TECHNICAL NOTE

Key characteristics in designing HIV interventions at a glance

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Abstract

Acquired immune deficiency syndrome (AIDS) is one of the most serious problems confronting human society, with significant healthcare costs, societal concerns, and focus on the youth. Worldwide commitments to reduce AIDS-related mortality and new human immunodeficiency virus (HIV) infections to under 500,000 by the end of 2020 failed last year, as 680,000 people have died from AIDS-related diseases and 1.5 million have become infected with HIV. Therefore, HIV prevention remains one of the world's highest priorities in terms of public health and development. Characteristics of HIV interventions are divided into seven categories: comprehensive health literacy programs, gender-responsive, holistic content, management of intervention by competent specialists, involvement of people living with HIV, utilization of multiple and innovative techniques, and allocating a specific time frame. Identifying essential characteristics of HIV preventive programs may have a beneficial impact on intervention design. In addition, creating effective interventions can minimize the number of new HIV cases of infection and associated diseases, impacting the community and health system. Researchers and policy-makers interested in developing HIV/AIDS-related interventions may find the results of this study useful.

Introduction

Despite significant advances in the worldwide human immunodeficiency virus (HIV) response, the number of new HIV infections and acquired immune deficiency syndrome (AIDS)-related deaths is still too high. Worldwide commitments to reduce AIDS-related mortality and new HIV infections to under 500,000 by the end of 2020 failed last year, as 680,000 people have died from AIDS-related diseases and 1.5 million have become infected with HIV [1]. Death incidence resulting from this illness has decreased by a substantial amount in high-income nations due to infection control. However, a large proportion of patients in underdeveloped nations have yet to be identified or admitted to healthcare system [2]. Therefore, HIV prevention remains one of the world's highest priorities in terms of public health and development. Unless and until HIV prevention is successful, global efforts to control the AIDS epidemic can fail [3]. To date, there is no cure for AIDS; hence, the focus is on HIV prevention through educational and behavioral interventions. These interventions educate young people on strategies to avoid HIV contraction and provide incentives for involvement in healthy behaviors [4]. Because of the devastating health impacts of HIV/AIDS and the cost of life-long care, low-cost and efficient HIV prevention is bound to be profitable [5]. According to

lessons learned from other countries, three principles must be followed for a prevention to be successful: all preventative strategies must be evidence-based, community-owned, and rights-based. Programs can only be effective if they use interventions, which are helpful, accepted, and owned by communities they are meant to help [6].

Key characteristics of preventive interventions can be classified into seven categories: comprehensive health literacy programs, gender-responsive, holistic content, management of intervention by competent specialists, involvement of people living with HIV (PLHIV), utilization of multiple and innovative techniques, and allocating a specific time frame. Figure 1 illustrates these key characteristics.

Comprehensive health literacy programs

Efficacy of health education programs is primarily based on the proper application of theories and models used. Theories and models provide a full picture of current circumstances, and are a way to measure successes and failures regularly. Today, in programs aiming at reducing high-risk sexual activities, several different behavioral and social theories are employed, and educators in this field always need to use theories and models in the creation of preventive interventions [7, 8]. Theories of risk behavior must be sensitive to environmental, developmental as well as social and inter-personal conditions of people's lives. Thus, HIV researchers need to apply advances and criticisms in behavioral health science to translate hypotheses for HIV prevention that developmentally and contextually form risk-taking behaviors [9]. The use of theories to work will help reduce

