

NICOTINE POUCHES “SNUS” USED BY THE UNIVERSITY EMPLOYEES AND STUDENTS IN LAHORE PAKISTAN: A CROSS-SECTIONAL STUDY

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Abstract

Introduction: Sachets and pouches of “oral nicotine” manufactured by cigarette companies such as Philip Morris, producer of Marlboro, and British American Tobacco, owner of the former Souza Cruz, are being sold clandestinely to Pakistan’s on Instagram. These products contain synthetic nicotine, can be addictive, and are marketed in Flavors such as mint, peppermint, and citrus, which makes them more attractive to young people. Among the posts and advertisements for nicotine sachets identified in the report on Instagram, sales profiles publish content that attempts to promote these products as a “healthier” alternative for those seeking to quit e-cigarettes, as well as claims that they reduce anxiety and even improve athletic performance, citing figures such as Film and Media Legends.

Methods and Materials: This is an analytical observational study of a cross-sectional and quantitative nature, involving sample representative from the population adult of employees of higher education institution in the Lahore Division, Pakistan. The research followed a deductive logic given the phenomenology of the study on Nicotine Pouches, its causes and repercussions. The participants were aged between 18 and 75 years old. Sample size was through stratified probabilistic sampling of 476 employees, being 289 workers of the areas of services administrative and 187 of the academic services.

Results: Nicotine Pouches prevalence (16%) was slightly higher than Pakistan’s national average (≈13%). Most employees were female and from rural areas, suggesting that urban exposure was not the only determinant of Nicotine Pouches. Education levels were high, but awareness of Nicotine Pouches harms did not fully

translate into behavior change.

Discussion: Although there is a higher prevalence of Nicotine Pouches in high-income populations. The association between the condition economic condition and the dependence in cigarettes overcome the positions held by university staff and students, so that the latter is the most significant risk factor.²⁰ In counterpart to the results obtained, the direct relationship found between holding an administrative position and increased Nicotine Pouches. Administrators occupied space between positions with a lower prevalence of smokers, as well as members of the armed forces and professionals in the arts and sciences.

Conclusion: Eliminating Nicotine Pouches is a challenge for all of civil society. Actions must be individualized and to take in account factors involved in the etiology from the addiction. From this mode, local governments, as well as the private sector, must promote social development, with better income distribution, quality of employment and education for the most exposed families the practice of Nicotine Pouches. In addition to offer structure to treatment from the dependence of Nicotine pouches, as well as their complications.

INTRODUCTION

Sachets and pouches of “oral nicotine” manufactured by cigarette companies such as Philip Morris, producer of Marlboro, and British American Tobacco, owner of the former Souza Cruz, are being sold clandestinely to Pakistan on Instagram. These products contain synthetic nicotine, can be addictive, and are marketed in Flavors such as mint, peppermint, and citrus, which makes them more attractive to young people¹.

These artificial “pouches” have become popular in Europe and the United States and mimic snus, a sachet of moistened tobacco powder typical of Sweden that is placed next to the gums so that the mucous membrane absorbs the nicotine. Many of these sachets, including those produced by BAT and Philip Morris, contain formaldehyde present in the smoke of conventional cigarettes².

According to the investigation, at least three profiles began promoting advertisements for synthetic snus targeting the Pakistan public on Instagram in November 2025. Eight additional pages selling these sachets on the social network were also identified, even though the importation and sale of this type of product are not permitted in the country due to the absence of a regulatory framework, as reported by the National Health Surveillance Agency (NHSR & C, GOP).

The sponsored advertisements ranged from promotional offers to invitations to become

resellers of the sachets, also known as “pouches.” Reporters contacted the advertisers found on Instagram without revealing they were investigating the issue, posing as potential buyers. This approach was adopted because it would not have been possible to obtain further information about the irregular operation otherwise.

“We finally managed to find a sales channel to bring [the sachets] to Pakistan, and now we are distributing them,” explained the owner of the facebook page in a WhatsApp audio message. He promoted advertisements on social media seeking individuals interested in reselling Philip Morris pouches and posted photos of his orders.

