

Challenges and Benefits of Adopting Snus in Low-Middle Income Countries: Factors that May Affect the Availability and Accessibility of Snus in Malawi

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Tobacco Harm Reduction Malawi

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Abstract

Background: The study was conducted to project challenges and benefits that may affect the availability and accessibility of snus in Malawi, focusing on the three districts of Mchinji, Rumphi and Balaka.

Methods: The study employed a descriptive cross-sectional study design which consisted of both quantitative and qualitative data collection methods. The rationale for using the qualitative approach was to meet people's smoking and quitting experience, attitude and perceptions. The quantitative approach was used to quantify the information related factors that can affect the availability, accessibility and consumption of snus in the country. The Study population comprised of ex-smokers and current smokers within the age range of 15-54 targeting a randomly selected sample size of 100. The data were collected through direct interviews using semi-structured questionnaire. The data were analyzed to generate simple descriptive statistics in a form of frequencies, means and percentages.

Results: The results of the study have indicated that there is high unsuccessful quitting attempts rate. Out of the 68.0% of respondents who attempted to quitting smoking, only 6.0% managed to quit smoking with the remaining 62.0% getting back to smoking citing stress, nicotine craving and lack of alternative to nicotine consumption apart from combustible cigarette as some leading factors to unsuccessful quitting attempts. The results of the study have revealed lack of political willingness and commitment, taxation and lack of policies and regulations as some of the factors that may negatively affect the availability and accessibility of snus in the country.

Conclusion: The use snus as a harm reduction product can be of greater importance in helping to reduce cases of non-communicable infections as a safer means of switching and quitting smoking as evidenced in Pakistan , with regards to the socio-economic status of most rural based combustible cigarette consumers, snus tends to provide a better option for switching to safer nicotine as it is cheaper hence quite affordable by the majority which may directly contribute to a significant decline in combustible cigarette use hence improving the health wellbeing of individuals who have opted to switch thereby attaining the Sustainable Development Goal 3.

Background

Malawi is one of the countries in the world that is spending lots of resources in addressing smoking attributed diseases. The country is struggling with the habit of smoking among its people. It is estimated, at the National level 18% of adult males and 1.2 % of females in Malawi smoke tobacco representing about 1 million adults (15+ years old). 8% of boys and 1.0 % of girls between ages 13-15 smoke cigarettes. Global Atlas indicates that there more than 5,000 children (10-14 years old) actively smoking tobacco in Malawi, (Drope, et al., 2018). Every year, more than 5,700 people are killed by tobacco-related disease in Malawi. Available evidence indicate that both the burden of disease and smoking prevalence are on the rise. In most African countries including Malawi, tobacco use is increasing dramatically making a larger proportion of the population vulnerable to tobacco caused diseases, (James, 2018). Most

of the African countries are in the early stages of the tobacco epidemic and are yet to undergo the full consequences of tobacco-related death and diseases ((Drope, et al., 2018) . In Malawi, there is an increase in tobacco consumption or smoking among smokers (WHO, 2017).

The government of Malawi does little to protect and promote good health and well-being of its consumers, since, tobacco is known to be the economic backbone of the country, (Drope, et al., 2018) . As such, alternatives to nicotine consumption other than combustible cigarettes are hardly available and accessible among the locals, leaving the consumer with no option but to buy cigarettes as a means of consuming nicotine, this entails that the consumers are deprived of access to tobacco Harm reduction products which are focused on reducing health risks or behaviors by providing safer forms which are smokeless tobacco products to promote good health and well-being.

According to (Burns & Ayo-Yusuf, 2011) globally, tobacco use currently accounts for just over 5 million deaths annually, a number is expected to increase to over 8 million deaths annually by 2030. It is predicted that 70% of these future deaths will occur in low income and/or middle-income countries. The increase in future deaths is expected to be largely due to increased cigarette use. Malawi, as one of the main tobacco producing nation in the sub-Saharan Africa, has not yet ratified Framework Convention on Tobacco Control (FCTC) and there are no strategies set in the country to reduce the harms being caused by tobacco smoking, despite this being the case, the country health system and related economic resources have been overstretched in efforts to address tobacco smoking related infections which most smokers are suffering from in a country with little options towards alternative to nicotine consumption.

Sophisticated alternatives to nicotine consumption which are 90-95% safer as compared to combustible cigarettes proves to be expensive for rural masses and smokers who are will but unable to quit smoking in the Low-middle income countries such as Malawi. However, Snus proves to be the most practical and sustainable alternative to nicotine consumption that can be promoted in Low-Middle Income countries in regard to the socio-economic-stand of most individuals.

The scientific literature generally indicates that the use of snus is not a significant risk factor for developing lung cancer, cardiovascular disease, pancreatic cancer or oral cancer. The most recent Eurobarometer data from 2017 reported that Sweden had the lowest prevalence of daily cigarette use in the European Union at 5% whilst daily oral tobacco use was reported to be 20%. European data published by the World Health Organisation in 2018 indicated that Sweden had the lowest rate of tobacco-related mortality and the lowest incidence of male lung cancer. Basing on this context, this study was conducted in order to understand the benefits and factors that may affect the availability, consumption and accessibility of snus as an alternative to nicotine consumption in the Malawi. This is with regards that the country's efforts on tobacco harm reduction have been ineffective with limited preventive and therapeutic interventions tailored at making people to cease from smoking tobacco. Little is known about the health importance of tobacco harm reduction products that have the potential to improve the health of a regular smoker by helping them to quit smoking through the use of safer nicotine products. On the other hand, the use of sophisticated Tobacco Harm Reduction products has proven to be expensive hence

unsustainable for the Low-Middle income countries such as Malawi, Therefore, interventions such as the use of Snus has been viewed as the most possible alternative to nicotine consumption.

