

Patterns of electronic-cigarette use, cigarette use, or dual use and asthma outcomes among adults with asthma

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BACKGROUND

- Asthma is an incurable chronic inflammatory disorder of the airways.
- Adults with asthma who smoke cigarettes experience worse asthma outcomes compared to non-smokers.
- Electronic cigarette (e-cigarette) use is increasing in the U.S. and little is known about its impact on health outcomes, especially among asthmatics.
- Furthermore, the relationship between current cigarette smoking, former smoking, and e-cigarette use remains underexplored in the asthma population.

OBJECTIVE

- Assess the association between current e-cigarette, cigarette, or dual use and asthma outcomes among adults with asthma

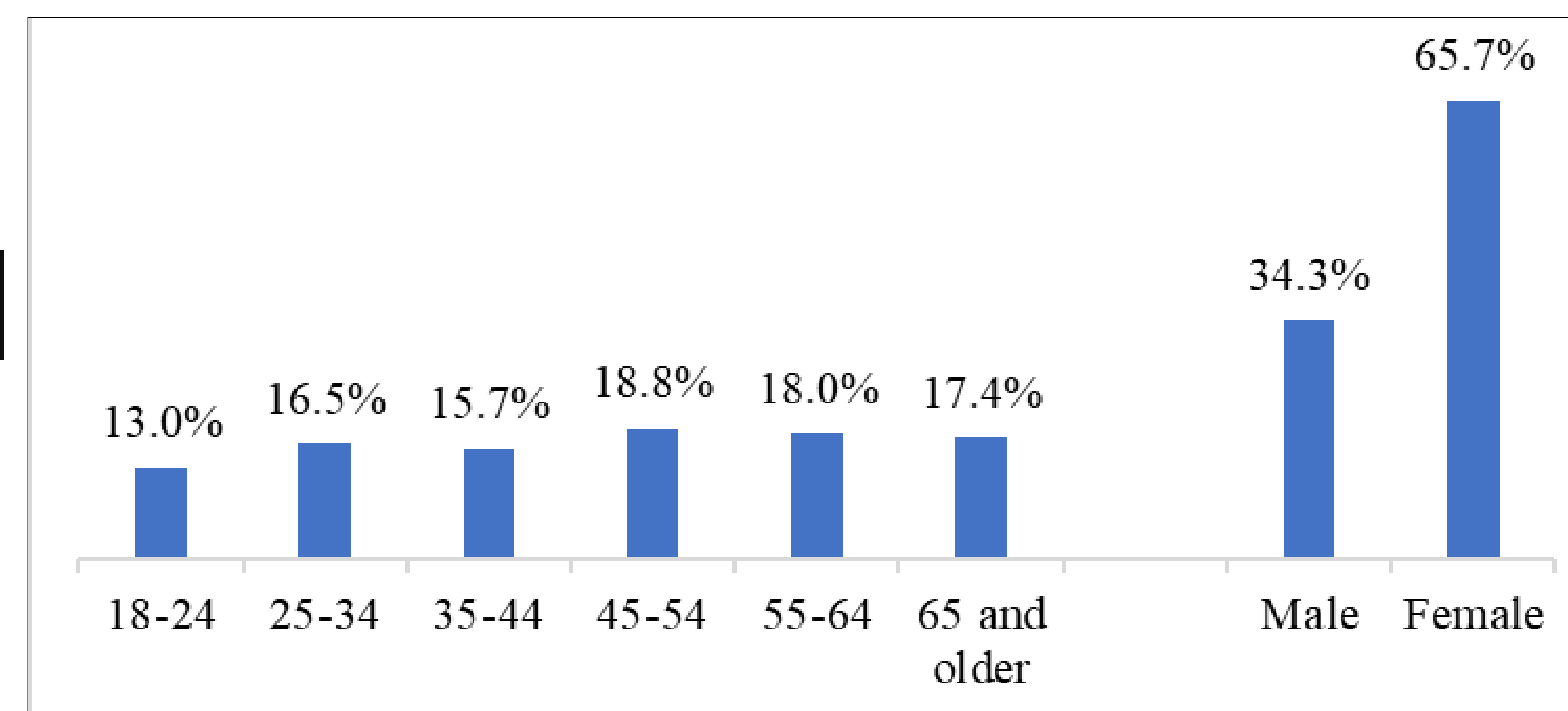
METHODS

- Study design:** Retrospective, cross-sectional study
- Data source:** 2014-2017 National Health Interview Survey (NHIS) database
- Study sample:** Adults ≥ 18 years with current asthma
- Smoking status variables (Yes/ No):**
 - Current exclusive e-cigarette users
 - Current exclusive cigarette users
 - Current dual users of e-cigarettes and cigarettes
 - Former cigarette users & current e-cigarette users
 - Non-users
- Other covariates:**
 - Age, sex, race/ ethnicity, education status, marital status, U.S. region
- Asthma outcome variables (Yes/ No):**
 - Had an asthma attack within the past 12 months
 - Had an asthma emergency department or urgent care center visit within the past 12 months
- Statistical analyses:**
 - 2014 – 2017 NHIS datasets were combined to increase the sample size and precision of estimates
 - Appropriate sampling weights and variance estimation were accounted for pooling of the data
 - Descriptive statistics, including weighted percentages, were used to describe the sample
 - Associations between smoking status and asthma outcomes were assessed using multivariate logistic regression and expressed as odds ratios with 95% confidence intervals

