Haixia Ma & Alice Yuen Loke (2020) A Scoping Review of an HIV/AIDS-Related Stigma-Reduction Intervention for Professionals and Students from Health-Related Disciplines, International Journal of Sexual Health, 32:2, 94-129.

Title: A scoping review of an HIV/AIDS-related stigma-reduction intervention for professionals and students from health-related disciplines

Abstract

The study sought to review HIV/AIDS-related stigma-reduction interventions for professionals and students from health-related disciplines. 45 studies were included in the review. The majority of interventions adopted a combination of approaches, such as information, building skills, counselling, the involvement of PLWHA, biomedical approaches, and structural approaches. Standardized measurements of stigmatizing attitudes toward PLWHA were lacking. The development of a stigma-reduction intervention towards PLWHA for professionals and students from health-related disciplines should be a priority, to eliminate barriers in accessing health services of PLWHA.

Keywords: stigma; people living with HIV/AIDS (PLWHA); sex worker; professionals and students from health-related disciplines.

Introduction

Stigma has been defined as an undesirable or discrediting attribute which conveys a negative identity and sets a person apart from others (Erving, 1963; Jones, 1984). People living with human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS) (PLWHA) have been stigmatized from the start of the HIV epidemic. In many parts of the world, the metaphors associated HIV/AIDS with plague, death, immoral and deviant behaviours (such as men who have sex with men, sex worker, intravenous drug users), crime, and punishment (Joint United Nations Programme on HIV/AIDS, 2000; Lanier, 2018; Lupton, 2013).

Despite advances in medical and health care, education campaign, and advocacy for the human rights of PLWHA, stigma toward PLWHA exists worldwide and has devastating consequences. Mounting evidence suggests that the stigma toward PLWHA is the fundamental cause of social inequity (Hatzenbuehler, Phelan, & Link, 2013), which could result in violence, social isolation, rejection, unemployment, breach of confidentiality and privacy, and other human rights violations. (Beattie et al., 2012; Cloete et al., 2010; Rahmati-Najarkolaei et al., 2010; Rao, Angell, Lam, & Corrigan, 2008).

Stigma is also the fundamental determinate of inequalities in health and health care services of PLWHA (Hatzenbuehler et al., 2013). The negative attitudes and discriminatory practice of healthcare providers toward PLWHA have been extensively documented. PLWHA may anticipate or experience blaming, labelling, avoidance, excessive protection measures, refusal of treatment, breach of privacy and confidentiality from the health care providers (Ahsan Ullah, 2011; Stutterheim et al., 2014). Such discriminatory behaviour has been recognized as a critical factor that influences service provision and disparities in the health of PLWHA. The fear of stigma may lead to PLWHA to have diminished self-esteem and self-efficacy, lowered quality of life, and increased chance of mental disorders. It may also discourage them from fully disclosing their health conditions and seeking prompt health care services and treatment (Cloete et al., 2010; Nyblade, Stangl, Weiss, & Ashburn, 2009; Stutterheim et al., 2014).

Healthcare providers play an essential role in the lives of PLWHA. Reducing HIV/AIDS-related stigma among healthcare providers is critical to addressing health disparities between PLWHA and the general population. Several reviews have been written on interventions to reduce HIV/AIDS-related stigma among various stakeholders, including healthcare professionals, students in health-related disciplines, PLWHA, caregivers of HIV/AIDS patients, populations at risk, and the general public (Brown, Macintyre, & Trujillo, 2003; Mak, Mo, Ma, & Lam, 2017; Sengupta, Banks, Jonas, Miles, & Smith, 2011). This review focuses specially on the stigma-reduction interventions among the health professionals and students from health-related disciplines. It aims to summarize the characteristics of the study and the intervention, including the study design, settings, participants, intervention type and contents, theoretical framework, the dosage of the intervention, facilitators, measurements, and key findings, in order to inform the development of the future research.