Therefore, the study was conducted to document the benefits and challenges that may be experienced in promoting the use of snus (making it available and accessible) as an alternative to nicotine consumption for low-middle income countries and compared to combustible means such as cigarette smoking from smoker's perspective. The study has also provided necessary information on the health benefits of adopting snus as an approach towards tobacco harm reduction in the country. Furthermore, the study has provided necessary direction in the promotion of snus as a means of reducing harms caused by tobacco by presenting the factors that may affect the accessibility, and availability of snus in the country, hence to be considered when making efforts in promoting snus in the country.

Methods

The study employed a descriptive cross-sectional study design which consisted of both quantitative and qualitative data collection methods. A study population of 100 participants was purposively sampled from urban area Balaka, Rumphu and Mchinji districts of the country, with the assumption that urban areas are characterized by people of various opinions and experiences as far as smoking and quitting experiences are concerned, on the other hand, the selection of urban areas was based on the assumption that most of people available in most places in the urban areas such as main local markets usually come from rural area hence information obtained would cover views or opinions from both rural and urban people at the district level.

The Study population comprised of ex-smokers and current smokers, (males and females- age range 15-54), as primary data sources on smoking and quitting experience. Apart from that, the age group was considered to be the largest population of the country, and a good representation of findings. Furthermore, the group is the primary target of the tobacco industry. An individual that had smoked tobacco in a period of six months upon the commencement of the study/survey, was included as a current smoker, while those that had not smoked for six months were considered as an ex-smoker, while Any individual that had never smoked in their life upon commencement of the study was not included. This was so, because the sole purpose was to understand the smoking and quitting experience in those that smoke. The study used the following Yamane, 1967 formula $n = \frac{N}{1 + N(e)^2}$, a 95% confidence interval, where n is sample size, N is population and e are error margin. Therefore, the study used the sample size of 100. A questionnaire comprising of 40 questions was developed based on the review of the published literature to assess factors that may affect the availability and accessibility of snus in Malawi. The questionnaire had both open and close ended questions in order to produce reliable information, from quantitative and qualitative data.

Data Analysis and Statistics

Quantitative data was analyzed by descriptive statistics to generate means, percentages and frequencies which were tabulated on graphs and tables. Statistical packages such as Microsoft Excel, Statistical Package for Social Scientist (SPSS) and KOBO Collect Report were used in the management of the data. On the other hand, the analysis and tabulation of qualitative data involved content and conversation analysis.

Results

Demographic Information of the Respondents

The demographic data was analyzed and presented based on the age group, marital status, gender of the respondents and levels of education. Out of 100 respondents who were considered for the interview, 69.0% were males, 30.0% were females and 1.0 % were unspecified. Furthermore, 21.0% and 26.0% were within the age range of 21-25 and 26-30 respectively. While 19.0% and 10.0% of the respondent were in the age range of 31-35 and 36-40 respectively. Furthermore, 9.0%, and 12.0% of the respondents were in the age range of 15-20, and 41-50 with 6.0% of respondents found within the age range of 50 and above.

On the other hand, 48.0% of the respondent were single, 37.0% were married, while 7.0% were either divorced or separated and 1.0% were found to have been widowed. Furthermore, 31.0% of the respondents attained senior secondary school education, followed by 19.0% and 20.0% who had attained tertiary and junior secondary school education respectively, 12.0% attained senior primary school education and 12.0% attained primary school education, while 3.0% never attained any education. Table 1 below shows the demographic information of the respondents who were interviewed in the study area.

Smoking Experiences

A total of 81.0% of the respondents smoked at least a cigarette for the past 6 months, 19.0% had not smoked a cigarette for the past 6 months. Furthermore, 55.0% considered smoking as bad, while 32.0% considered smoking as good for health, while the other 7.0% were unsure as in whether smoking is good or bad to their health. 6.0% preferred not to provide any opinion towards this perimeter. Figure 1 below, shows respondents smoking experiences and general health perspective towards combustible cigarette smoking.

Quitting Experience

The majority (56.0%) indicated willingness to quit smoking combustible cigarettes. On the other hand, 29.0% were unwilling to quit smoking, while 15.0% were not sure of their decision on whether to quit smoking or not. On the otherhand, 68.0% attempted to quit smoking, 32.0% never tempted to quit smoking at an given point. Figure 2 below shows respondents willingness to quit and quitting attempts respectively.

Quitting Successful Rates

Out of a total of 68% who attempted to quit smoking, 38.0% were unsuccessful in their quitting attempts while 30.0% managed quit smoking. Out of the 30.0% who managed to quit smoking, 13.0% ,9.0% and 6.0% of the respondents employed will-power, harm reduction products and counselling as means to help them quit smoking, while 2.0% of the respondents revealed that they quitted smoking due to illness and requirements for medications. Table 2 below show quitting rates and means employed for quitting.

Out of 30.0% of respondent who rused various means to quitting smoking, 6.0% managed to quit smoking completely, 16.0% managed to quit but partially, while the 12.0% did not to manage to quit smoking despite using various means. It has to be noted that, out of the 16.0% of individuals who managed to quit smoking but partially, 5.0% rmanaged to stay without smoking more more than a years, 2.0% managed to stay for a year without smoking, 2.0% managed to stay without smoking for a period of 2-6 months, 3.0% of the individuals managed to stay without smoking for more than a month, 1.0% were found to have stayed without smoking for a less than a week and more than 2 weeks respectively. Table 3, below showing Success rates in quitting attempts using various means and withdraw period among those who tempted to quit smoking.

Access to Information on Tobacco Harm Reduction and Snus as A Tobacco Harm Reduction Product

A total of 52.0% highlighted that they have ever heard of Tobacco Harm Reduction, 48.0% have never heard of the concept. On the otherhand, 36.0% have heard of snus as a tobacco harm reduction product, while the majority (64.0%) have not heard about snus as a Tobacco harm reduction product or safer nicotine product. Figure 3 below, highlights respondents who have heard of the concept of Tobacco Harm Reduction and Snus as a Tobacco Harm Reduction Product.