The products were shown on Instagram as ready for shipment via couriers (the Pakistan postal service), displaying the sender’s name and address in different cities of Pakistan³.

The owner of the clandestine page also stated that, abroad, the pouches have become popular among people who want to quit Nicotine Pouches or who work in office environments. “It’s a craze that has caught on strongly in the corporate environment, where people who can’t smoke but need the sensation of nicotine can put this pouch on their gums and nobody knows you’re using [snus],” he said.

Based on the information visible in the published photos, the page administrator appears to be named Nicotine Pouches. He is also listed as the

owner of the domain “osnus.com.pk,” which is used to promote the products online.

“I already work with disposable vapes and points of sale, so I decided to include [the sachets], and I had a very positive result. That’s why I thought about opening the market so that other people could also sell a product that will certainly be a trend this coming summer,” the owner said in an audio message sent to the reporter.

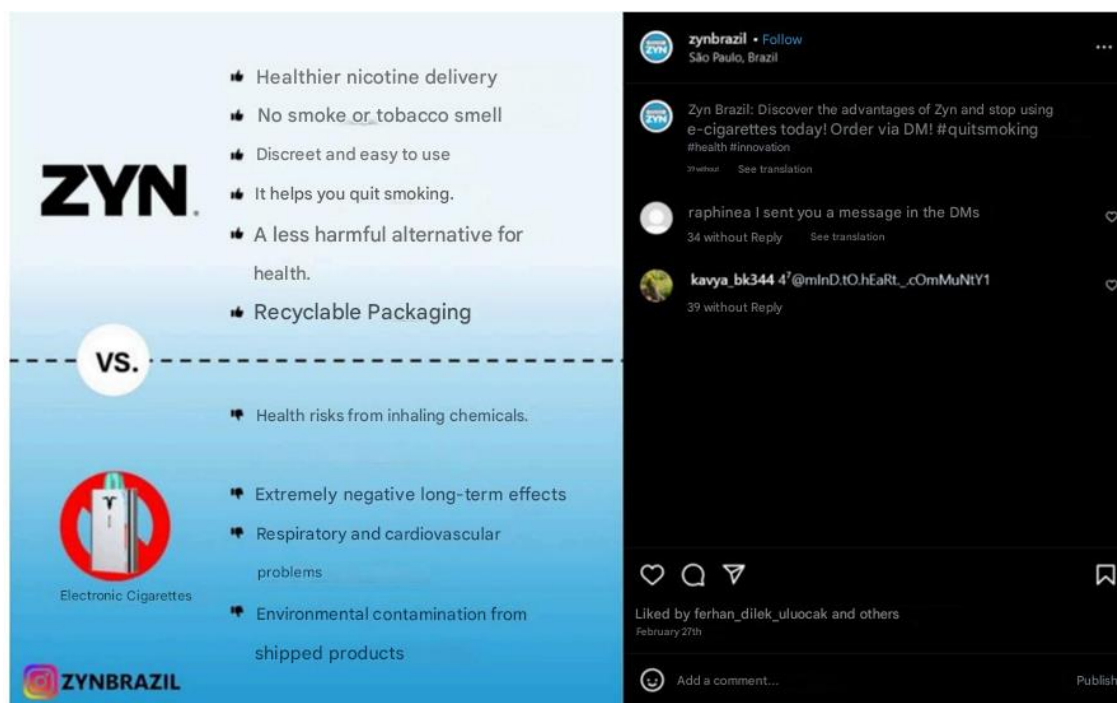
When asked whether the sachets were genuine, the owner of Nicotine pouches claimed that he purchases the products directly from Philip Morris in the United States and that “from there we find a way to get the product to Pakistan.”