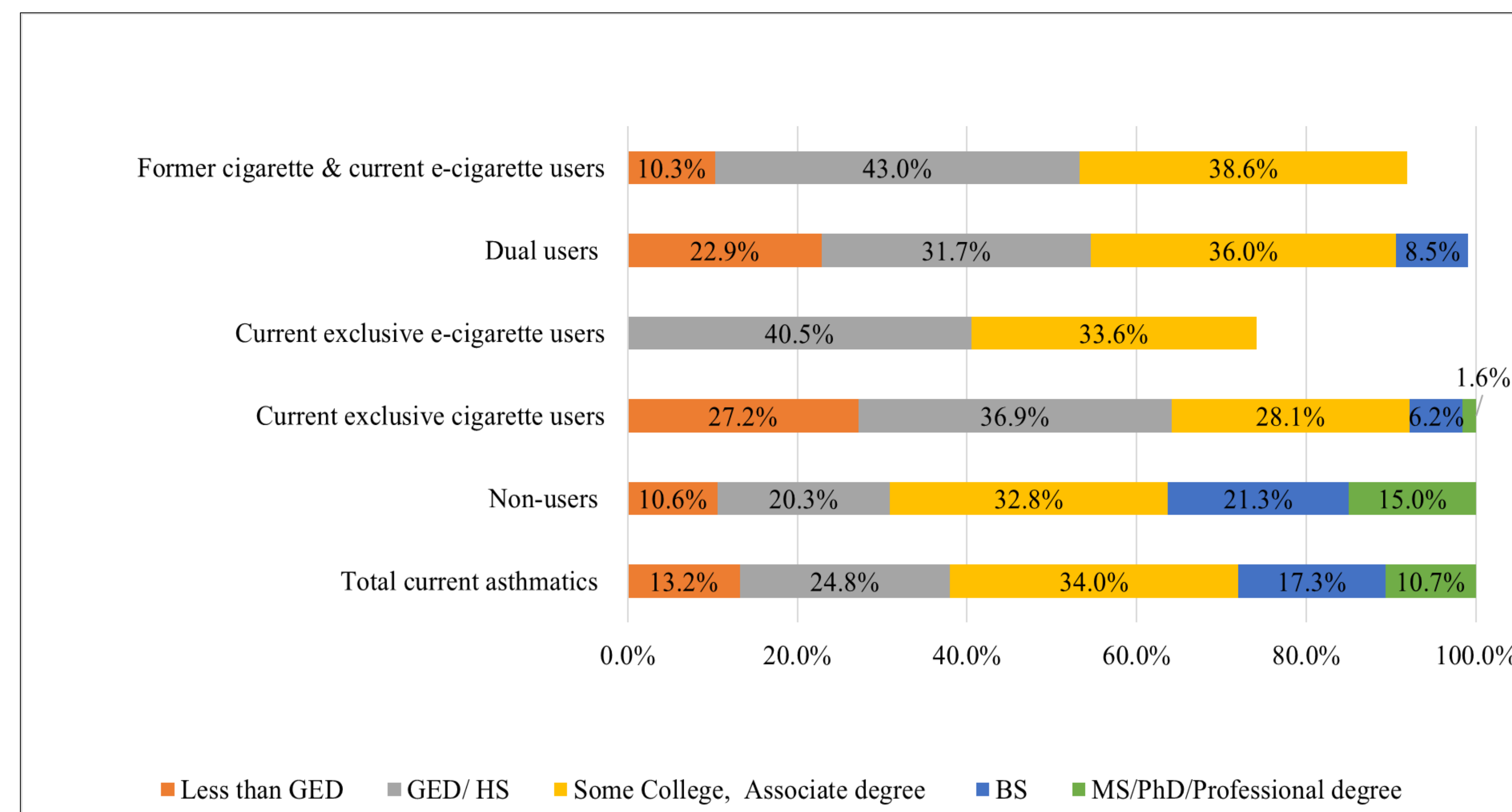
RESULTS

Total Sample: N = 10,578; Weighted 37,777,010 adults with asthma

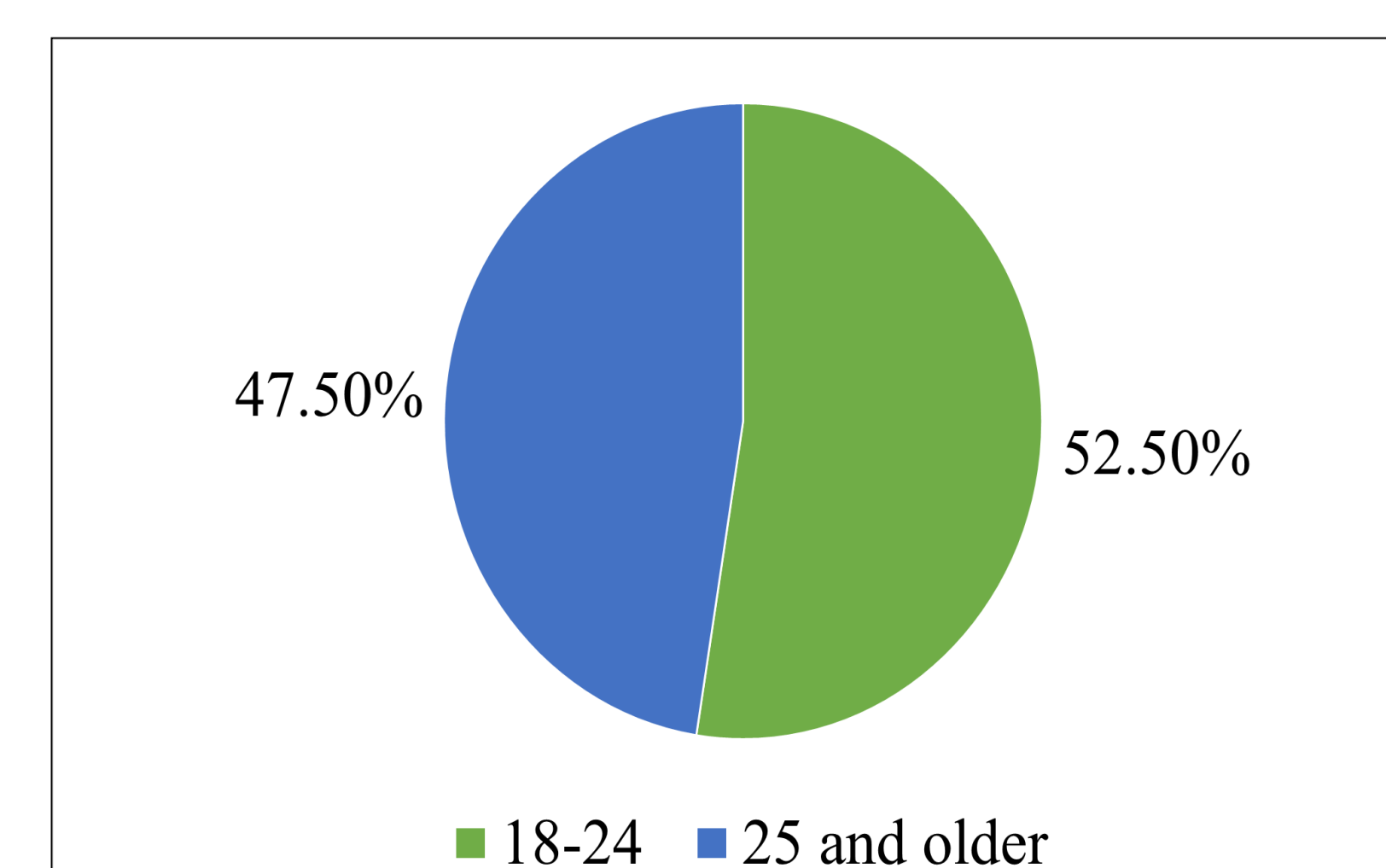
Age and Gender Distribution



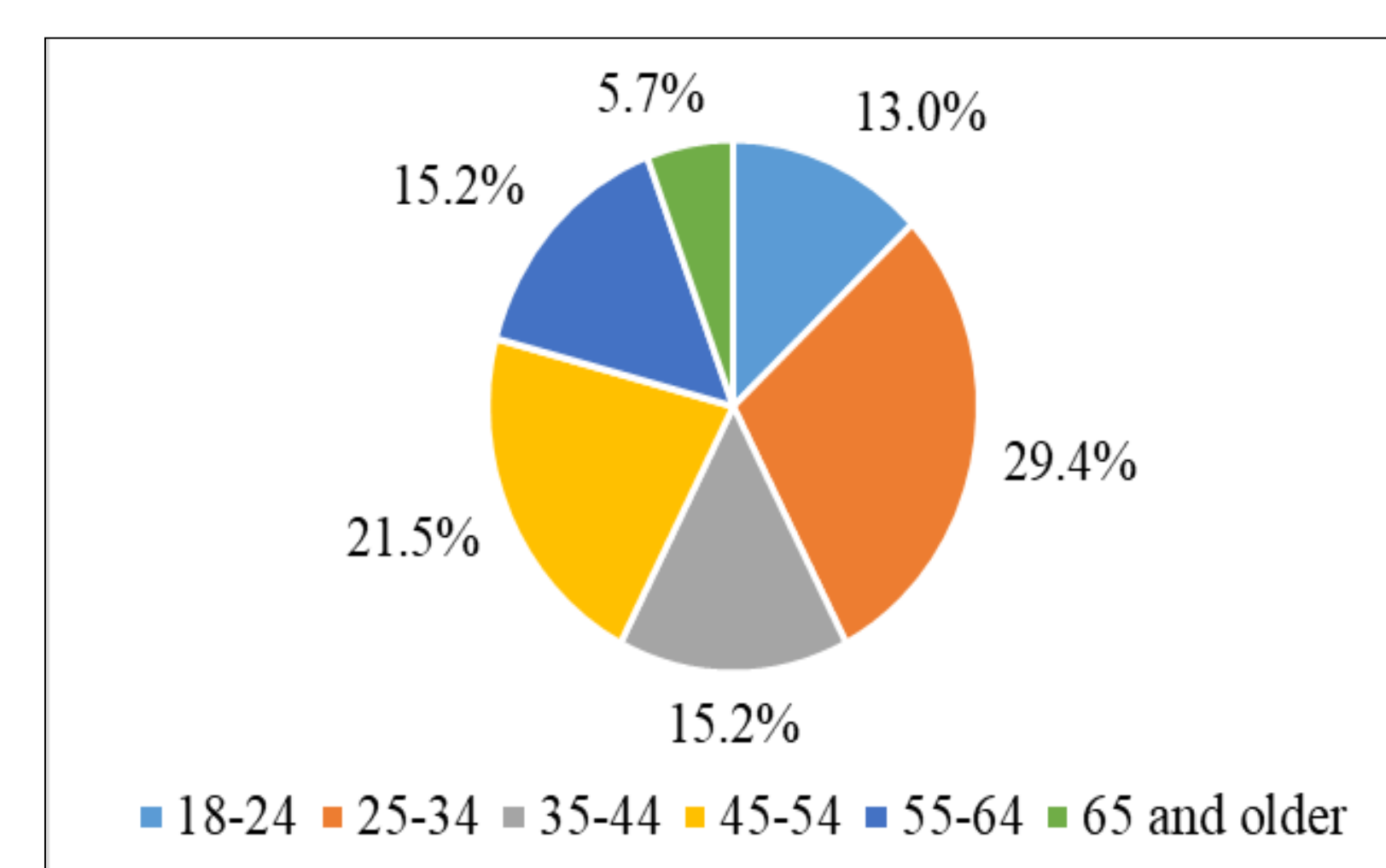
Smoking status and education level



