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Survey Analysis

Assessing consumer use and behaviour patterns of oral nicotine pouches in a multi-country study

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ABSTRACT

Due to the novel nature of oral nicotine pouches, limited studies have been conducted on the usage of these products in real-world settings. Consumption patterns and use behaviour of current nicotine pouch users need to be investigated to monitor the use and support the assessment of reduced risk products. Here we report the findings of an online survey completed by 550 participants across Sweden, Denmark, Germany and Switzerland who were current nicotine pouch users. The key areas of research were oral nicotine use history, mouth hold duration, nicotine strength, average daily consumption (ADC) and flavour preferences. Across all countries, most participants used oral nicotine pouches for 12 months or less. Longer use of nicotine pouches was reported in Sweden. Pouches containing 6–15 mg nicotine were used most frequently in all countries, and particularly 11–15 mg pouches in Sweden and Denmark. Average ADC across all countries was 1-5 pouches, closely followed by 6-10 pouches in Sweden and Denmark. Menthol was the most preferred flavour in all countries, followed by fruity and other food flavours. These findings reflect the differing product use patterns across nascent and mature markets as well as the need to investigate how different experience of product types can affect the use of new categories. Further research is required with a larger sample over time to understand product use patterns more clearly, including transition from and into other product categories.

Keywords: Oral nicotine pouches, Use behaviour, Average daily consumption, Mouth hold time

INTRODUCTION

Cigarette smoking remains one of the leading preventable causes of human diseases, including cancer, cardiovascular disease, and chronic obstructive pulmonary disease.[1] Tobacco companies have developed several products that potentially reduce the risk of tobacco-related harm. One such product is oral nicotine pouches, which are free from tobacco, contain flavours, natural plant fibres, nicotine, and base filler, and are placed between the lip and gum.[2] It is recommended that they be held in the mouth for 5–30 min to allow nicotine absorption via the oral mucosa. Because of the novel nature of these products, little is known about usage in real-world settings. A multi-country survey was performed to obtain information from consumers on usage patterns and behaviours.

METHODS

Study population

Eligible participants were adult consumers in Sweden, Denmark, Germany and Switzerland in an online consumer panel held by Kantar (London, UK) who were aged at least 7 months older than the legal age for tobacco and nicotine consumption (18 years) up to 64 years, and who were current users of tobacco-free nicotine pouches (daily in Sweden and daily or weekly in other countries).

Other inclusion criteria were being a current resident of the respective country, ability to read and understand the local language, and willingness to participate in the study after receiving information about the study. Eligibility was assessed with a screening questionnaire. The consumer panel was used to draw a convenience sample. Ethical approval for the study was obtained from the Kantar Internal Ethics Committee Institutional Research Board, before commencement of participant recruitment.

Survey

Eligible participants were invited to complete the online study questionnaire by e-mail. The survey was administered from 27th November 2020 to 11th January 2021. The key areas of research were oral nicotine use history, mouth hold duration, nicotine strength, average daily consumption, and flavour preferences. Additionally, we assessed the use of other tobacco and nicotine products. Furthermore, participants were asked to describe their relative health-related risk perceptions of oral nicotine pouches, heated tobacco products, e-cigarettes, smoking cessation aids, and completely quitting cigarette use compared with smoking. Reporting of product related adverse events was out of the scope of this study. The one-off survey took approximately 15–20 min to complete.

All eligible participants received a monetary incentive according to local panel standards.

Statistical analysis

The aim was to recruit 150 participants in each of Sweden, Germany, and Denmark and 100 in Switzerland, resulting in a maximum total sample size of 550 participants. All analyses were exploratory and descriptive, and no hypothesis was tested. Missing values were excluded from the analysis, thus the results presented are based on different sample sizes. Categorical variables were represented by frequency tables (total number of observations, number of missing values as additional categories, and absolute and relative frequencies). Continuous variables were reported by summary statistics (total number of participants, number of non-missing and missing values, means with standard deviation (SD)s, medians with overall ranges and interquartile ranges).

RESULTS

Of 46,565 people who received the link to the survey, 46,064 were excluded, screened out or did not participate. The remaining 501 participants completed the survey, among whom 150 were in Germany, 151 in Sweden, 99 in Switzerland, and 101 in Denmark. One person was excluded during data quality checks and, therefore, 500 completed questionnaires were assessed.

The overall population included both men and women (60.6% versus 39.4%), with the most pronounced difference in Denmark (76.2% versus 23.8%). In Sweden the ratio of women and men, comprised of 59.6% versus 40.4%, respectively. People of all ages responded to the survey, but the highest numbers were in the 35–44-year-old range. Across countries, the highest proportions of respondents were educated to at least further education and often university level.

