



Educators' perceptions on the benefits and barriers of oral PrEP uptake among adolescent girls and young women in Vulindlela, KwaZulu-Natal

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Abstract

Oral PrEP promotion is a key aspect of combination prevention efforts to increase opportunities for HIV prevention among adolescent girls and young women (AGYW) who are at higher risk of infection. Research suggests that communication efforts often adopt an individualistic decision-making approach that is devoid of the multiple influences that impact young women's HIV preventative choices. Schools and educators are increasingly being identified as key role players and influencers of decision making among young women. The promotion of PrEP uptake among AGYW of school going age, thus requires an exploration of perceptions of educators about the related benefits and barriers to PrEP uptake among school girls. A qualitative study using a purposive sampling method was used to sample 6 high schools in Vulindlela, a district with the highest HIV incidents among AGYW in KwaZulu-Natal. Semi-structured interviews were conducted with a total of twelve Life Orientation educators and senior staff members from the 6 selected high schools. The data was transcribed and analysed thematically using the culture-centred approach. The findings suggested that educators acknowledged the benefits of PrEP in curbing HIV infection rates among young women. However, these benefits were clouded by barriers and concerns around minimal, or poor condom use as a result of oral PrEP use which could promote promiscuity and minimalise efficacy. These findings highlight the need for more contextual community-driven communication strategies around PrEP, and emphasise the value of a community-centred approach that promotes dialogue among key role players, like educators, to further enhance PrEP communication.

Keywords

HIV prevention, PrEP communication, educators, perceived benefits, perceived barriers.

INTRODUCTION

Oral PrEP uptake among populations at substantial risk of HIV infection, remains central in HIV prevention efforts. Over the past years deliberate efforts have been made to enhance and encourage oral PrEP uptake among adolescent girls and young women who have the highest infection rates, compared to their male counterparts (Kharsany and Karim, 2016). However, key challenges relating to accessibility, acceptability and the association of PrEP with stigmatised identities such as sex work, have slowed the overall progress and uptake of PrEP. Furthermore, the individual-centred approaches that focus on AGYW as independent decision makers in PrEP use, have also contributed to uptake challenges, as it detaches young women from their contextual and cultural settings. Given the varying settings in which AGYW exist, it remains central to explore the perceptions of key community structures such as schools,

and role players within these structures in promoting and facilitating conducive environments for AGYW PrEP uptake. Educators are influential voices among girls of school-going age and can provide valuable insights on the relevance of PrEP in curbing new infections (Hammed, Adedigba and Ogunbodede, 2007; Sarma and Oliveras, 2013). This paper is premised on an understanding that schools are influential structures in the community and that educators can serve as change agents, initiating communication among female learners to adopt particular health interventions. As such, the paper seeks to explore the perceptions of educators on the benefits and barriers to adolescent girls and young women's oral PrEP uptake so as to revisit the communication agenda for the future of PrEP promotion. Exploring the perceptions of educators recognises the role of key players who could potentially influence the decisions of young women when considering oral PrEP.

THE IMPORTANCE OF SCHOOLS AND EDUCATORS IN ORAL PREP PROMOTION AMONG SCHOOL-GOING GIRLS

The HIV prevalence rate is high among women between the ages of 15 and 49 and even higher among AGYW. Globally, HIV infection rates among young women aged 15-24 years is 60% higher than their male counterparts (UNAIDS, 2019). The picture is even more dire in sub-Saharan Africa, as young women aged 15-24 years represent only 10% of the population, yet they account for almost 25% of all HIV infections (UNAIDS, 2018). Furthermore, AGYW have the highest HIV infection rates compared to their male counterparts of the same age group and are said to contract HIV 5 to 7 times earlier than their male counterparts (Kharsany and Karim, 2016; Mavhu, Rowley, Thior, Kruse-Levy, Mugurungi and Ncube, 2018).