Knowledge and Sources of Information on usage of Snus as a Tobacco Harm Reduction Product

Out of 36.0% of individuals, 24.0% had information on how snus is used as a Tobacco Harm Reduction product, 8.0% did not know how snus is used as a Tobaco Harm Reduction Product, 4.0% were uncertain. Acquantances (friends and relative) were the most realiable and easily accessible source of information as indicated by 24.0% of the respondents ,12.0% indicated social media, radio and workshops were identified by10.0% and 5.0% of the respondents respectively with television and other means such as newspapers identified by 1.0% each. Table 4 shows responses on knowledge and sources of information regarding snus as a Tobacco Harm Reduction product.

Availability and Accessibility of Snus as a Tobacco Harm Reduction Product

A total of 42.0% were not sure if snus as a tobacco harm reduction product was available on the market as none of them has ever come across it, 30.0% revealed that snus was not available on the markets, while 28.0% indicated that snus was available on the market. Out of 28.0% who responded on the availability of snus, 25.0% revealed that snus was accessible on the market, 3.0% indicated that snus as not available at the local market. On the otherhand, 24.0% of the respondents indicated that snus was also affordable on the market as compared to the 4.0% of the respondents found to be unsure on the

affordability of snus on the market. Table 5 below highlights responses on the availability, accessibility and affordability of snus on the market.

Policies and Regulation Guiding Tobacco/ Cigarette Consumption or Smoking, and promotion of Tobacco Harm Reduction in Malawi

A total of 43.0% were not sure about the existence of any policy and regulation guiding the consumption of tobacco or cigarette in the country, 36.0% were not aware of such policies in the country while 21.0% indicated that the country has such policies and regulations. On the otherhand, 41.0% were not sure if the country has any policies and regulations set to promote tobacco harm reduction strategies, 33.0% indicated that the country has no policies and regulations to promote Tobacco harm reduction strategies, 26.0% indicated that such policies and regulations exist in the country. Figure 4 highlights responses on knowledge of Policies and regulation set to guide tobacco consumption and promoting tobacco harm reduction in the country.

Bodies or Institutions Set to Monitor and Regulate use and Consumption of Tobacco in Malawi

A total of 43.0% were not sure about the existence of institutions that were set to monitor and regulate the use and consumption of tobacco and its related products, while on the other hand 31.0% were not aware of such bodies and institutions in the country, 26.0% indicated to have heard or know about such institutions in the country.

The 26.0% of respondents who indicated to have knowledge of institution set to monitor the use and consumption of tobacco in the country were further asked to identify such institution of which, 7.0% indicated that they were not aware of such bodies, while 2.0% indicated the ministry of education, Save the Children Fund and Malawi Police Service, 5.0% indicated the ministry of health, while United Nations Children Fund (UNICEF) was identified by 3.0% of the respondents. The Malawi Bureau of Standards, Human Rights Groups, The Tobacco Control Commission, Rehabilitation Centers and the World Health Organization (WHO) was identified by 1.0% each. Table 6 below, highlights responses based on the boards set to monitor and regulate Tobacco use and Consumption in the country.

Government Efforts Towards Reducing Smoking as the Major Cause of Non-Communicable Diseases

A total of 39.0% were not so sure of what the government is doing to reduce smoking as the major cause of non-communicable disease, while 36.0% indicated that there was nothing that the government was doing to reducing smoking as the major cause of non-communicable diseases in the country. On the other hand, 25.0% indicated that the government is putting up efforts to reduce smoking as the major cause of non-communicable diseases.

Out of the 25.0% of the individuals who were positive on government's efforts, 6.0% were unable to mention any of such efforts despite previously indicating to be sure of the efforts, 14.0% indicated that the government, through the ministry of health conducts awareness campaigns on hazards of smoking and encouraging people to quit through radio and television programs and in schools, while 2.0%

indicated that the government conducts sensitization meetings and trainings with the communities on effects of smoking while also encouraging young people under the age of 18 not to smoke. On other-hand, another 2.0% of respondents indicated that the government uses adverts and stickers, and warning written on cigarettes packs indicting about the hazards of smoking to health.

On the other hand, out of 36.0% who indicated that the government is not putting effort in reducing smoking as major cause of non-communicable disease, 9.0% indicated lack of political will and commitment by government as one of the reasons the government was not putting up efforts, while the other 9.0% were not sure on why the government were not putting efforts; lack of resources by the government was indicated by 4.0% of respondents, while 2.0% of the respondents indicated that the government is focusing on reducing poverty and communicable diseases unlike causes of non-communicable diseases.

Furthermore, 7.0% of the respondents indicated that the government is not putting up efforts to reduce smoking as a cause non communicable diseases because it is the source of government's revenue; while 3.0% of respondents were of the view that government left the role in the hands of tobacco companies citing the warnings on the cigarette packs; 2.0% indicated poor access of information as another reason behind lack of government efforts towards the cause. Table 7 below indicating responses based on respondent's view of government efforts towards reducing smoking as the major cause of non-communicable diseases.

Respondents Perspective on Political will towards Tobacco Harm Reduction as a concept of Reducing Harms caused by Tobacco Smoking

The study revealed that 47.0% were of the view that there was no political willingness in the country, while 28.0% were not so sure, on the other hand, 25.0% indicated that the country was willing to reduce the harm being caused by tobacco smoking, Additionally, 80.0% of the respondents indicated to have no knowledge about the Framework Convention on Tobacco Control (FCTC) which Malawi is not a signatory, while 19.0% indicated to have knowledge of FCTC. Figure 5 below highlights the perception on political willingness of country towards Tobacco Harm Reduction.