Most respondents stated that they had used oral nicotine pouches for 12 months or less (ranging from 61.6% to 78.2%), except in Sweden where the proportion was 41.0%. In Denmark, the highest proportion had used pouches for less than 3 months (48.5%), whereas in Sweden 59% of participants reported using them for at least 1 year with 8.6% reporting use for longer than 5 years.

Mouth hold time and nicotine strength were important aspects of real-world use. The most popular mouth hold duration was 10–20 min, except for in Sweden where it was 20–60 min dependent on strength. In terms of nicotine strength, pouches containing 6–15 mg nicotine were used most frequently in all countries, and particularly 11–15 mg pouches in Sweden and Denmark. Very few respondents reported using pouches with nicotine levels lower than 6 mg (16.5%) or greater than 20 mg (8.7%). Only in Sweden did the mouth hold time increase with increasing nicotine strength (Figure 1). The patterns in Germany and Denmark were comparable with relation seen between strength and mouth hold duration.

In Germany and Switzerland, consumption was most frequently 1–5 pouches per day (72.9% and 61.5%, respectively). In Denmark use was 1–5 pouches in 40.8% and 6–10 in 35.7%, while in Sweden the proportions for these consumption levels were 33.1% and 40.7%, respectively. Daily use was greatest in Sweden (114 [78.6%] of 145), with an average daily consumption of 8.4 (±4.6) pouches. The average daily consumption was similar in Denmark (8±5.3 pouches), but daily use was lower (64 [65.3%] of 98).

Menthol was the most preferred flavour in all countries (range 59.7–79.2%), followed by fruity (14.9–25.8%) and other food flavours (liquorice/herbal, spicy, cola, coffee, mojito, and candy; 3–9.4%). Tobacco was used very little (range 1–7.4%). The most common reasons for removing the pouches were satisfaction with the ‘impact of the used pouch’ (range 43.7–55.5%), ‘wish to eat or drink’ (29.7–43.7%), and ‘loss of taste’ (34.7–57.6%). Users in Switzerland and Germany mentioned ‘suggested usage time being reached’ as an important reason for removal (27.3% and 31.5%, respectively).

The proportion of respondents who used tobacco-free nicotine pouches exclusively ranged from 1.3% in Germany to 19.9% in Sweden. Between 6% and 11.1% of respondents across all countries reported dual consumption of pouches and cigarettes. Overall, though, most respondents were poly users, with 63 (42.3%) of German respondents reporting use of oral nicotine and

tobacco pouches, cigarettes, and other non-combustible tobacco products (e.g., e-cigarettes, heated tobacco products, and chewing tobacco). Use of multiple products excluding oral tobacco pouches was popular in Germany, Switzerland, and Denmark (range 30.3–38.9%).

In the assessment of relative risk perceptions, for heated tobacco products and e-cigarettes, the greatest proportions of responses were "are less harmful" than cigarettes (32–47% and 40–58%, respectively), but with notable proportions also being assigned to "are just as harmful" (24–41% and 23–40%, respectively). "Much less harmful" was selected in 8–21% and 4–13%, respectively.

For oral nicotine pouches, larger proportions of participants perceived them to be "much less harmful" than cigarette smoking, particularly in Sweden, where 39% of the participants chose this rating (Figure 2).

While around one-third of respondents perceived this category to be just as harmful as cigarettes in Germany, Switzerland, and Denmark, very few (8%) of the Swedish respondents selected this response. Oral nicotine pouch use compared to smoking cessation aids, and completely quitting smoking, was evaluated as "just as harmful" by 25% and 30% of respondents in Germany, 22% and 21% in Switzerland, 11% for both in Denmark, and 6% and 8% in Sweden, respectively.

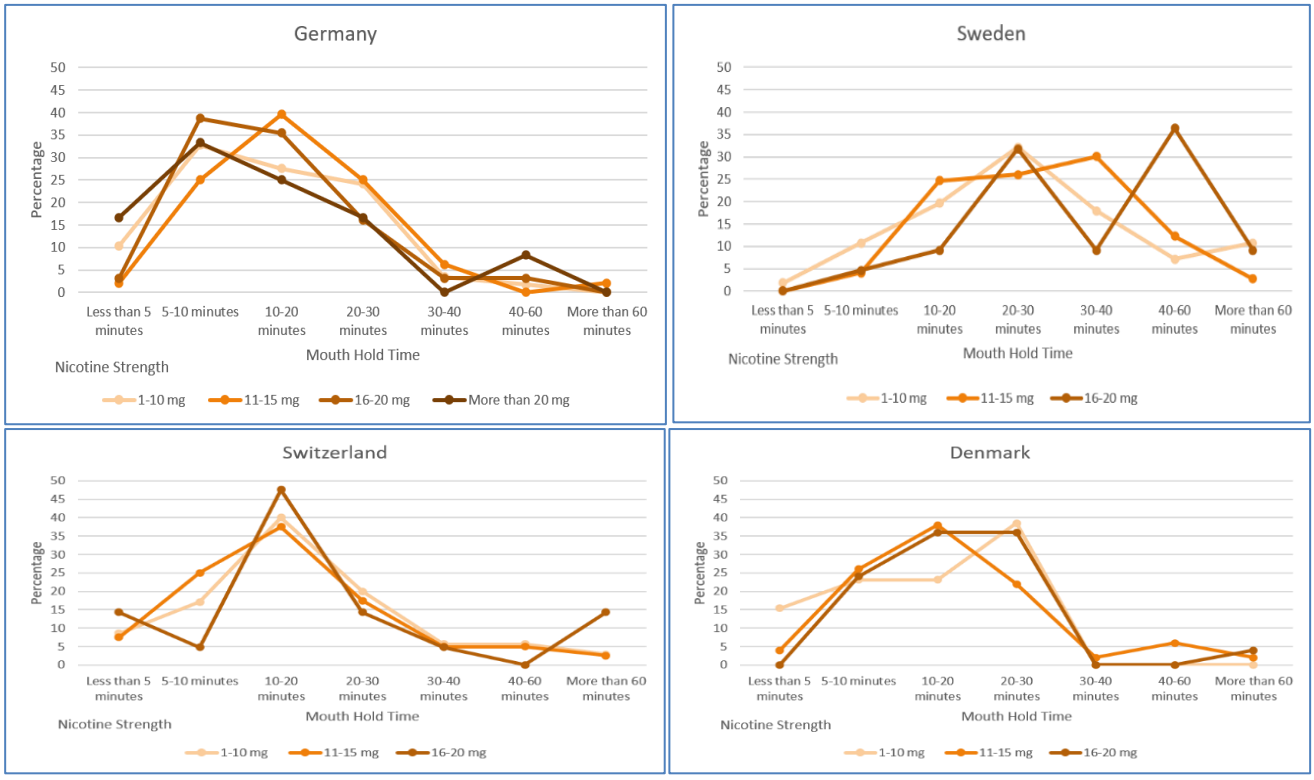

Figure 1: Duration of mouth hold by nicotine strength category.

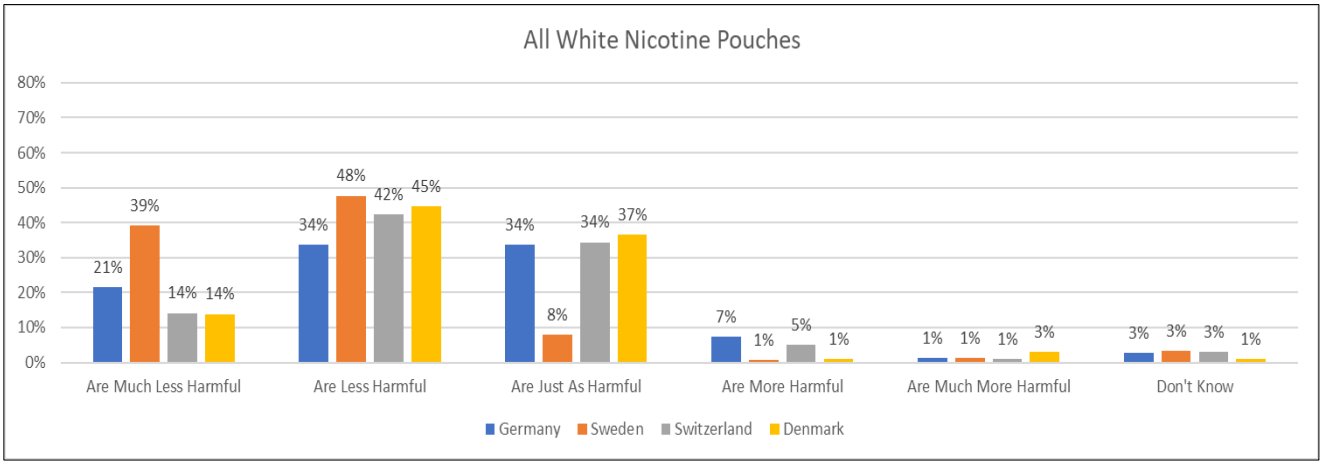

Figure 2: Risk perceptions of tobacco-free oral nicotine pouches compared with cigarettes.