Days later, the reporter contacted the page owner again to ask directly about the irregularity and whether Mr.X was his real name. At that point, he denied it, declined to comment, and deleted

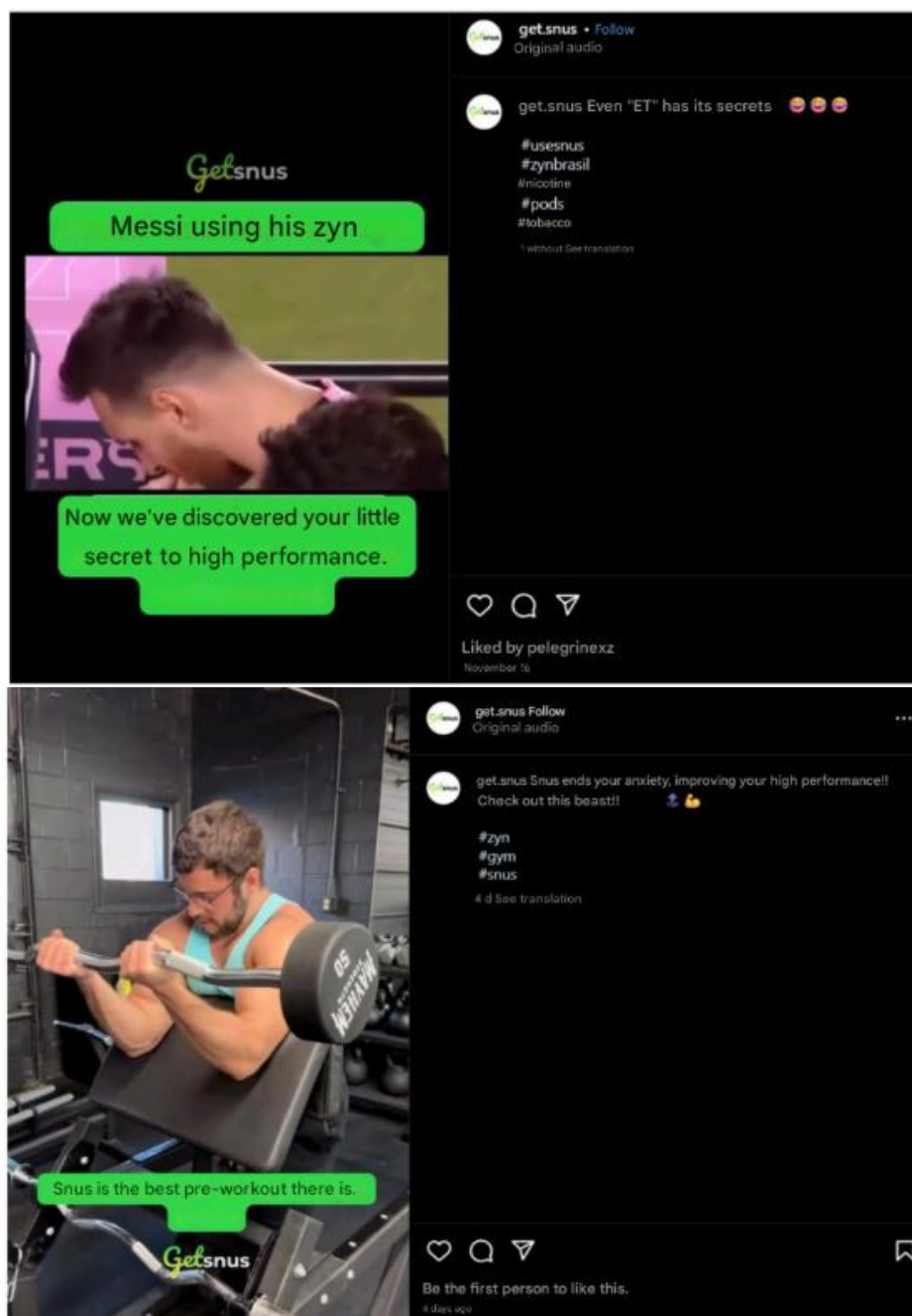
the social media profiles associated with the snus page.

Contacted by Management of Philip Morris stated that it does not sell its synthetic nicotine pouches in Pakistan, that it fully complies with Pakistan legislation, and that it has always acted in accordance with the regulations of the relevant regulatory bodies. BAT, which also has one of its sachet brands sold clandestinely in the country, stated that it would not comment.