A total of 66.0% of the respondents indicated that they perceive the non-adoption policy of controls highlighted by the FCTC as having a bearing on smoking prevalence in the country, 24.0% of the respondents were not sure, while 10.0% indicated that lack of control by FCTC has no bearing on smoking prevalence in the country.

On the other hand, 41.0% further revealed that the lack of controls by FCTC may have a negative impact on the promotion of Tobacco Harm Reduction products such as snus in the country, while 19.0% further indicated that lack of these control may not have a bearing on the promotion of Tobacco Harm Reduction products in the country as compared to 40.0% who were not sure. Figure 6 below highlight the responses on the impact of lacking control set by FCTC on smoking prevalence and on promoting on tobacco harm reduction products such as snus.

Out of the 41.0% who perceived that lack of controls set under FCTC has an impact on promotion of Tobacco Harm Reduction products such as snus in the country, 27.0% further perceived the impact as being negative towards the promotion of Tobacco Harm Reduction, while 14.0% perceived the impact as being positive towards the promotion of Tobacco Harm Reduction products in the country, 76.0% were of the opinion that that government should ratify to the FCTC, 18.0% were of the opinion that the country should not ratify, while 6.0% of the data was deemed invalid. Figure 7 below shows Impacts due to lack of FCTC controls and opinions towards ratification to FCTC.

Impact of Snus Availability on Cigarette Consumption and Entire Tobacco Industry

In the study, 67.0% were of the view that the availability of snus in the country will have a direct impact on the consumption of combustible cigarettes in the country, on the other hand 7.0% were of the view that, the availability of snus will not have a direct impact on consumption of snus, while 26.0% were not sure whether it will directly affect the consumption of cigarette in the country.

In addition to this, the study has further indicated that, 18.0% of the respondents were of the opinion that despite the fact that the availability of snus might affect the consumption of snus but it may not affect the entire tobacco industry, however, 44.0% of the respondents were of the view that the availability of snus in the country may also affect the entire tobacco industry citing a decline in cigarette demand which may also lead to reduced demand for tobacco, which may reduce government revenue and returns for the farmers, while 38.0% were not sure about the impact it may bring on the entire tobacco industry. Figure 8, highlights the impact of snus availability on Cigarette consumption and entire tobacco industry.

Projected Responses by cigarette Companies towards the Increased Availability and Accessibility of snus in the Country

In order to project the behavior by tobacco related companies towards snus availability and accessibility in the country, the study further conducted interviews of which out of the 100 respondents considered for the study, 42.0% were uncertain on the response by the tobacco related companies, while 30.0% and 15.0% were of the view that the companies will be aggressive and very aggressive respectively while 13.0% were of the opinion that the companies would be friendly.

Means of increasing Affordability

50.0% preferred that snus be sold at a lower price than the current cigarette price, 45.0% suggested that snus should be sold at a slightly lower price than current cigarette to facilitate affordability, 15.0% suggested it must be sold at the same price as the current cigarettes price, while 5.0% suggested that snus must be sold at a slightly higher price as compared to the current cigarette price, 1.0% of the respondents suggested other unspecified means.

Means of Increasing Snus Accessibility

74.0% were of the opinion that snus must be sold in both pharmacies, shops and places such as drinking joints, 32.0% suggested that snus should be made accessible at both wholesalers and retail shops, 19.0% of the respondents were of the view that snus should be sold alongside various cigarettes brands in various places, while 8.0% suggested that snus should be sold in pharmacies only for easy accessibility.

Means of Increasing Availability

60.0% suggested that government must accommodate Tobacco Harm reduction in its policies which will further facilitate the availability of snus and other THR products in the country, while 45.0% suggested that government must provide a conducive environment for local snus manufacturers and market protection from aggressive competitors, 26.0% suggested that snus must be fairly taxed below combustible cigarettes, while 16.0% further suggested that government must regulate the availability, accessibility and use/consumption of both Tobacco Harm Reduction products and combustible cigarettes.

On the other hand, 7.0% of the respondents suggested that snus must be highly taxed above combustible cigarettes, while 4.0% suggested that snus must be taxed equally with combustible cigarettes. Table 8 below, highlights the projected responses towards snus availability and means of increasing snus availability, accessibility and affordability in the country.

Attitudes Towards Snus as a Harm Reduction Product

88.0% perceived snus as good for health, while 6.0% perceived snus as not good for health, and 6.0% were found to without responses. Furthermore, 89.0% of the respondents said that they would recommend snus to individuals who are willing to quit combustible cigarette, while 11.0% were of the opinion that they would not recommend snus for individuals willing to quit smoking combustible cigarette. Figure 9 highlighting health perspective towards snus.

Health Risks Associated with Snus Use.

18.0% perceived snus as having some health risk that they may prevent them from recommending it to others, which include tuberculosis as indicated by 7.0% of the respondents out of 18.0%, while on the other hand, 31.0% indicated that they perceive snus as having no any health risk associated with it, on the other hand, 51.0% were not sure whether there is health risk associated with snus consumption. Additionally, 57.0% indicated that it was possible to reduce risk of harms to smokers who are unable to quit by using snus, while 34.0% were not sure, 9.0% indicated that it is possible to use snus as a mean of helping people to quit smoking. Figure 10, highlights opinion towards health risks associated with snus consumption.

Opinions Towards Reducing Harms through the use of Snus

64.0% were of the view that consumption of snus could be an opportunity for smokers to attain their full health potential by switching to snus as a harm reduction product, on the other hand, 1.0% of the respondents were of different opinion towards the assumption, while 29.0% were not sure if snus consumption is an opportunity for smokers to attain their health potential.

A total of 83.0% were of the view that government should recommend snus as a tobacco harm reduction product to be available and accessible by individuals, while 4.0% were of the view that government should not recommend snus in the country, on the other hand, 13.0% were found to be not so sure about whether snus should be recommended by the government or not. On rating, the study revealed that, 75.0% of the respondents rated snus as good for health, 21.0% were not sure, while 4.0% rated snus as bad for health. Table 9 below highlights general opinion towards snus usage.

