



# HTP and e-cigarette use in North Macedonia

– an exploratory study





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## Executive summary

This survey aims to offer a better understanding of heated tobacco products (HTP) and e-cigarette use among a targeted group of tobacco and nicotine users in North Macedonia. It also aims to inform the design of future research on this topic. The survey employed quota sampling, a non-probability sampling method in which researchers relied on a convenience sample involving individual users of manufactured cigarettes, HTP, or electronic cigarettes aged 18 and older. Such method does not allow for valid statistical inferences with respect to the whole population of North Macedonia nor does it provide prevalence estimates. Nevertheless, it provides important insights into the habits of nicotine users in North Macedonia and suggests several policy interventions:

- ◇ The HTPs and electronic cigarettes (e-cigarettes) are more popular among younger population of North Macedonia while older cigarette smokers are less likely to abandon their manufactured cigarettes and switch to these products. HTP and e-cigarette users revealed that one of the main reasons for their preference for these products over cigarettes is their unrestricted use in public places. Another reason is flavoring which is not allowed for manufactured cigarettes. Banning flavors and banning vaping in public places are a common practice across many European countries.
- ◇ Despite their substantial tax advantage, the prices of HTPs are higher compared to manufactured cigarettes. E-cigarette liquid also enjoys a substantial tax advantage over manufactured cigarettes. Nevertheless, those using both manufactured cigarettes and the new products (HTPs and e-cigarettes) spend more on their habit compared to those using a single product. The dual users of manufactured cigarette and e-cigarette report the highest average monthly spending of MKD 5034 on their nicotine addiction. This represents 12% and 22% of the average and minimum monthly wage in North Macedonia, respectively. Future studies may want to investigate the impact of higher taxes and prices on demand and cross substitution between different nicotine products as well as their profitability.
- ◇ The money spent on dual use might be one of the reasons why these consumers are more motivated to quit compared to the users of a single product even though an interest in quitting and in consulting a health professional about nicotine use is low among all types of users. There is an opportunity to engage more medical professionals in North Macedonia in offering cessation services for all types of nicotine products, but also in public health campaign that would disclose misconceptions on less harmful impact of HTP and e-cigarettes.

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## 1. Introduction

Tobacco use prevalence in North Macedonia is among the highest in Europe. The adult tobacco use prevalence in North Macedonia reached 45.4% in 2023 while the EU average was 24% in 2023. For the first time, the survey revealed that tobacco use among women in North Macedonia is more common (47.6%) than among men (39.7%). Tobacco use prevalence among youth in North Macedonia (12.4% in 2016) is similar to the European average (12.7% in 2020).

According to the 2023 survey conducted by WHO, 93.4% of adult tobacco users in North Macedonia smoke cigarettes (both manufactured and RYO). This is a slight decline compared to 97.5% in 2019. This signals a growing preference for other tobacco products.

About 4.5% and 1.8% of adult Macedonians reported using heated tobacco products (HTPs) and e-cigarette in 2023, respectively. Four years earlier, in 2019, no use of HTPs was detected and the prevalence of e-cigarette use was 1.2%. This points to a relatively quick uptake of HTPs among adults compared to e-cigarettes. Unfortunately, there is no data on the use of HTPs and e-cigarettes by youth in North Macedonia. Adult HTP and e-cigarette current use in Europe is estimated at 1.3% and 2% in 2020, respectively. The youth prevalence of HTPs use in Europe varies significantly across countries, ranging from 1.1% to 13% with the average of 3.4% while e-cigarette use increased from 3.9% in 2016 to 6% in 2019.

In 2023, the minimum excise tax levied on a pack of 20 MCs in North Macedonia was 65.06 MKD, a pack of 20 HTPs had excise tax of 24.40 MKD (assuming 0.305g of weight in 1 HTP stick) and a daily dose of e-cigarette liquid (assuming 7 ml per day) was taxed by 19.6 MKD. In 2024, these taxes increased to 73.66 MKD, 26.54 MKD, and 22.4 MKD, respectively. It is evident, that the new tobacco products have a substantial tax advantage and might be behind the increased preference for them.