Among the posts and advertisements for nicotine sachets identified in the report on Instagram, sales profiles publish content that attempts to promote these products as a “healthier” alternative for those seeking to quit e-cigarettes, as well as claims that they reduce anxiety and even improve athletic performance, citing figures such as Film and Media Legends⁴.



Posts from pages selling pouches of synthetic nicotine present the product as a “healthier” alternative to vapes, as a “pre-workout” that reduces anxiety, and as something used by high-performance athletes (Image: Instagram)⁵.



Mr.X, Instagram’s owner, Meta, stated that it prohibits the sale of the nicotine pouches and related items. The platform indicated that it uses a combination of user reports, technology, and human review to remove content that violates its rules. However, it did not remove the synthetic nicotine ads identified by the report and sent to the social network’s press office⁶.

Regarding the potential regulation of these pouches, NHSR & C, GOP told the new outlet that it is conducting ongoing “marketmonitoring” of new nicotine products

and that “the analysis of the data found may lead to eventual justification for opening a regulatory proposal.” The agency also stated that it could not comment on whether tobacco companies

have already expressed interest in marketing them in the country due to “commercial confidentiality”⁷.

Today, these sachets are already available in several markets in developed countries, manufactured primarily by traditional cigarette companies such as BAT and Philip Morris⁸.

“In recent decades, increased tobacco control measures have proven effective and have reduced Nicotine Pouches rates, which poses a threat to the tobacco industry,” says British researcher Sophie Pakistan Tabbaco, coordinator of the Tobacco Control Study Group at the University of Bath, England⁹.

As a result, the decline in the consumer market has motivated the launch of new products such as vapes, heated tobacco devices, and nicotine sachets to compensate for revenue losses and boost profits from addictive products, explains Pakistan Tabbaco. “They claim to be creating alternatives to Nicotine Pouches, but in reality, they are expanding the cigarette market while selling these new products, creating multiple sources of income,” she states.

In 2023, Philip Morris shipped more than 384 million cans of its pouches to the U.S., a 62% increase compared to 2022 and also recorded a 3.5% rise in global profits from conventional cigarettes, according to its annual results presented to investors.

Meanwhile, BAT saw its synthetic snus production increase by 33% from 2022 to 2023, representing the largest growth compared to other products in the company’s portfolio. Sales of vape units increased by 7%, while sales of conventional cigarettes declined by 8%, and heated tobacco products fell by 1.3%.

The British researcher also notes that these new products often circumvent older regulations designed for conventional tobacco and facilitate the industry’s entry into new consumer markets. In the case of Pakistan, NHR & C, GOP (the Pakistan health regulatory agency) has stated that existing regulations for Nicotine Pouches products, such as cigarettes, also apply to nicotine pouches.

Furthermore, since these sachets have only been on the market for a few years and have varying

compositions—from tobacco leaves to synthetic nicotine—their health risks remain unknown, and long-term data on their effects are lacking, explains tobacco prevention specialist Lisa Ermann of the Swedish Cancer Society (Concernment)¹⁰.

In the Scandinavian country where traditional snus, which uses only tobacco leaves, originated, synthetic products have entered the market in recent years and have mainly attracted young people and women. In 2023, 22% of 17-year-old Swedish girls used snus, a figure that includes synthetic nicotine sachets compared to 9% in 2018¹¹.

“Study shows that snus increases the risk of certain forms of cancer, such as oesophageal, pancreatic, stomach, and rectal cancer,” explains Ermann. She emphasizes, however, that there is no established causal link between the use of snus pouches and tumours. Some research has also found a higher risk of developing diabetes or dying from cancer among snus users compared to non-users, along with other indications of harmful effects¹².

In the Swedish case, there are indications that snus may promote the initiation of Nicotine Pouches. A recent government report on the relationship between snus, vapes, and conventional cigarettes showed that e-cigarettes use increases the risk of starting to smoke, according to the expert¹³.

