

School-based smoking prevention intervention for Saudi male adolescents

Citation for published version (APA):

Mohammed, M. A. H. (2022). *School-based smoking prevention intervention for Saudi male adolescents*. [Doctoral Thesis, Maastricht University]. ProefschriftMaken. <https://doi.org/10.26481/dis.20220330mm>

Document status and date:

Published: 01/01/2022

DOI:

[10.26481/dis.20220330mm](https://doi.org/10.26481/dis.20220330mm)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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Impact of the research

School-based smoking prevention intervention for Saudi adolescents

The World Health Organization classified the use of tobacco as one of the top causes and most preventable cause of illness and death worldwide. While there has been a decrease in the use of tobacco products in Western countries, it is on the increase in Middle Eastern and Arab countries. Tobacco use in Saudi Arabia (SA), particularly among adolescents, is high in comparison to other countries in the region.

The main goal of this thesis was to prevent smoking initiation among Saudi adolescents through the design, implementation, and evaluation of a smoking prevention programme based on identifying the factors associated with smoking initiation and preferences of adolescents regarding the approach of the intervention.

The results of our studies have the potential to have a positive impact on tobacco control programmes, school health programmes, and policymakers, allowing them to make changes that will improve the practice of health promotion and health education and lead to a drop in smoking initiation among adolescents in SA. The findings of our research identified several factors leading to smoking initiation, relevant suggestions based on these, and recommendations that can be used to help adolescents make informed choices against taking up smoking.

Findings of studies included in the thesis

Four studies are included in this thesis. The first study investigated the opinions and views of adolescents, about their smoking behaviour, the factors that determine whether to be smokers or non-smokers, factors aiding smoking prevention, the type of the smoking intervention programme required (prevention or cessation), the contents of the programme, means of propagating the programme (lectures, role play, group work, and/or brochures or pamphlet), venue of the programme (within school or outside school premises), time of the programme (during or after school hours), and the best facilitator for the programme (teacher, school health care workers, or religious leaders).

The result of the first study showed that adolescents smoke because of the good taste of cigarettes and because they find no alternatives to smoking, believe smoking has no negative impact on health, and feel like adults and Western when they smoke. Non-smokers do not smoke because of

the nasty breath smoking causes, because of the bad effect of smoking on health, and because smoking is against their religious (Islamic) teachings. Certain factors affect smoking behaviour based on the research: the perceived influence of people around adolescents as models, acceptance of their smoking behaviour by their surroundings, the pressure they feel to smoke coming from their environment, and low self-efficacy in certain situations such as being called a coward or a chicken if they do not smoke.

For the intervention, participants preferred a preventive programme facilitated by school health care workers during school hours within the school premises, using an interactive approach which they are a part of instead of being only listeners, working in groups led by participants they selected, and using role play.

The results of the second study, which was a cross-sectional quantitative study, confirmed the findings of the first study and identified additional determinants. Adolescents from affluent families, with more daily pocket money and lower academic performance, were more susceptible to smoking than their peers who had little or no pocket money, were from needy families, and had higher academic attainment.

Based on the two studies, a school-based intervention programme was designed, which consisted of five lessons with two to three activities each. Nine schools were randomly chosen to receive the intervention as experimental group, and 10 schools were chosen to receive the regular curriculum as the control group. As adolescents in SA were not accustomed to working in groups and interactive learning, we had to train them in group work, the skills needed for leading the group, and how to choose the leader of the group. Adolescents voted to choose their groups' leaders. Each lesson of the intervention addressed one to three smoking determinants, demonstrated by a live or video-recorded role play performed by adolescents. Then discussion followed, a summary was made by the group leaders, and feedback was presented to all groups.

The third study was a longitudinal one and intended to detect the predictors of smoking. We followed those in the control group who were not smokers and had become smokers by the end of the study. The results showed that predictors of smoking were a relatively high monthly income, low academic achievement, broken homes, perceived high pressure to smoke from parents and teachers, smoking norms of parents, and a high intention to smoke in the future.

Six months after the intervention, we conducted the fourth study, in which we assessed the effect of our intervention programme on smoking behaviour and its determinants. The results showed that 8.8% of the control group had started to smoke, while in the intervention group, only 3.2% of participants had begun to smoke. Participants in the latter group felt more negatively about smoking and had stronger social norms against smoking, higher self-efficacy regarding non-smoking, more active plans to remain non-smokers, and lower intentions to smoke in the future.