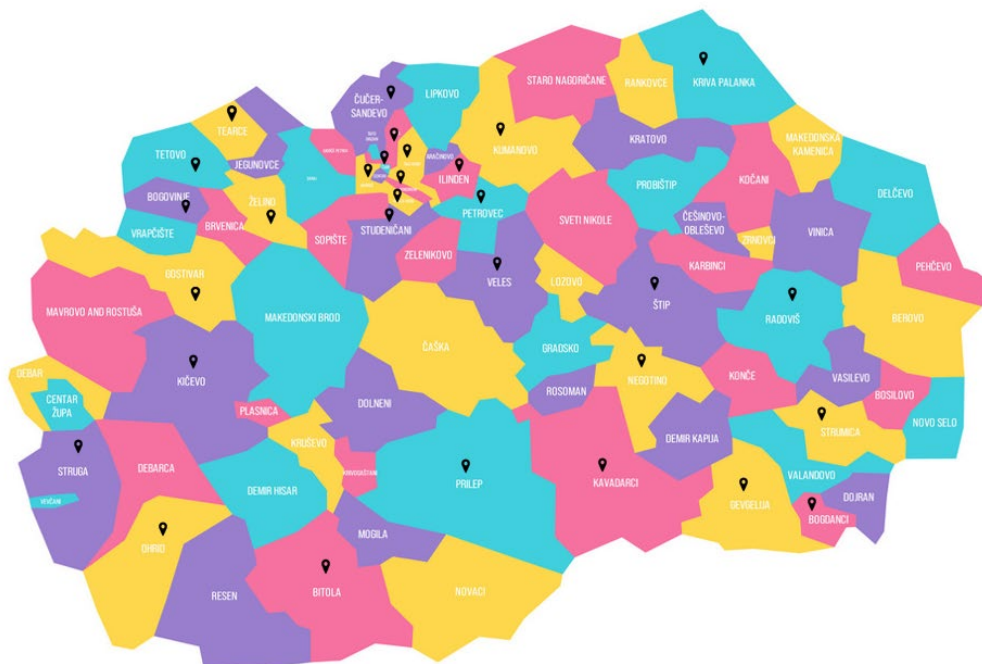
## 2. Methodology

This survey conducted by Analytica, Skopje, and the Global Tax team of the World Bank aims to offer a better understanding of heated tobacco products (HTPs) and e-cigarette use among a targeted group of tobacco and nicotine users in North Macedonia and to inform the design of future research on this topic.

Face-to-face interviews across North Macedonia at homes and in relevant public places such as smoker-designated areas, universities, cafes, and public squares were conducted from February 19 to March 4, 2024. The fieldwork was Ethical clearance was obtained before the launch of the survey.

The map of the sampled municipalities (Figure 1) and the number of observations in each is listed in Table 1. The majority of the interviews (45%) were conducted in the capital, Skopje.

*Figure 1. Map of the 2024 survey locations*



**Table 1.** List of municipalities and the number of interviews

Region	Municipality	Count
Skopje	Aerodrom	65
	Butel	30
	Centar	51
	Chair	53
	Chucher Sandevo	2
	Gazi Baba	28
	Gjorche Petrov	31
	Ilinden	2
	Karposh	49
	Kisela Voda	44
	Petrovec	4
	Saraj	5
	Shuto Orizari	2
Studenichani	1	
South-eastern	Bogdanci	11
	Gevgelija	1
	Radovish	13
	Strumica	30
South-western	Kichevo	20
	Ohrid	25
	Struga	32
Vardar	Kavadarci	29
	Negotino	1
	Veles	34
Eastern	Shtip	35
Pelagonia	Bitola	28
	Prilep	25
Polog	Bogovinje	4
	Gostivar	22
	Tearce	7
	Tetovo	65
	Zhelino	4
North-eastern	Kriva Palanka	15
	Kumanovo	54

The initial quota of 820 participants was exceeded by 2. Thus, the final sample consisted of 822 respondents. These were divided into 7 categories of users based on product preferences as described in Table 2. Participants were also grouped based on use of any of the products meaning that in this case dual users were counted more than once (Table 3). Such grouping allowed for better understanding the product preferences across demographic characteristics of the sample.

Females dominate the sample, which corresponds to the finding of the 2023 survey. Prior surveys found that men smoke more than women in North Macedonia.



### 3. Results

Those who initiated their nicotine use with HTPs or e-cigarettes are substantially younger. This finding is likely the result of the relatively recent appearance of these products on the market. The MC users are much older compared to the HTP and e-cigarette users. This may indicate that the switch to HTPs and/or e-cigarettes is less likely among older cigarette smokers.

HTP and dual users seem to be the most educated, but this finding needs to be interpreted with caution given that the sample is not representative. The lower percentage of university graduates among HTP and e-cigarettes (E-cig) initiators is likely due to lower age in these groups.

