

Contextual Mediators influencing the Effectiveness of Behavioural Change Interventions: A Case of HIV/AIDS Prevention Behaviours

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Abstract

Background: Although Uganda had recorded declines in HIV infection rates around 1990's, it is argued that HIV/AIDS risk sexual behaviour, especially among the youth, started increasing again from early 2000. School-based computer-assisted HIV interventions can provide interactive ways of improving the youth's HIV knowledge, attitudes and skills. However, these interventions have long been reported to have limited success in improving the youth's sexual behaviours, which is always the major aim of implementing such interventions. This could be because the commonly used health promotion theories employed by these interventions have limited application in HIV prevention. These theories tend to lack sufficient attention to contextual mediators that influence ones sexual behaviours. Moreover, literature increasingly expresses dissatisfaction with the dominant prevailing descriptive survey-type HIV/AIDS-related research.

Objective and Methods: The objective of this research was to identify contextual mediators that influence the youth's decision to adopt and maintain the HIV/AIDS preventive behaviour advocated by a computer-assisted intervention. To achieve this objective, this research employed qualitative method, which provided in-depth understanding of how different contexts interact to influence the effectiveness of HIV/AIDS interventions. The research question was: What contextual mediators are influencing the youth's decision to adopt and maintain the HIV/AIDS preventive behaviour advocated by a computer-assisted intervention? To answer this research question, 20 youth who had previously completed the WSWM intervention when they were still in secondary schools were telephone interviewed between Sept.08 and Dec.08. The collected data was then analysed, based on grounded theory's coding scheme.

Results: Findings demonstrate that although often ignored by HIV interventionists and researchers, variety of contextual mediators influence individual uptake of HIV preventives. These include relationship characteristics, familial mediators, peer influence, gender-based social norms, economic factors and religious beliefs.

Conclusion: To generate concomitant mutual efforts, rather than exclusively focusing on individual level mediators, there is an urgent need to shift to integrative approaches, which

combine individual level change strategies with contextual level change approaches in the design and implementation of interventional strategies to fight against HIV/AIDS.

Key words: *HIV/AIDS interventions, ICT, behavioural change, contextual factors, health promotion, youth.*

1. Introduction

1.1 Applicability of the dominant Health Promotion Theories in HIV/AIDS Prevention

There is a variety of models and theories used in health promotion and education. The most commonly used include: Social Marketing Theory [[1]], AIDS Risk Reduction Model [[2]], the Theory of Gender and Power [[3]], ecological models for health promotion [[4]], PROCEDE PRECEED model [[5]].

Social Marketing Theory

[[1]] define social marketing as:

“a social change technology involving the design, implementation and control of programs aimed at increasing the acceptability of a social idea in one or more groups of target adopters.”

The primary aim of social marketing interventions is to change behaviour. To achieve behavioural change, social marketing employs marketing technologies to analyse, design, implement and evaluate behavioural change interventions. As further demonstrated below, these marketing strategies include consumer analysis, audience segmentation, market analysis, channel analysis, exchange theory and marketing mix [[1]]. Given the intensity of health problems in developing countries, social marketing has been extensively used in a variety of health-related interventions aimed at either promoting the rejection of unhealthy behaviours or/and promoting the acceptance of healthy behaviours. For instance: the integration of social marketing principles with community and national level participation was successful in rendering drug abuse socially unacceptable in Malaysia [[6]], while the application of social marketing principles integrated with multi-sector involvement, mobilisation of political will and deployment of volunteers (local leaders and health promoters) increased immunisation coverage in Colombia [[7]]. In addition, contraceptive social marketing increased the use of contraceptives in the Dominican Republic [[8]]; a social marketing-based campaign increased the use of Kinga condoms in Kenya [[9]]; and the application of social marketing campaigns combined with the education of mothers by community leaders and health workers resulted in the adoption of good feeding practice and healthy babies in Indonesia [[10]].

Despite its potential usefulness, several social marketing and communication scientists [[11]-[12]]; have noted their concerns about the model's individual-blaming behavioural change approach that ignores institutional and societal contexts that powerfully influence the individual's behavioural adoption. In the context of HIV interventions, the importance of this

must not be underestimated, since the social context significantly influences ones sexual behaviours [[13]].

AIDS Risk Reduction Model (ARRM)

Developed by incorporating some constructs of the Health Belief Model, Diffusion of Innovation Model, and Social Cognitive Theory, the AIDS Risk Reduction model provides a basis for understanding motivations and inhibitors regarding the adoption of HIV/AIDS preventive behaviours [[2],[14]-[15]]. The ARRM model suggests several mediators that influence the adoption of HIV/AIDS-related health behaviour, including knowledge of risk behaviours, perceived vulnerability, social norms, sexual partner communication and self-efficacy. Generally, ARRM tends to take up the *victim-blaming* ideology by mainly focusing on cognitive individual behavioural change approaches. As argued by [[16]], overemphasis on cognitive individual behavioural change ignores the social, cultural and economic dimensions that are crucial determinants of sexual behaviours. Although the ARRM may provide a useful frame for HIV prevention, it does not appropriately address contextual determinants of sexual behaviours e.g. it does not address gender-related HIV vulnerabilities and economic constraints.

Other individual-oriented models of health promotion include Social Cognitive Theory [[15]], and the Theory of Planned behaviour [[17]]. Noteworthy however is that although many of the commonly used health education and promotion models are individual-focused, some theories recognise the role contextual factors in shaping individual behaviours. These theories include the Theory of Gender and Power [[3]]; and Ecological Models of health Promotion [[4]] such as PRECEDE PRECEED model [[5]]. However, these theories have only received small attention by HIV preventive researchers and interventionists. In addition, although Connell's theory of gender and power acknowledges the influence of gender-based social norms, the theory does not cater for determinants of sexual behaviours at an individual level. Ecological models for health promotion offer some promise since they advocate considering both individual and contextual mediators. However, the models do not specify particular constructs that should be considered and how such constructs should be investigated.

Overall, the applicability of the prevailing theories and models/theories of health education and promotions in the context of HIV/AIDS prevention have long been questioned [[13], [18]]. These theories tend to over-emphasise individual level influences of health behaviour which fails to address contextual dimensions that significantly influence HIV/AIDS prevention [[19]]. Moreover, literature increasingly expresses dissatisfaction with the dominant prevailing descriptive survey-type HIV/AIDS-related research [[13]]. These descriptive surveys are often 'force-fitted' into the prevailing 'victim-blaming' individual oriented models of health behaviour. Whereas this individualistic conceptualisation of behaviours may be applicable in other health behavioural aspects, sexual behaviours are influenced by interplay of both individual and contextual mediators. This is because, sexual behaviours require commitment from more than one individual [[20]], may not be planned for in advance [[21]], are subjective in nature [[22]], and are influenced by variety of contextual and social-cultural mediators [[23]]. Lack of appropriate theories suggests a need for an abductive qualitative research approach where themes and theories emerge from data collection and analysis rather than being pre-determined [[24]]. Such an approach can provide in-depth understanding of how different contexts interact to influence the effectiveness of HIV/AIDS interventions.

Generally, it is evident that both individual level and contextual level mediators influence HIV/AIDS prevention decisions. Yet, none of the models discussed above effectively accounts for both individual and contextual determinants of sexual behaviours. On one hand, employing individual level models of health behaviour inhibits the understanding of social and environmental drivers of HIV risk-taking behaviours. On the other hand, emphasising social and environmental determinants of health behaviours ignores cognitive mediators that are significant in the actual adoption of HIV preventives. This suggests a shift from behavioural change interventions that address one aspect of behaviour to multilevel approaches that aim not only at understanding and changing individual behaviours, but also focuses on understanding and changing the social structure and environment that can shape individual behaviours.

1.2 Contextual Factors in HIV/AIDS

Connell's theory of Gender and Power [[3]] postulates that sexual power imbalances between men and women, the socially condoned sexual norms, and gender-based economic inequalities influence human behaviour; giving men greater power than females in all areas of life, including sexual relationships. Cultural expectations of women's passiveness and ignorance in sexuality constrain their sexual negotiating power, including negotiating for safer sex practices [[25]]. Other empirical studies report frequent condom use by young women who can initiate and negotiate condom use with their partner [[26]], who are not constrained financially or subject to sexual abuse [[19]]. [[27]] report women's perception of being at high risk of getting HIV/AIDS due to their partners' risky sexual behaviours. [[28]] reports high prevalence rates of AIDS among married women who claim to have not had any sexual affair outside their marriages.

The persistent disproportionate global increase in feminisation of HIV/AIDS presents a challenge since women can increase HIV devastation by infecting their unborn babies. Out of 11.8 million young people aged 15-24 living with HIV/AIDS globally, 7.3 of them are young women; in Sub-Saharan Africa, 67% of young women are living with HIV/AIDS, compared to 33% of their male counterparts [[29]]. In Uganda, adolescent girls are 4-6 times more vulnerable to HIV than their male counterparts [[30]], and women are highly infected at younger ages (30-34) than men (40-44) [[31]]. HIV/AIDS prevalence is higher in women (7.5%) than men (5%), and married/cohabiting/widowed people host the majority of new infections—(42%) [[32]], mainly due to men's extra-marital practices. Gender and HIV/AIDS-related studies (e.g. [[33]]) affirm women's involvement in unwanted sexual encounters due to their inability to assertively refuse such encounters. Women who are more adherent to socially defined sexual norms and beliefs are more likely to experience bad health outcomes [[34]].

Despite these startling figures coupled with persistently reported strong relationship between young women's uptakes of HIV preventive methods and gender constructs, many HIV interventions too often fail to address gender issues in their design and implementation [[22]]. Without understanding the gender context surrounding individual sexual behaviour, particularly in an African context where gender-related social norms heavily constrain women's sexual behaviour, AIDS will continue to have the "face of a woman" as put by Kofi Annan, the former Secretary-General of the United Nations [[35]].

Although research on the influence of social norms on HIV risk behaviour has mainly focused on women, social norms do not put women alone at a high risk of HIV/AIDS; they also increase men's vulnerability to HIV/AIDS contraction. Gender ideologies shape men's sexual behaviour. These norms include approval of men having multiple partners [[36]] and associating masculinity and heroism with men's sexual experience [[37]]. Men's belief in a variety of sexual partners greatly exposes them to being infected with HIV. It is not surprising that in Uganda, the married population hosts the highest rate of HIV/AIDS infection [[32]], which is mainly attributed to men's infidelity practices [[38]]. Norms of masculinity that praise men for their sexual experience drive young men into unsafe sexual experimentation and practice in order to affirm their sexual experience and prove their manhood [[16]]. Such norms constrain condom use since condoms are believed to interfere with their sexual performance [[37]].

Despite the prevailing evidence about the influence of contextual factors in HIV prevention, such contexts are rarely investigated by HIV/AIDS researchers or/and targeted by HIV interventionists [[13]]. Instead, the focus is normally put on addressing individual level factors such as improving individual knowledge, attitudes, adoption intentions, perceived benefits, behavioural lifestyles and skills necessary to adopt healthy behaviour. This approach alone does not appropriately address mediators beyond the individual level that can interfere with behavioural adoption [[4]].

1.3 Background to HIV/AIDS in Uganda

HIV/AIDS is one of the troubling diseases that have globally consumed many lives especially in Sub-Saharan Africa. In response to the high prevalence of HIV/AIDS particularly in young people, world leaders are working together globally to prevent HIV/AIDS. For example, one of the aims of the Millennium Development Goal (MDG) number six is:

“...to have halted by 2015 and begun to reverse the spread of HIV including HIV prevalence among population groups aged 15-24 years.” [[39]].

Less than two years to the set time for achieving the MDGs, the question of whether or not the spread of HIV will have halted in 2015 is yet to be answered.

Although Uganda had recorded decline in HIV infection rates around 1990's, it is argued that HIV/AIDS risk sexual behaviour especially among the youth started increasing again from early 2000 [[40]]. One in four adolescent females aged 15-24 in Western Uganda admitted having sexual relationships with people whom they knew had other concurrent sexual partners [[41]]. The practice of multiple sexual partnerships is often associated with cross-generational sex where females are engaged in often unprotected sex in exchange for money and other favours [[38]].

In 2001, although 53% of females aged 15-19 knew a source of male condoms; only 36% admitted that they could obtain condoms [[42]]. The wider gap between knowledge of safe sexual behaviour and its actual adoption is of great concern in Uganda [[43]]. In response to the high prevalence of HIV/AIDS in Uganda, Uganda adopted a comprehensive HIV/AIDS prevention strategy that acknowledged HIV as a threatening problem. This included involving

the government and civil society in advocating Abstinence, Be faithful, Condom use (ABC), encouraged HIV testing & status disclosure [[44]].

The increased vulnerability of young people to HIV/AIDS obliged the government of Uganda to consider implementation of HIV/AIDS interventions in schools. However, many of the implemented school-based HIV/AIDS intervention did not yield improvement in sexual behaviours [[45]]. Surely, there should be factors that account for this persistently reported HIV/AIDS knowledge-behaviour gap.

1.4 ICT for HIV/AIDS Prevention

ICT (Information Communication Technology) can provide interactive technologies which are instrumental tools in HIV prevention. Such interventions can improve individuals' knowledge of the HIV/AIDS prevention [[46]], improve individuals' perception of adopting healthy sexual behaviours as well as equipping them with skills necessary to prevent themselves from contracting HIV/AIDS [[47]]. However, evidence on changing individuals' HIV/AIDS risky behaviours is limited [[48], [49]]. What could be the reasons the limited success in changing behaviour associated with computer-assisted HIV interventions? Could there be other factors, other than those normally targeted by the computer-assisted HIV interventionists that influence individual uptake of HIV preventive behaviours?

1.5 Objectives of the Current Study

The major objective of this study was to obtain in-depth understanding of contextual mediators influencing the effectiveness of HIV/AIDS interventions from experiences of the youth who are former students of a computer-assisted intervention. This approach provided an opportunity to investigate how the youth are practically dealing with real world challenges of HIV/AIDS amidst contextual mediators. The research question was: What contextual mediators are influencing the youth's decision to adopt and maintain the HIV/AIDS preventive behaviour advocated by a computer-assisted intervention?

2. Methodology

2.1 The Computer-assisted HIV Intervention: The Word Starts With Me (WSWM) Intervention

The WSWM (<http://www.theworldstarts.org>) is a school-based web-based sexuality and HIV/AIDS intervention that has been implemented in secondary schools in Uganda since 2003. With collaboration with the Ministry of Education and Sports, over 200 secondary schools have since implemented the WSWM in Uganda. The WSWM has also been adapted and implemented other countries including Kenya, India, Thailand, Indonesia, and Vietnam. The intervention is sponsored by World Population Foundation (WPF) and implemented by SchoolNet Uganda. The overall objective of the intervention is to "improve sexual and reproductive health and rights of young vulnerable populations and to prevent HIV/AIDS". The intervention also involves an

online counselling and support centre. This support centre is available at (<http://schoolnetuganda.sc.ug/wswmonlinesupport/>).

Other ICT-related components of the intervention include the use of virtual peer educators, interactive safer sex quizzes, and story boards.

2.2 Data Collection and Analysis

The intervention teachers in the former schools where the youth completed the intervention assisted in the identification of the initial 10 participants. The identified participants then assisted to identify 10 more telephone contacts of their peers with whom they had completed the intervention. Rather than using face-to-face interviews, data collection was conducted using telephone-based interviews due to two major reasons: first, it was not possible to get the youth in a single site since they were attending colleges and universities in different parts of the country. Reaching the youth by mobile telephone communication was the only time saving and economically feasible method; Second, given the sensitive nature of investigating self-reported sexual behaviours and sexual-related information, compared to face-to-face interviews or self-administered interviews, telephone interviews can reduce bias and social desirability constraints especially those associated with reporting of sensitive information regarding personal sexual behaviours [[50], [51]].

Interview appointments were made by telephone. Between Sept.08 and Dec.08, telephone interviews were employed to collect data from 20 youth who had previously completed the WSWM intervention when they were still in many unspecified secondary schools. Each interview lasted from 30 to 60 minutes. To stimulate their retrospective thinking, participants were asked how they thought the WSWM intervention impacted on HIV/AIDS-related attitudes, self-efficacy, and sexual behaviours. Also, in order to identify influencing contextual mediators for the adoption of HIV/AIDS preventive measures, participants were asked how easy/hard it is for them to adopt and sustain the sexual behaviours reported to have been obtained from the intervention. The collected data was then analysed, based on grounded theory's three-stage coding process; open coding, axial coding and selective coding [[52]] to generate the results indicated below.

3. Results

3.1 A framework of Contextual Mediators influencing the effectiveness of HIV/AIDS Interventions

Relationship Characteristics

Negative partner attitudes towards condom use

Some youth reported condom use after the intervention. This was due to their improved perceptions of risk of HIV/AIDS infections from unprotected sex:

After the intervention, I realised I was taking a big risk to go live [unprotected]. Nowadays, I am a reformed person and I live responsibly, and I make sure I am protected. Of course we also use condoms...of course we condomise every time. I don't afford cutting my life shorter with slim [AIDS] [male youth].

However, some female youth reported not using condoms due to her partner's bad attitudes towards the use of condoms e.g. associating condom use with cancer, and perceiving them to interfere with sexual pleasure:

...but my boy friend calls them paper bags [condoms], and says it is like eating a sweet without removing it from its cover, and he says they can even cause cancer or even remain in me and cause problems [female youth].

The same participant also reports withdrawn lack of trust in condoms since her partner claims that one can still get HIV even after using condoms due to claims of condoms' failure to be 100 percent effective in HIV/AIDS prevention:

...though I was like a person who was trusting condoms so muchbut my boy friend, tells me that a condom is not even correct percentage. I know even if you use condoms, you still get AIDS, so I now don't support them [female youth].

Partners' lack of interest in condom use, coupled with fears of relationship breakdown that can result in insisting on condom use, undermined consistency in using condoms:

Safer sex would be safe of course...but at times we can fail to agree on it [condom use]. Eeh... he gives you all sorts of excuses; he is not interested..... and when you over insist you can break your relationship because he may end up leaving me and go in for girls who are willing [female youth].

Perception of low HIV risk in long term relationships

The perception of trustworthiness in long term relationships, and perceptions of low HIV risk after both partners have tested for HIV can constrain the use of condoms:

Yea, the WSWM told us the use of condoms for HIV prevention but I really trust her and she trusts me too, We have loved each other for a long time, and we know we don't have AIDS, we really don't need to use condoms [male youth].

Familial Mediators

Lack of parental-child sexual guidance

Although timely and reliable sexual health and HIV/AIDS information from parents can help the youth make appropriate and less risky decisions, also reported was parents' lack of communication about issues related to HIV and pregnancy prevention. One of the reasons for lack of parental-child sexual education is parents' lack of confidence in the subject.

Parents should be open to us in time and tell us to abstain or how protect ourselves from AIDS and pregnancy. Mine weren't [open]...there are certain traps I could have escaped if they had talked to me... You know like for example getting proper information from them [parents] can help us not fall into traps

unknowingly. Before the WSWM I used to kind of try to learn from friends and others like news papers and friends. Yea, sometimes it [information] would be right sometimes you can't trust it. May be they think we are young and are shy to take to us [male youth].

Apparently, due to lack of timely sexual guidance from parents, some youth resort to looking for sexual health information from friends and news papers, yet the reliability of information from these sources is not guaranteed. Lack of reliable sexual education could account for some of the HIV-related misconceptions that some youth had before the intervention. For instance, some of the youth perceived themselves to be “*too young*” to contract HIV/AIDS. However, after the intervention, the youth perceived themselves to be vulnerable to HIV, as they realised from the intervention that the disease does not discriminate in ages:

To some extent yes, unlike before, I now know that I have to be extra careful about whom I move out with. Before I joined the WSWM, I thought I was too young to get AIDS or to die from AIDS; I was completely wrong, these days, I am very much scared of AIDS [male youth].

The intervention created awareness about the HIV/AIDS-related dangers of getting involved in risky sexual practices e.g. having more than one sexual partner at a time. The youth felt morally obliged to refrain from multiple sexual practices in order to avoid spreading HIV/AIDS to innocent partners in a sexual network: A quotation from a youth that was originally sexually undisciplined demonstrates this perception:

I was very problematic before... but when I completed the WSWM, it emphasised how deadly my habits were...Also I learnt from the WSWM that having many sexual partners is dangerous; you can get AIDS and when you get it from one partner, you infect the other partner who is innocent...[male participant].

Lack of parental role models

The youth reported the need for parents to live as role models of HIV/AIDS prevention, by practicing fidelity themselves and refraining from enticing the youth with gifts to seduce them into sex:

When they [parents] fail to be good examples themselves, then what about children? They [parents] are marrying many wives..., seducing young people into sex... sugar daddies enticing young girls with gifts... [female youth].

Family environments

Environmental conditions surrounding the youth can influence their adoption of HIV preventive measures in the form of protective family environment, and experience of coming from polygamous families. Protective family environments reduce the youths' possibilities of getting involved in risky sexual practices:

...for me, I never had a chance to get involved in sexual relationships because my father was very strict and could not allow me get out of the house or give me gap... But when he died, I was like aha I am now free to get involved in sexual relationships. But when I reached school, the WSWM warned me of the dangers... [female youth].

Peer Influence

Negative peer influence

Some youth that were already sexually active decided to abstain from sex due to the highlighted role of abstinence in avoiding the HIV/AIDS-related dangers of sexual activities:

...I mean I have opted for abstinence. Though I had kind of started getting involved in sex, but from the WSWM, I learnt the dangers, and learnt how to control my sexual behaviours. I now have no sexual partner... I would rather wait than do and die [female youth].

However, others reported having been discouraged to adopt sex abstinence by negative peer norms manifested in discriminative actions and bad labels directed to the youth who decide to abstain; such labels included ‘non-starters’ and ‘impotent’. The following narrative illustrates this scenario:

...My friends tell me this, they tell me that, they discourage me from sex abstaining. All sorts of things; that I am infertile, they call me “non-starter” and they brag on me about their sexual achievements...trying to persuade me...and now they kind of cut me off from their company [male youth].

Positive Peer Influence

Personal testimonies of long term abstinence from former students of the WSWM intervention acted as exemplary role models that encouraged one of the youth to opt for sex abstinence:

...At school, our WSWM teachers brought us a former student of the WSWM who shared her testimony to us saying she was at the university yet she had no boy friend and she was still virgin. Her testimony encouraged me to be like her, so, for the boy friend I have now, we agreed to love each other without sex [female youth].

Gender-biased Social Norms

Norms interpreting girls’ condom buying/negotiation as prostitution

Some female participants felt empowered to break the cultural norms and assertively take the lead in condom negotiations including refusing unprotected sex. What seemed to have compelled

them to be actively involved in safer sex decision making was the realisation of the disproportionate burden of pregnancy experienced by women as a result of unprotected sex:

You know how men used to think that women's silence means yes, but for me, after being alerted by the WSWM, I cannot be silent; if condoms have to be used, I say it out, if not, I refuse. I know some girls still fear and can't even suggest condom use, and in the end, if anything goes wrong say in case of pregnancy, girls are the ones to suffer most [female youth].

Girls' insistence on condom use seems to be associated with their knowledge of high levels of vulnerability to HIV/AIDS and pregnancy compared to their boy's counterparts:

...I have one boy friend, and I am not afraid to say no to unsafe sex and stick to it. My no means no, so I can't fall into problems like that because in any case, apart from AIDS, it us girls who fall into big problems e.g. carrying unwanted pregnancy [female participant].

Despite the above positive impact, the African cultural expectations of women's passiveness and ignorance in sexuality constrain the capacity of some female youth to negotiate for use of condoms by attaching labels of prostitutes to girls who buy condoms:

You are trying to protect yourself but here people will call you a prostitute if they see you're a girl and you are buying or carrying condoms. It is like you know you are sending the message to the whole world that you are a spoilt girl, they report you to your parents and they start saying so and so's daughter is loose and spoilt [female youth].

Norms condoning multiple sexual partners for men

There appear to be traditional social-cultural norms that condone and praise men's sexual experience of having multiple sexual partners:

The WSWM gave me some guiding principles that I still apply up to now. I see other boys around boosting about their habits of moving out with many girls. For them they think it is prestigious to have many girl friends. ...like a young man of course, you know like any other 'cool' young man around, I used to have many girls. You know the tradition saying that "omushaija aba owagira abakazi baingi" [a real man should have many women]. But after the WSWM, I released the dangers involved in such practices. I now have one girl friend [male youth].

Norms associating girls' virginity with marital social gains

It appears that the notation of sex abstinence was more heavily emphasized for girls than boys. This is portrayed by intervention teachers' stressing of marriage-related social values of virgin girls:

...I decided to abstain because our teachers told us that a girl's greatest gift she can give to her husband is virginity, so if I lose it now, then I will have lost my gift and I won't have anywhere to go if I lose my virginity [female youth].

However, the practice of emphasising virginity for girls increased their vulnerability to sexual abuse since virgin girls are always perceived to be free from HIV/AIDS:

I used to have more girls, in fact there is a time when me and my friend decided to compete and finish all the girls who we thought were still virgin in my village... I now have one girl friend... [male youth].

Economic Constraints

The boldness and skills gained from the intervention are being applied to assertively confront and challenge old men's manipulations and attempts to seduce young girls into sexual relationships:

Before the WSWM, I did not know how to answer back in case a sugar-daddy approached me. I know how they sugar-daddies can manipulate us and am very much in position to overcome them. Before, I was very shy and to be honest, I wouldn't even look straight into a man's eyes. Now I can look straight into their eyes and challenge their sexual proposals [female participant].

However, as shown by the following extract, financial difficulties constrained uptake of HIV preventives by driving the youth into unwanted sexual advances, and increases the possibilities of exposure to sexual abuse:

...The WSWM taught me that abstinence is the only safest HIV prevention method ...but sometimes it [abstinence] becomes hard because I don't have money and another thing is that I am an orphan; when my parents died it's like I lost hope and I find myself into sex because of survival [female participant].

Christian Religious Beliefs

Christian condemnations of sex before marriage and infidelity practices

Coupled with advocacies from the WSWM intervention, the youth, particularly the born again Christians opted for abstinence and faithfulness in order to fulfil their religious values and obligations:

...in the bible, sex before marriage is a sin, so, whether it is protected sex or not, it remains a sin. Period. I can [abstain] because the WSWM encouraged me to abstain and it also goes against my Christian values to engage in sex before marriage...and of course those who are married have to be faithful cause God does not allow unfaithfulness [female youth].

Religious condemnation of condom use

There were also negative religious perceptions against condom use:

...Although I am abstaining, I wouldn't support condoms, in fact condoms can lead people to sex, and like I think AIDS is a curse from God to those who disobey him by getting involved in such acts [male youth].

4. Discussion, Implications and Conclusion

4.1 Discussion: A framework of Contextual Mediators influencing the effectiveness of HIV/AIDS Interventions

Relationship characteristic

Although some youth reported condom use after the WSWM intervention, relationship characteristic influenced youth's non-adoption of condom use as an HIV/AIDS prevention method. With the notable exception of [[53]], previous research generally concentrates on the influence of individual level negative attitudes towards condom use (e.g. [[54]]).

Yet, the present study reveals that sexual relationship characteristics (e.g. negative partner beliefs about condoms and perceptions of partner trust in long term relationships) influenced individual decisions to use condoms. Some youth could not use condoms due to their partners' negative beliefs about condoms and perceptions of partner trust. These negative beliefs included perceptions that condoms can cause cancer, and perceiving condoms to interfere with sexual pressure. [[37]] also report inconsistent condom use due to perceptions that condoms reduce the pleasure in sex. Unlike other health behaviours, sex behaviours—condom use in particular require consensus and commitment from more than one person [[20]]. It is therefore important that both individuals concerned are equally committed to condom use and have no negative perceptions about its adoption.

Perceptions of trust and love, particularly in long term relationships, undermined young people's condom use. Suggesting condom use in such trusting relationships may be regarded as lack of love and trust, and evidence of promiscuity [[55]]. Yet, such assumptions of lower HIV risks in long-term or loving relationships may not necessarily be true. This is because even if partners knew their HIV status before, one of them can in the long run become infected and bring HIV/AIDS into the relationship. Clearly, consistent condom use requires mutual understanding, consent and commitment from both sexual partners.

Familial Factors

Although there is a paucity of empirical research about the role of parents and guardians in fighting HIV/AIDS among their children, this study's findings are consistent with those of the modest previous research (e.g. [[56], [57]]), in demonstrating the vital role of familial mediators in shaping young people's sexual behaviours. Compared to other contextual mediators, familial mediators significantly influenced young people's sexual behaviours. Although the youth reported improved HIV/AIDS awareness after the intervention, they stressed the need and importance of child-parent sexual education. Compared to other sources, parents were regarded

as reliable sources of sexual health information, including information about HIV/AIDS and pregnancy prevention. Yet, young people reported not getting timely sexual guidance from their parents. Reasons for lack of parental-child sex communication include misconceptions that sexuality education leads to sex experimentation, and lack of parents' self-efficacy in parent-child sex communication especially in cases of opposite sex, condom education, and children born with HIV. [[58]] report adults' feelings of embarrassment and discomfort in discussing sexual-related issues with their children. Findings also demonstrate that good parental role models with healthy sexual behaviours encouraged young people's adoption of HIV preventive behaviours.

Peer Influence

Although much of the focus in literature has mainly concentrated on the role of negative peer influences in encouraging highly risky sexual behaviours (e.g. [[59]]), this study demonstrates the central role of both negative and positive peer influences. On the one hand, there are negative peer influences that discourage the intervention itself, and the adoption of HIV preventive measures e.g. sex abstinence was discouraged through discriminative actions and giving intimidating labels such as 'non-starters, 'impotent'.

