



TRENDS IN E-CIGARETTE AND HEATED TOBACCO PRODUCT USE IN URBAN SOUTH AFRICA

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Trends in e-cigarette and heated tobacco product use in urban South Africa

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1. Rationale:

The necessity of tracking e-cigarette and heated tobacco product consumption patterns

This research brief presents a summary of results from a survey which forms part of the Tobacco Control Data Initiative (TCDI) led by Development Gateway: An IREX Venture in partnership with the Research Unit on the Economics of Excisable Products and funded by the Bill and Melinda Gates Foundation. This study, the South African E-Cigarette Survey 2022, contributes to the pressing research and policy questions by estimating consumption patterns of electronic nicotine and non-nicotine delivery systems and heated tobacco products (henceforth defined as “e-cigarettes” in this brief). We focus on a sample of respondents aged 18 years and older residing in non-metro and metro urban South Africa. Three broad patterns of e-cigarette consumption are presented:

- **Trend 1: Static consumption.** Patterns in the use of e-cigarettes and “dual use” (using both e-cigarettes and combustible cigarettes) are presented. Whether dual users on average are smoking fewer cigarettes than combustible cigarette smokers is also investigated. The latter question is important, as it addresses whether e-cigarette use leads to a higher-than-average use of nicotine products.
- **Trend 2: Dynamic consumption.** The results on changes in use over time are presented. Specifically: (1) whether e-cigarette users are more likely to go on to smoke combustible cigarettes and (2) whether combustible cigarette smokers started using e-cigarettes, then quit cigarettes. These trends are important as they begin to explore some of the biggest issues around e-cigarettes, namely whether (1) e-cigarettes are a gateway to combustible cigarette smoking and (2) if they are a tool for successful smoking cessation.
- **Trend 3: E-cigarette users’ beliefs about e-cigarettes’ harm and addictiveness relative to cigarette smoking.** The health belief model is a model often applied to understand decisions that affect health, such as deciding to use e-cigarettes. The model proposes that (1) the perceived threat to illness (e.g., will using this product make me ill), (2) the belief about the severity of the consequences of the behaviour (e.g., how ill will this make me), and (3) the perceived benefits of the behaviour (e.g., will this product make me smoke fewer combustible cigarettes) are some of the key predictors of whether or not an individual will adopt that health behaviour (Case et al., 2016). Therefore, an individual’s beliefs about e-cigarette harm and addictiveness can be important predictors of whether an individual decides to use e-cigarettes.

1. A limitation of our research is that the survey design grouped together electronic nicotine and non-nicotine devices (ENDS/ENNDS) and heated tobacco products (HTPs). However, these products are different: The former do not include tobacco while the latter do. They are increasingly treated differently in research and policy, and it is recommended that HTPs be legislated similarly to combustible cigarettes. We grouped ENDS/ENNDS and HTPs together, as during piloting, most users were unable to differentiate between the product types and used the catch-all phrase “e-cigarettes” for both product types. The survey did also ask about the ENDS/ENNDS and/or HTP brands the respondents used. This revealed that most products were ENDS/ENNDS with a very small share using HTPs.

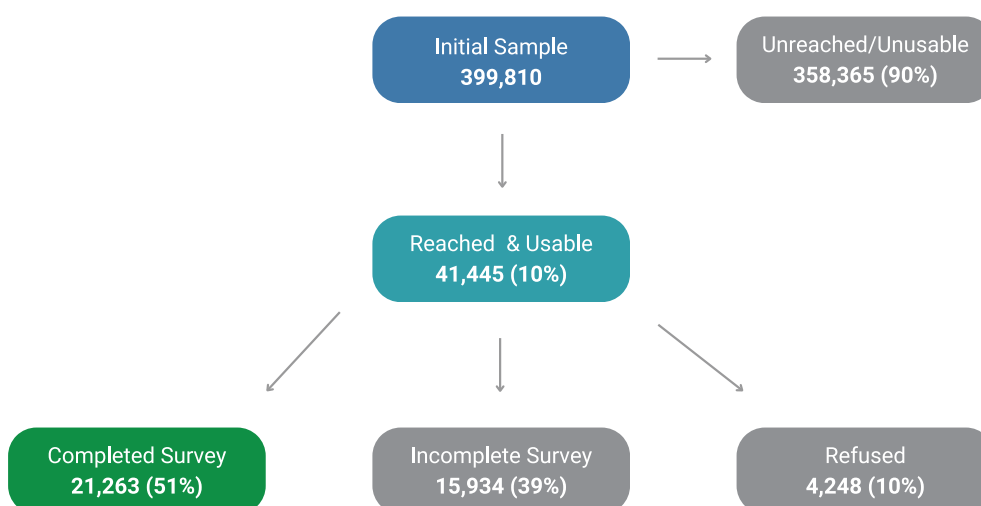
2. South Africa has eight metro urban areas. This study includes those eight metros, but also includes other urban areas (defined by the community size) outside of the metros (non-metro urban areas).

