

Hiv Prevention Among University Students In Sudan

Citation for published version (APA):

Elshiekh, H. F. (2022). *Hiv Prevention Among University Students In Sudan*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20221012he>

Document status and date:

Published: 01/01/2022

DOI:

[10.26481/dis.20221012he](https://doi.org/10.26481/dis.20221012he)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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IMPACT PARAGRAPH

HIV importance in Sudan

Sudan has been suffering from civil wars, political instability and poverty for several decades. These conditions had devastating effects on the health systems and health promotion programs, including HIV prevention, as reflected in the Sudan National AIDS Program (SNAP) and the country progress reports. These factors contributed to the spread of HIV in Sudan, the country with the highest HIV prevalence in the MENA region. Therefore, HIV is currently considered an important public health threat in Sudan that requires immediate actions because of its physical, mental and social consequences on the infected individuals and the burden of the disease on the weak health system and poor economy.

University students as an important target group

University students in Sudan have long been considered an important target audience for HIV prevention due to the observed increase in unprotected sexual practices. Previous surveys revealed a higher HIV prevalence among them than the general population, with a predominant heterosexual transmission. The community in Sudan is highly conservative and the prevailing religious values and social norms strictly prohibit all types of extramarital sexual practices; hence, promoting many HIV prevention strategies, such as condom use, is a challenge. These facts, in addition to the lack of targeted HIV prevention programs and sex education curricula in Sudan, call for the urgent development of culturally adapted HIV interventions targeting university students. Therefore, the studies of this dissertation have been conducted to inform the design and implementation of such interventions.

Understanding University students` sexual behaviours

As proposed by the intervention mapping approach (IM), understanding the behaviour and its determinants are essential prerequisites for developing an effective behaviour change intervention. Given the paucity of research about the psychosocial determinants of Sudanese students` sexual behaviours, including abstinence from premarital and consistent condom use, these determinants were the focus of the studies in this dissertation. Regarding abstinence, the current studies concluded that exposure to specific cues, having a positive attitude towards premarital sex, peer influence and low self-efficacy to abstain from premarital sex were all associated with engaging in premarital sex. On the other side, HIV-related knowledge, exposure to condom use cues, attitude towards condom use, peer influence and condom use self-efficacy were the important determinants of consistent condom use among university students in Sudan.

Besides, the studies identified important gender differences in these determinants that warrant further exploration. In addition, our studies uncovered the critical role that religious leaders could play in promoting consistent condom use among sexually active students.

The relevance of our findings

Although the sexual behaviours among Sudanese university students were previously studied, the current studies differed from the previous ones in several aspects. Firstly, these are the first studies that focus solely on the psychosocial determinants of sexual behaviours, thus filling an important research gap. Secondly, it is the first time including a qualitative approach to deeply explore Sudanese university students' sexual behaviours. Thirdly, the current studies have the advantage of using a theoretical framework (I-Change Model) to identify the psychosocial determinants, which enables the better characterisation of these determinants and the translation of the findings into effective prevention programs. Finally, the current studies explored how these determinants are influenced by the prevailing religious values and cultural norms. This is believed to facilitate the cultural adaptation of any future interventions within the Sudanese context, which is essential for the successful implementation and maximum benefit.

Based on these characteristics, our studies managed to highlight the importance of targeting the psychosocial determinants of the students' sexual behaviours to reduce the HIV risk and promote healthy behaviours. We also concluded that a combined HIV prevention strategy could be more successful in preventing HIV transmission among university students. Furthermore, the current studies provided suggestions and answers to some important questions, such as what determinants to address in this proposed intervention and which behavioural change strategies could be used to address them. Besides, the studies suggested who should participate in the program development and how it could be implemented.

Practical relevance

The findings of our studies may represent a solid foundation for the development of future HIV interventions targeting this important at-risk population. Our findings also pointed to the importance of adopting a combined HIV prevention approach to tackle this public health problem. Based on the findings, abstinence-plus intervention has been recommended as a suitable choice because abstinence-plus programs aim to promote abstinence from sex until marriage, which is in line with the prevailing religious values and social norms, but also seek to promote consistent condom use among the sexually active single students.

