



Adult perceptions of cigarettes and e-cigarettes: A Pakistan focus group study

Maria Qureshi^{a,b,*}, Mehwish Mumtaz^a

^a QBAL, SMC (Single Member Company), Private, Limited, Pakistan

^b Centre of Excellence for the Acceleration of Harm Reduction, University di Catania, Italy

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ABSTRACT

Objective: Evidence suggests that the popularity of Reduced Risk Products' (RRPs) is growing globally, and they are being considered as effective aids for tobacco cessation. To explore different policy options for reducing disease burden, this qualitative study investigates the perceptions of the urban adult population regarding the use of e-cigarettes (EC), combustible cigarettes, or both, and the factors influencing their choices.

Methods: Twelve focus group discussions (FGDs), involving 132 participants, (68 male, 64 female), aged 18–60, were conducted from August to October 2022 in three metropolitan cities of Pakistan. Thematic analyses were conducted using the NVivo software. The Standards for Reporting Qualitative Research were employed for reporting and conducting purposes.

Results: The findings indicate that while all participants discussed the health risks associated with combustible cigarettes and EC and expressed intentions to quit, many continued to smoke or vape. Reasons cited included perceived stress relief, alleviation of medical issues, or addiction hindering cessation efforts. Among the youth, EC use gained popularity due to its social acceptability and the inclusion of appealing flavours and fragrances. Additionally, participants managed the higher costs of ECs by sharing and pooling expenses. Some users of combustible cigarettes transitioned to ECs with the expectation of achieving better health outcomes.

Conclusion: This study establishes a foundation for undertaking quantitative research to identify pathways for assisting policymakers in mitigating the growing disease burden. Additionally, it aims to contribute to the achievement of Sustainable Development Goals 3a and 3.4 for Pakistan.

1. Introduction

In its ambition to achieve a smokefree status by 2030, the United Kingdom (UK) is utilizing e-cigarettes (EC) as a cessation aid to reduce smoking prevalence in its population (Ash, May, 2021). Remaining within the ambit of Framework Convention on Tobacco Control (Framework Convention on Tobacco Control, FCTC), the Medicines and Healthcare Products Regulatory Agency now allows EC manufacturers to get medical licenses for their ECs. This move positions the UK as the first country globally to medically prescribe ECs (Health and Population Health, 2017; Health., A.o.S.a., 2021). Following the exemplary tobacco control plan by the UK, Pakistan has the potential to assist its 23.9 million cigarette smokers in transitioning to safer alternatives like ECs (TCC Pakistan).

Pakistan is grappling with a growing disease burden. The 2021 survey, titled “The Economic Cost of Tobacco-Induced Diseases in

Pakistan” estimated that the total attributable costs to all smoking related diseases and deaths in Pakistan amounts to USD 3.85 billion (Durre et al., 2021). The World Health Organization (WHO) states that lower and middle-income countries should anticipate a return of USD 7 per person for every USD 1 invested in tobacco control by 2030 (WHO, 2018).

However, Pakistan in its 2020 implementation report to Framework Convention on Tobacco Control ratified in 2005, revealed that it lacks both tobacco quit lines and primary health care facilities for tobacco-related diagnosis and treatment. In Pakistan, a higher ratio of men (23 %) compared to women (5 %) use tobacco. 22 % of men and 3 % of women smoke cigarettes. The use of cigarettes among men dropped from 28 % to 22 % between 2012 and 13 to 2017–18, while it increased from 1 % to 3 % among women during the same period (National Institute of Population Studies (NIPS) [Pakistan] and ICF, 2019). The smoking prevalence remains high, even though 85.8 % adults believe

* Corresponding author at: Office No 5, Second Floor, Plot No 4, Usman Centre, D-12 Markaz, Islamabad, Pakistan.

E-mail address: drmariaqureshi@gmail.com (M. Qureshi).

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that smoking cigarettes and 77 % believe that smokeless tobacco causes serious illness (WHO FCTC, 2020). In the past 12 months, 1 in 4 smokers had attempted to quit (WHO FCTC, 2020).

