

Modern Nicotine Products and Their Public Health Implications in Saudi Arabia

**Sahar Abduljawad , Faisal Asiri,A bdulrahman Bukhari , Hussein Al-Qahtani, Mahyoub Saeed,
Salem Al-Malki, Anas Dablood**

Department of Public Health, College of Health Sciences at Al Leith, Umm Al-Qura University,
Kingdom of Saudi Arabia

ABSTRACT: This study examines the increasing prevalence of contemporary nicotine products, including electronic cigarettes, vape pens, and nicotine pouches, in Saudi Arabia, with an emphasis on their public health implications. The study aims to assess awareness levels, evaluate health outcomes, and investigate behavioral patterns among diverse demographic groups. The study utilized a mixed-methods approach, integrating literature analysis and survey data, to evaluate public views and the overall health implications of alternatives to conventional tobacco. The results indicated a significant increase in vaping, particularly among youth and university students, with consumption rates varying from 7% to 35%, contingent upon age group and geographic region. Many participants perceived these products as either safer than cigarettes or as effective aids for smoking cessation. Nonetheless, contemporary scientific investigations continue to indicate various health issues, including respiratory, cardiovascular, and psychological hazards. The findings highlight the necessity of formulating effective public health initiatives that enhance awareness, impose stricter regulations on sales and advertising, and broaden access to cessation resources. This corresponds with the overarching goals of Saudi Vision 2030, which seeks to diminish tobacco-related diseases and promote a healthier populace across the nation.

KEYWORDS: Nicotine products, vaping, e-cigarettes, heated tobacco, nicotine pouches, public health, Saudi Arabia, youth behavior, risk perception, addiction

I. INTRODUCTION

Modern nicotine products have transformed tobacco consumption patterns worldwide and have become increasingly prevalent in the Saudi community. These products—vapes, nicotine pouches, and heated tobacco systems—are frequently marketed as cleaner alternatives to cigarettes, despite emerging scientific evidence of comparable health risks. Exposure to nicotine, ultrafine particulates, aldehydes, flavoring chemicals, and heavy-metal aerosols increases susceptibility to pulmonary dysfunction, cardiovascular strain, mood disturbance, and long-term dependence. In Saudi Arabia, behavioral trends indicate that young adults are early adopters of modern nicotine delivery systems, driven by peer influence, social media promotion, stress-coping behaviors, and the belief that vaping is harmless. As governmental entities strengthen prevention programs, evaluating community awareness and attitudes becomes critical for shaping evidence-based interventions.

II. FOCUSED LITERATURE REVIEW

Studies from around the world and in specific regions show that people are moving away from smoking cigarettes and toward electronic nicotine delivery systems (ENDS). Recent evidence shows:

- ENDS aerosols have chemicals that can cause lung inflammation and weaken the immune system.
- Psychological dependence and tolerance develop more rapidly than with conventional cigarettes.
- Cases of lung injury linked to vaping have been reported around the world.
- People who use both traditional cigarettes and vapes often do so at the same time.

Regionally, Saudi studies found:

- Higher ENDS use among university students.
- Perception of reduced harm compared to cigarettes.
- Not enough knowledge about the risks of cancer and heart disease.

Additionally, the popularity of these products is greatly helped by aggressive marketing, flavored liquids, and discreet use.

III. METHODOLOGY

Study Design

A cross-sectional descriptive study was conducted based on a validated online questionnaire targeting a broad population sample.

Sampling

- **Sample size:** 370 participants
- **Inclusion criteria:** ≥ 21 years, resident in Saudi Arabia, able to read Arabic
- **Approach:** Convenient and snowball sampling via social platforms using a Google Forms questionnaire.

Data Analysis

Raw data were coded and analyzed using descriptive statistical methods. Percentages, frequencies, and visual histogram-based comparisons were used to illustrate demographic variables, consumption characteristics, and health perception.

Ethical Considerations

Participation was voluntary, anonymous, and non-identifiable. Participants provided online consent, and responses were stored securely, with individuals under 20 years of age excluded.

