

A content analysis of oral nicotine pouch memes on Instagram

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A content analysis of oral nicotine pouch memes on Instagram

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Abstract

Background: Instagram memes may influence youth perceptions and acceptance of oral nicotine pouches such as Zyn.

Objective: This study examines the thematic content of Instagram memes related to ONPs to understand how these products are represented online.

Methods: The content of Instagram memes tagged with ONP-related hashtags #oralnicotinepouch, #zyn, #on, #velo, and #nicotinepouch was systematically analyzed. After screening, a total of 244 photo and text-based memes were included in the final dataset. Using a structured coding framework, three researchers categorized the memes into key themes using the NVivo software.

Results: Three dominant themes emerged: (1) Zyn community (35.66%)—memes fostering a sense of belonging among users; (2) Marketing & branding (27.87%)—humorous critiques of product advertising and accessibility; and (3) Perceived consequences of use (13.93%)—memes highlighting perceived positive or negative consequences of ONP use. Engagement metrics revealed high interaction levels, with the 'Zyn community' theme garnering the most user engagement.

Conclusions: Instagram memes might appeal ONP use by reinforcing their social acceptance through humor and shared identity. Public health campaigns should explore innovative digital strategies, including collaborations with social media influencers and digital content creators, to challenge pro-nicotine messaging, to disrupt the cultural appeal of ONPs among young users.

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Original Manuscript

TITLE: A content analysis of oral nicotine pouch memes on Instagram**ABSTRACT**

Background: Oral nicotine pouches (ONPs) such as Zyn have gained popularity among young people; yet, their portrayal on social media remains understudied. Instagram memes, a widely shared form of digital communication, may shape young people's perceptions about ONPs and contribute to the widespread acceptance of ONP use. This study examines the thematic content of Instagram memes related to ONPs in order to understand how these products are represented online.

Methods: The content of Instagram memes tagged with ONP-related hashtags #oralnicotinepouch, #zyn, #on, #velo, and #nicotinepouch was systematically analyzed. After screening, a total of 244 photo and text-based memes were included in the final dataset. Using a structured coding framework, three researchers categorized the memes into key themes using the NVivo software.

Results: Three dominant themes emerged: (1) Zyn community (35.66%)—memes fostering a sense of belonging among users; (2) Marketing & branding (27.87%)—humorous critiques of product advertising and accessibility; and (3) Perceived consequences of use (13.93%)—memes highlighting perceived positive or negative consequences of ONP use. Engagement metrics revealed high interaction levels, with the 'Zyn community' theme garnering the most user engagement.

Conclusion: Instagram memes appear to play a significant role in influencing views on ONPs, reinforcing their social acceptance through humor and shared identity. Public health campaigns should explore innovative digital strategies, including collaborations with social media influencers and digital content creators, to challenge pro-nicotine messaging, to disrupt the cultural appeal of ONPs among young users.

INTRODUCTION

The rising popularity of oral nicotine pouches (ONPs), particularly among young people has drawn increasing attention from public health researchers and regulatory bodies.¹ Unlike traditional smokeless tobacco products, ONPs such as Zyn, On!, and Velo are marketed as tobacco-free alternatives that deliver nicotine without combustion, making them appealing to users seeking a discreet and convenient method of consumption.² Among various ONP brands, Zyn stands out as the most popular, widely recognized for its market dominance and consumer preference.³ Despite the growing market presence of ONPs, at present, limited research has explored how ONPs are perceived and discussed within digital spaces, particularly through user-generated content on social media.^{3,4}

Social media platforms such as Instagram, which has 2.2 million monthly active users, serve as key hubs for the exchange of user-generated content including nicotine consumption.⁵⁻⁸ Cortese et al. (2018) explored how young women presented smoking behaviors through selfies on Instagram, highlighting how user-generated content can glamorize smoking and contribute to its normalization of tobacco use.⁷ Similarly, Lim and Lee (2023) analyzed Instagram posts about e-cigarettes, revealing how these products are framed as either harmful or socially acceptable. However, no studies have yet examined the ONP-related content on Instagram.⁸