Methods

Search of the literature on HIV/AIDS-related stigma reduction for professionals and students from health-related disciplines

A search for relevant literature contained in the following electronic databases was conducted from the inception of these databases to April 2018: Medline, Embase, Cochrane Library, PsychINFO, CINAHL, Web of Science, Scopus, Social Services Abstracts, PubMed, British Nursing Index, and ProQuest Dissertations and Theses. The keywords used to interrogate these databases were: 1) HIV/AIDS or HIV/AIDS risk group population ("HIV" or "Acquired Immunodeficiency Syndrome" or "AIDS" or "people living with HIV AIDS" or "PLWHA" or "Sexually Transmitted Infection" or "Sexually Transmitted Diseases"); 2) stigma reduction ("stigma reduc*" or "anti-stigma" or "attitude change" or "social distance" or "social isolation" or "anti-discrimination" or "discrimination reduc"); 3) health care providers ("health care worker" or "health professional" or "health personnel" or "health care provider" or "nurs*" or "doctor" or "health setting"); 4) intervention ("intervention" or "program" or "evidence-based" or "health education" or "train*").

Inclusion and exclusion criteria

The criteria for studies to be included in this review were those that: (1) were written in English; (2) aimed at evaluating a stigma-reduction intervention among healthcare providers/students in health-related disciplines; (3) focused on stigma associated with populations living with HIV/AIDS, (4) had at least one outcome measure of knowledge related to HIV/AIDS stigma, or attitudes or behaviour toward PLWHA; and (5) were full-text articles. Since the HIV/AIDS-related stigma exists since the beginning of the epidemic in the early 1980s, no date restrictions were applied to the searches. The period examined was 1981 to April 2018 (Date of our search).

Studies were excluded if they were: (1) not about HIV/AIDS-related stigma, (2) not focused on healthcare providers or students from health-related disciplines; (3) conference abstracts, qualitative studies, or literature reviews; and (4) written in a language other than English.

Literature selection process

A total of 3,350 publications were identified from the electronic databases. Of these, 663 publications were removed due to duplication, and the remaining 2,687 abstracts were screened. Of these, 2,637 publications were excluded. The full texts of the remaining 50 articles were examined in detail, and a further 10 studies were excluded. Five additional relevant studies were retrieved from a manual search of the reference lists of the included studies. Finally, a total of 45 studies were included in this review. A flowchart of the literature search and selection process is given in Figure 1.

Appraisal of the quality of the included studies

The Downs and Black Quality Index was used to evaluate the methodological quality of both randomized controlled trials and quasi-experimental trials. The index consists of 27 questions relating to quality of the reporting (10 items), external validity (3 items), internal validity (bias and confounding) (13 items), and statistical power (1 item) (Downs & Black, 1998). The maximum score of the checklist is 28. Each paper was assigned a grade of "excellent" (24–28 points), "good" (19–23 points), "fair" (14–18 points), or "poor" (<14 points) (O'Connor et al., 2015).

Overall, the 45 studies were considered as of low to moderate quality, with the index scores ranging from 8 to 19 (Downs & Black, 1998). Twenty-five studies were rated as poor, 19 as fair, and only one as good.

It may be argued that the approach of including all studies regardless of methodological quality might lower confidence in the results. However, given that the aim of this review was to identify the types, approaches, formats, and contents to be included in interventions, limiting the studies to be included might have reduced the generalizability of the identified features of the relevant interventions (Lam & Kennedy, 2005). Thus, the decision was made that no study would be excluded based on the outcome of the quality appraisal.

The approach of a scoping review was therefore adopted to include studies broadly about the topic, so as to provide more comprehensive evidence when identifying the key features of related intervention studies that differed from a common literature review (Arksey & O'Malley, 2005; Peters et al., 2015). Details of the appraisal of the quality of these studies are given in Appendix I.