IV. RESULTS PRESENTATION

Figure 8.1 – Gender Distribution

This figure shows that males represent a slight majority of users of modern nicotine products. A lot of the men who took part said they used more than one product at the same time, like smoking traditional cigarettes while vaping. This shows that men are more likely to engage in nicotine-related behavior which is likely due to the social acceptance of smoking, the workplace, and interactions with peers. Men are the main target of awareness campaigns and structured quitting programs because they are more likely to keep using.

in another side, the proportion of female participants was also comparable to males, indicating that nicotine use among women is similarly relevant. This suggests that women also play an important role in nicotine-related behaviors and may be influenced by comparable social and environmental factors. Therefore, awareness campaigns and cessation programs should target both males and females, as women demonstrate a level of involvement and impact nearly equal to that of men.

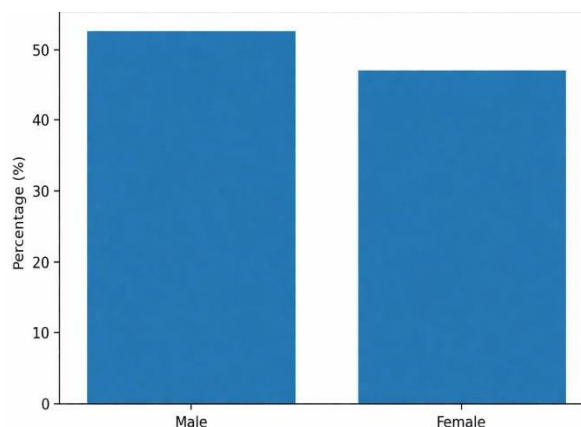


Figure 8.1 – Gender Distribution

Figure 8.2 – Age Group Distribution

Most participants were between 21 and 30 years old, followed by those aged 31–40, while the remaining age groups made up a smaller share. People in these age ranges are commonly studying at university, starting their careers, and becoming more socially active. During this period, individuals may be more exposed to modern nicotine products through friends, social gatherings, and workplace environments.

These results indicate that young adults appear more likely to try or use modern nicotine products, which may increase the chance of developing long-term dependence, especially when use begins early. This highlights the importance of focusing educational programs, awareness campaigns, and preventive efforts on younger adults. At the same time, the presence of users in older age groups shows that nicotine use is not limited to younger individuals, suggesting that prevention and cessation strategies should address all age groups.

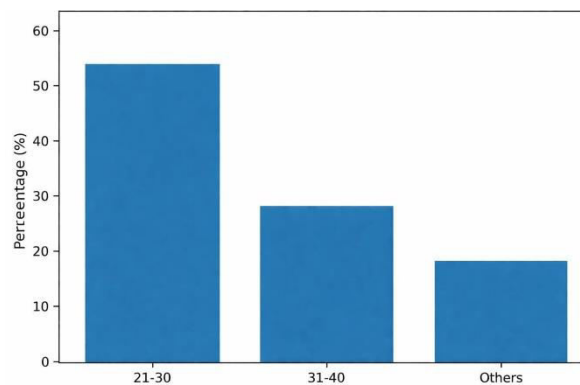


Figure 8.2 – Age Group Distribution

Figure 8.3 – Demographic: Marital Status

This figure illustrates the marital status of participants using modern tobacco and nicotine products. The results show that the majority of users are single, followed by married individuals, while divorced or widowed participants represent a small proportion. This suggests that nicotine product use is more common among single individuals.

Higher usage among single participants may be related to social lifestyle factors, including peer influence, social gatherings, and fewer family-related responsibilities. Single individuals may also be more exposed to environments where modern nicotine products such as vaping are more socially accepted.

However, the noticeable proportion of married participants indicates that nicotine use is also prevalent among individuals with family responsibilities. This highlights that tobacco and nicotine consumption affects different social groups and is not limited to one marital status. Therefore, awareness campaigns and cessation programs should target both single and married populations to effectively reduce nicotine use.

