R4TLI
ISSN: 2513-2504

GENDER PERCEPTION OF ACTIVE MOBILITY: INSIGHTS FROM SOUTH ASIAN COUNTRIES

Deshani Hansamala, Thillaiampalam Sivakumar
Department of Transport Management and Logistics Engineering, University of Moratuwa, Sri Lanka.
wm.deshani97@gmail.com, tsivakumar@uom.lk

ABSTRACT – Many countries are promoting active modes of transport (i.e., Walking and cycling) along with sustainable policies to address the existing issues that emerged from motorization. To encourage and attract towards active modes of transport, it is important to understand perception regarding active mobility. Gender perception is a key factor that influences how people choose to travel. This includes their attitudes, beliefs, and opinion towards these modes and their experiences or expectation when using them. The aim of the study is to examine, how active mobility choices differ between men and women in relation to elements of under conceptual framework such as safety concerns, social and cultural norms, infrastructure, accessibility, etc. The selected study area was cycling, and the study focuses on the responses from passengers of three South Asian countries, Sri Lanka, India, and Nepal through an online questionnaire and interview survey. The collected data will be analyzed by descriptive analysis, Chi-square test, and Exploratory factorial analysis through SPSS software. Expecting to find, is there any significant difference between gender groups regarding gender perception of cycling. This research will contribute to making policy and planning decisions aimed at promoting sustainable and equitable transportation in South Asia.

Keywords: Active mobility; Gender perception; Cycling; South Asian countries

1. INTRODUCTION

Most of the South Asian countries can be considered as developing countries and they represent the world's largest economies while energy consumption also increased proportionally. Though some countries such as Maldives and Bhutan have achieved sustainability along their policies, there are many countries in South Asia, include as the most polluted counties in the world by 2022 [1]. The remarkably high shares of active mobility cities in South Asia can be named Bhopal and Kathmandu [2]. Approximately 45 million people walk to work every day, outnumbering the mere 5.4 million who use motorized personal vehicles[3]. Active mobility has emerged to address the issues, trying to reduce consequences that occurred due to motorization. There are many positive aspects associated with active mobility and can be incorporated through urban and transport planning systems. Prior to proposing any mobility plan or development plan, it is vital to examine peoples' attitudes and perceptions towards active mobility, considering gender differences. Since different gender groups have distinct societal, physical, and personal factors that can influence their mode choice and play various roles in their life. Mobility patterns can differ from men to women. For instance, men tend to follow the same route to reach the workplace every day, whereas women often have more varied and complex paths due to combining multiple destinations such as school, shop, workplace, etc. [4]. Perceptions and expectations during the trips can be different gender-wise. Since women are more likely to consider safety [5]. It may cause result in women seeking out alternative transportation options, which could be more expensive or inefficient if they perceive potential threats or sexual harassment, or violence [6]. Active mobility typically characterizes infrastructure such as dedicated bicycle lanes and walking paths, shared lanes with mixed traffic. However, some studies show, women may feel uncomfortable and reluctant to cycle due to safety concerns when utilizing paths with mixed traffic. Women often prioritize their appearance, which can discourage them for choosing active transportation modes due to environmental factors like rain, temperature result in wet or sweaty [7]. In gender perspective, it is crucial to understand all mobility requirements and integrate them into

one frame. Creating a conducive environment that supports active mobility and attractive infrastructure encourages both genders to empower active mobility.

Despite the increasing amount of research focused on gender and transportation, there remains a significant gap in understanding the specific dynamics and influencing factors related to gender perception in active mobility within South Asian countries. While some studies have investigated gender differences in transportation patterns and preferences [8], their findings are often generalized from developed countries and primarily focused on cities that already embrace active mobility. They have mainly studied the preference and satisfaction level towards the existing active mobility infrastructure. Some studies have only examined specific attributes affecting gender perceptions without taking a comprehensive view [9], or have been limited to certain age groups [10]. In the context of South Asian countries, there are less evidence that considers both influencing factors to shift active mobility and socio-demographic data. In this research, consider both elements simultaneously, in the context of Sri Lanka, India, and Nepal. The objectives of the study are formulated based on the problems such as, is there any significant difference between gender perceptions regarding active mobility, what are the factors that influence the transition toward active mobility, and the way to encourage active mobility in the relevant context.

- To examine the perceptions/insights about active mobility in terms of gender wise
- Identify the factors that influence gender perception regarding active mobility.
- Propose what are the areas that need to be improved, aligning with encouraging active mobility.