Data extraction and synthesis

The characteristics of the studies and key findings were extracted and tabulated according to author(s), year of publication, country where the research was conducted, study design, settings, participants, intervention type and contents, theoretical framework, dosage of the intervention, facilitators, measurements, and key findings. The characteristics and key results of these studies are summarized and categorized in Table 1 and Table 2, respectively. A meta-analysis was not performed due to the heterogeneity of the various measurements used to measure outcomes in the included studies.

The sample size, mean, and standard deviation were extracted or calculated for each study at the pre-test, post-test, and the last follow-up time points. The effect size was extracted where the data were available in the studies, or calculated where unavailable. The effect size of an individual RCT study was calculated by the difference between two mean values and the pooled standard deviation. The effect size for a quasi-experimental study with control groups was calculated by subtracting the mean change score in a control group from the mean change score in an intervention group, divided by the pooled standard deviation of the pre-test score (Morris, 2008).

The effect size was defined as small (d=|0.2|, $\eta^2 \approx 1\%$), medium (d=|0.5|, $\eta^2 \approx 10\%$), and large (e.g. d=|0.8|, $\eta^2 = 25\%$), respectively (Cohen, 1988). A bias correction component was used to correct for bias when the sample size was smaller than 10 (Morris, 2008). The effect sizes of one group pre-post interventions were not calculated. Also, the effect sizes were not presented for studies without sufficient data (See Appendix II).

Results

Characteristics of intervention studies

Of the 45 included studies, 12 were randomized controlled trials (RCTs,) 14 were quasi-experimental studies with a control group, and 19 were quasi-experimental studies without a control group. Most were conducted in Asia (n=19), followed by Africa (n=7), North America (n=14), Europe (n=4), and Australia (n=1). The size of the sample in the studies varied markedly from 29 to 1,760.

Target population

The majority of the studies focused on HIV/AIDS-related stigma reduction among healthcare providers (n=27), including physicians, nurses, mental health professionals, dentists, physical therapists, occupational therapists, anaesthesiologists, primary care clinic health providers, lab technicians, and other support staff. Seventeen interventions concentrated on students from health-related disciplines, including students from medicine, nursing, counselling, pharmacy, and physical therapy. One study targeted both medical professionals and medical students. Nursing students (n=9) and practising nurses (n=10) were the most studied groups. Details of the characteristics of the participants are summarized in Table 1.

The theoretical framework of the interventions

Various theoretical frameworks were adopted in these studies to guide the design of the interventions. The theories that were adopted included both cognitive and behavioural elements: the social cognitive theory (n=3), the social learning theory (n=1), the social cognitive learning model (n=1), the theory of planned behaviour (n=1), the diffusion of innovation theory (n=1), and Watson's theory of human caring (n=1). Three studies adopted primary health frameworks, namely Green and Kreuter's PRECEDE/PROCEED model (n=1), the World Health Organization's primary health-care model (n=1), and Bloom's Taxonomy conceptual framework (n=1). Three interventions adopted the training of trainers approach, one study employed a workshop-practice model, one study applied the popular opinion leader model, and one study adopted a self-developed conceptual framework on HIV stigma.

Characteristics of the interventions: approaches and content

The characteristics of the interventions are presented in Table 2. The interventions consisted of a single approach or a combination of approaches, including an information-based approach, approaches that involved the provision of biomedical knowledge, the building of skills, counselling/support, contact with and sharing by affected groups, and structural approaches. Below is a description of the approaches, presented in order of their popularity of use in interventions.

Information-based approach

The information-based approach was the most popular, and was adopted in 44 of the 45 included studies. Fifteen studies adopted that approach alone, and the other studies did so in combination with other approaches. An information-based approach included the provision of information on HIV/AIDS, disease prevention, universal precautions, treatment, sexual and reproductive health, the human rights of PLWHA, professional ethics, confidentiality and privacy, discussion of issues related to gender, stigmatization, discrimination, stigma-reduction strategies, and community resources (Brown et al., 2003; Stangl, Lloyd, Brady, Holland, & Baral, 2013). Information was delivered through a brochure, a video, a classroom presentation, advertisements, peer education, or guided group discussions. Of the 15 studies that adopted this as the only approach, 11 observed a significant improvement in the participants' knowledge and attitudes towards PLWHA.