**Table 2.** *The sample’s characteristics*

Number of observations	Product(s) used	Average age	% of male	% of university educated
200	Only MCs	49	45.5	18
150	MCs & HTPs	39	39	44
70	MCs & E-cig	40	47	33
100	HTPs only	25	54	21
52	E-cig only	28	40	15
200	Switched from MCs to HTPs	41	50	37
50	Switched from MCs to E-cig	38	46	28

**Table 3.** *The sample’s characteristics*

Number of observations	Product(s) used	Average age	% of male	% of university educated
420	MCs users	43.9	43.6	29.5
450	HTPs users	36.8	47.3	35.6
172	E-cig users	35.8	44.8	26.2

Table 4 describes the consumption pattern of seven types of users. Several emerging patterns occur:

- ◊ Daily use of a product of choice is very pronounced among MC smokers with 99% of them smoking daily. Daily use is lower among those who only use HTPs or e-cigarettes compared to the MC users: close to 90% of them use these products daily.

- ◇ Dual users primarily rely on MC for their daily nicotine supply.
- ◇ E-cigarette users seem more curious about HTPs than HTP users are about e-cigarettes.
- ◇ About 10% of current MC smokers tried HTP and/or e-cigarette but stayed with their current product of choice, while the HTP and/or e-cigarette users are much more willing to experiment with alternative products.

Future studies could explore whether these findings hold in a nationally representative sample.

*Table 4. Consumption patterns I (row %)*

Type		Yes, daily	Yes, less than daily	Used to use it daily	Used to use it less than daily	Tried several times but never used continually	Tried once	Never tried
Only MCs	Manufactured cigarettes	99.0	1.0					
	Electronic Cigarettes					3.0	8.0	89.0
	HTPs					3.0	8.5	88.5
MCs & HTPs	Manufactured cigarettes	95.3	4.7					
	Electronic Cigarettes	1.3	.7		1.3	6.7	18.0	72.0
	HTPs	82.0	18.0					
MCs & E-cig	Manufactured cigarettes	94.3	5.7					
	Electronic Cigarettes	81.4	18.6					
	HTPs	2.9				12.9	15.7	68.6
HTPs only	Manufactured cigarettes					11.0	18.0	71.0
	Electronic Cigarettes		1.0			9.0	11.0	79.0
	HTPs	88.0	12.0					
E-cig only	Manufactured cigarettes					3.8	9.6	86.5
	Electronic Cigarettes	90.4	9.6					
	HTPs					3.8	15.4	80.8
Switched from MCs to HTPs	Manufactured cigarettes			90.5	9.5			
	Electronic Cigarettes	1.5	.5			5.0	17.5	75.5
	HTPs	89.5	10.5					
Switched from MCs to E-cig	Manufactured cigarettes			90.0	10.0			
	Electronic Cigarettes	92.0	8.0					
	HTPs				2.0	14.0	12.0	72.0

*Table 5 provides additional insights into behavior of the seven user types:*

- ◇ Dual users consume more products than those who switched completely while those who initiated with HTPs or e-cigarettes consume them with the lowest intensity. A nationally-representative study should confirm this finding and explore the reasons behind it.
- ◇ Most e-cigarette users use flavored e-cigarettes while about half of HTP vapers use flavors. Slightly less than half and a quarter of e-cigarette and HTP vapers use only flavored products, respectively.
- ◇ Average prices paid for HTPs are higher compared to MCs. Prices paid for e-cigarettes are not directly comparable, because rather than price these amounts represent the daily expenses on e-cigarettes.
- ◇ Dual users spend more on their habit compared to non-dual users. Those who switched from MC to HTP do not save much, but those switching from MC to e-cigarettes reduce their monthly expenditures on nicotine. HTP and e-cigarette initiators spend the least. These re-

sults are likely driven by difference in the intensity of use, and by demographics, given that HTP and e-cigarette initiators are relatively younger, thus less well-off compared to older nicotine users.

- ◊ The highest average monthly spending of MKD 5034 is among the dual MC/e-cigarette users. This represents 12.2% and 22.3% of the average and minimum monthly wage in North Macedonia, respectively. The dual MC/e-cigarette users have almost twice as many university graduates compared to the MC users, thus likely relatively well-off, meaning that their monthly expenditures on these products represent a lower, but perhaps still significant, share of their income.
- ◊ Dual users seem to be more motivated to quit compared to the users of a single product, even though the share of those making a quit attempt is very low even among dual users. The benevolence of public smoking restrictions in North Macedonia may not generate sufficient pressure to for tobacco users to quit while making smoking more socially acceptable behavior. In North Macedonia, non-combustible tobacco products like heated tobacco devices and electronic cigarettes are exempt from the smoking ban in public places, allowing their use in indoor public spaces where traditional smoking is prohibited. This legal differentiation potentially influences consumer preferences by offering a convenient alternative to traditional smoking.
- ◊ Those who switched from MC to either e-cigarettes or to HTP are more likely to consult a health professional, but the share is relatively low, not exceeding 20%. Less than 9% of those who initiate with HTP or e-cigarettes consulted their health professional while MC users are the least interested in an opinion from a medical professional.