Schools are influential in educating learners (AGYW) about HIV and promoting the spread of HIV infections (Schenker and Nyirenda, 2002). They are also part of community structures and crucial players in conveying and participating in HIV prevention interventions targeted at adolescent girls and young women of school-going age. As such, schools present a viable opportunity for reaching children and adolescents with positive HIV teachings at an early age, reinforcing responsible sexual and health practices which have the ability to curb new HIV infections. In instances where schools do not provide sexual and reproductive education that is inclusive of HIV prevention, the risk of HIV acquisition increases (Lloyd, Ferguson, Corbie-Smith, Ellison, Blumenthal, Council, 2012). It is important that the knowledge gap about HIV infections, its spread, and the related preventative methods are bridged through school education (Schenker and Nyirenda, 2002).

Whiteside, Vinnitchok, Dlamini and Mabuza (2017) view schools as protective institutions for children against HIV infections. The assumption is that if comprehensive HIV education is provided in schools, then children and adolescents in schools have a better chance of making informed decisions and choices about their sexual and health issues. This assumption is supported by the fact that many governments in Africa make huge investments in education and this is aimed at keeping as many children at school as possible. A number of studies found that if children were kept in the schooling system with fewer drop-outs, there were lesser chances of HIV infections amongst school-going children (Whiteside et al., 2017). Ensuring quality education, that includes HIV prevention, is important in reducing HIV infections among school-going children in order to achieve the desired goal of having an HIV free generation. Given the influential role that schools have in the lives of its learners, their role in creating communicative spaces for learners to critically engage with HIV prevention choices such as PrEP by learners is critical. Thus, exploring their perceptions of the benefits and barriers to PrEP uptake among young women and acknowledging that young women's health decisions are influenced by the evolving community context, is central in ensuring a contextually relevant approach to PrEP communication.

GAPS IN THE HIV PREVENTION INTERVENTIONS FOR AGYW

The upscaling of HIV testing and the use of antiretroviral therapy (ART) by people both living with, and without HIV as prevention, have made great strides in the reduction of new HIV cases. However, young

people have not equally reaped the benefits of these interventions (Padian, Buve, Balkus, Serwadda and Cates, 2008; Celum, Delany-Moretiwe, McConnell, van Rooyen, Bekker, Kurth, Bukusi, Desmond, Morton and Baeten, 2015). A major reason for this is that these interventions are not under the direct control or agency of young women who remain vulnerable in society, nor are the key role players, such as community members or school educators, consulted in the contextual messaging that can influence and be culturally relevant for these young women. The voices and ability of young people to communicate and engage with the diverse HIV combination prevention options are often suppressed and community circles of support disregarded. This impacts the extent to which young women in particular, are able to adopt HIV prevention options, as well as their ability to engage in dialogue with key influencers, such as local community members, educators and sometimes peers. A study conducted in KwaZulu-Natal (KZN) on women and men's acceptability of new HIV prevention technologies, including the oral pill, vaginal ring and intravenous methods, found that women were more willing to adopt these inventions for their own benefit, however, male participants were opposed to their female partners using these products (Nota, Govender and Vukapi, 2020). This social-cultural dynamic creates pockets of isolation in the communicative space for HIV prevention.

The role of educators and community structures are imperative to then create supportive environments for dialogue and engagement on the complexities of HIV prevention and to explore opportunities for innovative health decision making. To this end, exploring the potential barriers and opportunities of PrEP uptake among educators, allows for unpacking the perceptions of key influencers and also forms the basis for creating communicative spaces that enable new innovations such as PrEP for AGYW. This paper specifically explores schools as educational structures in the community that play a fundamental role in knowledge sharing on HIV prevention, but can also promote the acceptance, or rejection of a health intervention among school learners within the community. As such, exploring school educators' perceptions of the benefits and barriers of PrEP use among AGYW recognises the role of not just young women in health decision making, but how other structures within the community can influence the uptake of PrEP through creating communicative spaces conducive to PrEP promotion.