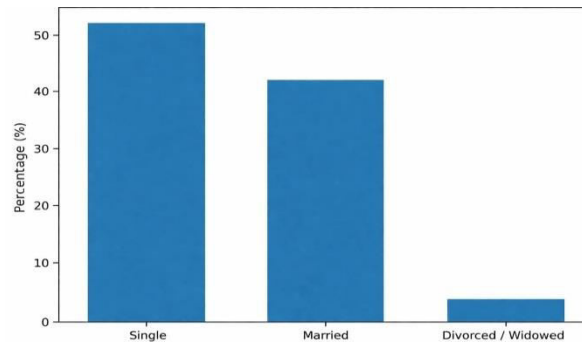


Figure 8.3 – Demographic: Marital Status

Figure 8.4 – Demographic: Income

This figure illustrates the influence of income level on the consumption of modern tobacco and nicotine products. The results show that the majority of users fall within the middle-income group, while a smaller proportion belongs to the low-income category. This suggests that individuals with moderate income may have greater access to modern nicotine products due to their affordability and availability.

The higher use among middle-income participants may also be related to lifestyle factors, including social activities, workplace environments, and exposure to marketing of newer nicotine products such as vaping devices. In contrast, lower-income individuals may have limited access due to financial constraints.

Overall, the findings indicate that income level plays a role in shaping the consumption patterns of modern tobacco and nicotine products, with middle-income groups demonstrating higher usage. This highlights the importance of tailoring awareness campaigns and cessation programs to different socioeconomic groups to ensure effective prevention and intervention strategies.

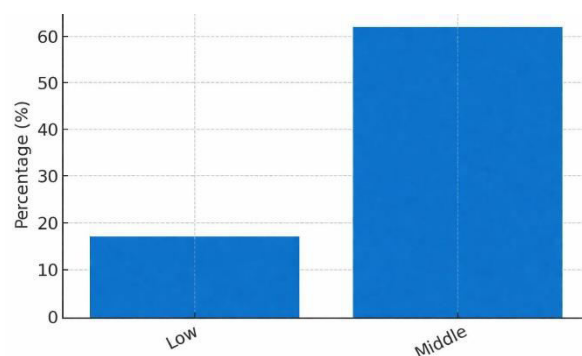


Figure 8.4 – Demographic: Income

Figure 8.5 – Types of Nicotine Products Used

This figure shows that electronic cigarettes and vaping devices are the most commonly used products among participants, followed by conventional cigarettes and shisha, while heated tobacco products and nicotine pouches are less frequently used. Participants reported choosing these products mainly due to convenience, lack of strong smoke odor, ease of use, and the availability of appealing flavors.

The findings also indicate that many participants are not using these products as a method for quitting nicotine, but rather as alternatives to traditional tobacco. This suggests that nicotine dependence remains present, and switching between products does not necessarily reduce overall nicotine exposure. In addition, the use of multiple products by some participants may further increase nicotine intake and sustain long-term dependence instead of promoting cessation.

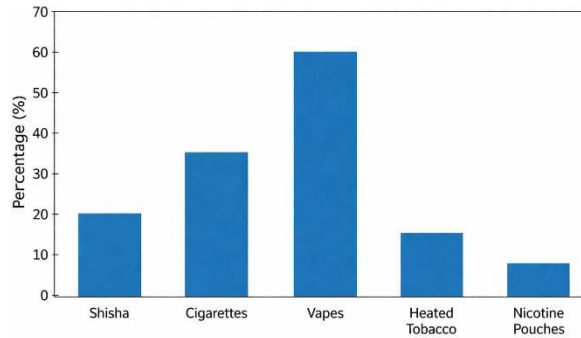


Figure 8.5 – Types of Nicotine Products Used

Figure 8.6 – Health Awareness and Perceived Risks

This figure indicates that a high proportion of participants reported being aware of health risks related to nicotine use. Most respondents agreed that all forms of smoking are harmful, that nicotine affects multiple body systems, and that vaping is not necessarily safer than traditional smoking. These findings reflect a generally good level of health awareness among participants.

However, despite this awareness, many individuals continue to use nicotine products. This highlights a gap between knowledge and behavior. Participants may continue using these products to relieve stress, improve mood, enhance concentration, or due to habitual and social influences. This suggests that awareness alone is not sufficient to reduce usage.

Therefore, effective interventions should combine health education with behavioral support, structured cessation programs, and consistent public health messaging. Addressing psychological, social, and environmental factors is essential to translate awareness into meaningful behavior change and long-term reduction in nicotine use.