Pakistan may fall short of achieving its Sustainable Development Goal 3.4 aiming to reduce premature mortality by one-third from non-communicable diseases as well as its target 3a, which is to strengthen the implementation of the Framework Convention on Tobacco Control by 2030. Pakistan's National Tobacco Control Strategy 2022–2030 was developed using outdated statistics. Unlike the UK it lacks the impetus towards cessation, restricting itself to making nicotine replacement therapy affordable for those seeking to quit cigarette smoking (TCC Pakistan, Tobacco Control Cell, NHSRC Division, Government of Pakistan, 2022). In the past, the government failed to establish cessation clinics at every tier of the healthcare system due to a lack of financial resources (UN, SGDs). A similar commitment has been made in the new strategy.

ECs can potentially expedite the achievement of the WHO lagging targets, which aim to reduce tobacco use by 30 % by the year 2025 (Peruga et al., 2021; WHO, 2021). Despite their growing popularity, Pakistan lacks prevalence statistics on Reduced Risk Products (RRPs) A 2016 study of medical students in Pakistan revealed that over 65.6 % students had knowledge of ECs, with 6.2 % reporting EC usage, out of which 1.2 % were daily users (Iqbal et al., 2018). The current revenue generated by ECs amounts to USD 74.52 million, with an expected annual growth rate of 1.77 % (CAGR 2023–2027).

This study captures the perceptions of the adult population regarding combustible cigarettes and ECs. It also serves as a foundation for a larger-scale quantitative study to explore Pakistan-specific policy options for the government, helping in the achievement of the elusive Sustainable Development Goals.

2. Methods

This qualitative study has been conducted and reported following the 21 essential items listed in the Standards for Reporting Qualitative Research guidelines for a comprehensive and transparent analysis (O'Brien et al., 2014), (Supplementary annex A).

This study is based on twelve focus groups conducted in the metropolitan cities of Islamabad, Lahore, and Karachi from August to October 2022. A pilot focus group assessed the tool's accuracy, leading to subsequent modifications. Every focus group consisted of 8 to 12 participants, totalling 132 individuals aged between 18 and 60, including 64 females and 68 males, Table 1. Participants represented diverse socio-demographic backgrounds and exhibited varied smoking/vaping behaviors, represented a broad spectrum of the population. Due to the sensitive nature of the focus groups, participants were recruited through snowball sampling using the chain referral system and advertising on vaping community Facebook pages (Pakistan) (Supplementary Annex B).

Six focus group discussions (FGDs) were conducted exclusively with EC users - three with males and three with females. The remaining FGDs

Table 1
Number of participants in each FGD, its location and gender.

Sr.	FGD Name	No. of Participants	Gender	City
1	FGD-01- Dual	12	Male	Lahore
2	FDG-02- Dual	12		
3	FGD-03-Exclusive	8		
4	FGD-01- Dual	11	Female	
5	FGD-02-Exclusive	11		
6	FGD-03-Dual	9		
7	FGD-01 Dual	14	Male	Islamabad
8	FGD-02-Exclusive	10		
9	FGD-01 Exclusive	8	Female	
10	FGD-01 Exclusive	12	Male	Karachi
11	FGD-01 Exclusive	13	Female	
12	FGD-02 Dual	12		

were conducted with an approximately equal ratio of dual users (EC and tobacco cigarettes). Participants received USD 50 as a compensation for travel costs.

The FGD tool comprised of two semi-structured questionnaires specific to each group. Prior to initiating the focus groups, a questionnaire was distributed among the participants to collect data on their age, sex, address, monthly income, level of education, type of employment, and history of type and duration of product used. Written consent in the local language and verbal consent were obtained from all participants. The FGDs lasting 1–2 h, and were audio recorded with the participants' permission. and verbatim transcripts were generated. Ethical approval for the study was obtained from the Government of Pakistan's National Bioethics Committee (ref: No.4–87/NBC-835/22/670).

2.1. Data saturation

The study aimed to assess saturation and identify parameters for estimating sample sizes in focus group studies by adopting a process similar to another study conducted by Hennink et al (Hennink et al., 2017; Hennink et al., 2019). Due to a limited number of participants willing to participate, particularly female smokers and vapers, it was pre-determined to conduct 12 FGDs. However, during the analysis, it was observed that after the tenth FGD all themes had reached data saturation. Additional participants or focus groups did not contribute to the depth or breath of the parent responses. Hence it was determined that data saturation was achieved during this qualitative research process.