Our intervention was the first prevention programme in the area, the first to use an interactive learning approach, and the first to train adolescents in group work, team leadership, the selection of group leaders by voting, smoking refusal skills, and how to cope with social pressure. Participants were part of the intervention and given the chance to evaluate the programme's approach, contents, and providers.

As our intervention was the first prevention intervention in SA, it contributed to the literature in the field of smoking prevention and tobacco control in SA by identifying the determinants of smoking behaviour among adolescents. Additionally, our intervention and research included in the thesis proved that health promotion models and behaviour change theories designed and implemented in Western countries, for example the Integrated-Change Model (I-Change Model), are also applicable and valid and could be effective in understanding and changing smoking behaviour in Arab countries.

Impact on school health programmes, tobacco control programmes, and future research

The results of our studies showed that adolescents start smoking because of their positive attitude towards smoking, social influences on their smoking behaviour, and low levels of self-efficacy in terms of resisting pressure from others to smoke. Religion, on the other hand, was perceived as a protective factor. In order to communicate this effectively and address these determinants, we recommend that tobacco control programmes and school health programmes adopt a preventive approach alongside the tobacco cessation curative clinics.

Our qualitative research in Chapter 2 showed the need for a culturally sensitive programme with religious contents, supporting findings of other studies in the region, which documented the effect of religion on smoking behaviour. Hence, using religious leaders to support smoking prevention activities is recommended and can be one of the community prevention strategies.

The cross-sectional study in Chapter 3 of the thesis assessed the determinants of smoking. It indicated that adolescent smoking is vulnerable to becoming epidemic. Although the tobacco control programme in SA is functioning regarding the cessation aspect of tobacco control, there are fewer efforts made for the prevention aspect. Hence, more support for prevention activities and the inclusion of smoking prevention activities in the school curriculum, training teachers in health education and students in peer education, are needed. This is especially required for adolescents in communities and school settings, and tobacco control and prevention programmes should continuously evolve.

The study also showed that smokers and, to a certain extent, non-smokers find it difficult to refuse an offered cigarette; hence, self-efficacy enforcement activities and refusal-skills training using different methods such as role play, arguments, and discussion are essential for any future interventions.

The qualitative and quantitative studies in this thesis in Chapters 2, 3, and 4 revealed that smokers come from high-income families and have extra pocket money. Since it is well documented that tax increases are among the most effective intervention to reduce tobacco demand, increasing the prices of and taxes on tobacco in SA is highly recommended. Also, the enforcement of the ban on selling tobacco products to minors as a policy and activation of the law, in addition to strengthening coordination and collaboration with concerned bodies (Ministry of Health, Ministry of Education ministry of interior and ministry of trade) to achieve this, is recommended.

Our intervention programme, which is described in Chapter 5 of the thesis, showed that school-based smoking interventions can be effective in the short term. Future research and studies need to be conducted using long-term efficacy assessments.

The longitudinal study of smoking predictors in Chapter 4 demonstrated the strong association between the smoking behaviour of adolescents and social influences constructs. This implies that multi-component interventions are highly recommended, such as a combination of school-based, community, and family activities.

The effects of our intervention might be due to any of the programme's components: skills training, role playing, the peer-led approach, social influence factors, and self-efficacy. School interventions in general are effective in reducing smoking onset. Yet, to find out which factor has the largest

effect, dismantling studies might be useful. These should estimate effects of each of these elements individually.

Due to logistics and administrative regulations, we could not include females in our studies (although attempts were made). Since there is evidence of increased smoking uptake by female adolescents, more research to investigate this group is needed, as well as the inclusion of female adolescents in future studies, to learn whether there are gender-specific determinants for smoking behaviour and to design and implement the required interventions accordingly.

At the time of the research, there was limited internet availability. Therefore, our intervention was not web-based. However, nowadays, internet accessibility is over 95% in SA, including in schools, and is relatively affordable. This makes it possible to apply web-based interventions with electronic devices. To disseminate the prevention intervention, it is highly recommended for tobacco programmes and school health programmes to use web-based interventions.

Based on the preferences of the target group in our studies, the intervention was limited to adolescent students and took place within schools. However, community involvement is essential for any future research and effective intervention, and this can be gained by involving anti-tobacco non-governmental organizations, community leaders, families, and parents. In addition, to help disseminate smoking prevention activities, special attention should be paid to outreach and remote areas.

Furthermore, it is necessary for the tobacco control programme to consider working on the enforcement of policies and regulations related to tobacco trading in coordination with relevant bodies in order to increase taxation on tobacco products, enforce the law that bans selling tobacco to minors, create a smoke-free areas policy, and ban smoking in public places.