Discussion

Demographic Characteristics

The results from the study revealed that the majority (67.0%) were falling between the age group of 21-25, to 31-35. The highest age recorded among the respondents was 50+ registering 6.0% of the respondent, while the lowest age recorded was between 15-20 years with 9.0% of respondents found in this group. On the other hand, 81% of the respondent were found to be consumers of combustible cigarette. This is similar to the study conducted in Tanzania which revealed that the peak age for consuming snuff was between 15-40 years. (Critchley & Unal, 2008). Additionally, (Hameed & Malik, 2021), based on the study conducted in Pakistan, further revealed that people between the age of 13-15 years use some form of tobacco product, with others being initiated to smoking at the age of 10 years. Furthermore, the study also found that, the majority of the respondents were single making up 47.0% of which 20.0%-31.0% of them have attained secondary school education, representing the majority.

These demographic characteristics implies that the respondents were mature enough to provide credible information in regards to the objectives of the study. Furthermore, their education levels of the respondents implied that the respondents had good understanding of the information surrounding smoking and harm reduction as well as able to make informed and independent choices regarding the substances they consumer and related health impacts.

Quitting Attempts and General Health Perspective

Despite the fact that 81.0% of the respondents were found to have had consumed combustible cigarette for the past 6 months, but the results from figure 2, shows that the majority (56%) were willing to quit smoking, while 68.0% of the smokers attempted to quit smoking. This comes in as 55.0% of the respondents earlier on indicated that consumption of combustible cigarette was bad for their health hence willing to quit as indicated in figure 1.

However, out of 68.0% of the respondents who attempted to quit, only 30.0% managed to stay for a number of days without smoking, with the longest withdraw period being more than 1 year. However, the study has also revealed a high unsuccessful quitting rate of which only 6.0% indicated to have completely stopped smoking, while the 14% out of 16% who were found to have partially quitted went back to smoking highlighting nicotine craving, stress, lack of nicotine substitutes and alcohol as some of the push factors towards consumption of combustible cigarettes as indicated in table 3.

This is also similar to the study conducted by (Hameed & Malik, 2021) which indicated that most the smokers are keen to quit smoking, and they know that combustible cigarette smoking is carcinogenic, but smoking cessation success rate is less than 3%. Furthermore, (Irfan, et al., 2016) indicated that, peer pressure, anxiety, stress, mood swings and tobacco dependence were found to be the most observed reasons for not giving up smoking. On the other hand, (Shaheen, et al., 2018), and (Irfan, et al., 2016) highlighted that despite being aware of the dangers of smoking, consumers of combustible cigarettes are unable to quit.

Therefore, it worth indicating that as much as most consumers of combustible cigarette are willing to quit smoking, upon having knowledge of the negative health impacts of smoking but there are no mechanisms available around for them in the country to successfully help them to quit smoking or switch to safer alternatives for those on nicotine dependency. Therefore, the knowledge of negative health impact of combustible cigarettes and the willingness of individuals to switch or quit can act a s a driving force towards promotion and ensure the availability based on demand.

Knowledge and Information on Snus as a Tobacco Harm Reduction Product/Safer Nicotine Product (SNP)

The study has further revealed that 64.0% of the consumers of combustible cigarette in the country lack knowledge and information on Snus as one of the recognised tobacco harm reduction means for Low- and Middle-income countries despite 52.0% of the respondents indicating to have access to information on Tobacco Harm Reduction. 64.0% indicated to have no knowledge and access to information regarding snus as a Harm reduction product with only 24.0% indicating to have knowledge on the usage of snus in reducing the harms associated with combustible cigarette consumption. It is also worth noting that friends/ relative and social media have become the most recognised and reliable source of information regarding tobacco harm reduction in the country.

This is also similar to the study conducted in Pakistan which indicated that most smokers do not know about Tobacco Harm Reduction products, however, the main source of information about these products are friends with some using them out of curiosity, (Hameed & Malik, 2021). This lack of information on Tobacco Harm reduction products has resulted in smokers being trapped into the habit despite their observable willingness to switch or/ and quit. Furthermore, lack of information on Snus as a tobacco harm reduction product may affect individuals ability to demand and access such products in the country, therefore providing the necessary (accurate and adequate) information regarding Tobacco Harm Reduction and affordable associated products such as snus in low- and middle-income country such as

Malawi can prove to be a greater milestone and considered to be the way out among consumers who are willing to quit smoking or switch to safer nicotine products.

Availability, Affordability and Accessibility of Snus as A tobacco Harm Reduction Product

It has been indicated from results in table 5 that the majority (42%) of the respondent were either not sure if snus was available on the market, while 30.0% of the respondents indicated that snus was not available on the market. The study has further revealed that most of the respondents from Balaka, the southern region, and Rumphi, the northern region of the country was of the point that snus was not available or were not sure about the availability of snus in the country, while on the other hand, respondents from Mchinji district, the central and boarder district of Malawi and Zambia indicated that snus was available on the market.

This was the case due to the availability of snuff in Zambia which is being consumed as alternative to combustible cigarette hence it's availability in the country. Most people consume snuff to reduce depression, stress, and anxiety (Chimbala, et al., 2020) which are also the major signs of nicotine dependency. However, this study has further revealed that as much as snus may seem to be available in one part of the country but it's not known by the majority of the smokers in the country.

However, as much as the majority of Tobacco Harm Reduction products may seem to be expensive to most consumers as highlighted by (Hameed & Malik, 2021), the high prices of THR products are a major barrier to combustible smokers interested in switching over, this study has revealed that the majority (30.0%) of respondent who indicated that snus (snuff) is available in Malawi, also indicated that the product is highly accessible and affordable as indicated by 25.0% and 24.0% respectively.