If tobacco-free oral nicotine pouches were to be registered, under which regulated category would they fall, given that they theoretically cannot be considered Nicotine Pouches products?¹⁴

The definition of Nicotine Pouches products is not limited to items that produce smoke. By definition, Nicotine Pouches products are manufactured products, whether or not derived from tobacco, that contain leaves, leaf extracts, other plant components, synthetic or natural substances, or that mimic tobacco products.

Considering the increasing availability of new nicotine products sold by the tobacco industry abroad, and now arriving in Pakistan, is creating regulations for tobacco-free oral nicotine pouches part of the agency's regulatory agenda, or are they the subject of some study or technical note?

Initially, it is important to highlight that several steps precede the effective inclusion of a topic on the regulatory agenda.

One of these steps involves prospecting for products and market issues that may require regulatory intervention. In the case of new nicotine products, market monitoring is currently underway, and the analysis of the data collected may eventually justify initiating a regulatory proposal.

Item 16.3 of the regulatory agenda addresses Nicotine Pouches products regulations. Detailed description of this topic states that it covers updates to current requirements for tobacco-derived Nicotine Pouches products, as well as regulatory proposals concerning emerging Nicotine Pouches products.

Philip Morris Pakistan statement:

Philip Morris does not market Zyn in Pakistan. The company fully complies with Pakistan legislation and emphasizes that it has always acted in accordance with the regulations of the relevant regulatory bodies. We believe that the best way to combat smuggling is to support robust regulations that ensure consumers that the products they wish to consume are of high quality and subject to proper control.

Meta (Instagram) statement:

We prohibit advertisements relating to the tobacco, nicotine and illicit drugs including Nicotine Pouches. We use a combination of community reports, technology, and human review to enforce our policies and remove content that violates our rules. We encourage people to report any content they believe violates Instagram's Community Guidelines and Meta Advertising Standards through the app itself.

METHODS AND MATERIALS

STUDY AND SAMPLING METHODOLOGY

This is an analytical observational study of a cross-sectional and quantitative nature, involving sample representative from the population adult of employees of higher education institution in the Lahore Division, Pakistan. The research followed a deductive logic given the phenomenology of the

study on Nicotine Pouches, its causes and repercussions.

The participants were aged between 18 and 75 years old. Sample size was through stratified probabilistic sampling of 476 employees, being 289 workers of the areas of services administrative and 187 of the academic services.

The calculation to the result was adopted using parameters: 95% of level trustworthy, with margin of error of 5%, and proportion population of interest equal the 50%. 213 employees ($n = 213$), which corresponded to approximately 45% of the population, representing a sample of 129 employees from administrative services and 84 from academic services.

The inclusion criteria for volunteers in the research were: individuals over 18 years of age with employment relationship in the institution studied at the time of application of the questionnaire and who signed the Free and Informed Consent Form (FICF).

COLLECT OF DATA

Instrument used for data collection was an exploratory questionnaire with 54 questions, via Tool Google Forms, adapted of Questionnaire of Search National of Nicotine Pouches (PETab, 2008) and standardized (in the reduced format) of the *Global Tobacco Adult Survey* (GTAS).

The instrument contains eight sections that aim to: identify sociodemographic characteristics, estimate the use of (i) smoked tobacco products (industrial cigarettes; straw pipes; cigars or cigarillos; hookah) and (ii) tobacco non-smoked (chewed tobacco, such as chewing tobacco; or snuffed tobacco, such as Nicotine Pouch).

The GTAS allows the comparison of the results between countries participate from the *Global Tobacco Surveillance System* (GTSS) of WHO in partnership with the *Institute for Global Tobacco Control*, Johns Hopkins Bloomberg School of Public Health.

The questionnaire was applied between December 2024 and March 2025, at the educational institution itself, and employees had access during the rest periods determined for each sector, avoiding interventions in their work

activities. Researchers passed process of training in the interface from the tool and in the inspection of issues, ensuring the uniformity from the application of the instrument and analysis of the form the minimize variations between to the observations carried out by the different researchers involved in the project.