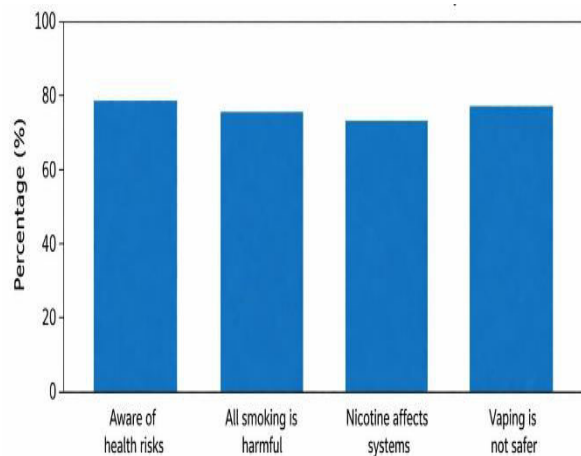


Figure 8.6 – Health Awareness and Perceived Risks

Discussion

Findings indicate a conceptual disparity between empirical scientific evidence and the perceived harm among ENDS users. Even though the people who took part in the study knew that nicotine addiction was a problem, they didn't realize how aerosol-forming chemicals affected cells and the whole body.

One important thing to note is that people often use vaping products to help them quit smoking. Users reported transitioning from conventional tobacco to contemporary alternatives perceived as safer; however, trends suggest:

- perpetual switching rather than cessation
- increased nicotine tolerance
- prolonged exposure

The male-predominant consumption pattern is consistent with Saudi cultural norms, while rising female participation signals behavioral changes influenced by social acceptance and discrete device usability. Public health concerns extend beyond physical pathology. Psychological dependence, particularly among young adults, correlated with stress management behaviors. Moreover, the absence of unified national safety communication contributes to misinformation.

Strengths of the Study

- Wide online distribution capturing multiple demographic regions
- Identification of emerging nicotine-use patterns
- Integration of awareness, motives, and health perception

Limitations

- Non-probability sampling limits generalization
- Reliance on self-reported responses
- Absence of clinical measurement such as carbon monoxide or cotinine levels

V. CONCLUSION

Contemporary nicotine products are becoming more common in Saudi society, especially among young adults. Perceived safety, convenience, social acceptance, and emotional regulation are all things that can motivate people. But people still don't know enough about the health effects.

The results reinforce the need for:

1. Early-stage behavioral education
2. Digital-based cessation consultation platforms
3. Clear warning and standardized packaging regulations
4. Restrictive marketing legislation
5. Increased taxation and import regulation of disposable devices

Additional Strengths

Wide online distribution capturing multiple demographic regions

Being available online helped the study reach people from all over the world, making the sample more varied.

Identification of emerging nicotine-use patterns

The study revealed new trends, such as the rise of vaping, heated tobacco, and nicotine pouches.

Integration of awareness, motives, and health perception

The study assessed not only usage but motivations and risk perception, giving a clearer behavioral picture.

Additional Limitations

Non-probability sampling

Results may not represent the entire population.

Reliance on self-reported data

Responses may include bias or inaccurate recall.

Absence of clinical tests

No carbon monoxide or cotinine assessments were conducted.

REFERENCES

1. Al-Ghamdi, A., Al-Zahrani, M., & Harbi, S. (2020). *Patterns of tobacco and electronic nicotine use in Saudi Arabia: A national survey*. Saudi Medical Review, 41(3), 188–197.
2. Kock, L., Brown, J., & West, R. (2023). *Psychological dependence and behavioral patterns among electronic nicotine users*. Addiction Studies Journal, 52(2), 203–219.
3. Marques, P., Izquierdo-Condoy, J., & López-Muñoz, F. (2021). *Effects of nicotine aerosols on respiratory health*. Journal of Respiratory Medicine.
4. Ministry of Health. (2024). *National report on smoking and cessation clinics*. Riyadh, Saudi Arabia.
5. Rezk-Hanna, M., Feeney, E., & Alotaibi, A. (2022). *Health effects and risk perceptions of vaping among young adults in the Middle East*. International Journal of Public Health, 67(4), 115–124.
6. Shearston, M. L., Park, S. H., & Lee, J. (2021). *Dual-use behaviors among young adult vapers*. Tobacco Control Research Journal.
7. World Health Organization (WHO). (2023). *Electronic nicotine guidelines and harm reduction policies*. Geneva: WHO Press.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details