CASE STUDY

Challenges and opportunities for snus as a tobacco harm reduction product in Malawi

M Nyirongo,[1] BSc; **C Ngoma,**[2] MA; **M Udedi,**[3] MPhil, PhD; **N Kasomekera,**[3] MPH; **I Mayenda,**[1] BSc

[1] *Daeyang Luke Mission Hospital, Lilongwe, Malawi*
[2] *Knowledge-Action-Change, London, UK*
[3] *Ministry of Health, Malawi*

Corresponding author: *C Ngoma (chimwemwengoma14@gmail.com)*

Background. Tobacco use remains a global public health challenge, including in Malawi. Evidence from many countries indicates that availability of safer nicotine products, including snus, helps drive down smoking rates. Snus is an important potential harm reduction tool in resource-poor settings where smoking cessation services are few and where other safer products, including e-cigarettes and heated tobacco products, are expensive. Malawi is a tobacco-growing country with the ability to produce snus, but the potential of snus as a harm reduction tool in Malawi remains insufficiently explored.
Objective. To explore the feasibility and acceptability of snus as a harm reduction tool among smokers seeking cessation services at Daeyang Luke Mission Hospital in Lilongwe, Malawi.
Methods. The 4-month study employed a prospective observational design with baseline and follow-up data. After enrolment in the study, participants were provided with snus. Data collection involved administering semi-structured questionnaires and monthly follow-ups to monitor snus usage and experience. The study faced challenges such as limited sample size and diversity needed to draw broader conclusions. Another challenge was the uniform provision of snus without assessing participants' nicotine dependency levels or individual needs.
Results. The age range of the 34 study participants was 19 - 64 ears. Only 14 participants had prior knowledge of safer nicotine products. Of the 14, only one participant knew about snus. Of the 34 participants, 28 reported a positive experience with snus, such as improved oral hygiene and absence of second-hand smoke, indicating acceptability of the product.
Conclusion. The study highlights the potential of snus as a feasible harm reduction tool for smokers seeking to quit cigarette smoking, suggesting that it could be incorporated into smoking cessation interventions and tobacco control strategies.

Keywords. feasibility, acceptability, snus, smokers, Malawi, safer nicotine products.

South Afr J Pub Health 2025;8(1):e2183. https://doi.org/10.7196/SHS.2025.v8i1.2183

Tobacco use remains a global public health challenge, contributing to more than 8 million deaths worldwide each year.[1] The 2017 STEPwise survey report indicated the prevalence of tobacco use in Malawi to be at 9%, with a notably higher figure for males (21%) in contrast to females (2%).[2] In 2019, there were 5 403 deaths directly attributed to smoking in Malawi, and an accumulation of 174 616 disability-adjusted life-years.[3] Additionally, a case-control study conducted between 2017 and 2020 in Malawi revealed that self-rolled tobacco, commonly used by people in rural areas of the country, is associated with an increased risk of oesophageal cancer, which is the second most common cancer in Malawi.[4] A systematic review and meta-analysis on non-communicable respiratory diseases also highlights that tobacco smoking is one of the primary risk factors for these conditions in Malawi.[5]

Research context

Malawi has historically lacked a formal tobacco control policy because of its economy's over-reliance on tobacco farming, making tobacco control policies politically and economically sensitive.[6] Additionally, smoking cessation services in Malawi are few and privately operated, and therefore unaffordable to the ordinary Malawian struggling with tobacco use.[7] For low-income settings such as Malawi, low-cost tobacco harm reduction products like snus present an opportunity.[8]

Tobacco harm reduction, a third pillar of tobacco control as outlined in article 1d of the Framework Convention on Tobacco Control,[9] is a pragmatic solution for smoking cessation among smokers who are unable or unwilling to give up using nicotine. An international review on safer nicotine products (SNPs) and

smoking also noted that the adoption of SNPs such as snus helps in reducing smoking prevalence faster than traditional tobacco control measures solely focused on prevention and cessation.[10] For example, the availability of snus in countries such as Sweden and Norway has contributed to the unusually low rates of smoking by helping consumers switch to a less harmful form of nicotine use.[11,12] Moreover, epidemiological and prevalence data show that using snus has a substantial harm reduction benefit, which is demonstrated by Sweden's low rates of tobacco-related disease when compared with the rest of Europe.[13]

Snus, a moist oral tobacco product that is put behind the upper lip, either loose or in portioned sachets that look like tiny tea bags, has emerged as a potential harm reduction tool.[13] Through a process similar to pasteurisation, air-cured tobacco is ground, combined with salt, and then processed under stringent quality and regulatory controls.

Despite its potential benefits, the feasibility and acceptability of snus as a smoking cessation and harm reduction tool in Malawi remain underexplored. This knowledge gap represents a barrier to the implementation of evidence-based tobacco control policies and programmes tailored to the needs of Malawian smokers. The present study aimed to address this gap by exploring the feasibility and acceptability of snus as a smoking cessation product among smokers seeking cessation services at Daeyang Luke Mission Hospital in Lilongwe, Malawi. Cessation services at the facility, as at many other facilities in Malawi, mainly focus on counselling.