**Table 5. Consumption patterns II**

Number of observations	Product(s) used	Number of products used in a day	Average price for 20 pieces/ daily spent* (MKD/EUR)	Mode price for 20 pieces (MKD/EUR)	Monthly expenditures (MKD/EUR)	% of those making a quit attempt	% using flavor**/ only using flavor	Consulted a health-care professional about their use (%)
200	Only MCs	19.5	127/2.1	130/2.11	3507/57	8.0	NA	5
150	MCs & HTPs	MCs: 11.4 HTPs: 8.9	MCs: 138/2.2 HTPs: 147/2.4	MCs 130/2.1 HTPs 150/2.4	4926/80	MCs: 10.0 HTPs: 6.0	47.4/24.7	9.3
70	MCs & E-cig	MCs: 11.4 E-cig: 8.0	MCs: 142/2.3 E-cig (liquid): 98/1.6	MCs: 150/2.4 E-cig (liquid): 50/0.81	5034/82	MCs: 12.9 E-cig: 10.0	72.9/40.0	14.3
100	HTPs only	10.9	148/2.4	150/2.4	2822/46	2.0	45.0/25.0	9
52	E-cig only	8.0	129/2.1 (liquid)	100/1.6 (liquid)	2271/37	7.7	82.6/53.8	7.7
200	Switched from MCs to HTPs	14.0	147/2.4	150/2.4	3547/58	7.0	51.5/21.0	15
50	Switched from MCs to E-cig	11.0	99/1.6 (liquid)	100/1.6 (liquid)	2708/44	0.0	64.0/46.0	20

\*Prices are reported for 20 sticks to MCs, 20 sticks of HTPs and for daily amount of money spent on e-cigarettes.

\*\* The share of those using flavor include those who using both flavored and non-flavored products

## 4. Emerging policy implications

There are currently no data on the use of HTPs and e-cigarettes among youth in North Macedonia, but there are some emerging patterns that these products might be preferable to younger population as evidenced in this survey. North Macedonia needs to better monitor the use of HTPs, e-cigarettes, and other novel nicotine products such as nicotine pouches, especially among the young population.

Despite their tax advantages, HTP prices are higher compared to cigarettes. Future studies may want to investigate the profitability across all three types of products as well as the impact of higher taxes and prices on demand and cross substitution between nicotine products.

Nicotine users, and especially users of multiple products seem to spend a significant share of their income on their nicotine addiction. This could be exploited in media campaigns pointing to alternative products/services that could be acquired in case of cessation while improving one's health.

The use of flavors is popular among both HTPs and e-cigarettes users. Future studies may want to investigate the impact of banning flavors on the use of these novel products. HTP flavors are banned in the EU as of 2022 while e-cigarette flavors are banned or limited in numerous countries such as Finland, Hungary, Netherlands, Ukraine, Lithuania, Latvia, Denmark, Estonia and Slovenia. The World Health Organization (WHO) urged governments to treat e-cigarettes similarly to tobacco and ban all flavors.

During the interviews, HTP and e-cigarette users revealed that one of the main reasons for their preference for these products over cigarettes is their unrestricted use in public places. This presents an important opportunity for a policy intervention. A ban of vaping in public places is now a common practice across many European countries.

Given that nicotine users perceive HTPs and e-cigarettes as healthier alternatives to traditional cigarettes, there is a clear need for a policy intervention. It should address these misconceptions and raise awareness about the actual health risks associated with these products. This could involve targeted educational campaigns, better access to information, and stricter regulations.

The interest in quitting and in consulting a health professional about nicotine use is very low among all types of users. This presents an opportunity to engage more medical professionals in offering cessation services for all types of nicotine products.

### 1. Limitations

The quota sampling method employed in this explanatory study does not allow for valid statistical inferences with respect to the population of North Macedonia (e.g. coefficients of variation could not be calculated) nor does it provide prevalence estimates. We also note that the sample overrepresents women. Nevertheless, it provides important insights into the habits of nicotine users in North Macedonia.