adverse effects of HIV and AIDS, especially stigma that has been described as a significant obstacle in assessing healthcare as well as quality of life in treatment of diseases [10]. An assessment of various needs should be conducted at the outset of intervention development to identify epidemiological needs as well as target populations and behaviors to be addressed [11]. For young people to benefit from HIV prevention, health services must consider their unique concerns and needs. In terms of content, the basic package of interventions to prevent HIV is the same for both young people and adults [12]. Efforts to prevent HIV transmission also need to be strengthened whenever opportunities arise. Comprehensive HIV/AIDS care must include clinical care for every person, psychological support, socio-economic support, involvement of people living with HIV/AIDS (PLWHA) and their families, and respect for human rights and legal needs [13]. The selection of priority interventions and target populations has to be based on a clear understanding of epidemiology of HIV in the country (i.e., who is being infected, where, how, and why), along with a detailed understanding of the most appropriate interventions for a particular setting. To successfully decrease transmission, effective prevention services must reach geographic areas and populations where HIV is spreading most rapidly, and the interventions must be at sufficient scale and intensity to achieve positive impact [12]. When allocating resources, focusing only on geography could mean omitting chances to use highly successful programs in other places, or to focus on high-risk groups. An approach like this would also have significant ethical and political effects. Furthermore, rural and underdeveloped communities with lower prevalence
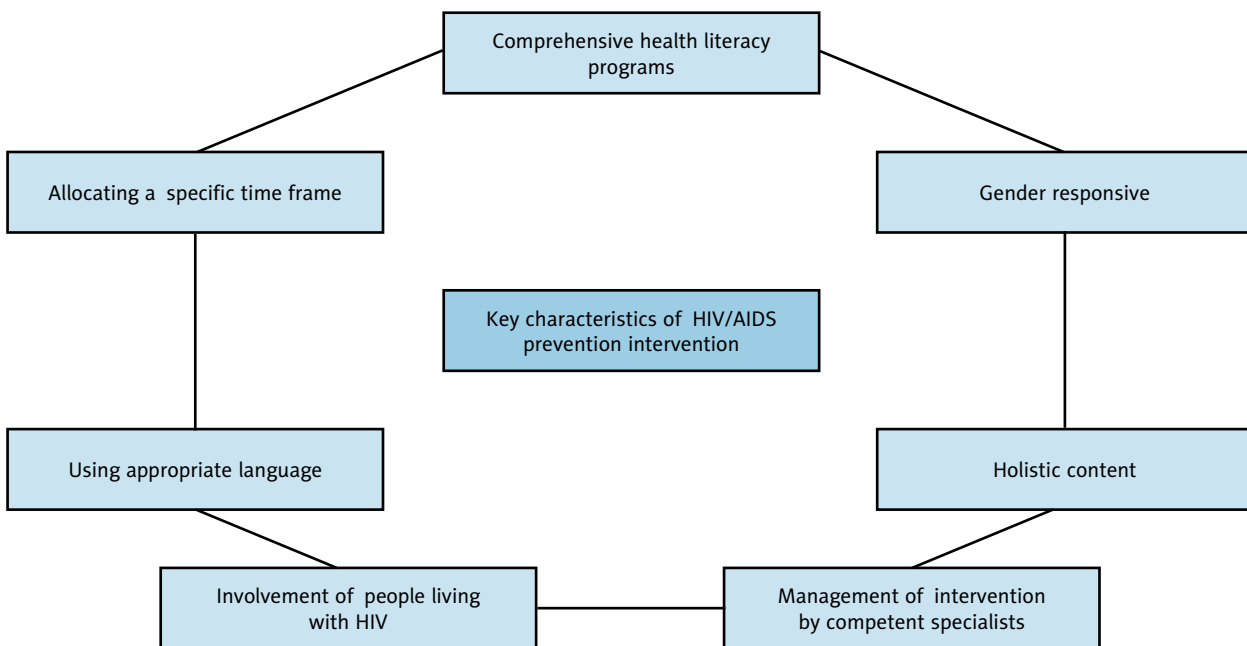

Figure 1. Key characteristics of HIV/AIDS prevention intervention

of HIV usually require more funding to sustain essential services [14].

Life skills education programs, which include specific skills to reduce HIV risk (such as how to use a condom or refuse unwanted sex) as well as skills to address some of the underlying structural drivers of HIV (such as gender inequality or poverty) can demonstrate the socio-cultural dynamics that put young people at risk of infection [15]. Life skills training can have an impact on HIV/AIDS risk behavior that is linked to a variety of processes at the individual (such as self-esteem, awareness of personal risk), inter-personal (such as peer group norms, gender roles) as well as at community and societal levels [16]. According to Bandura's theory of social learning, skills are acquired through the communication, processing, and construction of experiences. Therefore, life skills are intended to be acquired through experience-based learning methods, such as role-playing, modeling, and practice [17]. Thus, it is proposed that a skills-based program for the promotion of children's and adolescents' health and well-being include a core set of skills. In the context of HIV/AIDS epidemic, life skills training attempts to improve young people's knowledge and abilities for healthy relationships, effective communication, and responsible decision-making, so that they and others are protected from HIV infection, and their health is optimized [15].