Method

The study was conducted at Daeyang Luke Mission Hospital over a 4-month period from June to September 2023. The study was approved by the National Health Science Research Committee in Malawi (ref. no. 22/11/3100). Additionally, permission to conduct the study was obtained from the Lilongwe District Council, the District Health Office, and the management of the hospital. Informed consent was obtained from all the participants prior to their participation in the study, and measures were taken to ensure the confidentiality and privacy of participants' data.

A convenience sample of 36 adult smokers seeking smoking cessation services at the hospital expressed interest in taking part in the study and were recruited. All the individuals who expressed interest were male.

A semi-structured questionnaire was used to collect both quantitative and qualitative data. Data were first captured on demographic characteristics of the participants, and their tobacco usage, knowledge and usage of SNPs, and perceptions. The questionnaires were administered through in-person interviews by the lead researchers (MN and IM). Subsequently, the participants received information about snus and its usage. A container of ONE Orange White Portion snus (Swedish Match, Sweden), comprising 20 pouches with a nicotine content of 13 mg, was provided to each participant for use as a smoking alternative when experiencing cravings.

Follow-up, in person, was done at least once a month for 4 months to check whether participants had experienced any negative effects as a result of using snus or if they needed a further supply of the product. At the end of the 4 months, data were collected relating to their experience using the product. Descriptive statistics were used to summarise participants' demographic characteristics, smoking behaviours and responses to survey questions. Qualitative data from open-ended survey questions were analysed using thematic analysis to identify common themes and patterns in participants' responses.

The study faced several challenges that affected recruitment and data collection. Despite efforts to engage more participants, only 36 smokers, all male, were enrolled, limiting the sample size and diversity needed to draw broader conclusions. Additionally, two participants dropped out during the study. Another limitation was the uniform provision of snus with a nicotine strength of 13 mg, without assessing participants' nicotine dependency levels or individual needs. This may have affected both the acceptability and feasibility of snus use among participants, as their nicotine requirements were not adequately addressed.

Results

The study revealed varied opinions on the use of snus as a harm reduction tool, with some participants viewing it as beneficial while others expressed concerns or uncertainty. The preliminary findings are presented below.

Participant characteristics

The participants in the study had begun smoking at ages ranging from 13 to 28 years, with a mean (standard deviation) starting age of 19.53 (4.12) years. Their ages at the time of the study ranged from 19 to 65 years, with a mean of 32.88 (10.92) years. On average, participants reported smoking 7.77 (4.2) cigarettes per day, with daily consumption ranging from 3 to 18 cigarettes.

Prior to the intervention, data were collected on smoking cessation and motivations to quit. Twenty-one participants indicated that they had tried to quit smoking in the past, while 13 participants had never attempted to quit.

Knowledge and acceptability of snus as a smoking cessation tool

Before the intervention, 14 of the 34 participants reported prior knowledge about SNPs: 12 knew about E-cigarettes, one knew about nicotine pouches, and one knew about snus. After 4 months of snus use, 30 participants reported that they were continuing using snus, while 4 participants had stopped using it for various reasons.

Benefits and drawbacks of using snus

A majority of participants, 28 of the 34, preferred snus to cigarettes, citing reasons such as helping with cravings for cigarettes, improved oral hygiene, and absence of second-hand smoke. Below are some of the reported experiences:

> '… when I use snus, the craving for smoking cigarettes goes away.' (Participant 22)
>
> 'I have noticed that I now have an improved oral hygiene compared to when I was constantly smoking, moreover, snus has a nice aroma compared to cigarettes.' (Participant 3)
>
> 'Unlike cigarettes, I can use snus in smoking-restricted areas, even around my family members without worrying about second-hand smoking.' (Participant 15)

However, six participants reported experiencing some discomfort, including slight headaches, slight burning sensations, dislike of the taste, and a longer time to take effect compared with cigarettes.

Discussion

The demographic characteristics of the participants in the study reflect the typical profile of people seeking smoking cessation services at Daeyang Luke Mission Hospital. The mean age of 19.53 years at the onset of smoking highlights the vulnerability of adolescents and young people to smoking initiation. This finding is consistent with studies relating to smoking initiation in Malawi,[14] the USA[15] and China,[16] which highlight that smoking initiation often occurs during adolescence, and underscores the need for creative and deliberate measures to prevent smoking initiation among adolescents.

Additionally, the wide range of current ages (19 - 65 years) of participants indicates that different age groups may have different reasons for and obstacles regarding smoking and quitting.[17] This finding suggests the need for tailored smoking cessation and harm reduction strategies that target different age groups. Furthermore, we found that 21 participants had previously tried to quit smoking, but had relapsed. A smoker's need for social interaction and the symptoms of withdrawal are some of the main causes for relapse.[17] The higher proportion of failed attempts to quit in the present study demonstrates the challenges associated with quitting and the potential of SNPs in helping people quit or cut down on smoking.

