinants of work-related overnight travel among employed Americans, *Work and Occupation*, 23.
- Rahman, R. I., Islam, R. (2013) Female labour force participation in Bangladesh: trends, drivers and barriers, ILO DWT for South Asia and Country Office for India. -New Delhi: International Labour Organization.
- Riverson, J. D. N., Carapetis, S. (1991) Intermediate Means of Transport in Sub-Saharan Africa: Its Potential for Improving Rural Travel and Transport. Technical Paper No. 161 (Washington, DC: World Bank).

- Root, A. (2000) Women, travel, and the idea of 'sustainable transport', *Transport Reviews* 20, no. 3: 369–83.
- Rosenbloom, S. (1993) Women's Travel Pattern at Various Stages of Their Lives. In: *Full Circles: Geographies of Women over the Life Course*, edited by Cindi Katz and Janice Monk. London and New York: Routledge, pp. 208-242.
- Rosenbloom, S. (2006) Understanding women and men's travel patterns: The research challenge. In *Research on Women's Issues in Transportation, Vol. 1: Conference Overview and Plenary Papers*, Transportation Research Board Conference Proceeding 35 (pp. 7-28). Washington DC: National Research Council.
- Roychowdhury, P. (2013) The Delhi gang rape": The making of international causes. *Feminist Studies*, 39(1), 282-292.
- Sarmiento, S. (1998) Household, gender and travel. In *Women's Travel Issues: Proceedings from the Second National Conference, October 1996*. Office of Highway Information Management, pub. no. FHWA-PL-97-024.
- Shefali, M. (2000) Study on Gender Dimension in Dhaka Urban Transport Project. Washington DC: The World Bank (online under www.worldbank.org/gender/transport).
- Shermur, R. (2006) The New knowledge Aristocracy: The creative class, mobility and urban growth. *Work Organization, Labour and Globalization*, 1.
- SIDA (2005) Guidelines for gender mainstreaming. Stockholm, Sweden: SIDA.
- Shrestha, B., Workman, R. (2008) The effects of restricted access on maternal health in remote and mountainous areas of rural Nepal. Final Report. District Roads Support Programme (DRSP) and Rural Health Development Project for International Forum for Rural Transport and Development (IFRTD), London, UK 57p.
- Srinivasan, S. (2004) The influence of location on the travel behavior of women: a case study in Chennai, India. Proceedings of the Transportation Research Board Research on Womens Issues in Transportation Conference, Chicago.
- Srinivasan, S., Rogers, P. (2005) Travel behaviour of low-income residents: studying two contrasting locations in the city of Chennai, India. *Journal of Transport Geography*, Vol. 13 (3): 265-274.
- Starkey, P., Tumbahangfe, A., Sharma, S. (2013) External review of the District Roads Support Programme (DRSP) Final Report. Swiss Agency for Development and Cooperation, Kathmandu, Nepal. 82p.
- Starkey, P., Hine, J. (2014) Poverty and sustainable transport- How transport affects poor people with policy implications for poverty reduction: A literature review, s.l.: UN-Habitat, the Overseas Development Institute (ODI).
- Tara, S. (2011) Private space in public transport: Locating gender in the Delhi metro. *Economic & Political Weekly*, 46(51). Retrieved from <http://www.epw.in/date?e>
- Tanzarn, N. (2008) Gendered Mobilities in developing countries: The Case of (Urban) Uganda, in T.P.Uteng and T. Cresswell (Eds.) *Gendered Mobilities*, (Ashgate: Aldershot).
- TEPA (Traffic Engineering and Transport Planning Agency) and JICA (Japan International Cooperation Agency) (1992) *Comprehensive Study on Transportation System in Lahore*, TEPA, Lahore.
- Terlinden, U. (1994) *Frauengerechte Stadtplanung*. Paper presented at the Wuppertal Institute, Wuppertal, Germany, May, 24th.
- The Scottish Executive Central Research Unit, (2000) *Women and Transport: Moving Forward*.
- Thynell, M. (2016) The Quest for Gender-Sensitive and Inclusive Transport Policies in Growing Asian Cities. *Social Inclusion* (ISSN: 2183-2803), 4(3), pp. 72-82.