2. MATERIALS AND METHODS

Primary data through a survey was required to get the response from passengers to investigate perceptions of active mobility in gender-wise. The research selected area was cycling and choosing the attributes that need to address in the questionnaire through literature review and under the PASTA (Physical Activity through Sustainable Transport Approaches) conceptual framework. A structured survey questionnaire was designed based on four phases such as socio-demographic data, mobility habits, perception of cycling, and significance level of factors that affect when shifting towards cycling. The sampling technique was stratified sampling technique that ensured the sample was selected from a population representing its various gender groups and the sample size was 446. The sample consisted of 246 data from Colombo, 100 data from Kathmandu, and 100 data from Delhi while only representing male and female gender groups. The sample size was determined, assuming a 95% confidence level and 5% margin of error. Survey participants will be passengers who are in the age group between 18-65 in Sri Lanka, India, and Nepal. The survey will be conducted through online platforms and interview surveys while collaborating with researchers from respective countries.

2.1. Data Analysis

The analysis will be carried out by using both quantitative and qualitative methods. To achieve one of the target objectives, develop the null hypothesis as there is no significant difference between gender groups in relation to perceptions of active mobility. The chi-square test can be applied to find, is there any significant difference between the men and women groups using p-value and enable the analysis of categorical variables and the relationship between variables (co-efficient values). Descriptive analysis allows to gain insights and understand the basic characteristics of the variables under consideration. Exploratory Factor Analysis (EFA) was applied to identify latent factors that influence gender perception of cycling while reducing the amounts of variables to the set of summary variables.

3. RESULTS AND DISCUSSION

Results show that only five variables among 40 variables indicate the p-value more than 0.05, namely preference time period of cycling (1.00 p.m.-4.00 p.m. and 5.00 p.m. – 9.00 p.m.), limitations with the

religious background, having a car is essential, and thinking about the reputation. As simply, both males and females hold similar kind of perceptions regarding the above variables apart from other factors. Results derived from EFA revealed that factors including safety, parental and family influence, environmental factors, previous cycling accident experience, and infrastructure availability influence gender perception of cycling. The rotated Factor Matrix provides the factors that associate with variables.

4. CONCLUSION

According to the results that will be obtained through analysis, conclude the factors that influence in gender perception of cycling in selected countries. The study provides the determinants that influence on making regarding mobility, policymakers, and innovative designers enable to implement and developed gendered focused mobility solutions to achieve sustainability along with forming policies and initiatives. Based on the findings of the study, it is required to address the factors such as safety, social influence of cycling, environmental factors, and infrastructure availability to cater all gender groups towards cycling in terms of the selected cities in South Asia.

REFERENCES

1. "World's Most Polluted Cities in 2022 – PM2.5 Ranking | IQAir." https://www.iqair.com/world-most-polluted-cities (accessed May 15, 2023).
2. M. B. Regmi, "A Review of Transport Policies in Support of Climate Actions in Asian Cities and Countries," *Earth 2021, Vol. 2, Pages 731-745*, vol. 2, no. 4, pp. 731–745, Oct. 2021, doi: 10.3390/EARTH2040043.
3. "India walks to work: Census – The Hindu." https://www.thehindu.com/data/India-walks-to-work-Census/article60346511.ece (accessed Jun. 06, 2023).
4. A. Carboni, M. Pirra, M. Costa, and S. Kalakou, "Gender perceptions of active mobility: Insights from three European cities," *European Transport – Trasporti Europei*, no. 85, Dec. 2021, doi: 10.48295/ET.2021.85.9.
5. I. Hidayati, W. Tan, and C. Yamu, "How gender differences and perceptions of safety shape urban mobility in Southeast Asia," *Transp Res Part F Traffic Psychol Behav*, vol. 73, pp. 155–173, Aug. 2020, doi: 10.1016/j.trf.2020.06.014.
6. M. Pirra, S. Kalakou, A. Carboni, M. Costa, M. Diana, and A. R. Lynce, "A preliminary analysis on gender aspects in transport systems and mobility services: Presentation of a survey design," *Sustainability (Switzerland)*, vol. 13, no. 5, pp. 1–20, Mar. 2021, doi: 10.3390/SU13052676.
7. I. Kawgan-Kagan and M. Popp, "Sustainability and Gender: A mixed-method analysis of urban women's mode choice with particular consideration of e-carsharing," *Transportation Research Procedia*, vol. 31, pp. 146–159, 2018, doi: 10.1016/J.TRPRO.2018.09.052.
8. D. Adlakha and D. C. Parra, "Mind the gap: Gender differences in walkability, transportation and physical activity in urban India," *J Transp Health*, vol. 18, p. 100875, Sep. 2020, doi: 10.1016/J.JTH.2020.100875.
9. I. Hidayati, W. Tan, and C. Yamu, "How gender differences and perceptions of safety shape urban mobility in Southeast Asia," *Transp Res Part F Traffic Psychol Behav*, vol. 73, pp. 155–173, Aug. 2020, doi: 10.1016/j.trf.2020.06.014.
10. A. Leung and T. P. L. Le, "Factors associated with adolescent active travel: A perceptive and mobility culture approach – Insights from Ho Chi Minh City, Vietnam," *Transp Res Part A Policy Pract*, vol. 123, pp. 54–67, May 2019, doi: 10.1016/j.tra.2018.09.004.