Contents shared on Instagram as memes may especially influence perceptions and behavior related to nicotine products.⁹ Memes are a widely shared and culturally-relevant form of digital communication that usually use wit and humor to further their content.¹⁰ Young people often share tobacco- and marijuana-related memes with their friends, particularly memes that have received substantial attention in terms of 'likes' and 'shares' on social media.⁹ However, how ONPs are depicted on Instagram memes remains unclear. Better understanding how the

ONP content is represented on Instagram memes may provide valuable insights into the nature of the information about ONPs circulating on social media as well as potential social norms related to ONP. To this end, the current study seeks to conduct a systematic content analysis of Instagram memes related to ONPs.

METHODOLOGY

Memes identification

A systematic search was conducted on Instagram in September 2024 using the hashtags #oralnicotinepouch, #zyn, #on, #velo, and #nicotinepouch. We selected Instagram because Instagram is one of the most commonly used social media platforms by young people and memes are a prominent and widely shared content type on Instagram.^{10,11} Approximately 1,800 posts across eight Instagram accounts associated with #oralnicotinepouch, #zyn, #on, #velo, and #nicotinepouch were screened by the second and third authors. The inclusion criteria required the memes to be photo and text-based and originate from specific Instagram accounts associated with oral nicotine pouch related hashtags. Posts were reviewed independently by the two co-authors to identify the eligible memes. Posts that were duplicates (n = 47), videos (n = 1,086), or from deleted accounts (n = 396) or accounts without meme content (n = 27) were excluded. A total of 244 photo and text-based memes met the inclusion criteria and were incorporated into the final database for analysis. We selected both photo and text-based memes for analysis because doing so would enable us to examine both visual and textual elements; which was expected to provide a comprehensive understanding of how the message was communicated in terms of language, tone, and impact.

Coding team

The coding team consisted of three co-authors (YW, SB, and SA). Prior to coding, the

team conducted a preparatory review of 10 randomly selected memes to familiarize themselves with the dataset and identify preliminary themes, visual styles, and recurring elements. The coding team collaborated using a structured approach to ensure consistency and accuracy in the analysis process. Team meetings were conducted regularly, both virtually and in person, to discuss progress, resolve discrepancies in coding, and refine the codebook. Shared resources, including the dataset and coding materials, were organized and stored on Google Drive for seamless access and collaboration. The team utilized qualitative analysis software (NVivo) to code the memes systematically, with two team members (YW & SB) independently coding each meme. Discrepancies were addressed through group discussions. Once consensus was reached, the codes were finalized and stored in a centralized repository for review and further analysis.

Development of the coding framework

For development of the coding framework, the research team assigned each of the three coders (YW, SB & SA) a subset of 30 randomly selected memes from the dataset. Each coder independently generated codes based on the primary themes and messages conveyed in the memes. Following this individual coding process, the team convened for a series of collaborative meetings to review the codes, resolve discrepancies, and reach consensus on the key categories relevant to the study. Through these discussions, the team identified the most salient codes that aligned with the research objectives and grouped them into broader categories. An initial coding manual was created, which outlined these categories and their definitions. To facilitate a more efficient coding process, a coding tree was designed, providing a clear structure for applying the codes consistently across the entire dataset. The final codebook was used to systematically code the 244 memes.

Reliability and validity

To ensure reliability, inter-coder agreement was periodically assessed throughout the coding process.¹² To maintain high construct validity, we ensured that the codes and categories accurately reflected the underlying concepts of health messaging, product promotion, and nicotine pouch use. This was done by obtaining continuous feedback from the research team and refining the codes based on the feedback.¹³

This study was exempt from ethics review board approval because it involved the analysis of publicly available, anonymized data that did not include any identifiable private or sensitive personal information.¹⁴

RESULTS

The majority of the memes analyzed in this study were predominantly about 'Zyn', reflecting its strong presence in Instagram social media platform. The analysis revealed a variety of themes with differing frequencies, reflecting the multifaceted nature of discussions surrounding ONPs use. The intercoder reliability score of 0.85 in the coding process demonstrated a high level of consistency and reproducibility in data categorization among all coders.

Top three prominent themes

The most prevalent category among the memes was 'Zyn community,' which made up 35.66% of the total memes (87 out of 244). This was followed by the 'Marketing & branding' category, accounting for 27.87% of the memes (68 out of 244), and 'Perceived consequences of use,' which represented 13.93% of the total memes (34 out of 244). Figure 1 shows a sample of memes that reflected these top three themes.

Theme 1: Zyn community

The theme of 'Zyn community' highlighted the social aspect of Zyn usage, where users

developed group identity through their shared enthusiasm for the product. The memes in this category often combined humor with relatability to build a sense of belonging, allowing individuals to connect over their mutual use of Zyn. For example, the meme depicting people protesting in Washington DC after the Zyn ban tapped into the idea of collective defiance and solidarity within the Zyn user community. Another meme of a group of people staring at a man walking into the office bathroom after his first Zyn and coffee of the day highlights a sense of belonging among users who recognize and relate to the humorous scenario. Yet another meme showed a group of people facing Zyn and included the following text: "*Declaration of Zyndependence.*" This meme seemed to highlight a sense of unity and shared pride among Zyn users. In sum, these memes appeared to foster bonding among Zyn users by highlighting shared experiences and in-group jokes related to Zyn.

Theme 2: Marketing & branding

The 'Marketing & branding' theme primarily focused on how Zyn and other nicotine pouch brands positioned themselves in the market. Memes often humorously highlighted the flashy advertising strategies, product packaging, and brand slogans used to appeal to consumers. For example, a meme stated, "*Billion-dollar idea: Sephora, but it's just a different Zyn flavor—dry and wet pouches. Costco sample station vibes;*" thus, humorously pointing out that Zyn's marketing mimicked the aspirational branding strategies of high-end consumer goods. Another meme humorously showcased the transition from childhood to adulthood: "*Big league chew to Zyn.*" This meme reflects a generational shift from childhood to adulthood—refer to 'Big league chew', a gum designed to mimic chewing Zyn, portrays the transition to Zyn as a natural or expected part of growing up, potentially trivializing the shift to nicotine products. Other memes emphasized the ease of accessing Zyn and/or glorified the addiction to Zyn; for example,

"7-Eleven cashier: *You up early?* Me: *I just need Zyn.*" Thus, these examples reflect how Zyn memes utilize humor to brand Zyn as an appealing product, glamorize Zyn use, and glorify the dependence on the product. .

Theme 3: Perceived consequences of use

Several memes discussed the perceived consequences of using nicotine pouches, particularly as related to mental health. One meme humorously stated "*Zyn are starting my day happy and stable again*" accompanied by an image of an animated character displaying a fearful agitated expression, with the text "*my depression and anxiety*" displayed. Another meme humorously suggested that forgetting Zyn in one's pocket—just like a phone or wallet—could cause a "*mini heart attack*," emphasizing the intensity of dependence on the Zyn product. This exaggeration highlights how users may jokingly acknowledge their reliance on ONPs products while continuing to engage with them.

Finally, a meme portrayed a man labeled as "Zyn" lifting a large boulder representing stress or negative affect. This meme seemed to communicate the use of Zyn helped cope with high levels of stress or negative affect. Alternatively, the boulder may be interpreted to indicate high levels of dependence on Zyn. In sum, these memes reflect a mix of perceived positive and negative consequences associated with ONP use.

Engagement metrics for top three prominent themes

The engagement metrics revealed that the top three themes driving interaction were 'Zyn community,' 'Marketing & branding,' and 'Perceived consequences of use .' The 'Zyn community' category garnered significant interaction, with 650K likes, 1.6K comments, and 696K shares. Similarly, the 'Marketing & branding' category achieved 585K likes, 738 comments, and 497K shares. In comparison, the 'Perceived consequences of use ' category

recorded 215K likes, 224K comments, and 422 shares.

Additional themes

Other themes identified in the analysis included 'Nicotine strength', 'flavor varieties', 'first-time user experiences', 'comparisons between Zyn and other tobacco product'. When combined, these themes represent a minor portion of the overall dataset, contributing approximately 22.5% of the total (55 out of 244 memes) samples. Figure 2 shows a sample of memes that reflected these additional themes. Engagement metrics for other themes were not reported due to lower levels of interaction.

DISCUSSION

This study explored ONP-related memes on the social media platform Instagram. The analysis revealed three prominent themes across the memes: 'Zyn community', 'Marketing & branding', and 'Perceived consequences of use'. Memes in the 'Zyn community' theme highlighted social bonding and shared experiences among users, while 'Marketing & branding' evaluated potential appeal of ONPs. The 'Perceived consequences of use' theme captured the mixed perceptions of potential consequences of ONP use, such as stress or affect regulation and dependency. Additional themes, including 'Nicotine strength', 'flavor varieties', 'first-time user experiences', 'comparisons between Zyn and other tobacco product' were less prevalent.

The findings from prior studies on vaping communities align closely with the 'Zyn community' theme in our study, demonstrating how shared humor, memes, and photos on social media content can foster a sense of belonging among users.¹⁵⁻¹⁷ For example, Basch et al. (2021) revealed that TikTok videos with the hashtag #vaping often used humor to engage viewers, which mirrors how Zyn memes in our study employed humor and relatability to strengthen connections within the user community.¹⁵ Similarly, Majmundar et al. (2023) emphasized how

in-group communication through memes from a vaping-related subreddit and youth-friendly imagery normalized vaping behaviors promoting a shared identity.¹⁶ Additionally, Ketonen and Malik (2020) found that visually engaging images on Instagram, such as selfies and product photos, reinforced community bonds in vaping-related posts similar to the way Zyn memes celebrated shared experiences and symbols such as the "*Declaration of Zyndependence*."¹⁷ These findings suggest that the social and cultural dynamics observed in vaping communities are equally applicable to the Zyn community, where humor and shared narratives act as critical drivers of a sense of belonging and the normalization of product use.

Advertisement, brand promotion, and marketing of e-cigarettes on social media have become prevalent practices.¹⁸⁻²⁰ These findings align with our study's 'Marketing & branding' theme, which highlights Zyn's marketing strategies, particularly through memes that humorously position the brand as aspirational and ubiquitous, while also suggesting that Zyn use is a "grown-up" behavior. Past research shows that the visual content on social media is a powerful agent of tobacco product promotion. Chu et al. (2016) found that images showcasing vaping activities, such as cloud chasing, tend to garner high engagement; and Lee et al. (2017) found that Instagram and Pinterest serve as effective channels for brands to market e-cigarettes through product displays.^{18,20}

The 'perceived consequences of use' theme found in the current study highlights mixed perceptions surrounding the consequences of nicotine pouch use. As with vaping, some memes portray Zyn use as a coping mechanism for stress, affect, or poor mental health symptoms (e.g., anxiety, depression).²¹ These claims align with research that suggests that users commonly believe that nicotine use is helpful in reducing stress or regulating affect.²² Further, our study revealed that some memes humorously depict the potential dependency associated with Zyn,

symbolizing that the feeling of missing Zyn in one's pocket may cause a "mini heart attack."

The findings from this study highlight significant implications for public health strategies targeting ONPs use. Given the widespread use of humor and relatability in memes, public health campaigns could consider adopting similar strategies to effectively communicate the health risks associated with nicotine pouches. By leveraging humor, these campaigns may better engage younger and more digitally connected audiences, potentially reshaping the cultural narratives surrounding nicotine use. Additionally, the study emphasizes the need for policies that address the normalization of these products in online spaces. Understanding the role of memes in reinforcing marketing tactics and community identities can inform regulatory frameworks that aim to control the promotion and accessibility of nicotine pouches, particularly in youth-oriented digital platforms. Such approaches could be particularly useful in curbing the appeal of nicotine products among adolescents and young adults.