- Tivers, J. (1985) *Women Attached: The Daily Lives of Women with Young Children*. London: Croom-Helm.
- Tiwari, G. (2014) Planning and designing transport systems to ensure safe travel for women (Discussion Paper 2014-04). Paris, France: International Transport Forum, OECD.
- Todes, A., Nqobile, M., Amanda, W. (2009) Good Practice in Planning with Gender in the Commonwealth. Paper for the Women in Planning (WiP) Network of the Commonwealth Association of Planners, March 2009.
- Transgen (2007) *Gender Mainstreaming European Transport Research and Policies Building the Knowledge Base and Mapping Good Practices*. University of Copenhagen 2007.
- Turner, J., Grieco, M. (2000) Gender and time poverty: the neglected social policy implications of gendered time. *Transport and Travel, Time and Society*, 9(1): 129-136.
- Turner, J., Fouracre, P. (1995) 'Women and Transport in developing countries' *Transport Reviews*, Vol 15, No. 1, pp 77-96.
- Turner, J. (2012) Urban mass transit, gender planning protocols and social sustainability—the case of Jakarta. *Research in Transportation Economics*, 34, 48-53.
- UN-HABITAT. (2007) *Global Report on Human Settlements 2007: Enhancing Urban Safety and Security*. London and Sterling, Virginia: Earthscan.
- United Nations Chronicle. (2015) Goal 11—Cities will play an important role in achieving the SDGs. UN Chronicle. Retrieved from <http://unchronicle.un.org/article/goal-11-cities-will-play-important-role-achieving-sdgs>.
- Uteng, P.T. (2011) Gender and mobility in the developing world (World Development Report 2012, Back ground Paper. Gender Equality and Development). Washington: The World Bank.
- Vance, C., Iovanna, R. (2007) Gender and the Automobile - an Analysis of Non-Work Service Journeys, Ruhr Economic Paper No. 11.
- Venter, C., Vokolkova, V., Michallek, J. (2007) Gender, Residential Location, and Household Travel: Empirical Findings from Low-income Urban Settlements in Durban, South Africa, *Transport Reviews*, 27(6), pp. 653-677.
- Van Riet, M. (2008) *The Unbalanced Load: Mainstreaming Gender in the New World Bank Transport Business Strategy*. Response for IFRTD. May 22. London: IFRTD.
- Vasconcellos, E. A. (1998) Urban transport and equity: the case of São Paulo, *World Transport Policy and Practice*, 4(1), pp. 9–20.
- Wachs, M., (1998) *The Automobile and Gender*. In *Women's Travel Issues: Proceedings from the Second National Conference*, Report FHWA-PL-97-024, FHWA, U.S. Department of Transportation.
- World Bank (2010) *Gender and Transport in MENA: Case Studies from West Bank Gaza and Yemen*, MENA Knowledge and Learning: Quick Notes Series No. 21.
- World Bank (2010) *Making transport work for women and men: Tools for task teams*. Washington, DC: World Bank. Retrieved from <https://openknowledge.worldbank.org/handle/10986/12555>
- World Bank Group and Australian Aid (2013) *Gender and Public Transport Kathmandu, Nepal*. Kathmandu, Nepal: World Bank, 4.
- World Bank (2015) *Violence against Women and Girls Resource Guide Transport Brief*, the Global Women Institute, October.
- World Health Organization (WHO) and UNICEF (2010) *Progress on Sanitation and Drinking Water: 2010 Update*. WHO, Geneva.
- Zohir, S. C. (2003) *Integrating Gender into World Bank Financed Transport Programs: Case Study, Bangladesh–Dhaka Urban Transport Project*. Available at

<http://www4.worldbank.org/afr/ssatp/Resources/HTML/GenderRG/Source%20%20documents/case%20studies/ICNET%20Case%20Studies%20for%20WB/CSICN5%20BangladeshThirdRural.pdf>.

- Zohir, S. C. (2005) Integrating gender into World Bank-financed transport programs, Case study, Dhaka urban transport project, Bangladesh, The World Bank, Washington, DC.
- Zhong, S., Wei, H., Hou, W., Cheng, D., (2003) A lifetime of walking: poverty and transportation in Wuhan. *Economic Research Institute*, Wuhan University.