ANALYSIS OF THE DATA

Results were tabulated using the program Microsoft Excel and exposed an inferential investigation, using descriptive statistics in the *BioEstat Software*. The categorical variables were described as proportions with their respective 95% confidence intervals and for the numerical variables; the means and medians were calculated, with their measures of dispersion, standard deviation (SD) and interquartile. The frequency distribution of the variables that were analyzed in the GTAS questionnaire and the

prevalence calculation of each of these variables performed.

For correlation analysis of the observed proportions of the independent variables, a priori, he was tested the normality of the data obtained and, the leave of then, were carried out correlations no linear of *Pearson*, using the program statistical SPSS and the *BioEstat*, considering a significance level of 0.05 (5%).

CRITERIA ETHICAL

The project was submitted to the Committee of Ethics and Search of University of Lahore, Pakistan) for consideration and approval was considered, as this is a research involving human beings and, therefore, all participants signed the Free and Informed Consent Form (FICF).

RESULTS

Descriptive Statistics

Characteristic	% / Mean
Smokers (Prevalence)	16.0%
Gender	Male 32%, Female 68%
Mean Age	36.4 years
Residence	Rural 72.5%, Urban 27.5%
Education (Graduate+)	78.5%
Work Function	Admin 60%, Academic 40%
Average Awareness Score (0-10)	7.9

Nicotine Pouches prevalence (16%) was slightly higher than Pakistan's national average ($\approx 13\%$). Most employees were female and from rural areas, suggesting that urban exposure was not the

only determinant of Nicotine Pouches. Education levels were high, but awareness of Nicotine Pouches harms did not fully translate into behavior change.

4.2. Nicotine Pouches Prevalence by Gender and Work Function

Category	Nicotine Pouches (%)	Vapes, E cig, other Tabaco products (%)
Male	27.3%	72.7%
Female	10.8%	89.2%
Administrative Staff	21.7%	78.3%
Academic Staff	9.5%	90.5%

Nicotine Pouches was more than twice more prevalent among males than females. Administrative employees had higher Nicotine

Pouches rates than academic staff — possibly linked to job stress, less supervision, or different workplace culture.

4.3. Logistic Regression (Predictors of Nicotine Pouches)

Predictor	β (Estimate)	p-value	Interpretation
Male Gender	+0.84	0.001	Significantly increases odds of Nicotine Pouches
Administrative Function	+0.71	0.004	Strongly associated with Nicotine Pouches
Rural Residence	+0.52	0.021	Higher Nicotine Pouches risk in rural employees
Low Education	+0.47	0.037	Less educated more likely to smoke
Awareness Score	-0.65	0.008	Greater awareness reduces Nicotine Pouches odds

Male gender and administrative work were the strongest predictors of Nicotine Pouches, while higher awareness of health risks had a clear protective effect.

4.4. Knowledge and Attitude Results

Statement	% Agree
Nicotine Pouches causes illness	66.4%
Tobacco causes serious diseases	95.0%
Nicotine Pouches allowed inside home	4.0%
Saw tobacco ads on social media	51.0%
Cigarette warnings motivated to quit	0.4%

Although awareness of health risks was high, motivation to quit remained very low (only 0.4% influenced by warnings), showing a gap between **knowledge and behavioral response**.

DISCUSSION

The prevalence 16% of smokers in the population analyzed in present study overcomes the prevalence of Nicotine Pouches in Pakistan representing approximately 13% of the Pakistan population adults.¹⁵ It is understood that scenario of nicotine pouches dependence use in the higher education institution presents a projection close to the national panorama. It also reflects the need for measures to prevent and combat Nicotine Pouches from micro-institutional environments.

Data corroborate with the analysis of higher prevalence of Nicotine Pouches in the unemployed population or in precarious work situations, compared to those formally employed.¹⁶ The influence of certain occupations and specific work functions on higher tobacco consumption is not precisely explained, but can direct actions to groups more vulnerable in the promotion in health and disease prevention.

