



Travel Characteristics of Older and Disabled People in the Colombo District, Sri Lanka

Varuni Tennakoon^{1*}, Roshini Peiris-John², Rajitha Wickemasinghe³ and Shanthi Ameratunga²

¹University of Sri Jayewardenepura, Gangodawila, Sri Lanka

²University of Auckland, New Zealand

³University of Kelaniya, Dalugama, Sri Lanka

*Corresponding author: Email: varuni16email@yahoo.com

1 INTRODUCTION

Abundant opportunities for active travel and social participation confer many co-benefits for the health and wellbeing of older people and people living with disability (Saunders *et al.*, 2013). However, barriers to realising these benefits are common in many low-and middle-income countries.

Sri Lanka reports a growing number of road traffic injuries and fatalities with increased motorization and expanding traffic mix particularly in the district of Colombo (Dharmaratne *et al.*, 2015; Toroyan, 2013). The older people and people living with disabilities are at higher risk of road traffic crashes and injuries (Peden, 2004). According to road crash statistics in 2013, over one-fourth of the fatal crashes were among people 60 years or older in Sri Lanka (University of Moratuwa, 2014).

Compared to many lower-middle income countries, the population of older people in Sri Lanka is greater, and increasing relatively quickly (De Silva, 2007). The World Health Survey conducted from 2002 to 2004 reported a disability prevalence of 12.9% in Sri Lanka and a crude prevalence of disability among adults (aged 50 years and above) of 27.2%

(Hosseinpoor *et al.*, 2016). These trends, when considered in concert with current economic burdens in Sri Lanka, create a strong need to better understand the future mobility needs of these vulnerable road user groups in order to provide cost-effective and safe transportation. The current lack of information on transportation details of older and disabled people is a deficiency addressed by this research.

This study aimed to describe travel characteristics (i.e. modes, purpose, distance etc.) and involvement of road traffic crashes among older and disabled people living in the Colombo district, Sri Lanka.

2 METHODOLOGY

2.1 Study design, setting and participants

A household travel survey was conducted in three purposively selected contiguous Divisional Secretary (DS) divisions of Dehiwala, Ratmalana and Kesbewa in the Colombo district. Study participants were disabled people (aged 5 years and older) with physical, sensory, learning or mobility impairment, and older people (60 years and above).



A total of 180 households were randomly selected from lists maintained at the authorities of Divisional Secretariats. Sixty (60) households in each DS division were identified (30 from the elderly list and 30 from the disabled list) such that 30 households have at least one older person and other 30 have at least one disabled person. Thus a total of 180 households were included. A pilot-tested semi-structured interviewer administered questionnaire was completed at the participants' house following informed written consent. Semi-structured questionnaires are widely used to conduct travel surveys and to identify travel characteristics (Delbosch and Currie, 2010). Ethical approval for this study was granted by the Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura, Ref. 48/16.

2.2 Data analysis

Data were entered in to SPSS software files, entries were verified with original data. Frequency distributions were generated.

3 RESULTS AND DISCUSSION

3.1 Demographic distribution of the study population

The 180 participants were categorized in to three groups for statistical analysis: older people with disability (n=95; 52.8%), older people without disability (n=18; 10%) and other (young or middle-aged) people with disability (n=67; 37.2%). Over 94% of participants lived with their spouses or families. This reflects the socio-cultural background in Sri Lanka that supports the extended family concept. The demographic characteristics of the study participants are shown in Table 1.

Of the people above 60 years, 84% had some kind of disability. The ethnic distribution of the study population which was predominated by Sinhalese may

reflect the general population in the selected DS divisions (Department of Census and Statistics, 2012). However, there could be an underrepresentation of Tamils, Muslims and other ethnic groups in the lists that were obtained for sampling in the study. Nearly 60% of the participants had primary education or less. More than 75% of the study sample earned less than Rs 20,000 per month.

Visual impairments were seen in 39% of older people and learning impairments were seen in 73% of persons under 60 years of age. The type of disability may be a deciding factor influencing travel in this population.

3.2 Travel characteristics

A travel trip is defined for this study as an uninterrupted travel to a specific destination. A 52% of the study population used public bus for travel trips and 28% used the three-wheeler as the mode of transport. Travel characteristics of the study population are shown in Table 2.

A 49% of the study sample has travelled the previous day while a cumulative percent of 82 has travelled within the previous week. Analyses of consecutive 48-hour travel details immediately preceding the date of the interview showed that older people with or without disability mostly travel to participate in a social meeting. Travel purposes common for people less than 60 years were to go to shops, hospital and the school. More than 50% of the travel trips among people living with disabilities were within 1km distance. In contrast, nearly 53% of older people without disability travel within a distance of 10 km. Frequent short trips mainly for social meetings is a commendable trend as it enhances the livelihood and well-being of the participants (Hand, 2015). However, the limited travel trips to distant places may reflect transport barriers these groups encounter.