This implies that there is a possibility to promote snus as a Tobacco Harm Reduction product based on its affordability as compared to other Safer Nicotine Products (SNP). Since majority (56%) of the respondents indicated willingness to quit smoking, where many (68%) attempted to quit smoking but got back because of nicotine dependency and lacking other mean of consuming nicotine other than combustible cigarette. Additionally, based on the findings of the study, it can also be emphasized that since Zambian snuff (snus) was indicated as affordable by some respondents, it means that if made available in the country, most smokers are more likely to adopt it since one of primary barrier towards the majority of Safer Nicotine Products (SNP) is the high price charged on it (unaffordability).

Political will

Based on this study, there are a number of political factors that are more likely to affect the availability and accessibility to snus in Malawi. Considering the results highlighted in figure 4, the majority (36%) of the respondents were of opinion that the country has no policies and regulation to guide tobacco consumption, while 43.0% were not sure if the country has policies and regulations guiding the consumption of tobacco put in place. Similarly, the study has further revealed that the country has no

policies and regulation set to reduce/ prevent the rise in cases of non-communicable diseases caused by combustible cigarettes as it emphasizes on curative measures than preventive measure.

Therefore, it is worth noting from the results of the study indicate that the country lacks political will or commitment in reducing the consumption of combustible cigarette, promoting cessation and adoption of Tobacco Harm reduction strategies. This is evidenced by the fact that; the country has not made any political stride towards the direction by at least ratifying Framework Convention on Tobacco Control (FCTC).

Contrary to this is the case of Pakistan, where the country has been taking measures to contain the use of combustible tobacco ever since 2004 when it ratified the FCTC, and working towards formulating national policy on tobacco controls, (Hameed & Malik, 2021). Pakistan now offers Nicotine Replacement Therapy (NRT) to assist smokers to switch or quit smoking even though at a minimal level, (Hameed & Malik, 2021), which indicate that countries can accommodate harm reduction strategies within the FCTC to ensure that they are achieving the objectives which Tobacco controls alone cannot manage to attain which include helping individuals who are failing to quit smoking to switch to much safer alternative to nicotine consumption while ensuring that the country is on course to reducing consumption of combustible cigarette.

The majority of the respondents (66.0%) in the study were of the opinion that lack of government's willingness towards ratifying to FCTC as the first step towards promoting of cessation in the country has directly contributed to an increase in smoking prevalence in the country, on the other hand, this may have also directly affected the promotion of snus as tobacco harm reduction products as highlighted in figure 7.

Contrary to Pakistan, due to increase in political willingness and commitment, the country has witnessed a steady increase in the use of THR products such as Snus (Nicotine pouches) and E-cigs over the last five years, (ARI, 2020). Therefore, it can be stated from the discussion that lack of government's willingness and commitment towards reduction of smoking caused diseases is more likely to negatively affect or limit the availability and accessibility of snus and entire tobacco harm reduction products.

Health benefits of Snus and its Impact on Cigarette Consumption.

The results of the study further revealed that an increase in availability and accessibility to snus is more likely to result in reduction of cigarette consumption in the country as highlighted in figure 8 of the result section. The majority (67.0%) were of the view that snus is more likely to reduce cigarette consumption and increase the number of snus users. This also asserts from the fact that the majority (55.0%) of the respondents perceived smoking as a health risk hence expressed willingness to quit, while 68.0% tempted to quit but only got back to smoking due to lack of alternative to nicotine consumption. Hence the increased availability and accessibility of snus is more likely to help the majority of smokers to switch from cigarette to snus which is a safer alternative.

This is similar to the findings by (Foulds, et al., 2003) that snus availability in Sweden appears to have contributed to the unusually low rates of smoking among Swedish men by helping them transfer to a notably less harmful form of nicotine dependence, with notably having a larger drop in male daily smoking from 40% -15% , and female daily smoking from 34% -20% from 1976- 2002, with a substantial proportion of around 30% of male ex-smokers using snus when quitting smoking within the same period. Another study conducted in Norway highlighted that as smoking rates decreased, the use of snus concordantly increased in the country, with indicators showing that snus contributed directly to the reduction of smoking, (Grotvedt, et al., 2019).

It is the health benefit that snus brings to the public that makes it highly acceptable and preferable against the combustible cigarettes. The reduction in male smoking prevalence that have occurred in Sweden over the past 25 years have also indicated a notable reduction in the incidence of the major smoking caused diseases, as patterns show that there has been a pronounced reduction in lung cancer and low rate of oral cancer in Swedish men within the past 20 years while snus use has increased, (Foulds, et al., 2003). Therefore, based on these results, it implies that the health benefits of snus are more likely to positively impact/ affect the availability and accessibility of snus in a country where quitting attempts rates and demand for such products are high. This is based on the results highlighted in figure 9, that indicated that the majority (88.0%) of respondents perceived snus as safe for human health as compared to combustible cigarette, while 89.0% further indicated that they could recommend snus to those willing to switch to safer alternative or quit smoking, hence proving the acceptability of snus among smokers.

Taxation:

The study has further revealed taxation as one of the factors that may negatively affect accessibility and availability of snus in a country. Based on the results in table 8, respondents were of the suggestion that in order for snus to be available and accessible, the government has to consider how to tax smokeless tobacco products since imposing high tax may directly lead to a decrease in the use of snus as it may not be affordable.

This is similar to a study conducted in India and Bangladesh which showed that tax increases resulted in a significant reduction in the use of smokeless tobacco. Furthermore, in India it was found that an increase in price of smokeless tobacco products discouraged users more especially among men and youth. In Bangladesh, it was observed that the negative effects of the increase in the tax that was presumably passed on to the price increase resulting in 51% decline in the use of smokeless tobacco since most of users found it unaffordable, (John, et al., 2018).

Measures to Increase the Availability, Affordability and Accessibility of Snus

Policies, and Regulations

In order to increase the availability and accessibility of snus in the country, the study has revealed that, the government has to accommodate or include Tobacco Harm Reduction in its policies as one of the strategies to address an increase in cases of non-communicable disease caused by smoking. Adoption of Tobacco Harm reduction in its policies is a step towards achieving Sustainable Development Goal 3(SDG 3), which is targeting on reducing by one third premature mortality from non-communicable diseases through prevention, treatment and mental health and well-being, (United Nations, 2021).

However, it is urged that, the need to rapidly drive down death from smoking is clear, and there are a number of ways to pursue which include; smoking cessation, prevention of smoking initiation and harm reduction. Harm reduction, for people who cannot quit or do not want to quit using nicotine must be accommodated (Foundation for a smoke free world, 2018) in order to attain the SDG 3 first at national level, this will ensure that the majority of combustible cigarette consumers who are willing to quit are not being left out in attainment of the goal.

Taxation and Pricing

On the other hand, the results of the study further revealed that government needs to strategically consider on how combustible and harm reduction products are taxed, of which on tax, 26% of the respondents highlighted that the snus must be fairly taxed below combustible cigarettes, while other (7% and 4%) highlighted that snus must be taxed equally or high above combustible cigarettes respectively. On the same, (Chaloupka & Tauras, 2020), urged that it is important to consider the relative harms of different tobacco products in taxation, where a harm reduction approach would apply differential taxation based on the relative harms associated with different products.

This implies that Tobacco Harm Reduction product are more likely be taxed lower based on their potential to reduce the harms associated with smoking. This in turn will ensure that tobacco harm reduction products, such as snus are available and accessible at an affordable price. It has to be noted that the majority (50%) of the respondents in the study highlighted that to ensure affordability (price-based accessibility) snus was to be priced below the current cigarette price as highlighted in table 8.

Conclusion And Recommendations

Most consumers of combustible cigarette in Malawi have a great desire to quit smoking but high levels nicotine dependency has resulted in most of them getting back to smoking despite innumerous attempts. However, there is a great potential for promoting snus as a Harm reduction product with regards to its health benefits and affordability as compared to other Harm Reduction products. Despite this being the case, there is little political interest by the government to ensure that Harm Reduction products are available and accessible by the general public.

There are no policies and regulation in the country to guide tobacco use/ consumption as well as strategies well known to the general public to help individual to quit smoking or switch to safer forms of nicotine which may affect the availability and accessibility of snus in the country. Similarly, Taxation and

pricing are also more likely to affect the accessibility and availability of snus. Malawi, as one of the nations committed to attain the Sustainable Development Goal 3 aimed at reducing by one third premature mortality from non-communicable diseases through prevention and treatment and mental health and well-being, need to consider accommodation of Tobacco Harm Reduction in its policies and strategies in order to attain the highlighted goal while also making sure that harm reduction products are fairly taxed in regards to the health benefits that they have to consumers in comparison to other nicotine contain combustible products.

The use snus as a harm reduction product can be of greater importance in helping to attain the goal as evidenced in Pakistan. With regards to the socio-economic status of most rural based combustible cigarette consumers, snus tends to provide a better option for switching to safer nicotine as it is cheaper hence quite affordable by the majority which may directly contribute to a significant decline in combustible cigarette which are resulting in an increase of non-communicable diseases, hence the use of snus is more likely to improve the health well-being of individuals who have opted to switch thereby attaining the SDG 3.

Study Limitations.:

The research has been conducted to project the benefits and factors that may affect the availability and accessibility of snus in Malawi. However, the research was limited by several constraints during the Covid-19 pandemic. The study was conducted in three districts out of 24 districts, one in every region in Malawi. Therefore, the sample population may not be the actual or full representation at the national level. The study found it difficult to meet female respondents who were willing to respond to smoking related questions, despite the fact that the country has also a significant number of women who are consumers of combustible tobacco.

Abbreviations

FCTC: Framework Convention on Tobacco Control

LMICs: Low- Middle Income Countries

NRT: Nicotine Replacement Therapy

UNICEF: United Nations Children Fund

SPSS: Statistical Package for Social Scientists

SDGS: Sustainable Development Goals

SNP: Safer Nicotine Products

THR: Tobacco Harm Reduction

WHO: World Health Organization.

Declarations

Ethics Approval and Consent to Participate

Ethical clearance was obtained from National Health Science Research Committee of Malawi. During the distribution of questionnaire, respondents were informed that the information collected would be kept anonymous and the objective of the study was explained to the respondents to obtain oral consent. Respondents were also briefed about the confidentiality of their response and the importance of providing correct and accurate information, and that participation was voluntary.

Consent for Publication

Not applicable

Availability of Data and Materials

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

Competing Interest

All authors declare that they have no conflict of interest associated with the publication of this manuscript.

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Authors Contributions

All the authors contributed in the conception and designing of the study, data collection, analysis and interpretation of the results. WJ drafted and critically review the draft manuscript. KS provided a critical review of the manuscript. All authors approved and read the final manuscript. All authors participated in critical appraisal and revision of the manuscript.

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Tables

Table 1: Social and Demographic Data of the Respondents.

