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Electric Bike Adoption as a Pathway to Sustainable Mobility: Empirical Evidence from Survey Data

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Abstract: *The transition towards sustainable urban mobility has gained prominence in recent years due to rising environmental concerns, traffic congestion, and dependence on fossil fuels. Electric bikes (e-bikes) have emerged as a viable alternative to conventional petrol-powered two-wheelers, particularly in developing economies where affordability and accessibility play a crucial role. This study examines the role of demographic and socio-economic factors in shaping electric bike adoption and usage behaviour, with a focus on sustainability-oriented consumer choices.*

Using primary survey data, the study analyses respondents' demographic profile, income levels, ownership patterns, usage behaviour, and satisfaction with various attributes of electric bikes. Descriptive statistics are employed to summarise the demographic and socio-economic characteristics of the respondents. The Chi-square test of association is used to examine the relationship between selected demographic variables and electric bike ownership. The results indicate a young and economically diverse respondent base, reflecting the growing acceptance of electric bikes among cost-conscious and environmentally aware consumers. The findings further reveal that electric bike ownership is not significantly associated with gender, suggesting inclusive adoption patterns.

By linking sustainable mobility adoption with socio-economic characteristics, the study contributes to the literature on green consumer behaviour and sustainable transport planning. The findings offer important policy insights for promoting electric mobility through targeted awareness programmes, infrastructure development, and affordability-driven incentives. The study underscores the potential of electric bikes as an accessible and inclusive pathway towards achieving sustainability goals in urban transportation systems..

Keywords*: urban mobility*

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