THEORETICAL FRAMEWORK

This study utilises the social ecology model for communication and health behaviour (SEMCHB) framework that explains the interrelations between individual and societal factors affecting health. The study is located within the individual and the community level of the SEMCHB framework. The Health Belief Model (HBM) is used to support the individual level of the framework. The HBM predicts health behaviour through the attitudes, beliefs and perceptions of individuals concerning a health issue (Tarkang and Zotor, 2015) and in so doing, enables more effective HIV prevention communication and interventions at a societal level. Although the HBM has six constructs, namely: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy and cues to action, this study only focuses on the perceived benefits and barriers, as the study tries to explore perceptions of educators on the benefits and barriers of PrEP uptake among AGYW in the schooling system. The study further adopted the culture-centred approach (CCA) to support the macro-level of the SEMCHB framework. The CCA acknowledges the importance of culture, agency and structure in health communication (Dutta, 2008) and advocates for a deliberate inclusion of culture in health discussions.

The HBM assesses the individual's ability and motivations to health behaviour change and understanding these factors is significant to the adoption of health programmes (Stanhope and Lancaster, 2000). The CCA moves beyond the individual approach to health communication and engagement in decision making, asserting that individuals are located within spaces that require collective decision making and collective responsibility for sharing health issues. Through this approach, individuals are seen to exist within cultural contexts and structures which influence their decision-making powers. In this study, schools are considered as a part of the structures that influence the health decisions of AGYW in the community. Individual perceptions of educators, as well as the collective role of schools

as influential community structures in HIV prevention debates for school girls were explored. Working with this theoretical perspective allows an expansion of insight into the granular nuances of context specific communication, where dialogue, participation and collective decision making are key influences for effective health and PrEP communication.

METHODS

Research setting

The study was conducted in Vulindlela, a large rural area in the uMgungundlovu District of KwaZulu-Natal. The Vulindlela community is at the centre of the HIV epidemic, both globally and nationally (Kharsany, Cawood, Lewis, Yende-Zuma, Khanyile, Puren, 2019). While the province of KwaZulu-Natal is recorded to have the highest HIV burden, with women accounting for almost 60% of the infections (Abdool Karim et al., 2010), the Vulindlela community bears the largest brunt of these infections.

A purposive sampling technique was used at two levels in the study, firstly in the sampling of schools: 6 high schools in the community were selected, based on the locality within Vulindlela surrounding the main primary health care facilities. Secondly, the purposive sampling method was applied in the recruitment of the 12 educators which included a senior staff member, represented by either a principal, deputy principal, or head of department in each school as well as the Life Orientation educator at each school. The head of school/department and the Life Orientation educators were purposively selected as they usually are the decision makers and educators of health and wellbeing content at schools. For the purposes of this paper, the cadre of staff are collectively referred to as educators.

Semi-structured interviews were conducted with the twelve sampled educators from 6 high schools. The interviewees were probed to gain more insight on the key barriers to PrEP uptake and the perceived benefits of PrEP among school-going girls. The interviews were conducted in-person on the school premises.

Thematic analysis, in accordance with Braun and Clarke, (2006) was used to analyse the data collected from the interviews with educators. Audio recordings of the interviews were transcribed, and codes were generated and collated. The codes were placed into categories which informed the development of theory-driven themes about the perceptions of educators about the benefits and barriers of oral PrEP use among AGYW. The themes generated from the data were a combination of data-driven and theory-driven codes and themes.

FINDINGS

During the time of the interviews PrEP was not a well-known intervention among educators. In order to facilitate the interviews more effectively, the interview sessions started with a brief explanation of what PrEP is and how it works. This allowed educators to formulate informed perceptions. The data on barriers and benefits of PrEP uptake, as perceived by educators, was categorised into key themes. The themes are analysed below.

PREP UPTAKE CAN PREVENT HIV INFECTIONS AMONG AGYW

The major consensus about oral PrEP was the HIV prevention and protection benefit considering the increasing rates of HIV infections among AGYW in the community of Vulindlela. The educators noted that they promote abstinence among learners, but there was still a large number of AGYW who were sexually active and exposed to the risk of contracting HIV. Thus, oral PrEP was perceived to be beneficial in offering protection against HIV infection as part of a comprehensive HIV combination prevention strategy for those AGYW who are sexually active.

"But also let us look at it this way. They are sexually active, whether we like it or not, they are sexually active so maybe it [oral PrEP] can help them in that case" (School 1, HOD).

"The benefits of oral PrEP... It will help them not to get infected with HIV if they take it accordingly, with a condom" (School 2, Principal).

There were also concerns that AGYW are generally irresponsible about adopting safer sex behaviour and using condoms correctly and consistently with their partners. Therefore, oral PrEP would be an alternative for those who find it difficult to use condoms for different reasons.

"You need it... these kids, anything that requires the use of a condom, the way I see it, they don't use it. Or maybe the girls are afraid to tell their boyfriends. Maybe the boyfriends scare them by saying 'oh you are asking for a condom yet the other girl doesn't ask for one'... So, oral PrEP can help a lot on that way because they can be able to take the pills" (School 2, Principal).

The overall perceived benefits of oral PrEP identified by all educators, correlates closely with the increased risky behaviour of AGYW and the need for more HIV prevention options. Oral PrEP was perceived to have the potential to reduce the HIV risk among young women, particularly in contexts where female voices are suppressed and opportunities for negotiating safer sex practices are limited.

ORAL PREP UPTAKE POSES INCREASED HEALTH CHALLENGES AMONG AGYW

The educators expressed some perceived barriers associated with oral PrEP uptake, particularly amongst AGYW in their communities. These barriers include increased risky sexual behaviours, poor adherence and accessibility of oral PrEP. Specific issues raised as perceived barriers were: minimal or poor condom use as a result of oral PrEP uptake and concerns that its use would promote promiscuity among AGYW and its efficacy.

Disregard for condom use

The use of oral PrEP is largely associated with poor condom usage, suggesting that users generally substitute condoms with oral PrEP. This is entrenched in the belief that oral PrEP will protect users against HIV risk and this was a major concern for the educators, especially in the context of perceived poor condom use amongst AGYW.

"I see it (oral PrEP) as having similarities with male circumcision. It is going to change people's perceptions because now this drug it is the only prevention now that covers everything. Once you take it you won't be infected. You can have unprotected sex and so on, you see... Whereas people will be exposing them to different..." (School 3, Deputy Principal).

"You find that they were using a condom continuously, but they may now stop using it because it gives them the impression that they can use this prevention method instead...So it means if a person doesn't want to use a condom they can use these pills to prevent HIV" (School 4, Principal).

The educators believed that oral PrEP would be misunderstood and become a motivator to stop using condoms and expose AGYW to HIV infection. There were also fears that the use of oral PrEP would contribute to a misperception of the HIV risk among AGYW. To avoid this and achieve effective results, oral PrEP must be used with other HIV prevention methods, such as condoms.

Promoting promiscuous behaviour

The premise that oral PrEP can prevent HIV was juxtaposed with raised concerns that it could also encourage promiscuous behaviour among AGYW in the community. The fear of HIV infection was also

found to prevent, some extent, AGYW from engaging in risky sexual behaviour. In light of this, participants expressed fear that when oral PrEP is adopted and there is a growing education about its protective benefits, the need to adopt positive sexual health behaviour would be ignored and exchanged with sexual freedom.

"It's like giving them the licence to go there and enjoy sex but before you indulge in sexual activities, here is a capsule or a tablet... you see" (School 5, HOD).

"They will totally disregard the condom once they hear that there is this kind of a pill, and they will be loose, I'm telling you" (School 2, LO Educator).

"...my fear is that it is likely to promote promiscuity amongst teenagers because of their immaturity and the way they are likely to interpret its use" (School 3).

The educators believed that oral PrEP is likely to be misunderstood as a quick solution for all while promoting irresponsible sexual behaviour.

ORAL PrEP EFFICACY

Educators regarded PrEP as a relatively new intervention in the community of Vulindlela and there was very limited knowledge and understanding of what it is, how it works and where it has been proven to work in decreasing new HIV infections. Oral PrEP in this community was identified as a hearsay intervention, because people had not been exposed to oral PrEP and did not understand its effectiveness in reducing HIV infections. Some participants expressed scepticism about the efficacy of oral PrEP because it is a new prevention method.

"I was telling them yesterday that I don't like this PrEP. Is it not on the research stage, maybe there are side effects" (School 6, HOD).

"It's hard for me to say because I have no experience of the efficacy of oral PrEP, you see. It's a new thing so at this stage my knowledge is very limited" (School 4, Principal).

Furthermore, the dependence of oral PrEP on condoms in order to achieve its effectiveness contributed to the doubts around its efficacy. Participants argued that the need for dual protection means that oral PrEP is not effective enough. There were some views that an effective prevention method had to be effective even when used alone, because in the context of Vulindlela, where it is believed that condom use is significantly low among AGYW, oral PrEP would not make much of a difference in reducing HIV infections if it still required the use of condoms.

"What's the use of taking oral PrEP if it has to be accompanied by another protective measure? So, it would have been good if oral PrEP was effective on its own, to say 'oh, I'm covered if I'm taking oral PrEP I don't need to have a condom'. So why does it have to be accompanied by a condom?" (School 1, LO Educator).

The "partial efficacy" of oral PrEP demotivated the study participants to support its implementation. Most of the participants concluded that oral PrEP is a good intervention that will benefit AGYW in the face of increasing new HIV infection rates. However, some participants questioned the extent of its effectiveness among AGYW. Their reservations ranged from the individual behaviour of AGYW towards HIV issues and prevention, to family and societal issues that might influence their behaviour concerning

the adoption/acceptance or rejection of oral PrEP. A major observation made during the interviews with the educators was that they had minimal consideration about the benefits of oral PrEP use amongst AGYW and most emphasised what they perceived as barriers of oral PrEP and this raised concerns about their willingness to support its adoption.

DISCUSSION

In a community characterised by high HIV infection rates among adolescent girls and young women it remains central to explore possible prevention interventions such as PrEP, but also imperative to engage with key stakeholders to explore how to promote new HIV prevention strategies through effective communication. The perceptions of school educators are central to promoting a contextual understanding of the benefits and barriers of PrEP uptake among adolescent girls. As noted in this paper, the perceptions of educators were largely formulated from a place of limited knowledge about the intervention, yet their perspectives facilitated open dialogue and enabled communicative spaces to address some of the communication challenges in HIV prevention. The findings point to strong scepticism among educators about the potential benefits of oral PrEP to reduce HIV infections among school-going girls and young women. Educators acknowledged that school girls are sexually active, inconsistent with condom use and could potentially benefit from using oral PrEP. However, there remains a strong concern that this potential benefit could be offset, not only by the partial protection of oral PrEP, but also by concerns that increased communication about PrEP benefits may result in a surge of irresponsible sexual behaviours. Increased communication about PrEP benefits, without addressing the need for combination HIV prevention strategies, was a common concern for many educators who fear that there will be a further reduction in condom use. This will render oral PrEP counterproductive as a HIV prevention option for school girls and AGYW and inadvertently increase the risk of infection.

The perceptions of educators on the benefits and barriers to PrEP uptake suggests their unwillingness to promote, or support its adoption. This is in line with the key constructs of the HBM which suggests that individuals are assumed to adopt a positive behaviour change, or take up an intervention if it is perceived that it can reduce their risk of susceptibility and severity (Jones, Densen, Scherr, Brown, Christy and Weaver, 2015; Louis, 2016). When individuals perceive that an intervention has great benefits to manage their health conditions, they are more likely to adopt a health action. In this case, oral PrEP needs increased and holistic HIV communication efforts, promoting PrEP as a part of a wider HIV prevention strategy that offers more extensive benefits for school girls and young women. However, the study revealed strong reservations on the part of educators in promoting oral PrEP among school girls. The perception among educators was that oral PrEP offers few health benefits, while having the potential to fuel risky sexual behaviours among school girls in the community, thereby increasing their susceptibility to HIV infections.

This understanding of the benefits of oral PrEP vis-à-vis its potential risks could be explained by the limited communication and opportunities for knowledge sharing about PrEP benefits in the community and among educators. It further highlights the importance of communication about PrEP as part of a holistic combination prevention strategy. It can thus be argued, that with increased knowledge and understanding of oral PrEP, the educators can formulate a better conceptualisation of oral PrEP and its benefits. Currently, the support of schools in the adoption of oral PrEP is clouded by the belief that there are existing prevention interventions that are not effective in reducing new infection, because of poor use and that the introduction of oral PrEP does not offer a better option, but rather introduces further challenges in the community when it comes to HIV issues.

The stigmatising or association of PrEP with negative behaviour (such as promiscuity and poor condom usage) can have detrimental implications for the effective roll-out of oral PrEP for high risk groups in the absence of critical engagement with key influencers such as educators in school structures. Stigmatising oral PrEP is a challenge in many communities as revealed by the available literature (Grace, Jollimore, MacPherson, Strang and Tan 2018; Haire, 2015) as oral PrEP is highly associated with promiscuous behaviour and unprotected sexual interactions, subsequently influencing the perceptions of key opinion

leaders and educators in communities, who are usually relied on to promote the adoption of PrEP (Haire, 2015). Diffusing personal perceptions and beliefs is still prominent in many communities and it affects the adoption of relevant interventions that have the potential to reduce new HIV infections amongst the most vulnerable groups, such as AGYW. Consequently, there is an urgent need to formulate oral PrEP communication in a manner that addresses the misconceptions of educators who have a vital role to play to advance the UTT policy and HIV prevention agenda for AGYW. Furthermore, this study acknowledged the role that structure plays in influencing how individuals perceive health communication, as articulated by the CCA. The CCA recognises that health decisions do not rely solely on the intended recipient, but are influenced by cultural beliefs, values and structures within the individual's community. In the context of this study, the decision of school girls to adopt oral PrEP for reducing new HIV infections is influenced by their school authorities. As such, the views and perceptions of educators present a concerning picture about the extent to which they will be willing to promote the adoption of oral PrEP among AGYW. The low perception of the benefits of oral PrEP and the increased barriers identified by the educators must be explored to bridge the gap between the perceptions of educators and the actual needs of school girls at risk of HIV infection.

LIMITATIONS OF THE STUDY

The sample of the study was not selected with the aim of providing a statistically representative sample, but rather to select participants, in the district, with the highest incidence of HIV in the province, who were knowledgeable of the subject at hand. Likewise, the selection of the schools did not represent the total number of schools in the community, but the schools were sampled because of their proximity to the healthcare facilities in the community, with the assumption that this would facilitate interactions and knowledge acquisition on oral PrEP. Even though the population was not representative of the general population studied, this study still achieved its aim.

CONCLUSION

This study revealed that oral PrEP, as a HIV prevention method is perceived by educators to offer few benefits and it runs the risk of undermining the effectiveness of other prevention methods such as condom use and abstinence. These negative perceptions serve as barriers that hinder educator support in the adoption of oral PrEP among school girls. A contextual understanding of the community, its challenges, cultural beliefs and values remains central to the effective implementation of oral PrEP and must be supported by a tailored PrEP communication approach for communities with high HIV infection rates. There is also a need to conduct further studies that highlight the importance of involving key stakeholders, such as the education sector to advance oral PrEP promotion, with effective context specific communication that addresses the cultural beliefs and values of the community.