2. Survey Description

Nationally representative data from urban South Africa were collected in 2022 (14 January–7 August) using a telephone survey of adults (18 years and older) residing in metro and non-metro urban areas in South Africa.

The final sample consists of 21,263 respondents (Figure 1). A sampling framework was created using information from credit bureaus. In total, 399,810 numbers were called, but 90% were unreachable (e.g., no one answered or the number was busy) or unusable (e.g., the user was deceased or their number was blacklisted). Of the calls answered, 10% refused to do the survey, while 39% did not complete the interview, and 51% completed the survey and provided usable data. Therefore, 5% (21,263) of the total phone numbers in the sample resulted in completed surveys which were used in the analysis. This response rate is in line with international studies using telephone surveys (Keeter et al., 2017).

Figure 1: Sampling of respondents in the survey, 2022



3. Sample Description

Some people were more likely to answer their phones and participate in the surveys than others. People living in metro urban areas (compared to those living in non-metro urban areas) and people from the middle- and upper-income areas (compared to low-income areas) were more likely to answer their phones and participate in the survey. The biases are important to keep in mind when reading the results.

The final sample used for our (weighted) analysis displays racial, gender, and income diversity.

- 73.2% of the sample self-identify as Black, 9.9% Coloured, 3.6% Asian/Indian, and 13% White (compared to national population estimates where 80.7% of South Africans self-identify as Black, 8.8% Coloured, 2.6% Asian/Indian, and 7.9% White (StatsSA, 2020)).
- The sample is equally split between those identifying as men and women.

- The income areas sampled include lower (60.6%), middle (25.1%), and upper (14.2%) income areas (comparisons with national population estimates are not possible given the way income classifications are calculated).³

4. Trends in consumption⁴

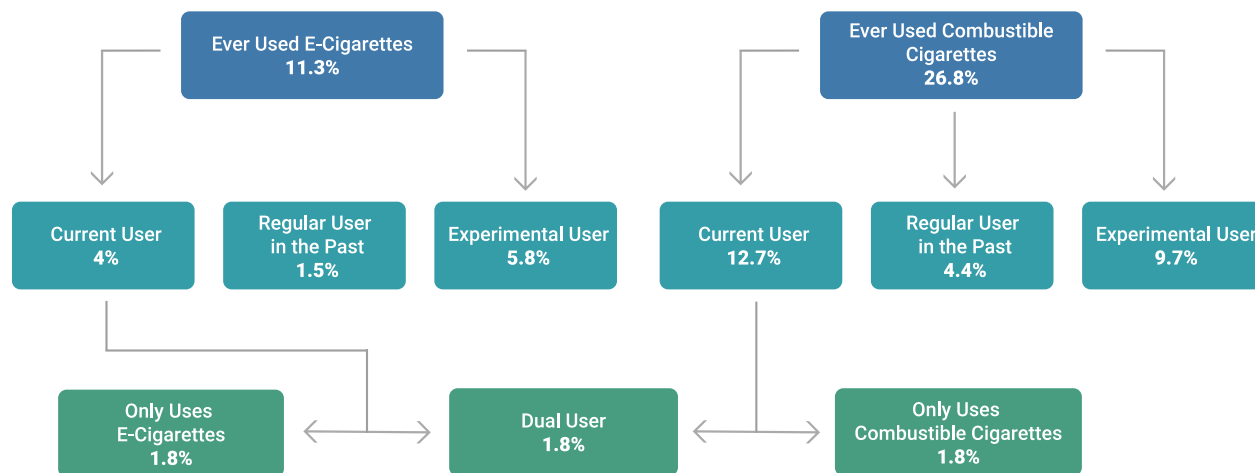
4.1 Trend 1: Static consumption

More than one out of every 10 South Africans in urban areas (11.3%) have ever tried e-cigarettes.