## Endnotes

1. Tobacco consumption and cessation in North Macedonia, Findings from a behavioral and cultural insights (BCI) survey among the adult population, May 2023, WHO.
2. Attitudes of Europeans towards tobacco and related products, Special Eurobarometer 539, 2023.
3. Tobacco consumption and cessation in North Macedonia, Findings from a behavioral and cultural insights (BCI) survey among the adult population, May 2023, WHO.
4. Global Youth Tobacco Survey (GYTS) North Macedonia, 2016.
5. Prevalence of Tobacco and E-Cigarette Use in Young People in the WHO European Region, WHO. 2022. <https://cdn.who.int/media/docs/librariesprovider2/euro-health-topics/tobacco/03-prevalence-youth-2022.pdf>
6. Hristovska Mijovic, B., Spasova Mijovic, T., Trenovski, B., Kozeski, K., Trpkova-Nestorovska, M., & Trajkova-Najdovska, N. (2020). Tobacco consumption in North Macedonia. Analytica, Skopje, North Macedonia
7. Tobacco consumption and cessation in North Macedonia, Findings from a behavioral and cultural insights (BCI) survey among the adult population, May 2023, WHO.
8. Hristovska Mijovic, B., Spasova Mijovic, T., Trenovski, B., Kozeski, K., Trpkova-Nestorovska, M., & Trajkova-Najdovska, N. (2020). Tobacco consumption in North Macedonia. Analytica, Skopje, North Macedonia
9. Anthony A. Laverty, Constantine I. Vardavas, Filippos T. Filippidis. Prevalence and reasons for use of Heated Tobacco Products (HTP) in Europe: an analysis of Eurobarometer data in 28 countries, *The Lancet Regional Health - Europe*, Volume 8, 2021.
10. Eurobarometer. Special Eurobarometer 506. Attitudes of Europeans towards tobacco and electronic cigarettes. Wave EB93.2 – Kantar, 2021.
11. ESPAD Report 2019 Additional tables, [http://www.espad.org/sites/espad.org/files/20203880\\_TD0320532ENN\\_PDF.pdf](http://www.espad.org/sites/espad.org/files/20203880_TD0320532ENN_PDF.pdf)
12. Global Youth Tobacco Survey (GYTS) conducted in 2016
13. ESPAD Report 2019, <https://tobaccocontrol.bmj.com/content/early/2023/04/24/tc-2022-057749>
14. Taxation of Heated Tobacco Products and Cigarettes. Campaign for Tobacco Free Kids, December 2021.
15. Soule E, Bansal-Travers M, Grana R, *et al.* Electronic cigarette use intensity measurement challenges and regulatory implications. *Tobacco Control* 2023;**32**:124-129.
16. Tobacco consumption and cessation in North Macedonia, Findings from a behavioral and cultural insights (BCI) survey among the adult population, May 2023, WHO.
17. Hristovska Mijovic, B., Spasova Mijovic, T., Trenovski, B., Kozeski, K., Trpkova-Nestorovska, M., & Trajkova-Najdovska, N. (2020). Tobacco consumption in North Macedonia. Analytica, Skopje, North Macedonia

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18. State Statistical Office in Republic of North Macedonia
  19. State Statistical Office in Republic of North Macedonia
  20. Non-combustible tobacco products and electronic cigarettes can also be used indoors. Independent Newspaper 22/12/2021 <https://nezavisen.mk/elektronskite-cigari-mozhe-da-se-pushat-na-zatvoreno/> (accessed 2024-08-29)
  21. EU HTP Flavor Ban to Take Effect Nov. 23. Tobacco Reporter, November 6, 2022; <https://tobaccoreporter.com/2022/11/06/eu-heated-tobacco-flavor-ban-to-take-effect-nov-23/>, accessed 8/21/24.
  22. Restrictions on e-cigarette flavours. Physicians for a Smoke-Free Canada, August 2024. <https://smoke-free.ca/SUAP/2021/e-cigarette-flavour%20restrictions.pdf> accessed 8/21/24.
- ◇ Electronic cigarettes: call to action. WHO, December 2023. [https://cdn.who.int/media/docs/default-source/tobacco-hq/regulating-tobacco-products/ends-call-to-action.pdf?s-fvrsn=ea4c4fdb\\_12&download=true](https://cdn.who.int/media/docs/default-source/tobacco-hq/regulating-tobacco-products/ends-call-to-action.pdf?s-fvrsn=ea4c4fdb_12&download=true); accessed 8/21/24.
  - ◇ Amalia B, Fu M, Feliu A, Tigova O, Fayokun R, Mauer-Stender K, Fernández E. Regulation of Electronic Cigarette Use in Public and Private Areas in 48 Countries Within the WHO European Region: A Survey to In-country Informants. J Epidemiol. 2022 Mar 5;32(3):131-138. doi: 10.2188/jea.JE20200332. Epub 2021 Apr 23. PMID: 33342937; PMCID: PMC8824658.