In the midst of such peer pressures, rejection and intimidating labelling, sex abstinence among the out-of-school young people was constrained in the quest for peer acceptance and desirability. On the other hand, consistent with findings from related studies e.g. [[60], [61]], the present study demonstrates that positive peer influences encourage adoption of HIV risk reduction strategies e.g. peer role frameworks provided exemplary encouragement for young people to abstain from sex. This was enabled by positive encouragement that created obligatory feelings of adopting an HIV preventive method in an attempt to conform to the behaviours of role frameworks.

Gender-biased Social Norms

Although some female youth reported reduced adherence to norms of women's passiveness in sexual issues, societal norms interpreting girl's condom buying and suggestion as prostitution constrain girls' condom use. This is in pursuit of social desirability, good reputation and escape from social accusations. Findings demonstrate that unsupportive societal environments undermine girls' capacity to negotiate for condom use by attaching labels of 'prostitutes' to girls who buy condoms or negotiate for condom use. Due to such constraining gender-biased societal expectations, some girls refrained from buying condoms, or from proactively and assertively negotiating for condom use, in fear of transgression costs including bad reputations, social accusations and family rejection. The constraints of socially imposed sexual passiveness and culture of silence on women's condom use is also reported in related literature [[25],[34]]. Such unsupportive societal environments also constrain women's ability to seek HIV risk prevention information or even seek HIV treatment [[62]]. Unless such constraining norms are dismantled, women will certainly remain in the midst of the deadliest killer - HIV/AIDS, disproportionately carry the burdens of HIV/AIDS, and increase HIV devastation by infecting their unborn babies.

Findings also indicate that social norms associating men's multiple sexual partnership with heroism and masculinity provide a fertile ground for the spread of HIV/AIDS and reduce the effectiveness of HIV prevention interventions. Some young males felt socially justified in having more than one sexual partner at the same time and were driven into risky sexual experimentation in order to prove their manhood. Such norms interfere with condom use since condoms are believed to interfere with their sexual performance [[37]]. Adherence to infidelity-related norms also greatly exposes men to HIV infections, which consequently also puts women at risk. In Uganda, the highest HIV infection rates are in married couples [[32]]. Many women living with HIV report not to have had any sexual affair outside their marriage [[28]]. Since HIV is mainly transmitted through sexual practices, men's infidelity practices could account for the increased HIV infections in married couples in Uganda [[38]].

Although sex abstinence was generally encouraged for both girls and boys, it was more heavily emphasised for girls compared to boys. The social expectation of girls' virginity and its related marital gains apparently demonstrates the grass root existence of gender-bias in HIV prevention. Such norms of virginity before marriage can increase a girl's vulnerability to HIV/AIDS. As indicated in this study, the perceptions of low HIV risk among virgin girls makes them sexual targets for men with risky sexual behaviours.

Christian Religious Beliefs

Christianity can be a practical weapon to dismantle the prevailing social-cultural and religious norms that approve men's risky polygamous practices, early sex debuts and increased sexual activities. Christian young people felt obliged to refrain from sex before marriage and infidelity practices in order to attain spiritual uprightness. Religious beliefs about ungodliness associated with sex before marriage motivated some young people to delay sex debut, while religious condemnations of infidelity practices motivated some to remain faithful to their partners. Noteworthy also however was religious constraints on HIV/AIDS prevention through condemnations of condom use. [[63]] also relates religious beliefs with reduction in women's HIV risk behaviours. However, religion can also be a constraint to condom use. Some religious beliefs claim that advocating condom use is an ineffective strategy that only encourages infidelity and moral decay, and increases the spread of HIV/AIDS [[64]].

Economic Constraints

Financial constraints drove some youth into unwanted sexual advances through sex in exchange for money and this increased their possibilities of exposure to sexual abuse. [[19]] report related findings as they record frequent uptake of HIV preventives by women who are not constrained financially or subject to sexual abuse. Due to financial constraints, girls' capacity to refuse unwanted sexual advances or suggest condom use was constrained by the pressing need for survival that was traded off against the long run consequences of HIV/AIDS infection.

4.2 Implications for Interventionists and Researchers

4.2.1 HIV Interventionists

The identified contextual factors influencing the youth's sexual behaviour and attitudes have implications for the implementation of HIV interventions. It is important to implement holistic interventions that go beyond influencing individual sexual behaviours, attitudes and skills by supplementing such individual level interventions with contextual level interventions. This is inline with contentions of ecological models for health promotion which posits that effective health promotion interventions should not only intervene at individual level but should also consider interpersonal, organisational, community and public policy contexts [[4]].

The need for broader interventions for HIV/AIDS prevention is also recognised by the UK's AIDS strategy for developing countries, which posits that:

“Successful HIV prevention is about enabling individuals, couples and communities to make healthy choices about personal aspects of their lives – particularly sexual behaviour. These are not just based on information and rational choice; they are also influenced by complicated drivers of human action, including gender roles, inequality, norms around sexuality...” [[65]].

