

Dual Use Among Women in the United States

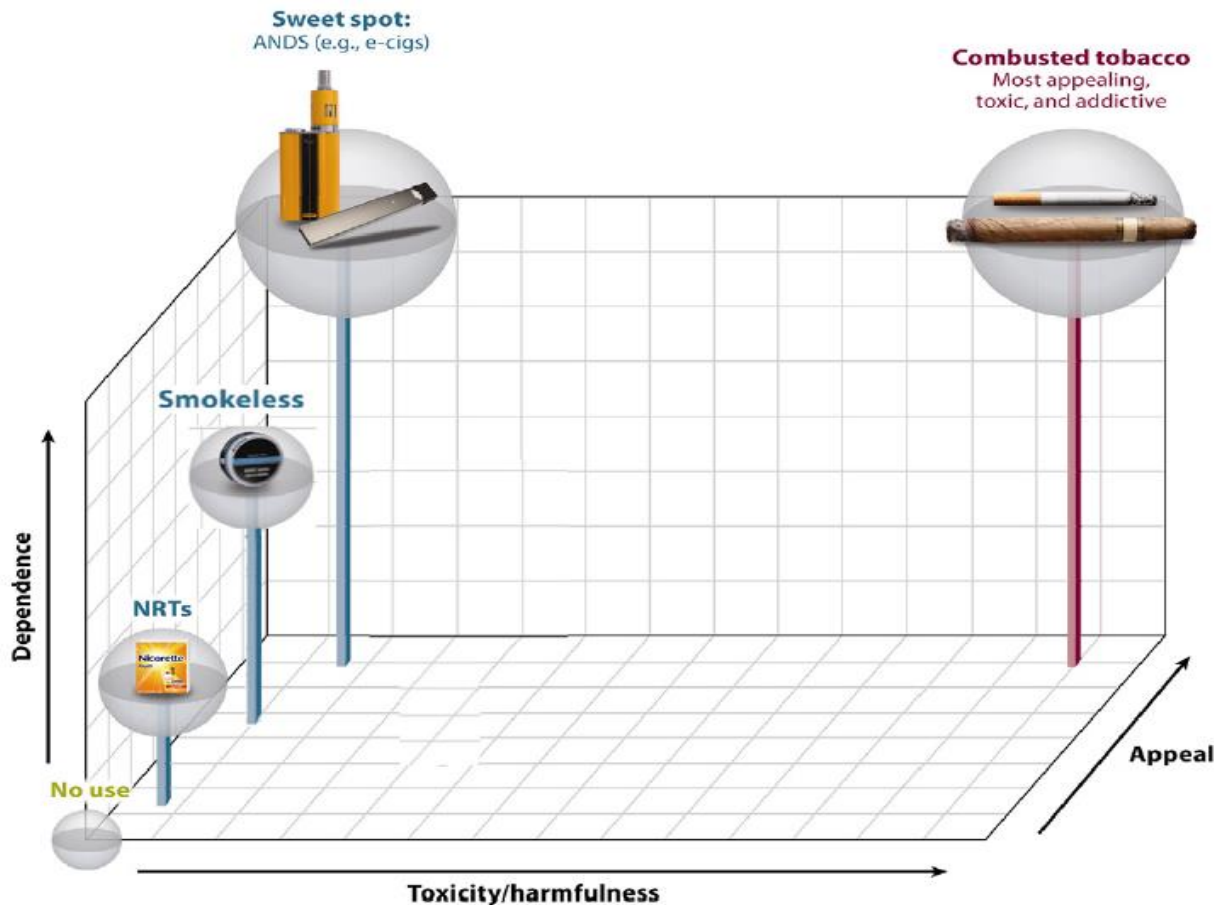
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Background

- Dual use of cigarettes and e-cigarettes is the most common combination of tobacco products.



Background

- Most people who smoke and start using e-cigarettes (71%) do so to quit smoking.
- About half become established dual users.
- People who dually use cigs + e-cigs differ from those who exclusively smoke cigarettes
 - Pharmacological: products differ in pharmacokinetic profiles
 - Behavioral: longer/more frequent bouts of vaping in addition to smoking
 - Social: vaping in settings where smoking is prohibited

Carpenter et al., 2023; Gravely et al., 2023; Pacek et al., 2020; Borland et al., 2019; Owusu et al., 2019

Background

- Compared to adults who exclusively smoke cigarettes:
 - Dual users who use e-cigarettes daily are more likely to quit smoking
 - Dual users who use e-cigarettes non-daily are less likely to quit smoking
- Most adult dual users (>65%) smoke cigarettes daily and use e-cigarettes non-daily.

Stanton et al., 2020; Piper et al., 2020; Krishnan et al., 2023; Borland et al., 2019; Wang et al., 2021

Dual Use Among Women

- Prevalence of dual use does not appear to differ by sex in the US (Coleman et al., 2022; Mayer et al., 2020)
- PATH Waves 1-4: 81% of female dual users and 70% of male dual users continued smoking one year later (Khorassani et al., 2023)
- No sex differences in transitions over one year in a natural history study of dual users (N=205 ; Piper et al., 2020)

Treatments

- Martinez et al., 2021 (N=2,896) found Tailored Self-help>Assessment Only, Findings did not differ by sex
 - a) Assessment only^a
 - b) Standard self-help mailings for smoking cessation^{a,b}
 - c) Self-help mailings for smoking cessation tailored for dual users^b
- Vickerman et al., 2022 (N=96) demonstrated feasibility, sex differences not tested
 - a) Telephone counseling + recommendation for NRT^a
 - b) Telephone counseling + recommendations to use choice of NRT, e-cigarettes, both, or neither^a

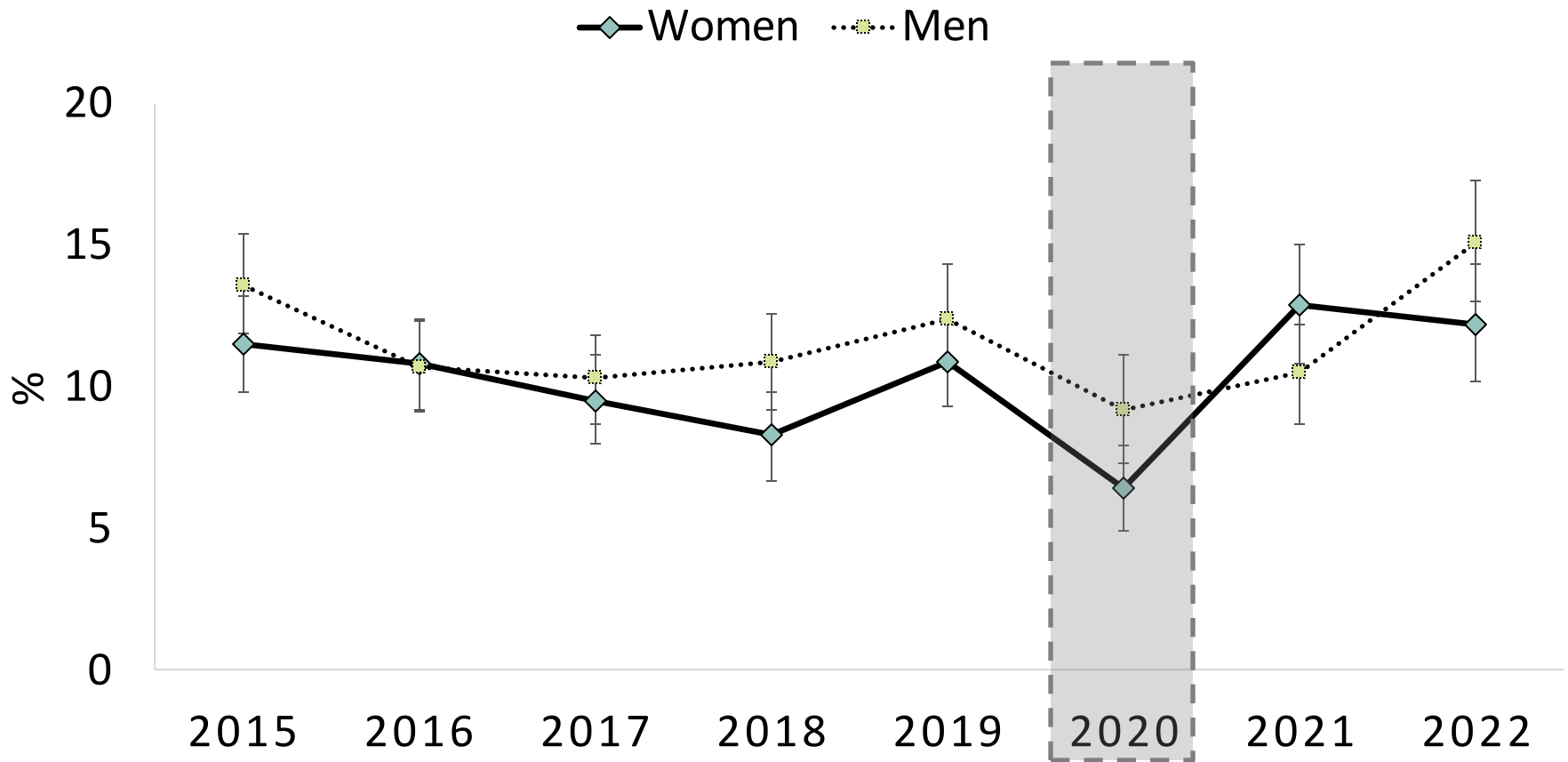
Aims

1. Report the prevalence of US women smokers who also use e-cigarettes (i.e., dual users)
2. Describe US women who dually use cigarettes & e-cigarettes
3. Evaluate the likelihood of transitioning to cigarette abstinence among dual using women vs men in the US

Methodology

- National Health Interview Survey (NHIS): 2015-2022
 - Prevalence of dual use by sex using serial cross-sectional surveys from 2015 to 2022
- Population Assessment of Tobacco and Health (PATH) Study
 - Demographic and tobacco use characteristics by sex at Wave 4 (Dec. 2016-Jan. 2018)
 - Unadjusted and multivariable logistic regressions to assess association between sex and cigarette abstinence at Wave 5 (Dec. 2018-Nov. 2019) among Wave 4 dual users
- Dual Use
 - ≥ 100 lifetime cigarettes + currently smokes every day or some days
 - Ever used e-cigarettes fairly regularly (PATH only) + currently uses every day or some days

NHIS: Prevalence of Dual Use Among People Who Smoke Cigarettes

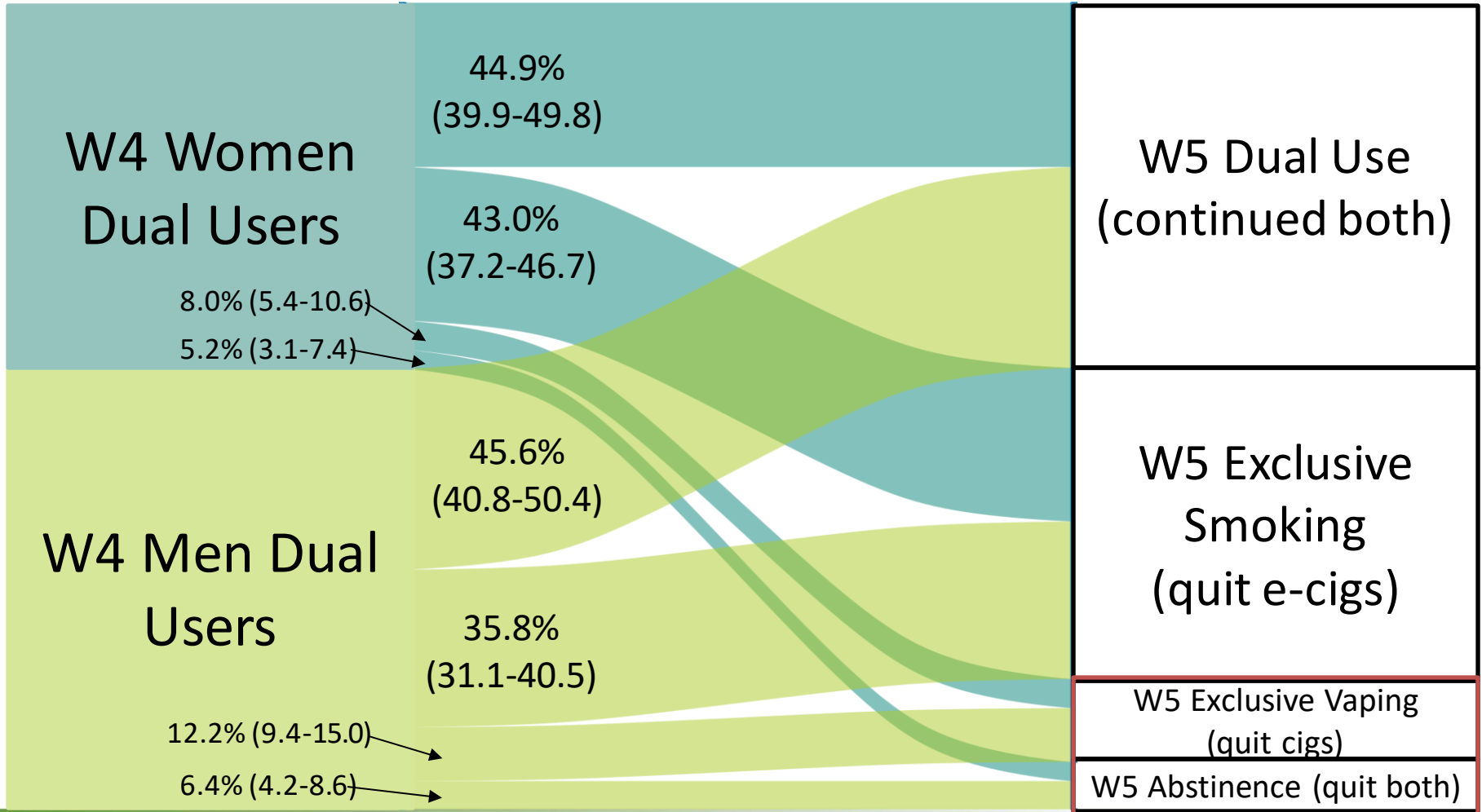


PATH W4 Dual Users

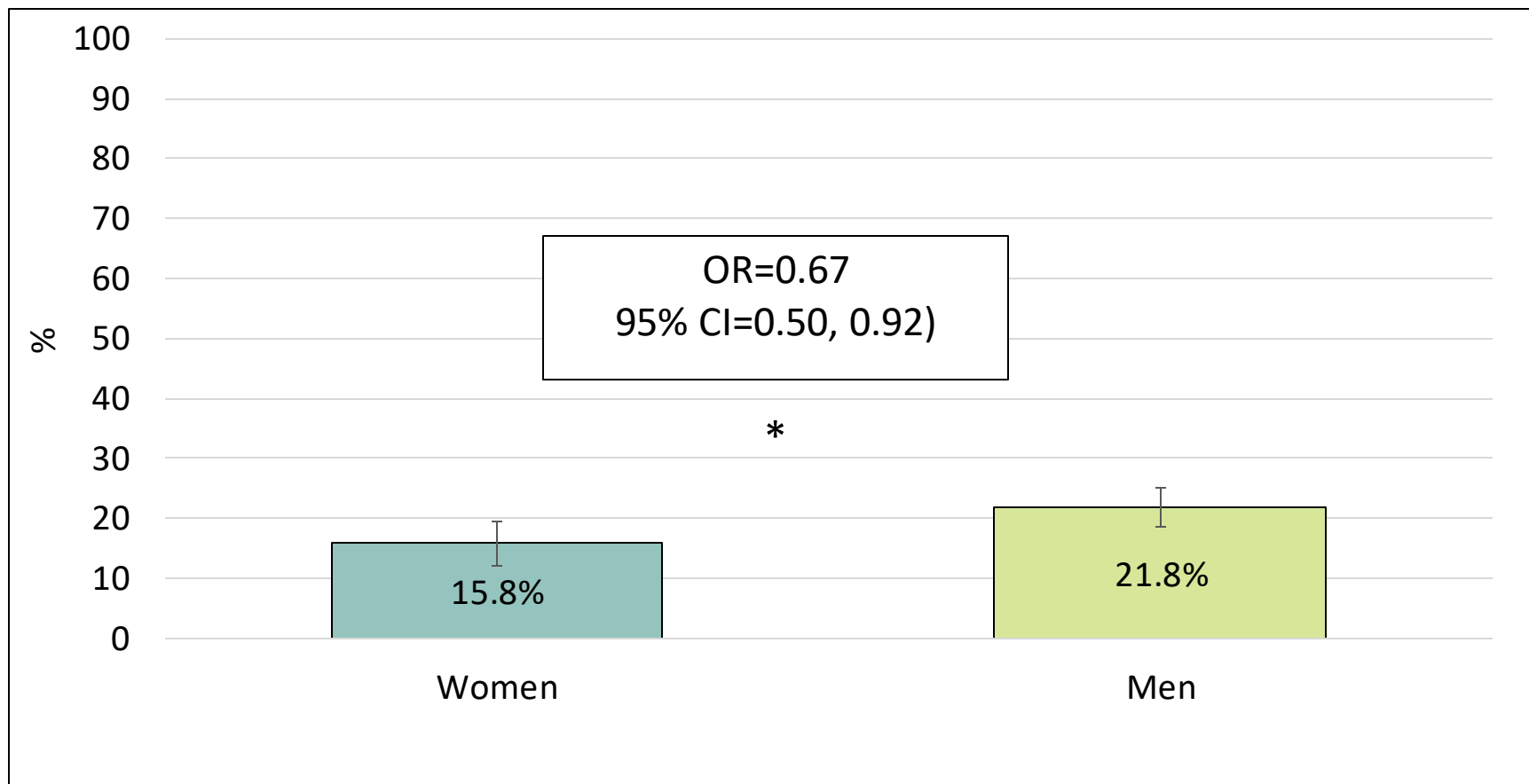
N=1,591 adult dual users

Characteristic	Weighted % (95% CI)
Age	
18-24	20.9 (19.0-22.9)
25-34	29.1 (26.1-32.2)
35-44	20.8 (18.1-23.4)
45-54	16.3 (13.8-18.9)
55-64	9.2 (7.7-10.7)
65+	3.7 (2.6-4.8)
Education level	
<High School	13.2 (11.1-15.3)
GED	10.8 (9.1-12.5)
High School Graduate	28.5 (25.4-31.5)
Some college	37.4 (34.3-40.5)
Bachelors/advanced degree	10.2 (8.3-12.0)
Hispanic origin	
Hispanic	10.8 (9.1-12.5)
Non-Hispanic	89.2 (87.4-90.9)
Race	
White alone	80.7 (78.2-83.1)
Black Alone	9.6 (7.9-11.4)
Other	9.7 (7.9-11.5)

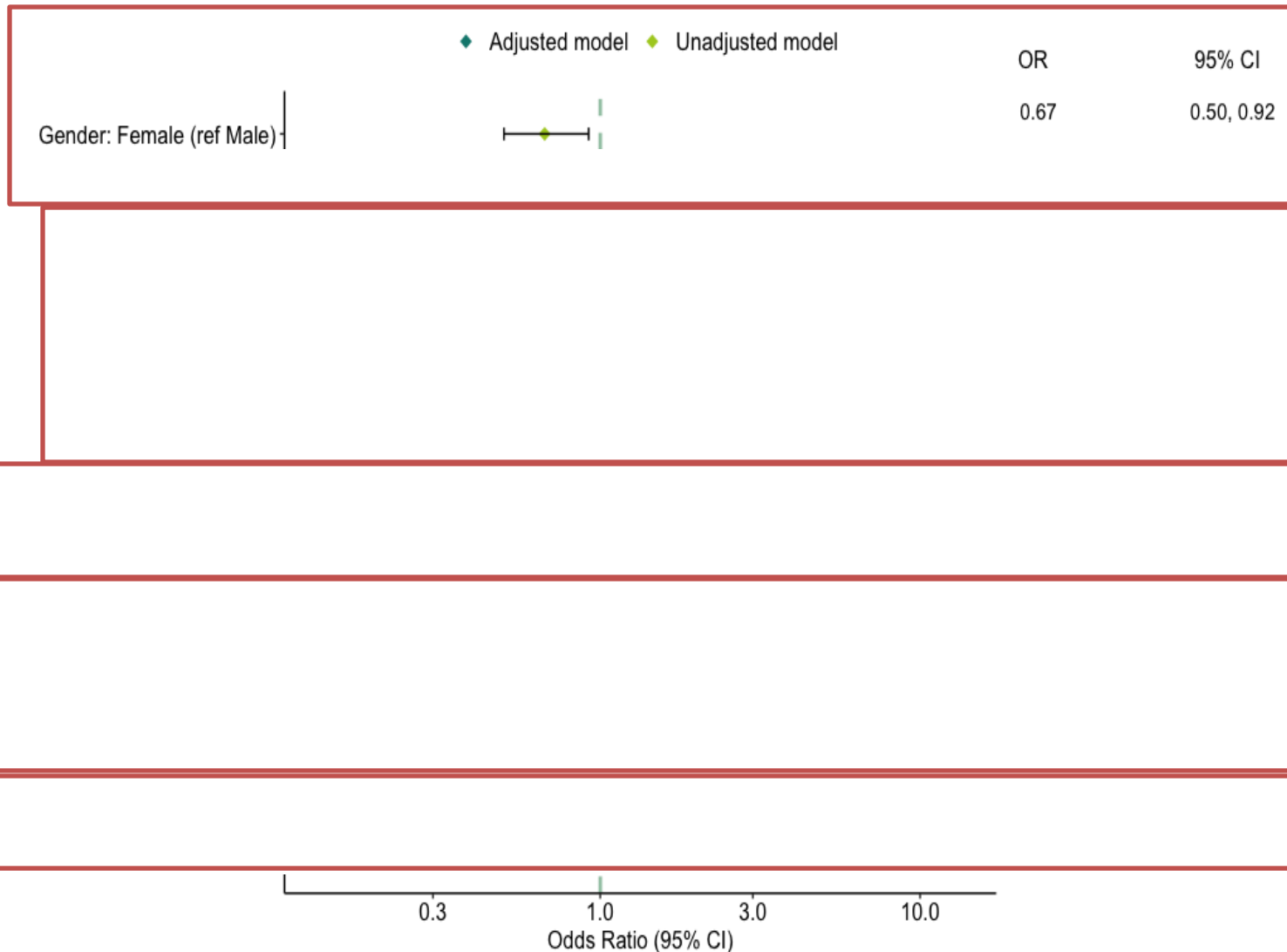
PATH Wave 4 to Wave 5 Transitions



Cigarette abstinence at Wave 5 among Wave 4 dual users

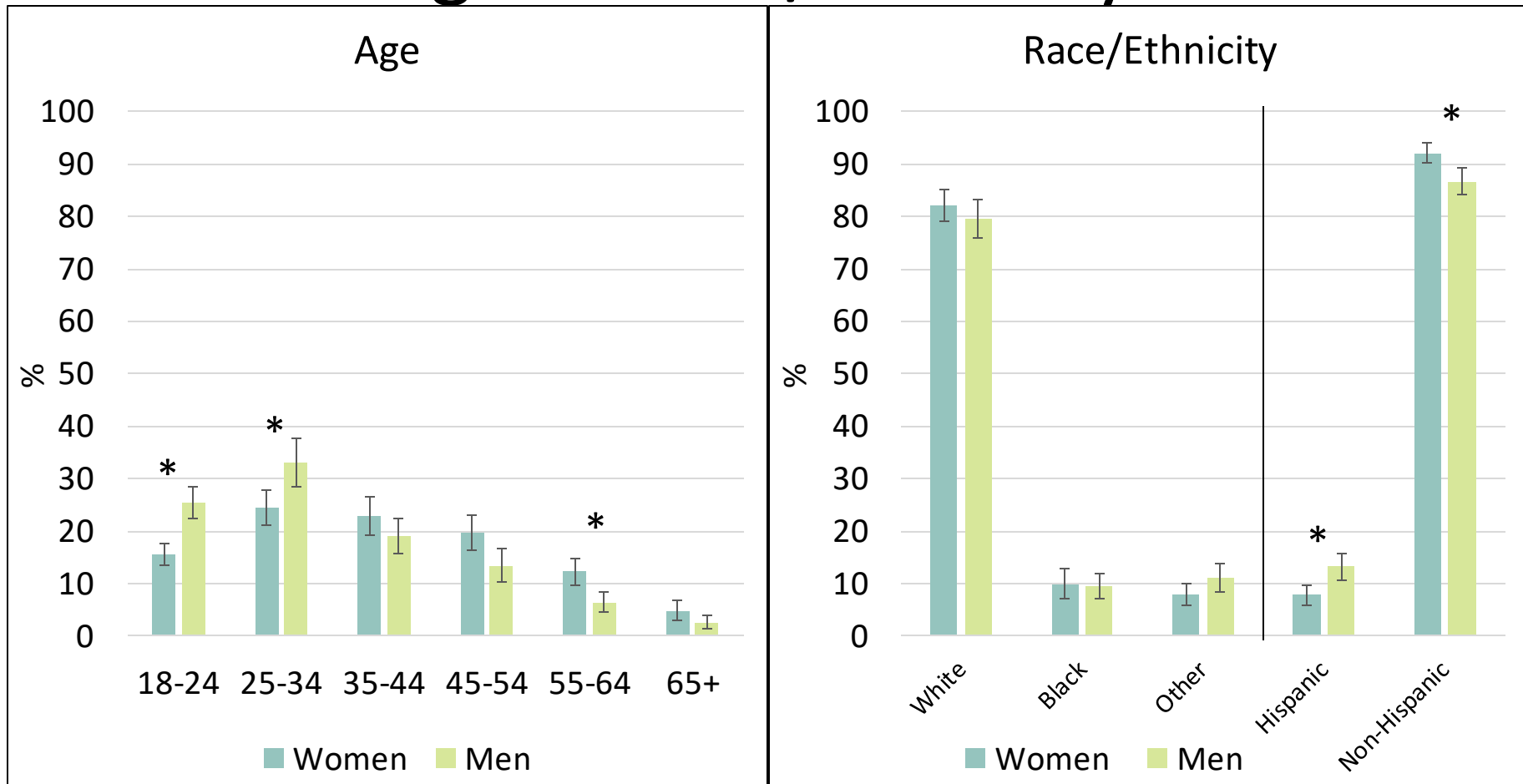


Associations between sex and W5 smoking abstinence among W4 dual users

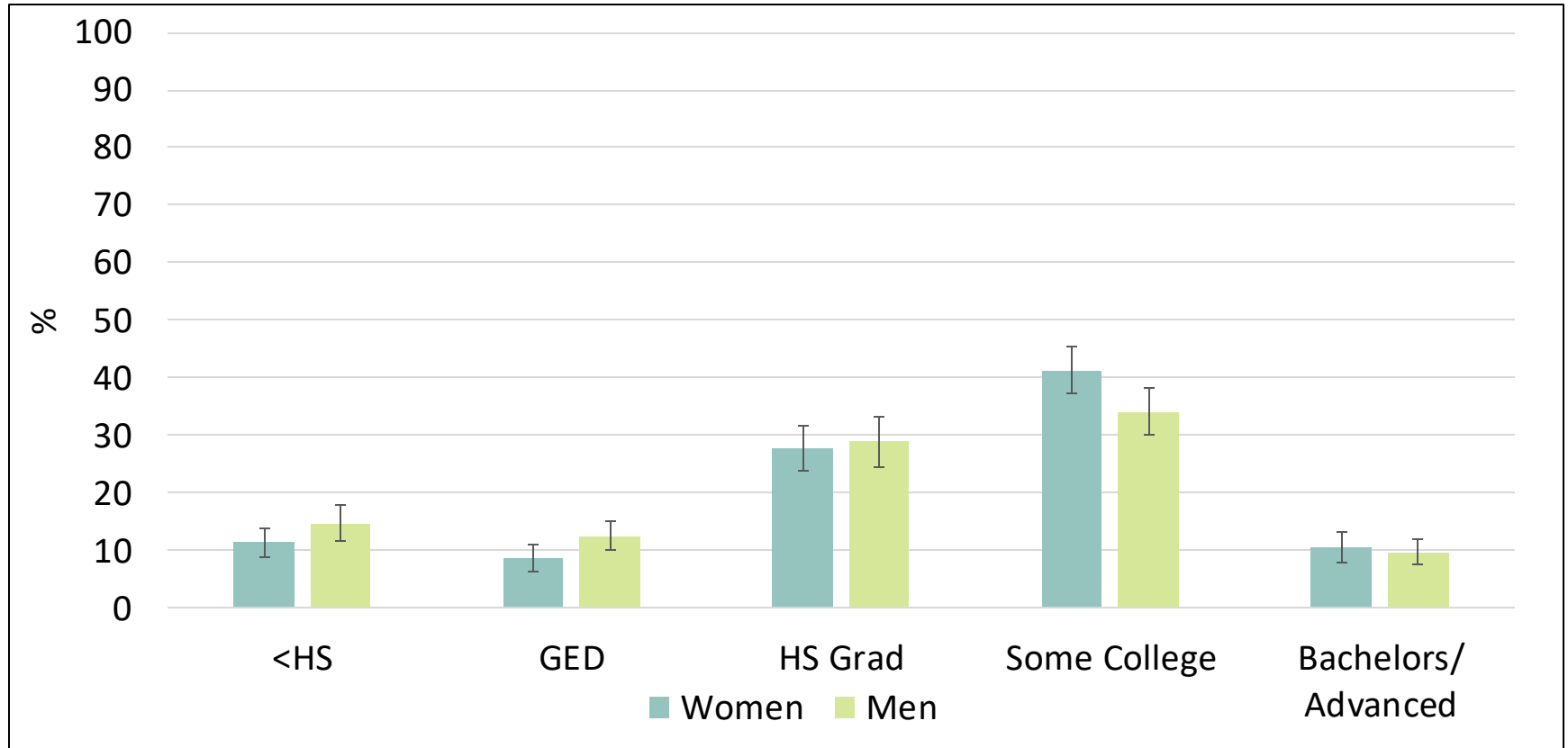


<- Favors continued smoking | Favors smoking abstinence ->

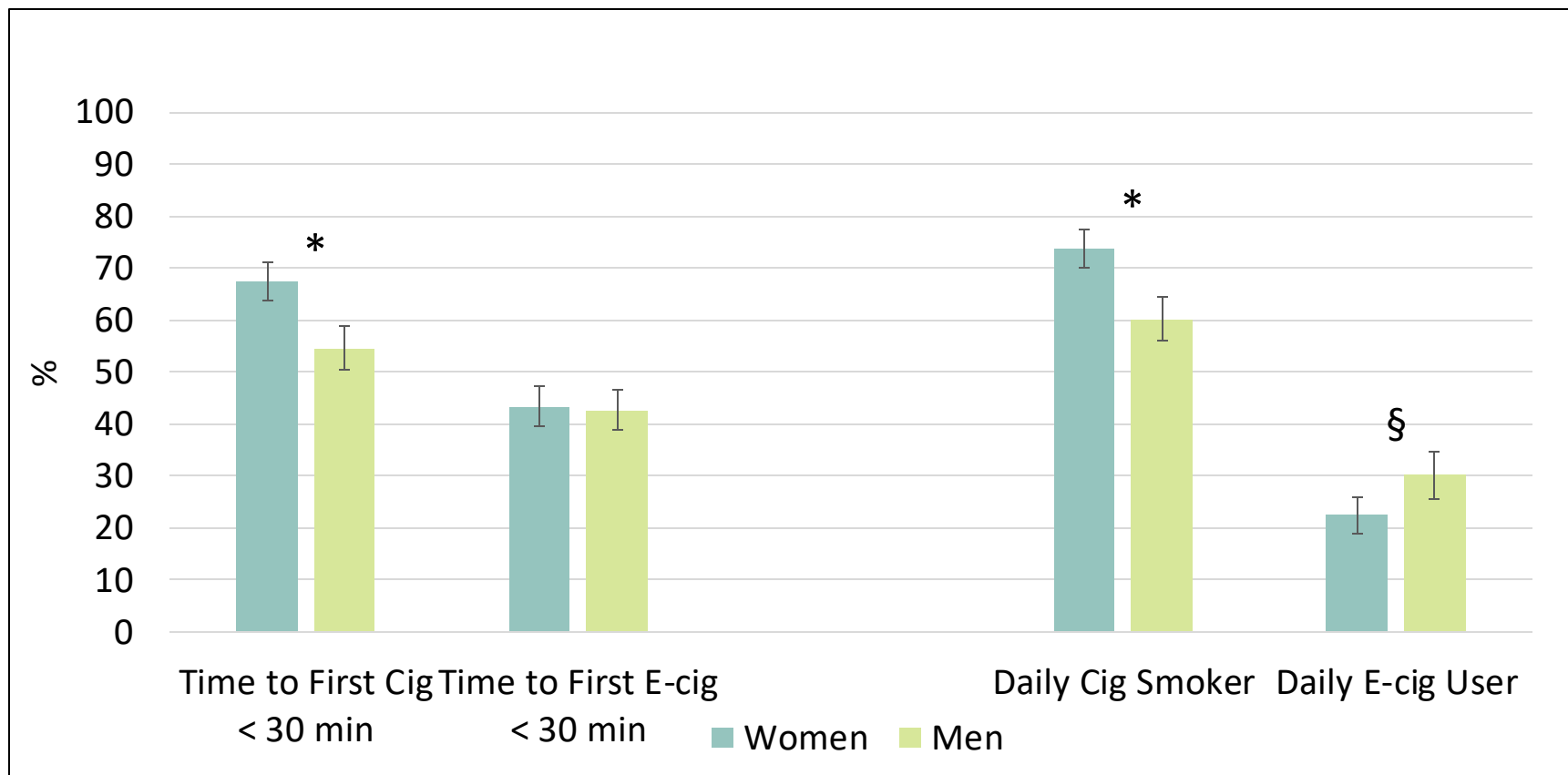
PATH W4 US Dual Users by Sex: Age & Race/Ethnicity



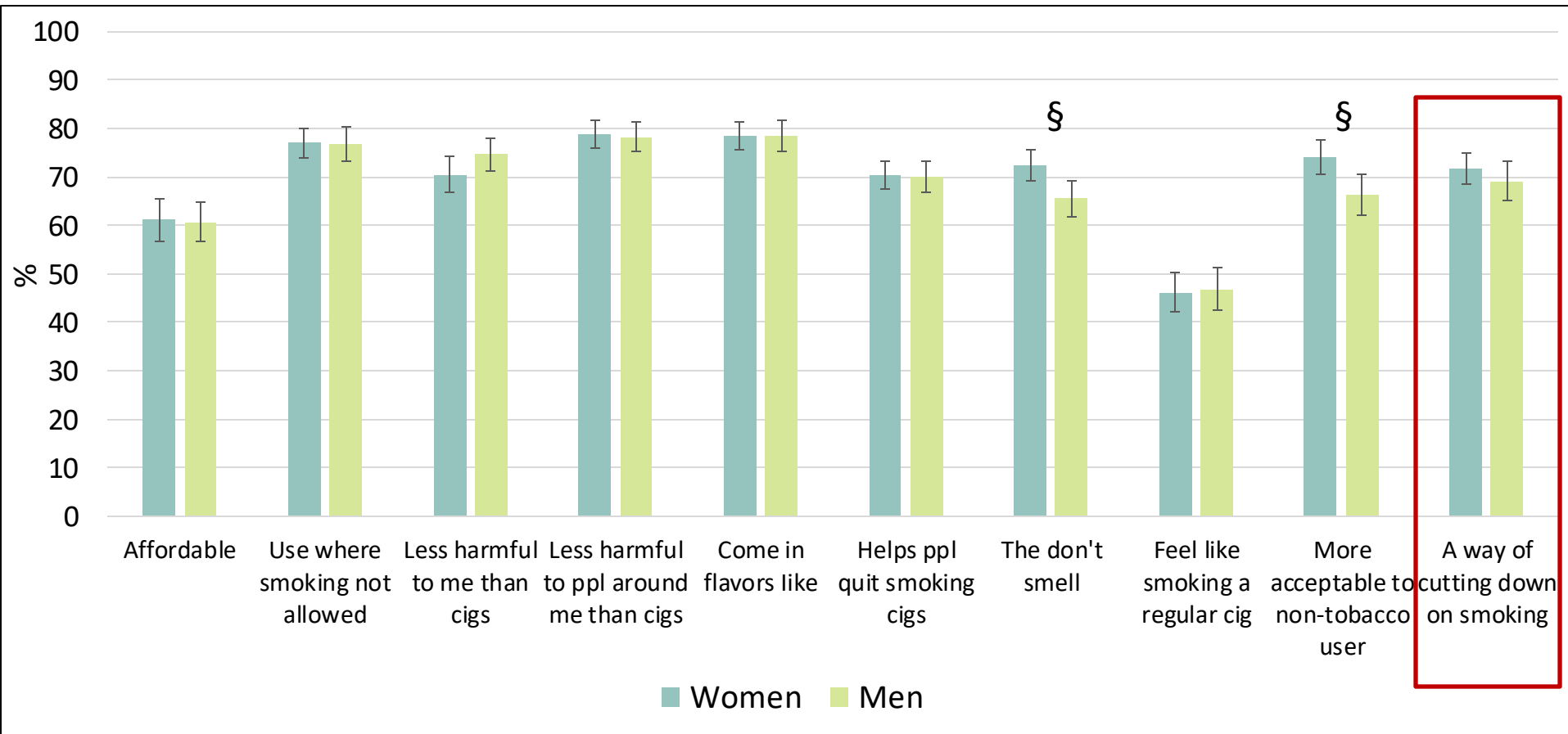
PATH W4 US Dual Users by Sex: Education



PATH W4 US Dual Users by Sex: Use Patterns



PATH W4 US Dual Users by Sex: Reasons for E-cigarette Use



Summary

- US women vs men dual users were less likely to quit smoking at Wave 5
- This effect could be driven by greater cigarette dependence, non-daily e-cigarette use, and older age among women vs men dual users
- Most women and men dual users vape to cut down on smoking, but women also appear more likely to endorse using e-cigs due to social acceptability

Limitations

- Analyses are exploratory & correlational
- Relies on self-report & long-term retrospective recall
- Does not account for products other than cigarettes & e-cigarettes

Implications

- Women vs men dual users may have an increased need for smoking cessation treatment
- As treatment is developed, effects should be examined by sex to ensure efficacy among both women and men
- Future research to explore the intersectionality of vulnerabilities to dual use among women could further inform treatment efforts

Thank you

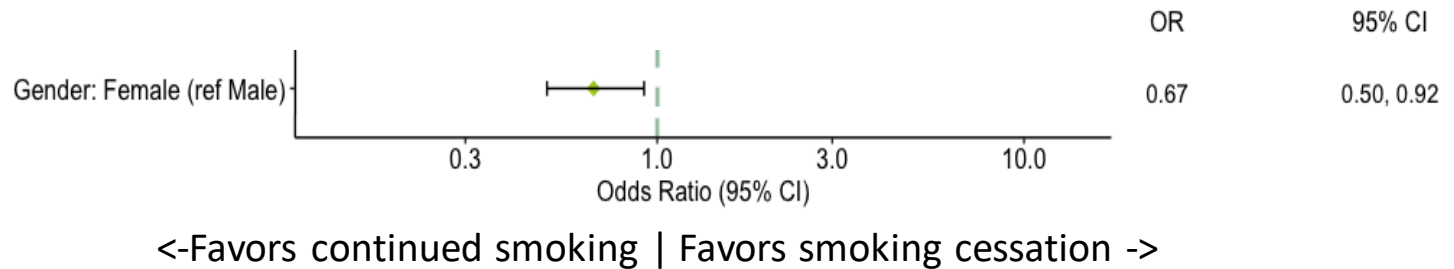
Questions?

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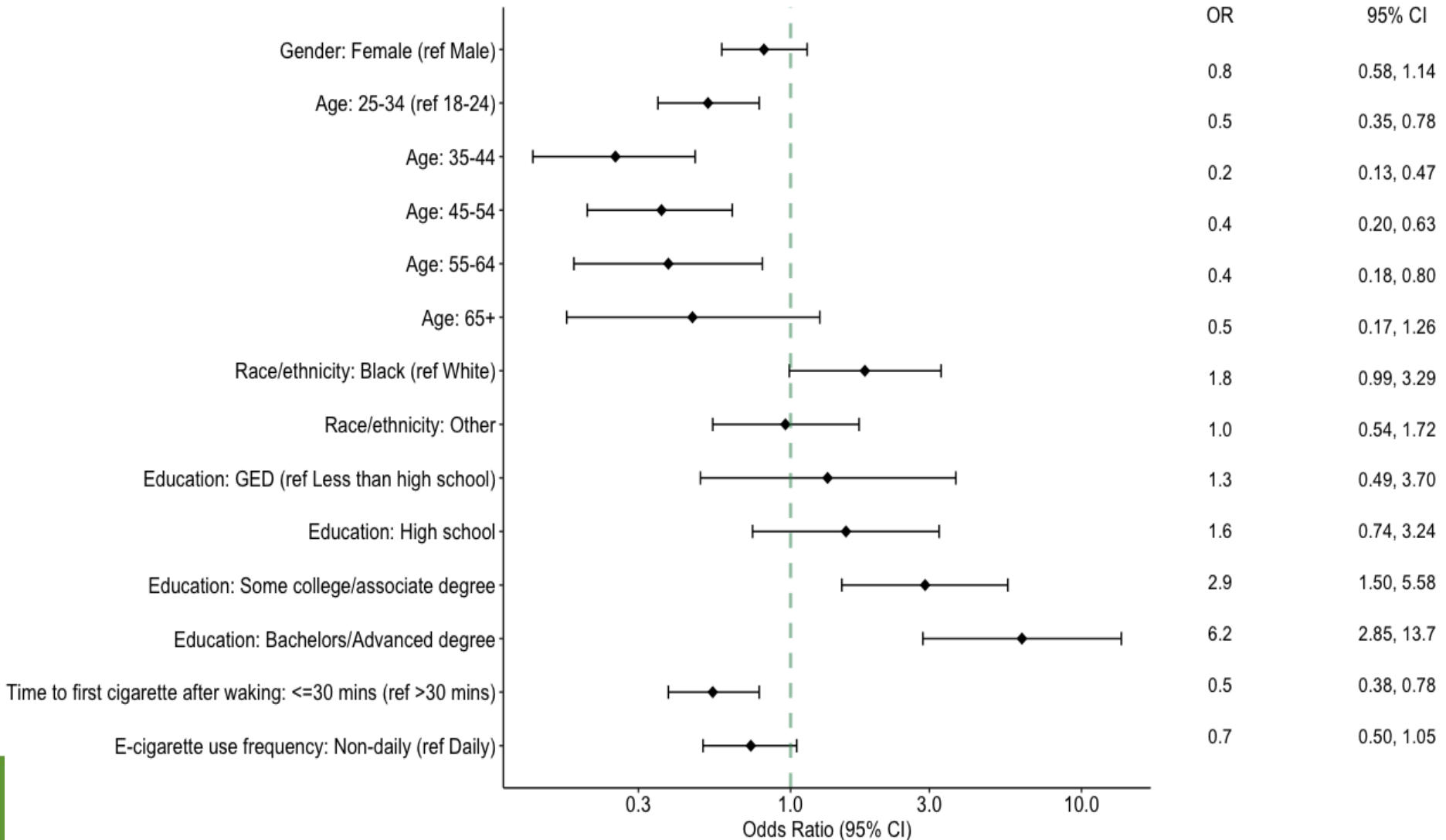
Plug for posters:

- Do women vs men differ in nicotine product substitution for cigarettes using the experimental tobacco marketplace - Marc Feinstein
- Dual combustible and e-cigarette use patterns by sex in a fine-grained natural history study – Rhiannon Wiley
- Attempts to quit smoking and vaping among a treatment seeking sample of young adult women who dually use cigarettes and e-cigarettes – Katya Marsh

Adjusted associations between gender and W5 smoking abstinence among W4 dual users

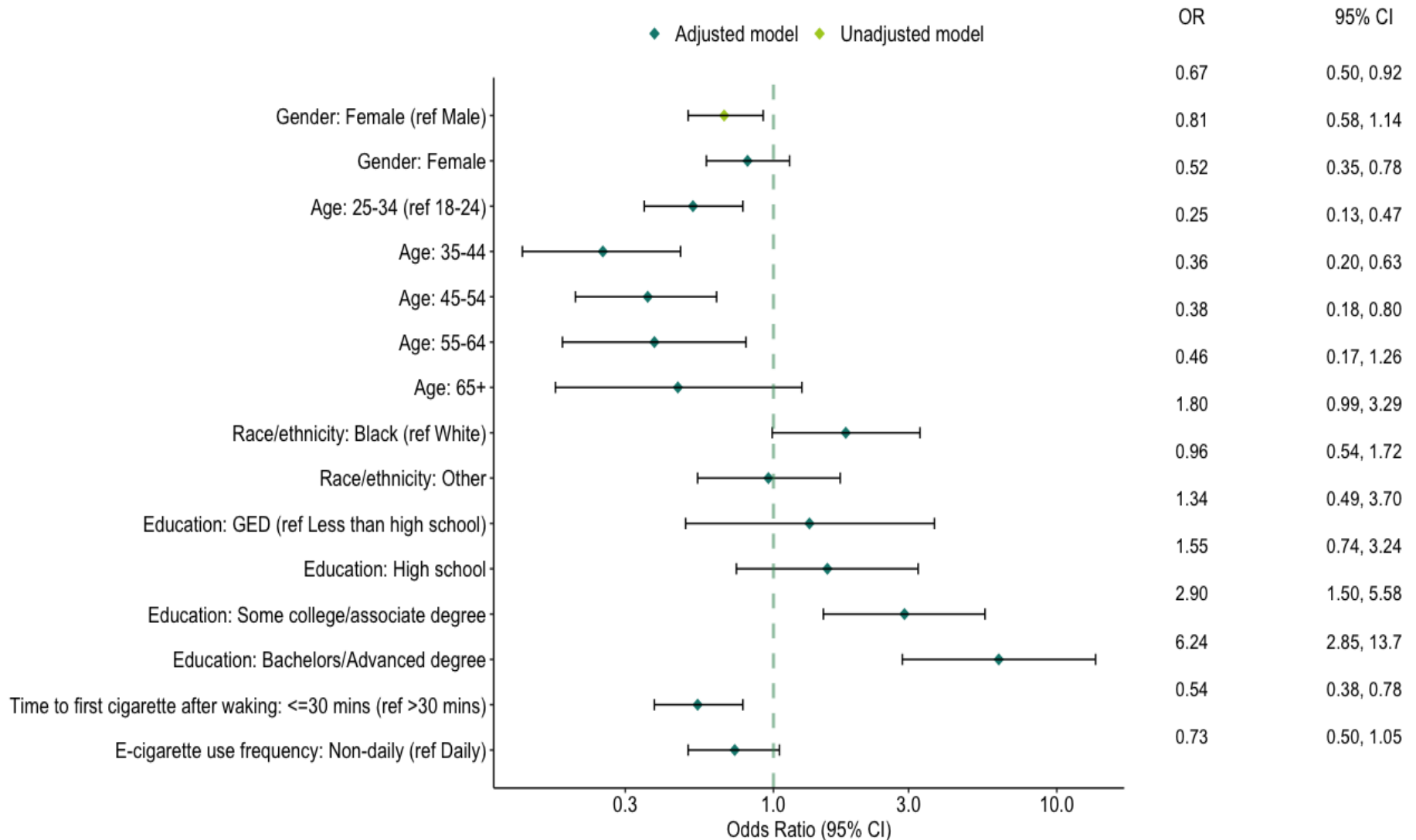


Adjusted associations between gender and W5 smoking abstinence among W4 dual users



<-Favors continued smoking | Favors smoking cessation ->

Adjusted associations between gender and W5 smoking abstinence among W4 dual users



<-Favors continued smoking | Favors smoking cessation ->

PATH W4 Dual Users

- N=1,591 adult dual users: Current established cig smokers + current every day or some day e-cig users

Characteristic	Weighted % (95% CI)
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55-64	9.2 (7.7-10.7)
65+	3.7 (2.6-4.8)
Marital status	
Married	31.8 (29.3-34.2)
Widowed, divorced, separated	23.1 (20.8-25.3)
Never married	45.1 (42.4-47.8)
Sexual orientation	
LGBTQ	14.4 (11.9-16.9)
Straight	85.6 (83.1-88.1)

Characteristic	Weighted % (95% CI)
Education level	
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PATH W4: US Dual Users by Gender: Marital Status & Sexual Orientation