According to UNAIDS, language impacts beliefs and can influence behavior. The use of proper language with care can help to strengthen the reaction [18]. Because the message must be acceptable to the recipient, the language used to communicate is as important as the content. Choosing proper words, on the other hand, does not always imply replicating the recipients' language. For example, some audiences may expect health messages from a trustworthy source to be written in a certain semi-formal style, and may reject casual or colloquial language. Therefore, to meet expectations and maximize authenticity, legitimacy, credibility, reach, and influence, individuals of a target group must be involved in the language of communication [19]. It is essential that HIV/AIDS intervention management activities recognize not only the significance of using languages that can be fully comprehended by target groups, but also the most effective mediums to reach them. This interaction must be sensitive to different cultures, and trying to avoid stigmatizing people as much as possible [20].

Gender-responsive

A major cause of the HIV epidemic is gender inequality. In particular, gender differences make women and girls (men also) vulnerable to HIV in many ways [12]. Violence or fear of violence prevents many women from negotiating safe sex, and even from obtaining or disclosing their status in HIV testing and counseling services [12]. While it is important to provide HIV services to women and girls, research indicates that with active involvement of men and boys, programs are much more meaningful and enduring. Failure to involve men into prevention, testing, and treatment fa-

cilities harms women and families, especially in the context of heterosexual transmission of HIV and blocking HIV control efforts [21]. Men do not have access to HIV prevention and treatment services due to working, employment-related issues, migration, social expectations, and values in society. Men are always waiting for access to care longer than women and are more likely to be lost to follow-up [22]. Females' outreach for care and treatment services has been more effective in comparison with males. Together, these factors contribute to late diagnosis of HIV (including lower CD4 base values), growth of HIV sequelae, and higher rates of crude mortality in men [21]. Therefore, it is important for program managers, policy-makers, and healthcare providers to understand how to recognize and restore the link between gender inequality and HIV [12].

According to Colvin [23] who stated that some of the reasons why it is difficult for men to access care are because they typically perceive healthcare as a female space controlled by women and children, and female nurses are socially stigmatized and afraid of confidentiality violations. Shifts' hours and operating time of HIV clinics, men's different seasons, quarterly or monthly patterns of labor migrants, and inadequate recognition of men's unique healthcare needs in HIV policy, all lead to a lack of awareness, financing, and advocacy supporting men and HIV as well as men's significantly lower level of social support within family members and weakening of peer relationships comparing with women.

Holistic content

Interventions for HIV prevention have been identified as biomedical, behavioral, or structural. These definitions are based on whether the intervention requires the use of a biomedical product or treatment, involves individuals altering their risk behaviors, or targets environmental changes, under which risk occurs [24]. Behavioral interventions are just one dimension of HIV prevention programs, which also include biomedical and structural dimensions. Therefore, they cannot be expected to achieve effective goals alone. Although behavioral interventions complement the biomedical and structural components of HIV prevention by creating a demand for biomedical interventions or increasing knowledge and risk perception in structural approaches. The following should be considered in the content of interventions [25]: comprehensive condom and lubricant training, harm reduction interventions for substance use, needles and syringe programs and opioid substitution therapy, behavioral interventions, HIV testing and counseling, HIV treatment and care as well as prevention and management of co-infections and other co-morbidities, including viral hepatitis, TB, mental health conditions, and sexual and reproductive health interventions.

It should be emphasized that, even though the mentioned content is implemented in many nations, there are challenges to optimal implementation. Based on a systematic review [26], most of the barriers are classified as characteristics of the context domain, including inter-personal,

social, organizational, and structural. The next big group of difficulties come from the end-users, with barriers including low perception, fear of relationship breakdown, stubbornness, a desire to get pregnant, concerns about privacy, and fear of being stigmatized.

A meta-analysis in 2020 [27] demonstrated that behavioral interventions are promising options for combating the HIV epidemic. They noted that attempts to optimize the continuum of HIV care can be enhanced by integrating various interventions, recognizing that confidence and elimination of stigma and discrimination are crucial for increasing the utilization of services by marginalized critical populations. In addition, contextual adaptation is the basis for maximizing benefits in HIV incidence reduction.

Management of intervention by competent specialists

A competent educator should be non-judgmental, trustworthy, open, honest, a good listener, with good sense of humor, able to establish relationships, having a rapport with students being comfortable with their sexuality, respecting students' rights to choices and decisions, and should be flexible [28, 29]. In a 2020 [30] qualitative study, HIV sector experts were worried about non-specialist GPs' cultural competence and knowledge about sexuality and clinical practice. They were also concerned that non-expert GPs can discriminate against patients or be homophobic, and that GPs' lack of experience could make it hard for patients to obtain PrEP.