The findings of the current studies could help maximise the benefits of future behavioural change interventions by identifying the most salient psychosocial determinants to be addressed. In addition, these findings could inform the selection of the most appropriate behavioural change strategies to address these determinants. Moreover, the results of these studies provided insight into the important attributes of the intervention that could facilitate its implementation and increase its effectiveness. Given the observed influence of the religious values and cultural norms in the conservative community in Sudan, cultural adaptation of the messages and other contents should be considered to increase the acceptance of the intervention among the target group as well as the community. In addition, the studies highlighted the need for tailoring the intervention to address the

observed individual differences and needs. Tailoring will also make it possible to provide condom use educational messages on the basis of the students' intentions to practice sex rather than their actual sexual behaviours. Finally, it was revealed that in a conservative community like Sudan, where the acknowledgement of having sex out of wedlock might tarnish one's reputation and could lead to legal consequences, preserving the individuals' privacy is by far the most critical success factor. Therefore, using the internet, where individuals' privacy and confidentiality are commonly preserved, to deliver the intervention might be advisable. Using online questionnaires in the current studies also revealed the feasibility and acceptability of using the internet to deliver future behavioural change interventions to university students.

Besides, developing and implementing HIV interventions for university students in Sudan is challenging because of the structural, financial and technical constraints that have been reflected in the poor record of health promotion programs in Sudan (133). Therefore, our studies could inspire the development of theory and evidence-based health promotion intervention in Sudan. Intervention Mapping (IM) could be very useful for this purpose as it provides tools and guidelines for "the empirical and theoretical foundation of health promotion programs, application of theory, translation of theory into actual intervention activities and materials, management of program adoption and implementation, and for the collaboration between health educators, researchers, priority groups and stakeholders" (102).

Scientific relevance

We contributed to an important research area that has been understudied in Sudan. We have submitted our research papers to open access journals to disseminate our scientific findings and share them globally with researchers and public health scientists. Although we aimed to share these findings with the Sudan National AIDS Program (SNAP) officers and present the findings in the program workshops and local conferences, this was not achieved because of the political instability in Sudan and the COVID19 pandemic. However, the findings have been communicated in a regional workshop in Saudi Arabia with public health professionals from similar Arab countries. Besides, the recommendations were included in the scientific material of a course designed for HIV counsellors in Saudi Arabia.

Public health professionals and scientists in Sudan and other similar countries can benefit from our research findings and recommendations to develop culturally adapted interventions to prevent HIV among university students. In addition, one of the expected impacts of our research is raising the attention of the public health professionals and policymakers in Sudan and similar Arab and Islamic countries to the lost opportunity of implementing exported interventions without local adaptation. Our research is expected to open the door for implementing locally designed, web-based, computer-tailored interventions to prevent HIV in Sudan and the Middle East.

Furthermore, given the identified research gaps, we provided some important recommendations for future research. For instance, we recommended further exploration of the gender differences in the determinants of students' sexual behaviours. Besides, our findings alluded to the promising role of religious leaders in promoting abstinence and condom use among sexually active students and recommended further research to characterise and augment their active participation in this field. In addition, studies to identify the other determinants of risky sexual behaviours and explore the perceptions of the other important stakeholders and policymakers were suggested to broaden the scope of the intervention and maximise the chances of success. Finally, it was also recommended to prioritise research about action planning and its role in translating intentions into healthy behaviours and incorporate the findings in future interventions.

Despite the consensus about the importance of the cultural adaptation of health promotion interventions in general and how this could influence the effectiveness of these interventions (114, 115), the importance of the cultural adaptation of HIV interventions seems to be underestimated among the scientific community. This has been observed in the hesitancy of some scientific journals to publish research findings recommending abstinence from premarital sex as an HIV prevention strategy in conservative communities based on previous studies showing no role for abstinence in western and liberal communities. Hence, we believe that our research findings call for supporting future researchers from religious communities and building their research capacity to design, implement and evaluate culturally adapted interventions to curb the HIV epidemic in their communities.

Societal relevance

Although our research was solely conducted among university students, it provided insight into the importance of community participation in HIV prevention among university students. The perceived role of religious leaders, family members and health professionals in shaping students' sexual behaviours, including both abstinence from sex until marriage and consistent condom use, calls for their involvement in designing culturally accepted HIV interventions. They could also be trained to participate, as trustworthy models, in delivering these interventions. In addition, our findings could be used to equip HIV counsellors in Sudan with the knowledge and skills required to participate effectively in the intervention development and implementation. For instance, the counsellors should be trained to assess the students' behaviours and their determinants using the I-Change model constructs. They should also be trained on behavioural change methods to help them select the suitable methods, messages and skills that could exert behavioural change. Finally, since most of the funding for HIV prevention programs in Sudan comes from non-governmental organisations (NGOs), communicating our research findings with them could encourage them to fund the development, implementation and evaluation of locally designed interventions based on our research findings.