Current exclusive e-cigarette users: Age distribution



Dual cigarette and e-cigarette users: Age distribution

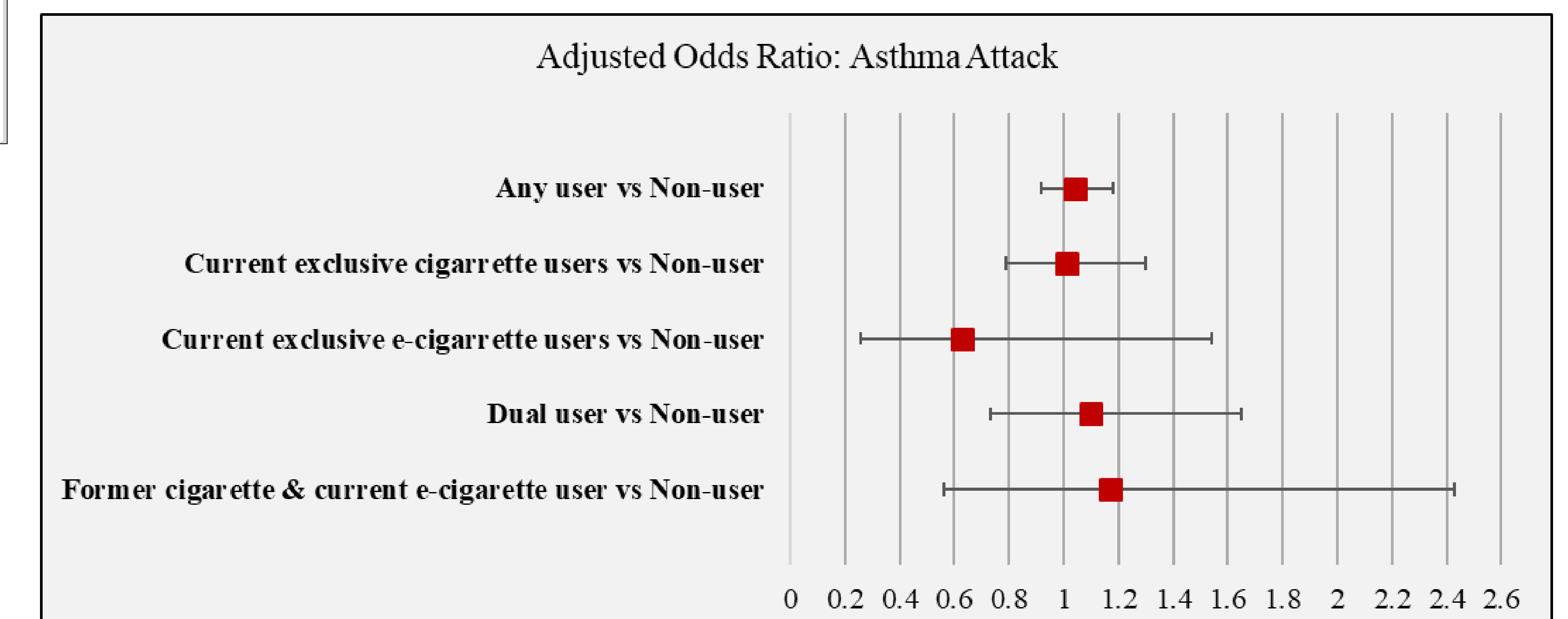


RESULTS

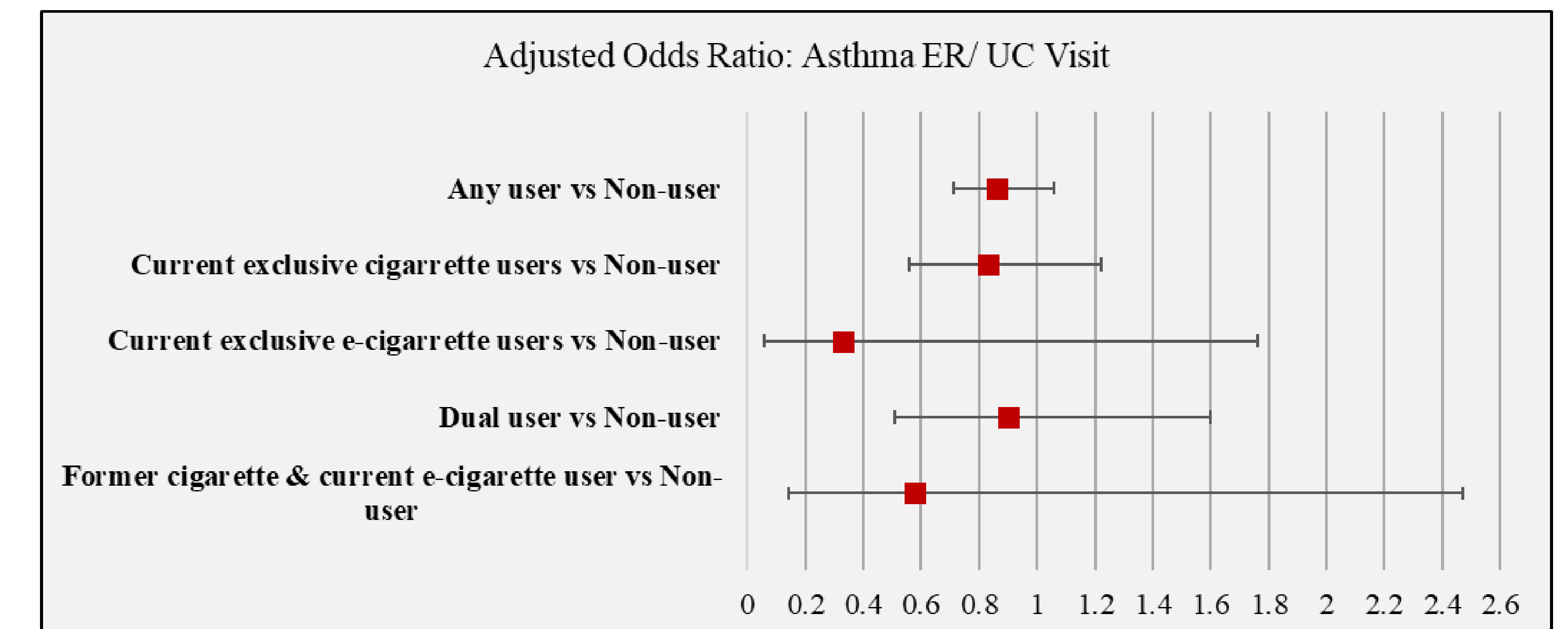
Smoking status and asthma attack & asthma related ER/UC visit within the past 12 months

	Total current asthmatics (%)	Non-users (no cigarette or e-cigarette)	Current exclusive cigarette users	Current exclusive e-cigarette users	Dual Users (Current cigarette & e-cigarette users)	Former cigarette & current e-cigarette users
	n= 10,578	n= 5,354	n= 864	n= 37	n= 305	n= 104
Asthma attack	4805 (44.7)	2390 (43.3)	409 (47.3)	15 (31.5)	140 (47.1)	51 (51.5)
Asthma ER or UC visit	1248 (11.7)	603 (11.7)	126 (13.7)	Suppressed	38 (11.4)	11 (7.0)

Multivariate Logistic Regression: Association between smoking status and asthma attack



Multivariate Regression: Association between smoking status and asthma ER/ UC visit



CONCLUSION

- Smoking status was not associated with asthma outcomes in this study.
- Further investigation into the association of asthma outcomes and smoking status frequency and duration is warranted.