Involvement of people living with HIV

Greater involvement of PLWHA is a mobilizing and organizing idea for PLWHA to be more involved in programs and policy solutions. HIV-positive individuals have been at the forefront of developing and implementing successful HIV treatment, care, and prevention programs [31]. Innovative approaches were established to include PLHIV on clinical teams, as community liaisons and community health workers in HIV-related services. HIV-positive people can also act as experts and trainers. WHO and UNAIDS reported that meaningful participation of HIV-positive individuals is critical to a successful, rights-based HIV response. They should be involved in all areas of planning, implementing, monitoring, and assessing global, regional, national, and local health sector responses to HIV, including the development and adaptation of normative policies, tools, and guidelines as well as service delivery [12]. A study conducted at the University of Toronto in 2017 [32] indicated an effective method for engaging individuals living with HIV as patients' instructors for Canadian medical students. Students received hands-on training in HIV diagnosis and treatment, and had unique opportunity to receive feedback from PLHIV who drew upon their life experiences to provide insightful commentary. In addition,

students' self-reported interest and pleasure in supplying HIV-related services improved, and HIV-related stigma decreased significantly.

Utilization of multiple and innovative techniques

Receiving new information and altering an individual's dependency in the community can change and modify the person's attitude. For this reason, the use of group discussion sessions regarding high-risk sexual behaviors focusing on the explanation of physical, psychological, and social harms of high-risk sexual behaviors in short- and long-term, according to cultural and religious contexts in society, will encourage sexual restraint and effective reduction of high-risk sexual behaviors [33]. Nevertheless, non-interactive and non-participatory teaching approaches, irrespective of the form of need, would not have a significant impact on the change of behavior [8]. Some of the providers of HIV care have used motivational interviewing as an important method. In this counseling technique, a healthcare professional considers the patient's willingness to change his or her risky habit, and assists in overcoming the ambivalence involved with changing the behavior [34, 35]. In a systematic review in 2015 [36], diverse technology-based strategies were investigated in order to facilitate cost-effective and fast implementation of new developments in integrated prevention and treatment structures, and sustained behavioral change. The results of the study showed strategies for eHealth and mHealth, which use technology for information and communication, and digital platforms for health allowing to achieve and engage target populations in HIV services. Two meta-analyses [37, 38] reported that computer-based intervention strategies can alter, in addition to behavioral and biomedical consequences, such as condom use and incident of sexually transmissible infections, modalities of safe sex, such as HIV/AIDS perception and condom use self-efficacy.

Also, in countries where sexuality, sexual practices, and HIV/STI are taboo, using the Internet to obtain health information may be more private than going to a healthcare facility [39]. However, there are some problems with using social media to share information about HIV services. Most of these problems include technology, costs, loss of personal interaction, and lack of privacy [40].

Allocating a specific time frame

In general, evidence suggests that HIV prevention approaches appear to be delivered in a large number of sessions over a long period. This high volume of intervention is associated with the achievement of predicted results. Several sessions enhance the awareness learned, and provide the opportunity to young people to clarify and develop the knowledge and implement the skills needed to participate in sexual health behaviors [41-43]. It is worth noting

that the costs and problems with retention in long-term interventions can be avoided with short-term interventions. Multiple-session tests require more personnel and resources than single-session tests. As a result, the number of young people who are eligible for the intervention can be limited as well as difficulty to maintain participants over multiple sessions [44]. A study on how to best allocate resources for HIV services in 2019 [45] found that the shorter the intervention time frame, the more money spent on the treatment, while the longer the intervention time frame, the more money spent on the prevention measures, such as needle-syringe campaigns.

Conclusions

AIDS is one of the most serious problems confronting human society, with significant healthcare costs, societal concerns, and focus on the youth. As a result, to prevent and control this disease, the health system must undertake interventions to provide HIV prevention information and education in a simple language and with appropriate content, in addition to providing health services. Recognizing the important characteristics in HIV prevention interventions can have positive effects on designing the right interventions. On the other hand, designing effective interventions can reduce the incidence of new cases of HIV and related diseases, which affect the community and health system. The results of this study can be useful for researchers and policy-makers who want to develop new ways to educate about HIV/AIDS.

Disclosures

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