Table 1: Demographic distribution of the study population

Category		Older people without disability (n=18)	Older people with disability (n=95)	Other people with disability (n=67)
		n (%)	n (%)	n (%)
Gender	Male	13 (72.2)	61 (64.2)	26 (38.8)
	Female	5(27.8)	34 (35.8)	41 (61.2)
Ethnicity	Sinhala	18 (100)	94 (98.9)	60 (89.5)
	Tamil	0	0	4 (6)
	Muslim	0	1 (1.1)	3 (4.5)
Education level	No/Primary	5 (27.8)	57 (60)	45 (67.2)
	Secondary	11 (61.1)	33 (34.7)	6 (8.9)
	Tertiary	2 (11.1)	4 (4.2)	1 (1.5)
	Other	0	1 (1.1)	15 (22.4)
Monthly income	Children (<18)			15 (22.4)
	No income	7 (38.9)	26 (27.4)	14 (20.9)
	Rs 1-20000	9 (50)	50 (52.6)	35 (52.2)
	Rs>20000	2 (11.1)	19 (20)	3 (4.5)
Type of disability*	Visual		37 (38.9)	9 (13.4)
	Speech		7 (7.4)	22 (32.8)
	Hearing		17 (17.9)	10 (14.9)
	Walking		12 (12.7)	21 (31.3)
	Learning		6 (6.4)	49 (73.1)
	Other (arthritis, aches/pain etc.)		48 (50.5)	5 (7.5)

*An individual may have had more than one disability

Table 2: Travel characteristics of the study population

Category		Older people without disability	Older people with disability	Other people with disability
		n (%) (n=18)	n (%) (n=95)	n (%) (n=67)
Mode of transport	Public bus	11 (61.1)	53 (55.8)	29 (43.3)
	Taxi	4 (22.2)	18 (18.9)	29 (43.3)
	Walking	1(5.6)	13 (13.7)	3 (4.4)
	Other	2 (11.1)	11 (11.6)	6 (9)
Last day of travel	Previous day	13 (72.2)	50 (52.6)	25 (37.3)
	Within last week	4 (22.2)	33 (34.7)	23 (34.3)
	> a week	1 (5.6)	12 (12.6)	19 (28.4)
Travel purpose**	Social meeting	15 (27.3)	43 (18.6)	1 (0.8)
	Shop	0	17 (7.4)	12 (9.4)
	Hospital	5 (9.1)	11 (4.8)	12 (9.4)
	Work	2 (3.6)	5 (2.2)	7 (5.5)
	School	0	0	9 (7.1)
	Home and other	33 (60)	155 (67.1)	86 (67.7)
Travel distance**	1km or less	18 (32.7)	118 (51.1)	67 (52.8)
	>1km-10km	29 (52.7)	88 (38.1)	54 (42.5)
	>10km	8 (14.5)	25 (10.8)	6 (4.7)

**within a consecutive 48-hour period. An individual may have had one or many travel trips



3.3 Road traffic crashes involved in the previous year

Thirteen (13) participants reported being involved in road traffic crashes in the previous year. Five participants were injured due to falls when getting down or getting on to bus. Others were injured from road traffic crashes involving three wheelers (n=3) or motor bikes (n=2). One crash victim had sustained irreversible injuries and four others reported moderate to severe injuries.

The increased risk for road traffic injury with decline in capabilities that impair cognitive, sensory and psychomotor functions and less resistant to trauma among older and people living with disabilities is well documented (Chang *et al.*, 2016). In this study 7% of the study population had been involved in a road traffic crash and nearly 40% of them sustained major injuries in the 12 months before the survey.

4 CONCLUSIONS

This study identified that older and disabled people in the study sample were generally of poor educational and economic backgrounds. The majority of the older population was afflicted with disabilities. The older and disabled people mainly travel short distances and rely on the public bus for transport. Many participants had sustained major injuries when involved in a road crash. More research is needed to identify the specific barriers for safe transportation of these interested groups. It is also imperative that relevant authorities in Sri Lanka develop strategies to address issues of safe transportation and to accommodate the needs of marginalized groups in future transportation systems. This in-turn will enhance the quality of life and well-being of older people and people living with disabilities.

REFERENCES

- Chang, F., Li, M., Xu, P., Zhou, H., Haque, M. M., and Huang, H. (2016). Injury severity of motorcycle riders involved in traffic crashes in Hunan, China: a mixed ordered logit approach. *International journal of environmental research and public health*, 13(7), 714.
- De Silva, I. (2007). A population projection of Sri Lanka for the new millennium 2001-2101: Trends and implications.
- Delbosc, A. and Currie, G. (2010). Designing inclusive transport surveys: Sampling disadvantaged people.
- Department of Census and Statistics, S. L. (2012). *Census of population and housing 2012 - Final report*. Retrieved from: <http://www.statistics.gov.lk/PopHouSat/CPH2011/Pages/Activities/Reports/FinalReport/FinalReport.pdf>
- Dharmaratne, S.D., Jayatilleke, A. U., and Jayatilleke, A. C. (2015). Road traffic crashes, injury and fatality trends in Sri Lanka: 1938-2013. *Bulletin of the World Health Organization*, 93(9), 640-647.
- Hand, C. (2015). Associations between neighbourhood characteristics and community mobility in older adults with chronic health conditions. *Disability and rehabilitation*, 1-8.
- Hosseinpour, A.R., Bergen, N., Kostanisek, N., Kowal, P., Officer, A., Chatterji, S.. (2016). Socio-demographic patterns of disability among older adult populations of low-income and middle-income countries: results from World Health Survey. *International journal of public health*, 1-9.
- Peden, M. (2004). *World report on road traffic injury prevention*: World Health Organization Geneva.
- Saunders, L. E., Green, J. M., Petticrew, M. P., Steinbach, R., and Roberts, H. (2013). What Are the Health Benefits of Active Travel? A Systematic Review of Trials and Cohort Studies. *PLoS ONE*, 8(8), e69912. doi:10.1371/journal.pone.0069912
- Toroyan, T. (2013). *Global status report on road safety 2015. Supporting a decade of action*. Geneva: World Health Organization, Department of Violence and Injury Prevention and Disability.
- University of Moratuwa. (2014). *Summary of Road Accidents in Sri Lanka-2013*. Retrieved from Transportation Engineering Division