Contact with and sharing by the affected group

The second most popular approach, which was adopted in 21 studies, was to offer participants the opportunity to come into contact with the affected marginalized groups (PLWHA) and share thoughts with them. The interaction between the affected groups and healthcare providers / students in health-related disciplines occurred either directly or by recorded testimonial. The PLWHA would share their feelings and experiences of being a patient with HIV. Healthcare providers also had the opportunity to interact and communicate with PLWHA (Brown et al., 2003; Stangl et al., 2013). Only one study adopted this approach solely, offering a three-hour patient-centred education programme of direct contact with the affected groups. The study demonstrated a statistically significant improvement in the attitudes of students from health-related disciplines towards caring for PLWHA (Chisholm, Ricci, & Taylor, 1999).

Skills building

The third most popular approach adopted in 16 out of 45 studies was the skill-building approach. This refers to the learning of strategies to resolve negative attitudes, coping strategies, and hands-on skills, including skills in communicating with PLWHA (Brown et al., 2003; Stangl et al., 2013). This approach was delivered through role-play, master imagery, reframing and relaxing techniques, group desensitization, and scripting. None of the studies utilized this approach solely in their intervention.

Counselling approach

A counselling approach was adopted in eight studies in combination with other approaches. This approach involved providing support for positive behaviours, such as one-to-one counselling and support groups (Brown et al., 2003; Stangl et al., 2013).

Biomedical approach

The biomedical approach refers to interventions such as taking universal precaution in the provision of care and treatment (Stangl et al., 2013). This strategy was adopted in two studies.

Structural approach

The structural approach refers to interventions that reduce stigma by altering the social and structural determinants of HIV/AIDS-related stigma, such as the socio-ecological model involving multiple levels, including the individual, interpersonal, organizational, community, and policy levels (Stangl et al., 2013). Two multi-level interventions targeted both the individual level and the organizational level, and established a hospital steering committee and hospital guidelines for reducing HIV/AIDS-related stigma.

In summary, a total of 16 studies adopted a single approach, and 29 took a multi-component approach to reduce HIV/AIDS-related stigma among healthcare providers. The information giving, skills building, and contact with and sharing by PLWHA approaches were the most frequently adopted strategies in multi-component interventions. Nine studies combined the information giving and contact with PLWHA approaches, five studies combined the information giving and skills building approaches, and seven studies combined the three most commonly adopted approaches. One study employed four approaches, and two adopted all six approaches.

Delivery

The majority of the interventions were delivered by HIV experts, public health officers, trained healthcare workers, staff members from non-governmental organizations, and PLWHA. The majority of the interventions were delivered face-to-face in healthcare settings or in medical/nursing colleges.

The dosage of the interventions and follow-up time frames

The frequency, duration, and follow-up time of the interventions in these studies varied widely. The interventions ranged from one to 10 sessions, with the shortest being a single lecture of 50-minutes duration, and the longest a weekly review of an HIV case and a didactic discussion among medical residents over six months of practice. The period of the follow-up also varied from immediately after the intervention up to 46 months after the completion of the intervention. Among these interventions, 17 assessed the efficacy of the intervention immediately after the intervention (Table 2).

Outcome-measuring instruments

Stigma refers to negative stereotypes, prejudicial attitudes, and discriminatory behaviours directed towards a subject (Corrigan & Watson, 2002; Oskamp & Schultz, 2005; Thornicroft, Rose, Kassam, & Sartorius, 2007). The instruments to measure stigma that were used in these studies included those on knowledge, attitudes, and behaviours related to stigma (Breckler, 1984; