

2023 Perception of Oral Nicotine Products (ONP) Survey: Technical Report

Brian V. Fix, Richard J. O'Connor

Roswell Park Comprehensive Cancer Center

10 October 2023

Introduction: Oral Nicotine Products (ONP) represent a novel class of non-combustible products that deliver nicotine orally, with and without the inclusion of tobacco. These products have included dissolvable products and pouches and differ from traditional smokeless tobacco (ST) products, such as dip, chew, and moist snuff (e.g., Skoal, Copenhagen) in that, although they contain nicotine, they typically do not contain tobacco leaf, and may even include synthetically produced nicotine (not derived from tobacco). Swedish Match North America launched a new 'modern' oral nicotine pouch, ZYN, nationally in April 2019. They are often positioned for marketing as being cleaner when compared to products using tobacco plant material. Soon after, DRYFT, On!, and Velo, produced by other tobacco companies, joined the market. These products are portioned pouches placed between the lip and gum. However, these products do not contain tobacco leaf but instead are usually filled with a white powder that, in most cases, contains tobacco-derived or synthetic nicotine at varying concentrations (2-60mg depending on the brand).

Many ONPs are available in a variety of flavors, including cool mint, fruit, and coffee. Tobacco consumers, especially smokeless tobacco users, may view ZYN as a reduced-risk product because it is a nicotine delivery product without tobacco, hence absent of the perceived risks from consumption of a 'tobacco' product. Current smokers could be attracted to these novel nicotine products as a partial or complete substitute source of nicotine, while nonusers could be attracted to dosing nicotine without inhalation.

ONPs may be particularly enticing to youth and young adults due to the availability of flavors and lack of aerosol emissions or spitting, meaning use can be easily concealed. Youth and adults may perceive these products as 'healthy' or safe since they do not contain tobacco, particularly with recent counter-marketing highlighting harms associated with smoking and vaping.

In addition, with recent restrictions and bans on flavored e-cigarettes and impending bans on menthol in cigarettes and cigars, the marketing of flavored ONPs may be enticing to some disaffected vapers and smokers. So, there is a risk that nicotine users (experienced and naïve, including youth) who find flavors particularly appealing may seek out such products. This could engender a "new epidemic" of flavored nicotine product use, as happened with the advent of JUUL use in youth. This is of great concern as the presence and levels of exposure to potentially carcinogenic additives remain to be better understood. The discreetness and array of flavors available in ONP may make them attractive to youth, including never-nicotine users. Thus, they could serve as an entry point for further nicotine use in riskier forms, including e-cigarettes and, far worse, combustible cigarettes. They could also serve a bridging function or as a product for occasional or dual use, allowing access to desired flavors no longer available in electronic or conventional cigarettes, or as a 'reduced harm' option for current tobacco and even e-cigarette users.

The objective of this survey was to evaluate intention to try and willingness to purchase ONPs across 5 mutually exclusive categories of current tobacco product use (current exclusive cigarette, current exclusive

electronic nicotine delivery systems (ENDS), current exclusive oral nicotine products, and current use of multiple products, current use of no tobacco or nicotine products).

Methods: Participants were recruited using PrimePanels through CloudResearch (Brooklyn, NY), an online participant-sourcing platform. Different providers have different ways of incentivizing participation. For example, SurveyMonkey gives to the participant's charity of choice. Other platforms give gift cards or rewards points. Most of the time, market research platforms leave compensation options up to the participants themselves (whether that be reward points, gift cards, or check). Both portals are accessed through the online platform, and CloudResearch® makes the payments to the participants, on the study's behalf.

Prior to the survey, recruitment goals were set for adults (18+) in each of the following categories: 1. No use of any tobacco products; 2. Current cigarette use; 3. Current ENDS use and 4. Current smokeless/ONP use. The survey was programmed using RedCap electronic data capture tools hosted at Roswell Park Comprehensive Cancer Center (Buffalo, NY).^{1,2} REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources.

Panelists were invited by email and completed a brief screening survey to measure tobacco use status. The survey was opened to participants on February 15, 2023, and closed on February 26, 2023. The survey aimed to recruit 170 participants in each of the above mentioned 6 user groups, for a total of 1020 participants. Of the 1526 participants who began a survey, a total of 1,132 participants completed a survey (179 cigarettes only users, 174 ENDS only users, 195 ONP only users, 232 users of multiple products, and 352 users of no products).

Pre-exposure Questionnaires. Tobacco use history (never/ever/former/current) and susceptibility (at least somewhat curious about using) was assessed for multiple tobacco product classes (cigarette, cigar, smokeless tobacco, e-cigarettes, ONP, NRT). For analysis purposes, participants were recoded into nonsusceptible nonusers, susceptible nonusers, current exclusive cigarette, current exclusive e-cigarette, current exclusive oral (ST and/or ONP), and current multiple product users. For each product used at least 20 days per month, participants provided time to first use of the day, regret, amount spent on that product, and intention to quit. Participants provided demographic information (sex, age, race/ethnicity, education, perceived SES, occupation), self-reported health status, a measure of oral health status (PhenX), alcohol use, beliefs about health risks of specific tobacco products (0-100 VAS), TRIRISK (Ferrer et al), subjective and objective numeracy (HINTS, PIACC), and attitudes toward smokeless tobacco and advertising.

Advertisements. In order to introduce ONP products to participants, examples of marketing materials for 6 products (4 ONP - Zyn, Rogue, Jemz, on!; 2 smokeless tobacco - General Snus, Skoal) were obtained from Trinkets and Trash (Rutgers University, New Brunswick, NJ). Materials were selected to be consistent in the inclusion of human figures and product packaging. Direct mail materials were

edited to better approximate a traditional print advertisement for presentation purposes. Final ads provided to respondents are shown in Appendix A.

Response measures. After seeing each ad, participants were asked to report the product name, what component of the ad stood out most (CATA; Picture of product; picture other than product; product name; product description; health warning). Participants rated the appeal of the product on a 0-10 (not at all – extremely) scale, assessed affective valence and arousal using the self-assessment manikin, rated on positive and negative expectancies, and perceived harmfulness and addictiveness relative to cigarettes (cf. ITC). Finally, participants reported their intention to try the product for free and likelihood to purchase in the next month using Juster-type scales, and reported the amount they would be willing to pay for one package. After seeing all 6 ads, participants were asked to identify the product they would be most interested in trying, and to report their level of interest, willingness to pay, and intent to purchase in the next 30 days for that product.

Data analysis. For analysis purposes, participants were recoded into the following categories: current exclusive cigarette, current exclusive ENDS, current exclusive oral (ST and/or ONP), and current multiple product use, all defined as reported use within the 30 days prior to the survey. For each product used at least 20 days per month, participants provided time to first use of the day, regret, amount spent on that product, and intention to quit. Participants provided demographic information (sex, age, race/ethnicity, education, perceived SES, occupation), self-reported health status, a measure of oral health status (PhenX), alcohol use, beliefs about health risks of specific tobacco products (0-100 VAS), TRIRISK (Ferrer et al), subjective and objective numeracy (HINTS, PIACC), and attitudes toward smokeless tobacco and advertising.

Results: *Sample demographics.* Participants had a median age of 45 (range 18-92), 54% were female, 71% were non-Hispanic White, 13% non-Hispanic Black, 9.5% Hispanic. The majority (69%) had greater than high school education, and 34% reported some difficulty living on present income. 21% reported they were in fair or poor health. Significant differences were observed ($p < 0.001$) across categories of past 30-day product use for all demographic measures.

Table 1. Oral Nicotine Products Survey Demographics: Overall and Stratified By Past 30-Day Product Use (total n=1132)

	N	Overall Percent	Percent Cigarettes Only	Percent ENDS Only	Percent ONP Only	Multiple Products	No Products	Chi-Square	P-Value
<u>Age (n=1106)</u>									
18-24	118	10.7	6.8	20.3	9.3	24.6	39.0	12.8	<0.001
25-36	268	24.2	7.1	18.3	15.7	30.2	28.7		
37-50	333	30.1	20.7	17.7	20.4	22.5	18.6		
51 +	387	35.0	19.9	9.8	19.1	9.0	42.1		
<u>Gender Identity (n=1119)</u>									
Man	505	45.1	13.1	12.7	26.5	19.2	28.5	61.2	<0.001
Woman	608	54.3	17.9	17.6	10.0	21.1	33.4		
Non-binary	4	0.4	0.0	25.0	0.0	50.0	25.0		
Transgender	2	0.2	0.0	50.0	0.0	50.0	0.0		
<u>Race/Ethnicity (n=1132)</u>									
non-Hispanic white	803	70.9	16.1	18.2	19.8	16.4	29.5	76.3	<0.001
non-Hispanic black	145	12.8	24.1	6.9	11.0	32.4	25.5		
Hispanic	108	9.5	7.4	11.1	11.1	33.3	37.0		
other	76	6.7	9.2	7.9	10.5	22.4	50.0		
<u>Education Level (n=1125)</u>									
Less than 12 years, no diploma	51	4.5	29.4	19.6	13.7	19.6	17.6	75.5	<0.001
High School graduate or GED	295	26.2	22.4	11.2	15.6	20.7	30.2		
Post high school training other than college/university (vocational or technical)	52	4.6	19.2	32.7	17.3	17.3	13.5		
Some college but no degree	256	22.8	15.2	20.3	13.7	19.5	31.3		
Associate degree	118	10.5	17.8	12.7	22.0	18.6	28.8		
Bachelor's degree	222	19.7	9.5	13.5	18.9	23.0	35.1		
Advanced degree	131	11.6	3.1	12.2	22.1	22.1	40.5		
<u>Feelings About Household Income (n=1123)</u>									
Living comfortably on present income	324	28.9	8.3	11.7	23.5	25.3	31.2	71.5	<0.001
Getting by on present income	417	37.1	12.2	16.1	17.7	18.7	35.3		
Finding it difficult on present income	257	22.9	21.8	18.3	12.8	20.6	26.5		
Finding it very difficult on present income	125	11.1	32.0	16.0	9.6	15.2	27.2		
<u>Current Occupational Status (n=1122)</u>									
Employed for wages	504	44.9	10.3	17.1	20.4	27.2	25.0	132.3	<0.001
Self-employed	98	8.7	15.3	15.3	18.4	22.4	28.6		
Out of work	76	6.8	27.6	13.2	15.8	14.5	28.9		
Homemaker	90	8.0	17.8	25.6	13.3	18.9	24.4		
Student	43	3.8	11.6	14.0	4.7	20.9	48.8		
Retired	206	18.4	17.0	9.2	17.0	5.3	51.5		
Unable to work	105	9.4	30.5	12.4	11.4	22.9	22.9		
<u>Overall Health (n=1120)</u>									

<i>Excellent</i>	142	12.7	12.0	10.6	15.5	36.6	25.4	66.1	<0.001
<i>Very Good</i>	322	28.7	9.0	17.1	23.3	18.3	32.3		
<i>Good</i>	427	38.1	15.9	15.7	15.0	19.4	34.0		
<i>Fair</i>	178	15.9	26.4	16.3	14.6	14.6	28.1		
<i>Poor</i>	51	4.6	27.5	13.7	15.7	17.6	25.5		

References

1. Harris, R Taylor, R Thielke, J Payne, N Gonzalez, JG. Conde, Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support, *J Biomed Inform.* 2009 Apr;42(2):377-81.
2. Harris, R Taylor, BL Minor, V Elliott, M Fernandez, L O’Neal, L McLeod, G Delacqua, F Delacqua, J Kirby, SN Duda, REDCap Consortium, **The REDCap consortium: Building an international community of software partners**, *J Biomed Inform.* 2019 May 9 [doi: 10.1016/j.jbi.2019.103208]