Prior to the intervention, participants expressed various motivations for quitting (Table 1). Given that the study was conducted in a hospital setting and targeted people already seeking help with smoking cessation, the underlying reason for quitting given by most participants was that they were concerned about their health. However, some participants stated different primary reasons to quit smoking, such as heeding advice they received from their peers and the need to stop wasting money. A previous study cites similar motivations, including the effect of smoking on the health of non-smokers, advice from a healthcare provider, the cost of cigarettes, setting a good example for children, having a smoking-related illness, and facing criticism from friends and family.[18] The motivations for smoking cessation are therefore diverse, and it is important to address individual concerns in cessation interventions.

Overall, the present study found that awareness of SNPs was limited. Only 14 of the participants had knowledge of these products before the intervention. Lack of knowledge of existing resources can pose a hindrance to quitting smoking.[19] Despite the limited knowledge, snus emerged as a viable tool for smoking cessation. Notably, the majority of the participants (*n*=28) reported positive experiences of using snus such as improved oral hygiene and the absence of second-hand smoke, indicating acceptability of the product. Landmark studies establishing the association between the use of snus and quit rates for smoking in Norway and Sweden support the findings of this study.[12,20,21] These results indicate the potential of snus as an effective harm-reduction strategy, particularly in settings where access to cessation resources is limited, such as Malawi.

Despite the wide acceptability of snus among the participants, it is important to acknowledge the drawbacks associated with its use reported by some of them, including slight headaches, a slight burning sensation, dislike of the taste, and a longer time to take effect compared with cigarettes. The variation in experiences could be due to the uniform prescription of 13 mg snus to all participants, irrespective of their smoking levels and nicotine intake.[22,23] Some participants were heavy smokers, while others were moderate smokers. This discrepancy in nicotine requirements may have contributed to the differing experiences reported by participants.

Table1. Summary of pre-intervention motivation for seeking help (*N*=34)

Motivation for wanting to quit	*n* (%)
Smoking is bad for health	22 (64.7)
Advised by doctor	7 (20.6)
Improve health and wellbeing	2 (5.9)
Waste of money	2 (5.9)
Peer pressure/advice	1 (2.9)

Lessons for future research

The challenges and limitations faced in this study offer lessons for future research in Malawi and similar settings. First, ensuring a more diverse and adequately sized sample is crucial to enhance the generalisability of findings. Recruitment strategies should focus on reaching a broader demographic, including women, to capture varying perspectives on snus use. Second, it is essential to tailor interventions to participants' nicotine dependency levels. Future studies could benefit from assessing participants' nicotine needs before providing harm reduction products, allowing for personalised nicotine strengths that better address individual requirements. Retention strategies should also be strengthened to minimise dropout rates. Providing ongoing support, clearer instructions and follow-up mechanisms can help maintain participant engagement throughout the study. Additionally, addressing participants' initial lack of awareness of or familiarity with snus as a harm reduction tool is key. Incorporating educational components on the benefits and proper use of snus could improve acceptability and adherence.

Conclusion

With a majority of participants reporting positive experiences of using snus, the study highlights the potential of snus as a feasible harm reduction tool for smokers seeking to quit cigarette smoking. The diverse age range of participants and varied motivations for quitting cigarettes underscore the need for tailored interventions that cater for diverse age groups and motivations for quitting. It is important to emphasise the need to make a wide range of SNPs available to and known among smokers. Overall, the study demonstrates that snus may hold potential as a harm reduction tool among smokers seeking cessation services in Malawi.

Data availability. The datasets generated and analysed during the present study are available from the first author (MN) on reasonable request. Any additional information regarding data access can be discussed with the corresponding author.

Declaration. None.

Acknowledgements. We thank Knowledge-Action-Change (K-A-C) for funding the study, the management of Daeyang Luke Mission Hospital for allowing us to conduct the study, and all the participants who took part.

Author contributions. MN was involved in the conception and design of the work. IM, MU and NK contributed to the conception and design of the study. All authors contributed to the acquisition, analysis and interpretation of data. MN drafted the manuscript. All authors revised the manuscript critically for important intellectual content. MN, IM and CN directly accessed the underlying data. All authors had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Funding. The study was undertaken as part of MN's Tobacco Harm Reduction Scholarship, funded by K-A-C .

Conflicts of interest. MN was a Tobacco Harm Reduction Scholar funded by K-A-C at the time of the study. CN is a consultant to K-A-C. K-A-C is a public health organisation with a focus on tobacco harm reduction and is funded with a grant from Global Action to End Smoking (formerly known as the Foundation for Smoke-Free World), an independent US non-profit 501(c)(3) grant-making organisation, accelerating science-based efforts worldwide to end the smoking epidemic. None of the authors have any commercial interests in any smoking cessation programs or aids, or nicotine or tobacco products.

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Received 30 April 2024. Accepted 14 April 2025.