- 4.0% currently regularly use e-cigarettes (defined as at least once a week).
- 1.5% regularly used e-cigarettes in the past (used at least weekly in a typical month in the past).
- 5.8% have experimented with e-cigarettes (at least one e-cigarette puff but never as regularly as weekly in a typical month). (Figure 2)

More than half of all current regular e-cigarette users are also current regular combustible cigarette smokers. Among current e-cigarette users, 58% are also smoking combustibles. The overall prevalence of dual users is therefore 2.3% (Figure 2).

Figure 2: Prevalence of e-cigarette, combustible cigarette⁵ and dual use,⁶ 2022



3. The income segments are defined using the proprietary data segmentation product of the data collection company we used, Ask Afrika. Enumerator areas are classified with low-, middle-, or high-income using average household incomes, household size, area type, building types (using satellite imagery), and credit-risk information. These classifications are then benchmarked to StatsSA district-level results and updated annually by a statistician. Read more here: <https://geoterraimage.com/nli-summary>.

4. All results reported in this report should be considered statistically significant at the 5% level, unless stated otherwise.

5. We defined combustible cigarette smokers as follows. A "current smoker" has smoked over 100 cigarettes in their life and currently smokes at least weekly. A "past smoker" is not a current smoker, has smoked over 100 cigarettes in their life, and smoked at least weekly in a typical week. An "experimental smoker" has smoked at least one cigarette puff but has not smoked as many as 100 cigarettes OR never smoked cigarettes weekly.

6. There is a small difference in the denominator for the "ever used e-cigarettes" group and the "ever used combustible cigarettes" group due to a sampling error; 479 respondents are known non-e-cigarette users, but we are uncertain on their combustible cigarette smoking status (i.e., regular, past or experimental). Going forward, the denominator for the e-cigarette group is used.

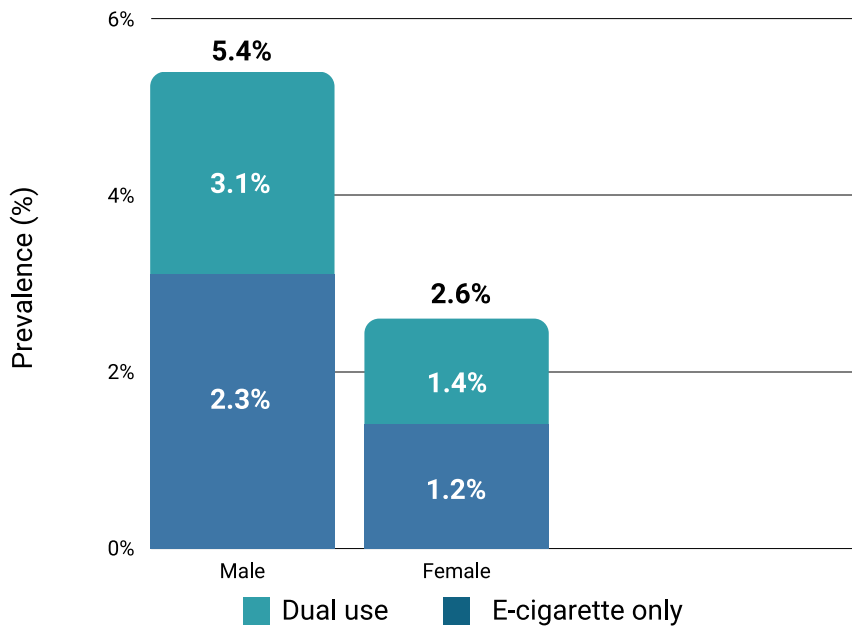
Current regular e-cigarette and dual use is least popular for those who self-identify as Black.

- 2.7% of those who self-identify as Black report currently using e-cigarettes, and 1.4% are dual users.
- Among those who self-identify as Coloured, 8.3% report using e-cigarettes and 5.4% are dual users. This prevalence is similar for the study population that self-identify as Indian/Asian (6.7% for e-cigarette use and 4.0% for dual use) and White (7.7% for e-cigarette use and 4.2% for dual use). The differences between these three groups are not statistically significant.

Men are significantly more likely to currently regularly use e-cigarettes than women.

- 5.4% of men currently regularly use e-cigarettes (3.1% are dual users), compared to 2.6% of women currently regularly using e-cigarettes (1.4% are dual users).

Figure 3: Prevalence of e-cigarette and dual use by gender, 2022



Current regular e-cigarette use is most popular among the younger age groups.

- 7.7% of 18–24 year olds and 6.2% of 25–34 year olds currently use e-cigarettes (though this difference in prevalence is not statistically significant).
- E-cigarettes are less popular with middle-aged and older age cohorts. Among those aged 35–44, 45–54, and 55–64 years, 3.7%, 2.7%, and 2.5% report currently regularly using e-cigarettes, respectively. These differences are not statistically significant.
- E-cigarette use drops significantly in popularity among the oldest cohort, with 1.5% of those aged 65 and older currently regularly using e-cigarettes.

Current dual use of e-cigarettes and combustible cigarettes is more common among those residing in higher income areas.

- The prevalence of dual use declines with income: high-income areas (3.3%), middle-income areas (2.9%), and low-income areas (1.8%), though the difference between the high- and middle-income groups is not statistically significant.

On average, a similar number of combustible cigarettes are smoked by dual users and those who only smoke cigarettes. Smokers smoke 10.8 cigarettes on average per day, compared to 11.1 cigarettes for dual users. This difference is not statistically significant.

4.2 Trend 2: Dynamic Consumption

Dual users are analysed to explore the order of when people start e-cigarettes and combustibles to provide descriptive evidence of transitions in the products used. We explore two sets of actions.

- **On-rampers:** Someone who used e-cigarettes, with no history of smoking combustible cigarettes, then started smoking combustible cigarettes and was still smoking them at the time of the survey.
- **Off-rampers:** Someone who smoked combustible cigarettes, with no history of e-cigarette use, then started using e-cigarettes and later quit smoking combustible cigarettes.

Among people who regularly used e-cigarettes, prior to ever regularly smoking combustibles: one in five (19%) are on-rampers (i.e., began smoking combustible cigarettes after using e-cigarettes and were still smoking when surveyed). Of this group, 84% are still using e-cigarettes while 16% had quit using e-cigarettes.