2.2. Data analysis

The FGDs underwent a comprehensive review and analysis of patterns and themes following, Braun and Clarke's six-step thematic analysis process by using two distinct approaches for the emerging data- inductive or "bottom-up" approach or deductive or "top-down" approach (Boyatzis, 1998; Braun and Clarke, 2006; Frith and Gleeson, 2004; Hayes, 1997).

To ensure methodological rigor and trustworthiness, a fellow qualitative researcher (an NVivo expert) was engaged in the process (Loughran, 2004; Schuck and Russell, 2005). The transcripts were independently analyzed by two coders.

The transcripts of the FGDs were imported into NVivo, a computer-assisted qualitative data analysis software to facilitate data management, pattern identification, code creation, and visualization. Each issue underwent verification by at least two analysts before being designated as a code for inclusion in the NVivo codebook. Similar codes were then organized into relevant groups known as sub-themes or axial codes. Subsequently, these sub-themes were further categorized into broader themes or categories. A total of two hundred sixty-four themes, sub-themes, and subcodes were extracted from the transcripts, including inductive and deductive codes (Supplementary Annexure C).

3. Results

The following themes were extracted from the FGDs. Their hierarchy and relationship with the research questions are shown in Table 2.

3.1. Reasons for smoking cigarettes and e-cigarettes

The participants acknowledged that they understood the health risks of smoking, but their addiction did not let them quit. They perceived smoking as a tool for relaxation, mood stabilization, and emotional regulation.

"EC smoking is not harmful. For example, when I am burdened with work pressures and am feeling mentally stressed, ECs offer relief." (Male exclusive EC user, aged 32).

Table 2

Number of themes, subthemes, their hierarchy and relationship with the research questions.

Name	Coded FGDs	References
1. Recognize the Smoking Risk	12	420
1.1 Thinking or Ideas about Smoking Cigarettes	12	191
1.2 Reasons for Initiating Smoking	6	14
1.3 Quantity of Cigarettes Affecting the Health	5	28
1.4 Daily Consumption of Cigarettes	8	48
1.5 Cigarette Brands being Used	5	28
1.6 Reasons for Vaping	11	47
1.7 Vape Consumption Pattern	8	34
1.8 Brand Names of Vapes Used	9	30
2. Understand the Smoking Risk	12	292
2.1 Effects of Cigarette on Health	8	65
2.2 Differences Experienced Smoker's vs. Non-Smoker's Health	7	37
2.3 Difference Between Cigarette and Vape	8	88
2.4 Adverse Effects of Smoking Compared to Vaping	11	35
2.5 Beliefs and Understanding about Nicotine	12	67
3. Personal Desire to Change Smoking Habits	10	105
3.1 Challenges Face in Quitting Cigarette	10	52
3.2 Required Actions to Quit Cigarette	9	53
4. Awareness about Reduced-Risk Products (RRP)	12	332
4.1 Knowledge About Cigarette Alternatives	9	58
4.2 Ideas and Beliefs about vape	12	105
4.3 Awareness about source of vape	11	51
4.4 Reasons for Vaping	5	23
4.5 Response of Vapers to Unavailability of Desired Flavor	7	41
4.6 Response to Vaping Unflavored Vapes	4	18
4.7 Knowledge about Velo	8	20
4.8 User Experience of Velo	7	16
5. Access to Reduced-Risk Products (RRP)	12	275
5.1 Availability of Vape	12	66
5.2 Price Comparison of Vape and Cigarette	8	38
5.3 Monthly Expenses on Cigarettes	8	40
5.4 Monthly Expenses on Vape	8	61
5.5 Response on Increased Prices of Cigarettes	9	54
5.6. Response on Increased Prices of Vape	6	16
6. Prevent Smoking Relapse	11	111
6.1 Flavor Choices of Vape	9	68
6.2 Desired Change in Vape to Make it At Par with Cigarettes	11	43

"I am unable to quit smoking, the cravings and mood swings cripple me, and I am unable to carry out any tasks, I'm hooked to them." (Female smoker, aged 41).

Many participants linked their smoking/vaping with socialization, expressing that it helped them belong to and be part of a group. Family or peer influence and the desire to appear and feel mature are other cited reasons for their use. Particularly EC users expressed that vaping made them feel "cool," "glamorous," or "fashionable". Many participants reported that their health issues improved after they started smoking which according to them had been suggested by their health care provider for alleviating their medical conditions.

"The birth of my child resulted in a chronic form of heartburn. All medicines proved to be ineffectual for me. A doctor suggested I should try smoking cigarettes to help with my dyspepsia. I tried, and it worked like a miracle." (Female dual user, aged 36).

Most participants, particularly those in younger age groups, also used ECs for recreational purposes, competitions, or "cloud chasing". Some vaped to enjoy the variety of e-liquid flavors and its pleasant smell.

"There is a new trend where you can make smoke rings and circles from a vape. It is more fun than smoking cigarettes especially in social gatherings." (Male exclusive EC user, aged 22).

Participants outlined reasons for switching to EC, citing lower health risks, a safer option to satisfy nicotine cravings, convenience, and relief

from gastric issues.

"My gas and acidity problems are relieved by using an EC." (Female dual user, aged 28).

3.2. Understanding health outcomes of smoking

Participants demonstrated a strong understanding of the detrimental health consequences of smoking, including various diseases such as cancers, respiratory illnesses, and cardiovascular diseases. Female participants in particular, expressed concerns about the physical and aesthetic effects of smoking, such as reduced stamina, fatigue during physical activity, changes in complexion, darkening of lips, staining of teeth and fingers, and halitosis. Participants who smoked also pointed health issues they faced including breathlessness, reduced stamina, reduced appetite, cough, phlegm, and bronchitis, unlike their non-smoking counterparts of the same age.

"The difference is that my health is getting worse with every passing day. As far as non-smokers are concerned, they are perfectly fine. I was healthier before, even after having a baby. I have been smoking for a year, and since I started smoking, my health is deteriorating." (Female dual user, aged 35).

"If one smokes more, then it damages the teeth; smoking too much creates a black stain on the fingers which cannot be removed." (Female dual user, aged 26).

When the participants' understanding of nicotine was assessed, most responses indicated awareness of nicotine as an addictive chemical often labelled as the main culprit for causing health issues. However, some participants cited positive effects of nicotine as a potent stimulant helping uplift their mood and manage stress.

"Nicotine has a black color that goes into your lungs. And then there comes a time when your lungs get blocked and choked by nicotine. That happens due to excessive use of cigarettes." (Male exclusive EC user, aged 25).

"Nicotine is a good thing. It is in tobacco and present in ECs. It goes to the brain and then affects each brain cell. Its effects can be felt with every puff, providing a feeling of euphoria. A morning or late-night smoking session can leave one feeling like they are flying high in the sky." (Male exclusive EC user, aged 19).

"Once you start smoking, it is with you till death bed." (Female smoker, aged 38).

In discussions about ECs, some participants highlighted it as an excellent tool for smoking cessation with the added option of nicotine strength regulation, a pleasant fragrance, and various flavors.

"The good thing about ECs is that one can control the nicotine strength depending on how strong one wants the nicotine. Similarly, one can control and change flavors. I used to smoke two to three packs of cigarettes daily, but now one regular sized e-juice bottle lasts a whole week." (Male exclusive EC user, aged 47).

3.3. Personal desire to change smoking habits

The majority of participants expressed a strong desire to quit smoking but faced significant challenges, attributed their struggles to addiction. Intense cravings emerged as the primary obstacle during cessation attempts and participants reported difficulties in sustaining abstinence due to social networks and peer pressure. Additionally, some individuals experienced relapse when confronted with medical conditions or other stressors, as smoking had provided relief for their symptoms.

“Twice! Twice! I tried to quit cigarettes— but both times, my friends made me hold and light a cigarette again forcefully, and then I could not resist the temptation.” (Male dual user, aged 27).

“Even though everyone here has agreed that smoking is dangerous, but we continue to smoke as we are addicted. I have repeated chest infection issues. I only take a tablet to settle my infection and continue smoking as usual. No, I cannot quit, it is too difficult.” (A female dual user, aged 30).

Some participants found ECs helpful in reducing or replacing cigarettes, as vaping alleviated cravings, and their withdrawal symptoms.

“I used to smoke 3 to 6 cigarettes a day, now I smoke once every two days as I use ECs, but I cannot quit cigarettes completely.” (Female dual user, aged 26).

3.4. Knowledge about electronic cigarettes, nicotine pouches, and nicotine replacement therapy

Most participants demonstrated familiarity with smokeless and combustible tobacco, nicotine pouches, and nicotine replacement therapy products. However, those who had tried nicotine pouches or nicotine replacement therapy did not find them helpful in quitting smoking. In contrast participants stated that they found ECs highly effective in reducing their cigarette cravings.

“Velo (nicotine pouch) is available in different flavors. You can easily keep Velo pouches in your mouth like Naswar but velo is not a substitute because smokers feel cravings only for a cigarette which cannot be reduced by using velo.” (A female exclusive EC user, aged 28).

“I have used nicotine patches, nicotine chewing gum, and velo but did not find them same as cigarettes. In the end the urge to smoke was always there.” (A female dual user, aged 42).

Participants communicated that they had learned about ECs mainly through social media or from their friends/family members who either used ECs themselves or believed them to be safer than traditional cigarettes. Additionally, some participants mentioned being influenced by celebrity endorsements of EC use.

“Social media has made knowledge about vapes’ availability and accessibility very easy. One can easily see where they are available or simply order them online on apps as we order food.” (Female exclusive EC user, aged 22).

“I see all these renowned celebrities vaping, and I feel that these are good people who are educated and at a good level in society, so if they are doing it, then it cannot be bad. So, I quit cigarettes and started vaping.” (Male exclusive EC user, aged 24).

The main factors cited by the participants for their EC use was the taste and variety of e-liquid flavors. They also stated that the unavailability of flavors would make EC less attractive to them.

“Without flavors, I would start smoking again.” (Male exclusive EC user, aged 20).

“Then I will not enjoy ECs. I will not use them if flavors are removed from an EC.” (Female exclusive EC user, aged 21).

3.5. Accessibility of E-cigarettes

EC users reported having no difficulty obtaining devices and e-juices from various retail outlets and online stores with the option of home delivery service. Some participants also mentioned the easy availability of ECs at cafes with them being featured on their menus.

“Ordering a vape online is as easy as ordering a burger.” (Female exclusive EC user, aged 25).

Interestingly, female participants narrated that their households were more open and accepting of women using ECs compared to smoking cigarettes. Moreover, they determined that the stigma linked to the use of electronic cigarettes was less pronounced compared to the stigma attached to smoking cigarettes.

“Vape is better than cigarettes. Normally in our society a cigarette seen in a woman’s hand is considered morally wrong. Like you must have seen in television dramas as well that when they want to show that a woman has a bad character, they show her as a smoker. Vape has made life easy. One can easily vape anywhere though cigarette is socially unacceptable for women.” (A female exclusive user, aged 29).

Participants noted that the drawback of ECs was the higher initial investment, although some mentioned that in the longer term the cost of vaping was lower compared to cigarettes.

“Of course, ECs are more expensive as they require a whole set-up; charger, liquid. Only the liquid costs around 2500–3000 rupees once. Liquid for 15–20 days costs 6000 rupees a month.” (Female dual user, aged 44).

The study participants exhibited diverse responses to how they would respond to increased cigarette prices. Responses included smoking in groups, sharing with friends, or reducing consumption without quitting altogether or switching to a cheaper brand.

“I will reduce my cigarette smoking and only smoke one cigarette pack a month.” (Female dual user, aged 30).

On the other hand, participants responded differently when asked about their actions in the face of a potential increase in vape prices. While some implied they would continue to vape, others indicated they would shift to cigarettes as the current EC cost was already a significant burden.

3.6. E-cigarettes as a tool to prevent relapse to combustible cigarettes

During a discussion to understand what factors would prevent the participants from relapsing to combustible cigarettes once they switched to ECs, the participants stated that the availability of diverse e-juice flavors, higher nicotine content in e-liquids, markedly reduced EC prices, reduced smoke levels from vapes, and more disposable options would increase their appeal.

“EC should be made much cheaper, so people would switch.” (Male exclusive EC user, aged 49)

A summary of themes, sub-themes, and codes, along with their corresponding quotations, is given in (Supplementary Annex C).

4. Discussion

Pakistan’s Tobacco Control Strategy outlines that while Heated Tobacco Products are covered under the definition of tobacco in the prevailing law, ECs/vapes or nicotine delivery systems are not included (Tobacco Control Cell, 2022). The WHO’s MPOWER¹ has two components in demand reduction: to prevent future initiation and reduce the current prevalence. Prevalence reduction requires robust cessation strategies within the MPOWER framework (WHO, MPOWER, 2022). However, the strategy, based on outdated surveys, lacks statistics on RRP with no mention of EC as a cessation aid. The strategy is restrictive as it only recommends nicotine replacement therapy for quitting smoking overlooking the latest innovative products (Tobacco Control

¹ (Monitoring tobacco use, Protecting people from tobacco use, Quitting tobacco, Warning about dangers of tobacco, Enforcing TAPS bans, Raising taxes on tobacco).

Cell, 2022, WHO, MPOWER, 2022).

Quitting cigarette smoking can be challenging, with a 90–95 % failure and relapse rate (Komiya et al., 2019). Although research shows better success at cessation with behavioral and drug therapies, many smokers still find it increasingly difficult to quit smoking (Laniado-Laborín, 2010).

The WHO acknowledges its disappointing progress toward fulfilling its commitment to non-communicable diseases. However, it rightly emphasizes that “there is no excuse for inaction as we have evidence-based solutions” (WHO, 2018). The world is transitioning towards Tobacco Harm Reduction, with approaches playing a complementary role in “minimizing harms and decreasing total mortality and morbidity, without eliminating tobacco and nicotine use” (Hatsukami and Carroll, 2020; Stratton et al., 2001). In a survey of medical school students, conventional tobacco users were significantly more likely to have heard of ECs (87.6 % vs 51.6 %, $p < 0.001$) and have used them (13.9 % vs 1.3 %, $p < 0.001$), (Iqbal et al., 2018).

A limitation of the Pakistan’s strategy is the absence of data on RRP and their potential role as cessation aids. This absence limits the ability to evaluate their potential contribution to reducing tobacco-related harm in Pakistan. Incorporating RRP into the tobacco control framework and conducting further research on their effectiveness as cessation aid is essential for comprehensive and evidence-based tobacco control.

5. Limitations

This study has its limitations as a qualitative study. More data is required on vape users in Pakistan to give sufficient information for the background information. Another limitation is that this study was conducted in the urban cities of Pakistan, hence it does not reflect the perspectives of the rural population.

6. Recommendations

This study provides equitable insights from both male and female smokers and vapers, identifying the high cost of ECs as the main barrier to RRP adoption. Quantitative surveys are needed to assess the impact of price on potential buyers, informing econometric models for effective policy outcomes in Pakistan. Future research focusing on ECs is required to provide innovative policy ideas for policymakers as they regulate electronic nicotine delivery systems and cigarettes.

7. Conclusion

This study provides a snapshot of the prevailing perceptions of both combustible and EC users in Pakistan. The results call for a further larger-scale quantitative survey, such as the Global Adult Tobacco Survey and Global Youth Tobacco Survey corresponding with the population census of 2023. Further research is required to explore the prevalence of RRP. In light of the recommended research, the government can take effective steps to formulate a cost effective and sustainable strategy for reducing the disease burden replicating the pattern of the UK.

To achieve the target of a 30 % reduction in the smoking population, the federal government’s tobacco control measures, guided by the MPOWER framework, should recognize the importance of safer (RRPs) as aid for cessation. Smokers should receive better information about the improved health outcomes associated with RRP, and taxation policies should differentiate between combustible cigarettes and RRP. Policymakers need to work together using evidence-based science to design and implement policies to help smokers quit smoking.

8. Declarations

Ethical approval for the study was obtained from the Government of Pakistan’s National Bioethics Committee (ref: No.4–87/NBC-835/22/

670). The participants were informed about the study objectives and that their participation was voluntary, and they could withdraw at any time without giving any reason. They knew the conversation was audio-recorded, but their identity would not be revealed. Verbal and written consent was recorded at the beginning of the FGDs.

9. Consent for publication

Consent was obtained from participants to use anonymous quotes to be published in peer-reviewed journal publications.

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CRediT authorship contribution statement

Maria Qureshi: Data curation, Formal analysis, Methodology. **Mehwish Mumtaz:** Data curation, Formal analysis, Methodology, Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on request.

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Appendix A. Supplementary data

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