This study has several strengths that enhance its relevance to tobacco research. First, it investigates the growing online community of ONP users, utilizing memes that captures the social dynamics and cultural narratives surrounding these products. The analysis also explores how memes combine humor and social commentary, providing valuable insights into user perceptions and behaviors. By focusing on a popular social media platform Instagram, this study highlights the need for innovative public health interventions that resonate with digital communities. Furthermore, the research sheds light on the influence of user-generated content in shaping product perceptions and cultural identities, contributing to the broader conversation about how digital platforms impact health behaviors.

While our study offers valuable insights into the social and cultural dimensions of ONPs use, there are several limitations to consider. Our analysis was limited to Instagram, which was

selected due to its popularity among young adults and its prominence in visual meme-based content. However, nicotine-related messaging also appears on other platforms such as TikTok, X (formerly Twitter), and Reddit, which were not examined here. Future research should explore cross-platform differences to capture a more comprehensive view of online nicotine-related discourse. The reliance on memes as a data source introduces the possibility of skewed perceptions, as memes often exaggerate or trivialize experiences for comedic effect. As a result, the findings may not fully capture the complexities of user experiences or the broader population's perceptions. Future research could benefit from combining meme analysis with more traditional qualitative methods, such as focus groups or in-depth interviews of the digital communities, to provide a more nuanced understanding of how ONPs use is perceived and experienced across different demographic groups. Additionally, longitudinal studies that track user behaviors and attitudes over time could offer insights into the evolving cultural significance of nicotine products as they become more mainstream. Future research could explore how memes shape the adoption of other nicotine products, including smokeless tobacco and heated tobacco products. Moreover, our sampling strategy based solely on hashtags—may have excluded relevant content outside those parameters and increased the risk of including posts from non-human accounts, such as bots or automated promotional profiles. As a result, the findings may not fully capture the complexities of user experiences or the broader population's perceptions, limiting their generalizability. While we conducted manual screening to minimize the inclusion of irrelevant or low-engagement posts, we acknowledge the need for more rigorous safeguards, such as bot-detection tools, in future research.

CONCLUSION

Our study illustrates how memes reflect the perceptions of ONPs, emphasizing key themes of

community, marketing, and consequences of use . The findings highlight the importance of understanding the digital culture surrounding these products, particularly as they gain popularity among younger, more digitally connected populations. By recognizing the role of humor, relatability, and branding in influencing attitudes, public health campaigns can be better tailored to address the cultural appeal of nicotine pouches and mitigate their potential harm. The study lays the groundwork for future research that can explore the intersection of digital culture, substance use, and public health, providing valuable insights for designing more effective, culturally relevant health interventions.

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Washington D.C. tomorrow when you ban Zyns



"Walking into the office bathroom after my first Zyn and coffee of the day"



A. Sample memes illustrating the theme 'Zyn community'

BILLION DOLLAR IDEA: Sephora, but it's just different Zyn flavors, dry and wet pouches. Costco-like sample stations.



The transition of a boy turning into a man:



7 Eleven cashier: "You're up early"

Me: "I just need Zyns"



B. Sample memes illustrating the theme 'Marketing and branding'

Yo these zyns are starting to make me feel happy and stable again!

My depression & anxiety:



Mini heart attack when you can't find these in your pocket:



C. Sample memes illustrating the theme 'Perceived consequences of use'

Figure 1: Memes that reflected these top three themes

Memes of 'Nicotine strength'

When your buddy convinces you to throw 3x - 6 milly lip pillows in and now you're feeling the extra fuzzy feeling kick in



POV: Phillip Morris Making Cinnamon Zyn



When you try the 15 MG Zyn for the first time

Memes of 'first-time user experiences'



Memes of 'comparisons between Zyn and other tobacco product'



Nicotine from tobacco products.

Nicotine from Zyn tobacco-free pouches.

Figure 2: Memes that reflected additional theme