DISCUSSION

Our survey indicated that uptake of tobacco-free nicotine pouches was very recent in most countries although they have been available in these markets for several years. The longer use in Sweden probably reflects familiarity with snus oral tobacco pouches. Most users opted for nicotine strengths in the mid-range.

In Sweden, mouth hold time was two to three times longer than in the other countries. This difference might be explained by the fact that snus tobacco pouches are usually held in the mouth for 60–70 min.[5,6]

The majority of respondents favoured mint/menthol flavoured nicotine pouches followed by fruity flavours. Use of flavoured e-liquids has been positively related to smokers' transition away from cigarettes.[7]

The majority of oral nicotine pouch users were multi-product users, consuming three or four types of product. Cigarettes were still used by more than two-thirds of respondents in Germany, Switzerland, and Denmark, whereas in Sweden this proportion was considerably lower at around 40%. More than half stated that nicotine pouches were the most frequently used product category. Given that the most popular reasons for stopping a session of use, were satisfaction with the impact of the product, or wanting to eat or drink, this suggests that oral nicotine pouches could be an effective nicotine delivery alternative to cigarettes.

Perception of risk showed that most participants believed that non-combustible tobacco and nicotine products, including cessation aids, were less harmful than cigarettes. The difference in the rate of the response "much less harmful" for oral nicotine pouches between Sweden and the other countries might be explained by the extensive experience of snus, and Sweden having the lowest cigarette smoking rate in Europe. The novelty of oral pouches in the other countries might have led to more conservative ratings. However, it is noteworthy that when asked the relative risk of "completely quitting smoking" compared to smoking cigarettes, notable proportions of participants selected "just as harmful". This was consistent across all risk perception categories. The reasons underlying the level of response here should be explored in further studies.

A limitation of the study is the small sample size of 550 oral nicotine pouch users, despite having sent invitations to 46,565 people. This is probably because they are nascent markets and the number of respondents may reflect the uptake since introduction, although data are not currently available to verify use statistics. Nevertheless, this was an exploratory study without a power threshold, and the responses provided useful preliminary insights into how these new products are being used in the real world.

CONCLUSION

The findings of this study reflect the need to investigate how different experience with product types can affect the use of new categories. We recommended further research with larger sample sizes to understand product use patterns more clearly and accurately. It will also be interesting to investigate whether usage changes with product familiarity over time. Given the reasons for removing pouches, it would be interesting to assess whether users of other tobacco and nicotine products are able to transition to oral nicotine pouches or whether usage is mainly to deal with cravings in places where use of cigarettes, heated tobacco products, or e-cigarettes is not allowed. Finally, little is known about the initiation of using oral nicotine pouches among past and never tobacco users and the potential of gateway effects.

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REFERENCES

1. Centers for Disease Control and Prevention. Annual smoking—attributable mortality, years of potential life lost, and productivity losses—United States, 2000–2004. MMWR. 2008;57(45):1226-8.
2. Robichaud MO, Seidenberg AB, Byron MJ. Tobacco companies introduce 'tobacco-free' nicotine pouches. Tob Control. 2019;1-2.
3. Fowler CD, Gipson CD, Kleykamp BA, Rupprecht LE, Harrell PT, Rees VW, et al. Basic Science and Public Policy: Informed Regulation for Nicotine and Tobacco Products. Nicotine & Tobacco Research. 2018;20(7):789-99.
4. European Commission. Product regulation, Public Health. 2014. Available at: https://ec.europa.eu/health/tobacco/products_en. Accessed on 27 May 2021.
5. Eurostat. Smoking prevalence by sex. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_03_30/default/table?lang=en. Accessed on 17 February 2022.
6. Digard H, Errington G, Richter A, McAdam K. Patterns and behaviors of snus consumption in Sweden. Nicotine Tob Res. 2009;11:1175-82.
7. Li L, Borland R, Cummings KM, Fong GT, Gravely S, Smith DM, et al. How Does the Use of Flavored Nicotine Vaping Products Relate to Progression Toward Quitting Smoking? Findings From the 2016 and 2018 ITC 4CV Surveys. Nicotine & Tobacco Research. 2021;1490-7.

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