Figure 4: On-rampers

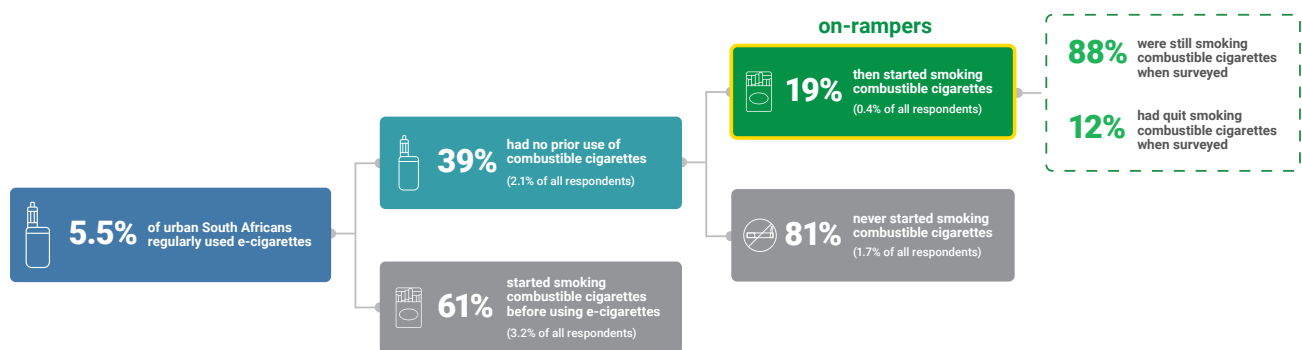
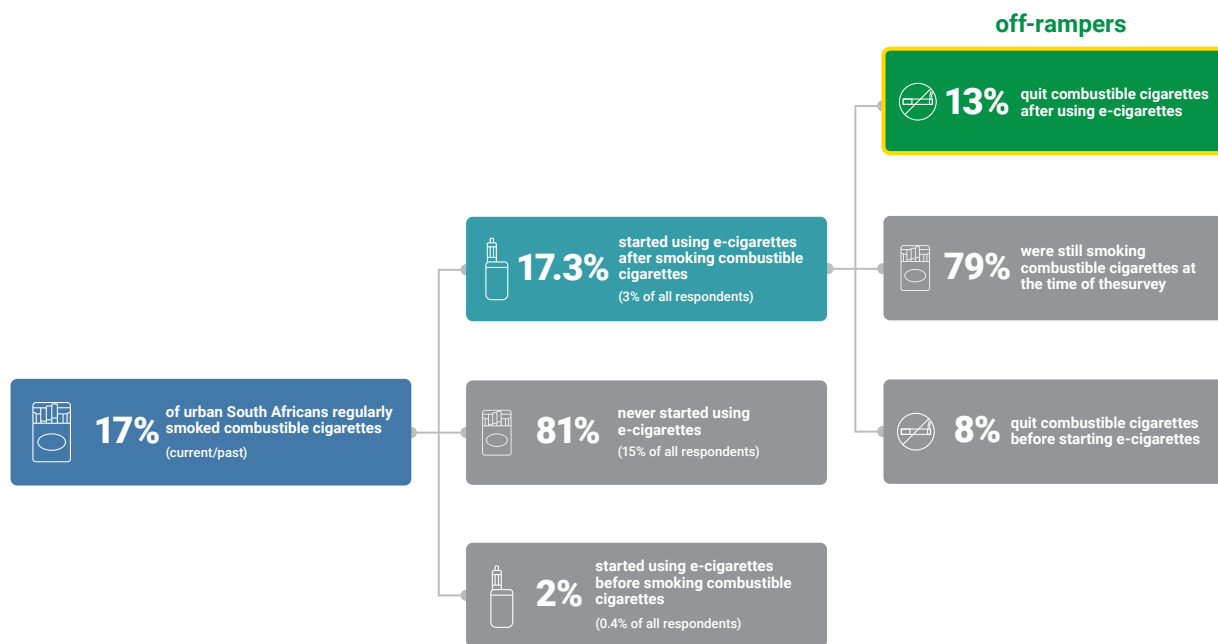


Figure 5: Off-rampers



Among people who started using e-cigarettes after regularly smoking combustible cigarettes: one in eight (13%) are off-rampers (i.e., stopped smoking combustible cigarettes after starting e-cigarettes). Of these people, 65% are still current e-cigarette users, while 35% had stopped using either product.

4.3 Trend 3: E-cigarette and combustible cigarette users' beliefs about e-cigarette harm and addictiveness ⁷

People who have used both e-cigarettes and combustible cigarettes believe e-cigarettes are less addictive than combustible cigarettes.

Almost half of all dual users (48%) believe e-cigarettes are less addictive than combustible cigarettes, 18% believe e-cigarettes are more addictive than combustible cigarettes, and 35% believe they are equally addictive.

There are mixed views on the harmful nature of e-cigarettes: 38% of dual users believe e-cigarettes are less harmful than combustible cigarettes, while 41% believe they are equally harmful, and 22% believe e-cigarettes are more harmful than combustible cigarettes.

7. Questions regarding beliefs about the harms and addictiveness of e-cigarettes and combustible cigarettes were only asked to participants who had used both e-cigarettes and combustible cigarettes.

5. Conclusion

In 2022, in urban South Africa, e-cigarette use is most popular among the youth and men, and least popular among people who self-identify as Black. Dual use of both e-cigarettes and combustible cigarettes is common, with nearly two-thirds of current e-cigarette users also smoking combustibles. The average number of cigarettes smoked is very similar between dual users and people who only smoke combustibles.

There is dynamic movement between e-cigarette and combustible cigarette smoking. One in five people who regularly used e-cigarettes prior to ever regularly smoking combustibles are on-rampers (i.e., later started smoking combustibles). One in eight people who started using e-cigarettes after regularly smoking combustible cigarettes are off-rampers (i.e., later quit smoking combustibles).

People who are using both harmful products (e-cigarettes and combustibles) are more likely to believe e-cigarettes are less addictive and harmful. Messaging around e-cigarette harm and addictiveness should clearly state the health risks associated with e-cigarette use. Given the emerging evidence on these health risks, users should have full information on health harms and addictiveness when making their decision around e-cigarette use.

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