Variable	Frequency	Percentage (%)
Gender		
Male	69	71.1
Female	30	27.8
Unwilling to disclose	1	1.0
Age		
15-20	9	9.3
21-25	20	20.6
26-30	26	26.8
31-35	17	17.5
36-40	10	10.3
41-45	6	6.2
46-50	3	3.1
50-above	6	6.2
Marital Status.		
Divorced	7	7.2
Married	35	36.1
Separated	7	7.2
Single	47	48.5
Widowed	1	1.0
Level of Education		
Junior Primary	12	12.4
Junior Secondary	20	20.6
None	3	3.1
Senior Primary	12	12.4
Senior Secondary	31	32.0
Tertiary	19	19.6

Table 2: Quitting Success Rates and Means Employed in quitting by respondents

Variable	Frequency(n=68)	Percentage (%)
Quitted Smoking		
Yes	30	30
No	38	38
Means Employed to Quit (n=30)		
Will power	13	13
Harm Reduction products	9	9
Counselling	6	6
Other	2	2

Table 3: Quitting Levels, Withdraw Period and Reasons for Getting Back Smoking

Variable	Frequency	Percentage (%)
Quitting Success levels.		
Partially	16	16
No	12	12
Completely	6	6
Withdraw Period among those who partially quitted.		
More than 1 year	5	5
More than a month	3	3
For a year	2	2
Less than 2-6 weeks	2	2
Between 2-6 months	2	2
Less than a week	1	1
More than 2 weeks	1	1
Reasons for getting back to smoking despite willingness / attempts to quit.		
Craving for cigarette	4	4
Stress	3	3
Lack of other Nicotines Substitutes	2	2
Alcohol	2	2
Not sure	3	3

Table 4: Sources of Information on Snus as A Tobacco Harm Reduction Product

Variable	Frequency(n=36)	Percenatge (%)
Knowledge on usage of snus		
Yes	24	24
No	8	8
Not certain	4	4
Sources of Information (n=53)		
Friends/ relatives	24	24
Social Media	12	12
Radio	10	10
Workshops	5	5
Newspapers (other)	1	1
Television.	1	1

Table 5: Snus Availability, Accessibility and Affordability on the Market

Variable	Frequency	Percentage (%)
Snus Availability		
Not sure.	42	42
Yes	30	30
No	28	28
Snus Aecessibility		
Yes	25	25
No	3	3
Snus Affordability		
Yes	24	24
Not sure	4	4

Table 6: Identified bodies/ Institutions that Monitor and Regulate Tobacco Consumption in Malawi

Variables	Frequency	Percentage (%)
Are there bodies set to monitor tobacco consumption.		
Not Sure	43	43
No	31	31
Yes	26	26
Identified Bodies and Institutions		
Not so aware	7	7
Ministry of Education	2	2
Save the children fund	2	2
Malawi Police Service	2	2
Ministry of Health	5	5
UNICEF	3	3
Malawi Bureau of standards	1	1
Human rights groups	1	1
Tobacco Control Commission	1	1
Rehabilitation centers	1	1
WHO	1	1

Table 7: Respondents Perceptions on Government's Efforts Towards reducing smoking as the major Cause of Non-communicable diseases

Variable	Frequency	Percentage (%)
Are there Government efforts to reduce smoking as major cause of NCDs		
Yes	25	25
No	36	36
Not sure	39	39
Perceived Government's Efforts.		
Unable to highlight any effort	6	6
Awareness campaigns	14	14
Sensitization campaigns	2	2
Advertisement policy	2	2
Reasons for lack of Government efforts		
Lack of political will and commitment	9	9
Not sure.	9	9
Lack of resources and funds	4	4
Focus on Communicable diseases and poverty reduction	2	2
Government source of revenue	7	7
Role is left for cigarette manufacturing companies.	3	3
Poor access of information.	2	2

Table 8: Projected Responses Towards Snus Availability and Means of Increasing Accessibility, Affordability and Availability

Variables	Frequency	Percentage
Response from Cigarette Manufacturing Towards Snus.		
Not certain	42	42
Aggressive	30	30
Very Aggressive	15	15
Friendly	13	13
Increasing Snus Affordability		
Be sold at a lower price than the current cigarette price.	50	50
Be sold at a slightly higher price than the current cigarette price	45	45
Be sold at the same price as the current cigarette price	15	15
Be sold at a higher price than the current cigarette price	6	6
Be sold slightly higher than the current cigarette price	5	5
Other means. (unspecified)	1	1
Increasing Snus Accessibility.		
Be sold in both pharmacies, shops and other places	74	74
Be made accessible at wholesale and retail shops	32	32
Sold alongside tobacco cigarettes brands in various places	19	19
Be sold in pharmacies only	8	8
Increasing Snus Availability.		
Government must accommodate Tobacco Harm Reduction in its policies	60	60
Government must provide a conducive environment for local snus manufactures and market protection against aggression	45	45
Snus must be fairly taxed below combustible cigarettes	26	26
Government must regulate the availability, accessibility and consumption of snus and combustible cigarettes	16	16
Snus must be highly taxed above combustible cigarettes	7	7
Snus must be taxed equally with combustible cigarettes	4	4

Table 9: General Opinion Toward towards snus health potential, rating and Recommendation

Variable	Frequency	Percentage (%)
Is snus an opportunity to attain full health potential?		
Yes	64	64
No	29	29
Not sure	1	1
Should the Government recommend snus?		
Yes	83	83
No	13	13
Not sure	4	4
Rating snus towards health.		
Good	75	75
Not sure	21	21
Bad	4	4

Figures

Figure 1

Respondents Smoking Experience and General Health Perspective towards smoking

Figure 2

Respondents Willingness and Attempts to Quit Smoking Combustible Cigarettes

Figure 3

Respondents Knowledge on Tobacco Harm Reduction and Snus as a Tobacco Harm Reduction Product

Figure 4

Responses based on Existence of Policies and Regulation to Guide Tobacco Consumption and Promote tobacco harm reduction

Figure 5

Political Interest towards Tobacco Harm Reduction and knowledge on FCTC

Figure 6

Perceived FCTC impact on smoking prevalence and Impact on Promotion of THR products

Figure 7

Perceived impact on Promotion of THR products and opinions of FCTC ratification

Figure 8

Impact of Snus Availability on Cigarette Consumption and Entire tobacco Industry

Figure 9

health perspective/ attitude towards snus

Figure 10

Opinion Towards Health Risks Associated with Snus Consumption