REFERENCES

- Abdool Karim Q, Kharsany ABM, Frohlich JA, Werner L, Mashego M, Mlotshwa M, et al. (2010). Stabilizing HIV prevalence masks high HIV incidence rates amongst rural and urban women in KwaZulu-Natal, South Africa. *International Journal of Epidemiology*, 40(4): 922-930.
- Braun, V. and Clarke, V. (2006). *Using thematic analysis in Psychology*. *Qualitative Research in Psychology*, University of the West of England, 3(2):77-101. <https://doi.org/10.1191/1478088706qp0630a>
- Celum, C.L., Delany-Moretlwe, S., McConnell, M., van Rooyen, H., Bekker, L., Kurth, A., Bukusi, E., Desmond, C., Morton, J. and Baeten, J.M. (2015). Rethinking HIV prevention to prepare for oral PrEP implementation for young African women. International AIDS Society.
- Dutta, M. (2008). Communicating health: A culture-centered approach. Cambridge: *Polity*, 59.
- Grace, D., Jollimore, J., MacPherson, P., Strang, M.J. and Tan, D.H.S. (2018). The pre-exposure prophylaxis- stigma paradox: learning from Canada's first wave of PrEP users. *AIDS patient care and STDs*. 32(1): 24-30.
- Haire, B.G. (2015). Pre-exposure prophylaxis-related stigma: strategies to improve uptake and adherence – a narrative review. *HIV/AIDS- Research and Palliative Care*, 7: 241-249.
- Hammed, M.K., Adedigba, M.A and Ogunbodede, O.E. (2007). The role of secondary school teachers in HIV prevention in Nigeria. *International Interdisciplinary Journal for Research*, 2(2): 173-179.
- Jones, C.L., Densen, J. D., Scherr, C.L., Brown, N.R., Christy, K and Weaver, J. (2015). The health belief model as an exploratory framework in communication research: Exploring parallel, serial and moderated mediation, health communication. *Journal of Health Communication*, 30(6): 566-576.
- Kharsany, A.B.M., Cawood, C., Lewis, L., Yende-Zuma, N., Khanyile, D., Puren, A., et al. (2019). Trends in HIV prevention, treatment, and incidence in a hyperendemic area of KwaZulu Natal, South Africa. *JAMA Network Open*, 2(11).
- Kharsany, A.B.M. and Karim, Q.A. (2016). HIV infection and AIDS in sub-Saharan Africa: Current status, challenges and opportunities. *The Open AIDS Journal*. 10:34-38.
- Lloyd, S.W., Ferguson, Y.O., Corbie-Smith, G., Ellison, A., Blumenthal, C., Council, B.J., et al. (2012). The role of public schools in HIV prevention: perspectives from African Americans in the rural south. *AIDS Education and Prevention*, 24(1): 41-53.
- Louis, J.P. II. (2016). *Examining constructs of the health belief model as predictors of Haitian men's intention regarding prostate cancer screening*. PhD thesis, Barry University.
- Mavhu, W., Rowley, E., Thior, I., Kruse-Levy, N., Mugurungi, O., Ncube, G. (2018). Sexual behaviour experiences and characteristics of male-female partnerships among HIV positive adolescent girls and young women: qualitative findings from Zimbabwe. *Plos One*, 13(3).
- Nota, P, Govender, E and Vukaphi, Y, 2020. "Male-supported, female-initiated" : exploring a cultural message for communicating around new HIV prevention technologies for women in KwaZulu-Natal, South Africa. *Communicare*, 39 (1).
- Padian, N.S., Buve, A., Balkus, J., Serwadda, D. and Cates Jr, W. (2008). Biomedical interventions to prevent HIV infection: evidence, challenges and way forward. *Lancet*. DOI:10.1016/S0140-6736(08)60885-5.
- Sarma, H. and Oliveral, E. (2013). Implementing HIV/AIDS education: Impact of teachers' training on HIV/AIDS education in Bangladesh. *Journal of Health, Population and Nutrition*, 31(1): 20-27.
- Schenker, I.I. and Nyirenda, J.M. (2002). *Preventing HIV/AIDS in schools*. International Academy of Education.
- Stanhope, M and Lancaster, J.B. 2000. *Community and public nursing*, 5th edition. CV Mosby: St Louis.
- Tarkang, E. E., and Zotor, F. B. (2015). Application of the health belief model (HBM) in HIV prevention: A literature review. *Central African Journal of Public Health*, 1(1), 1-8.
- UNAIDS. (2019). *Communities at the centre*. Available at https://www.unaids.org/sites/default/files/media_asset/2019-global-AIDS-update_en.pdf. Date accessed, 29 September 2021.
- UNAIDS. (2018). *Miles to go*. Available at https://www.unaids.org/sites/default/files/media_asset/miles-to-go_en.pdf. Date accessed, 29 September 2021.
- Whiteside, A., Vinnitchok, A., Dlamini, T. and Mabuza, K. (2017). Mixed results: the protective role of schooling in the HIV epidemic in Swaziland. *African Journal of AIDS Research*, 16(4):305-313.