Understanding the multifactorial nature of Nicotine Pouches and the psychosocial issues involved, reveals the need to act in Nicotine Pouches cessation therapy by reconciling pharmacological and behavioral methods.¹⁷ To end this, it is essential that the health

professional responsible for the smoking have focus on advice and creation of link in the queries. There is view that the effectiveness of the education in health in the cessation Nicotine Pouches.¹⁸

Since most of the nicotine pouches user in the present study had completed high school, this association has already been explored in the scientific literature and appears as a risk factor for both sexes, indicating that quitting or starting Nicotine Pouches is influenced by of behaviors social and standards cultural presented for the individual.¹⁹

Although there is a higher prevalence of Nicotine Pouches in high-income populations. The association between the condition economic condition and the dependence in cigarettes overcome the positions held by university staff and students, so that the latter is the most significant risk factor.²⁰ In counterpart to the results obtained, the direct relationship found between holding an administrative position and increased Nicotine Pouches, in study of Barros and al. (2011). Administrators occupied space between positions with a lower prevalence of smokers, as well as members of the armed forces and professionals in the arts and sciences.

Another relevant aspect in this research refers to the fact that 95% of the smokers interviewed had already received information about the harmful effects of nicotine Pouches and, even so, the minority felt sensitized and motivated to stop of smoke.²¹ This given reinforces the importance anti-Nicotine Pouches campaigns review the linked content. Research led pointed out that advertisements with Emotional content, such as personal testimonies, or graphic images (e.g. lungs, arteries, tracheostomy) have better results in Nicotine Pouches cessation.²²

According to Moutinho and Nunes (2008), the tobacco industry played a fundamental role in dissemination of Nicotine Pouches through the media in the latest decades. The propaganda of Nicotine Pouches is not regulated in several sectors in Pakistan in this sense; non-efficiency is all the education and promotion in health, applied in depth in the academic, health and labor market fields.²³

In this context, actions employed by organizations, if based on in these Strategies such as EAT (Education *against* Tobacco) have a high potential to affect the prevalence of Nicotine Pouches in the long term.²⁴

A study in Lahore students found that interventions carried out to raise awareness referring to harm caused by the various types of tobacco products can result in a slowdown in the progression of Nicotine Pouches in the population submitted for the intervention, when compared to the group control (14.1% to 15.6% versus 11.0% to 20.9%).²⁵

However, it is important to emphasize that since this study was single-center, carried out in one unique institution of teaching, can generate questioning as the generalization of the results obtained. Furthermore, the profile of the person interviewed (female with a high qualification, who holds an administrative position and earns more than three minimum wages) no matches with epidemiological profile of Pakistan smoker.²⁶ However, the findings of this research are similar to those found in other educational institutions and serve as a stimulus, especially for medical schools, in the development and marketing of

Nicotine Pouches promotion and marketing strategies in Pakistan.²⁷

In relationship to the ways to control the Epidemic Nicotine Pouches, report of Department of Health and Human Services Department of the United States of America brought strategies the combination of various interventions with effectiveness and efficiency demonstrated. Among the development of legislations restrictive of tobacco use and advocacy for non-smokers, increasing accessibility to formal Nicotine Pouches cessation programs, using mass media and own means (leaflets informative and guides to abandonment), the application of programs of prevention in schools, colleges and work environments.²⁸

CONCLUSION

Eliminating Nicotine Pouches is a challenge for all of civil society. Actions must be individualized and to take in account factors involved in the etiology from the addiction. From this mode, local governments, as well as the private sector, must promote social development, with better income distribution, quality of employment and education for the most exposed families the practice of Nicotine Pouches. In addition to offer structure to treatment from the dependence of Nicotine pouches, as well as their complications. To the universities, schools and the community, time, must invest in projects that help disseminate information about the risks of diseases caused by nicotine pouches. In order to raise awareness among parents, employees, and teachers and even among people who are the population most exposed to this potentially fatal habit.

Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the University of Lahore, Lahore Pakistan.

Informed Consent Statement

Written informed consent was obtained from all participants involved in the study.

Data Availability Statement

The raw data supporting the conclusions of this article will be made available by the authors on request. The data are not publicly available due to privacy and ethical reasons.

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Conflicts of Interest

The authors declare no conflicts of interest.

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