

Unravelling the effect of a Dental Public Health Intervention (ISAC)

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Impact paragraph

Prevention is better than a cure – a famous old maxim that fits perfectly in the case of oral cancer. The studies in this thesis focused on enhancing the early detection and prevention of oral cancer in the Jazan region of Saudi Arabia, by developing and testing the ISAC intervention. This paragraph discusses the scientific and societal impact of this thesis.

Scientific and societal relevance of the thesis findings

This thesis provides exclusive insights into the beliefs and experiences of smokeless tobacco (Shammah) users (who are highly vulnerable to mouth cancer), as well as the possible behavior-change methods that can be used by dentists to help their patients successfully quit tobacco and to detect signs of mouth cancer early. These insights were integrated in a dental clinic-based program (the ISAC intervention).

Dentists: the ISAC intervention empowered dentists by addressing their beliefs and improved necessary skills to provide oral cancer screening, support tobacco users to quit and communicate better with patients. The ISAC intervention had a high level of acceptance among the dentists, who reported that it was consistent with social values and useful in everyday clinical practice. In addition, it was found to help dentists understand their central role in preventing and discovering oral cancer at an earlier point in time and the ramifications of not screening on their patients' long term quality of life. The two workshops in tobacco-cessation counselling and patient communication skills offered dentists real-world experiences of using scientific methods, guided by trainers specialized in tobacco cessation and patient communication. The intervention had a profound impact on dentists' consciousness, confidence and professional capability to fulfill their social responsibility toward controlling the burden of oral cancer. Fasting for Ramadan helped many Shammah users to temporarily quit the substance and, thus, dentists should take advantage of this month to encourage quitting. The significant insights obtained from the dentists who participated in the ISAC preliminary

experiment will give other dentists practicing outside Jazan Dental School the confidence to negotiate and to push their organization leaders' focus from only patients' dental complaints to include an evidence-based intervention that serves the local community needs. To illustrate, after the initial experiments, a few participants discussed with their clinical directors about the importance of performing complete oral cancer examinations and patient education in the Jazan region, in order to contribute to improving public health, in alignment with Saudi Arabia's 2030 Vision.

Researchers: the findings of this thesis are relevant to researchers as they bridge the existing knowledge-behavior gaps in dentists' practice of oral cancer examinations and patient education. This was done, for example, by improving dentists' confidence and abilities to perform examinations, tobacco-cessation counselling and communication with their patients.

Intervention developers: Shammah users revealed a lack of social support and, therefore, intervention developers can use the behavior-change techniques that focus on mobilizing social support for Shammah users to facilitate their quitting. Specifying the quitting goals, writing a quitting plan, considering changes to the immediate surroundings (i.e., where tobacco users live and work) and showing users the visible physical changes due to tobacco through oral cancer examinations can also be utilized for successful tobacco cessation in dental clinics. Short-term visible changes felt by the dentists – such as feeling more confident, professional and organized – were motivating them to continue practicing the intervention. Intervention developers should pay attention to combining long-term change with short-term visible changes that can enhance dentists' motivation and adherence to the intervention.

Policymakers: the findings of this thesis are also relevant to policymakers because they highlight the gap in the current efforts toward the prevention and cessation of tobacco use. For example, the availability of Shammah makes quitting the substance more difficult for users.

Therefore, authorities need to consider stricter enforcement policies against the availability of Shammah.

Organizations: leaders and directors of dental organizations should feel responsibility towards the prevalence of oral cancer, as well as facilitating and supporting oral cancer examinations in their clinical practices. Dental organizations in areas with a high rate of oral cancer can benefit from the current intervention because of the positive changes and its success in activating dentists' role in the early detection and prevention of the disease.

Activities to disseminate the findings

The findings of the studies in this thesis were disseminated to the dentists, Shammah users, the public, the scientific community, dental organizations and the Saudi Ministry of Health.

Grassroots level: the ISAC intervention empowered local community activists and oral cancer survivors to share their experiences and reflect on the importance of early detection and prevention of the disease. To illustrate, a video was recorded and distributed of a female oral cancer survivor. In the video, she freely shared her experience and reflected on the consequences of dentists' lack of oral cancer examinations on her quality of life. After the ISAC intervention, several Shammah users reported quitting the substance and became advocates for Shammah cessation in their social networks.

Individual and interpersonal levels: the impact of the ISAC intervention on dentists' knowledge and skills was not limited to these dentists or their patients, but also felt by their colleagues. Many dentists approached us and expressed their interest in learning more about the ISAC and its practice.

Organizational level: the ISAC intervention influenced the development of a new course, focusing on oral cancer as part of the dental education curriculum, in Jazan Dental School. Additionally, the ISAC intervention facilitated the cooperation of multidisciplinary experts,

between Jazan Dental School and the Ministry of Health, allowing them to benefit from each other's experiences in tobacco cessation, patient communication, and oral cancer examinations. This collaboration is expected to have a positive influence on future dissemination of the intervention. In addition, the authority in the Ministry of Health expressed readiness to adopt the ISAC intervention and to disseminate it across dental clinics. Aside from that, there is currently an ongoing discussion to integrate the ISAC intervention in the Saudi Commission for Health Specialists as a continuous education course, which will provide credit hours upon its completion for any participating dentists.

Community level: the intervention is currently being tested for usability among doctors of family medicine due to their unique position that brings them in contact with many patients per day and to contribute to the overall enhancement of oral cancer early detection and prevention.

Scientific community level: five studies in this thesis have been published in peer reviewed scientific journals and have been cited by international researchers across the globe. The studies were presented in the American Association of Public Health Dentistry conference and are planned to be presented in the Saudi International Dental Conference as well as in the International Association for Dental Research (IADR).

Lastly, the findings from this thesis also contributed to the development of an online website to support dentists' practice of the ISAC.

New Concept for Early Detection and Prevention of Oral Cancer (OC)

ISAC I: inform S: screen A: advise C: connect