In particular, interventions at an interpersonal/community level should aim at:

- Changing negative partner attitudes towards condom use. This can be done by: (1) involving sexual partners of young people in the intervention; (2) implementing parallel community-based interventions targeted at changing the negative attitudes of community members about condom use.
- Reinforcing positive influences from peers who are role models of HIV prevention, while at the same time addressing negative peer influences that discourage adoption and maintenance of HIV preventive measures.

Beyond the interpersonal level, there is a need to intervene at social-cultural and religious levels in order to change social-cultural and religious norms and values that encourage and reinforce risky sexual behaviours.

Interventions at a social-cultural/religious level should aim at changing the norms and values prevailing in an individual's social networks of peers, families, sexual relationships and religious groups. Specifically, this should include:

- Addressing social norms that tolerate HIV risky practices in men e.g. practices of having multiple sexual partners at the same time. Such norms increase males' vulnerability to HIV by driving them to prove their masculinity, often unprotected as condoms are taken to interfere with their sexual performance. This can be addressed by supplementing school-based interventions by society/community-based interventions.

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- Dealing with norms that condemn females' condom buying and negotiation by relating such practices to prostitution. These norms constrain girls' capacity to take active roles in HIV prevention.

Addressing norms that associate girls' virginity with marital gains. Although such norms encourage girls' engagement in sex abstinence, they at the same time increase their vulnerability to HIV. As indicated in this study, virgin girls are often innocent targets of men, which can increase their vulnerability to HIV. Also, such norms interfere with girls' confidence to seek sexual health advice in fear of exposing their sexual activity.

- Dealing with religious incompatibility issues which constrain condom use and condom advocacy. This can be done by involving religious communities in the design and implementation of HIV interventions.
- Reinforcing religious recommendations of preserving sex for marriage especially for those who are not yet sexually active.
- Reinforcing religious values of partner faithfulness in young people who are sexually active.

Finally, interventions at an economic level can aim at economic empowerment of the youth, girls in particular. This will enable them to take active control of their sexual lives, including: (1) avoiding commercial sex; (2) taking an active role in safe sex negotiations; (3) reducing their exposure to sexual abuse.

4.2.2 Researchers

This qualitative approach has provided rich insights about the contextual mediators that influence the effectiveness of HIV interventions. The devised framework provides insights into varieties of intertwined mediators that influence the applicability of the knowledge and skills gained from HIV interventions to adoption and maintain HIV preventive. However, this framework should be viewed as preliminary and future research should be targeted at fully developing it. This includes: (1) adding more themes/sub-themes, establishing and verifying relationships between themes/sub-themes; (2) determining the relative influence of each theme; (3) developing and validating appropriate scales for each sub-theme.

4.3 Conclusion

This chapter employed qualitative telephone-based semi-structured interviews aimed at investigating mediators influencing the effectiveness of the computer-assisted sexuality and HIV/AIDS intervention (WSWM) implemented in schools in Uganda, from the experiences of the 20 out-of-school young people that completed the intervention while they were still in school. This approach provided an opportunity to investigate how the young people are practically putting to use the HIV knowledge, attitudes and skills gained from the intervention to deal with real world challenges of HIV/AIDS amidst contextual mediators. Previous studies evaluating

school-based HIV interventions have often limited themselves to assessing individual level mediators. The approach sheds light on critical aspects that are germane for sustainable prevention of HIV/AIDS. This study is the first evaluation to investigate contextual mediators influencing the adoption and maintenance of sexual behaviours promoted by the school-based intervention. Similarly to the contentions of ecological frameworks for health [[4]], the findings indicate that sexual behaviours are determined by the interaction of the complex intertwined mediators that go beyond individual characteristics. This implies that exclusive attribution of sexual behaviours to individuals ignores the contextual determinants of sexual behaviours. These mediators include interpersonal characteristics e.g. relationship characteristics, and peer influence. Beyond the interpersonal characteristics are socio-cultural and religious mediators that influence sexual behaviours through gender-biased sexual norms and religious beliefs and values.

Beyond the socio-cultural and religious contexts there are economic mediators that can constrain adoption of HI/AIDS preventive behaviours. Finally, there are religious mediators that influence sexual behaviours through religious norms and values.

Overall, results from this study appreciate the interrelationships between individual sexual behaviour and the environmental mediators that can shape individual behaviour. Mediators beyond the individual level interfere with the practical application of knowledge and skills gained from an HIV intervention.

It is evident that the individual's uptake of risky sexual behaviours is not solely as a personal failure, but rather as a result of intertwined individual and contextual mediators. Experiences from this evaluation suggest that to generate concomitant mutual efforts, rather than exclusively focusing on individual level mediators, there is an urgent need to shift to integrative approaches. Integrative approaches combine individual level change strategies with contextual level change approaches in the design and implementation of interventional strategies to fight against HIV/AIDS. This approach will create supportive social-cultural, religious and economic environments and common visions among the HIV community. While more work is needed to further expand and empirically test the formulated framework, this framework provides a systematic step towards this integrative paradigm shift.

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Conflicts of Interests

No conflict of interest to declare.

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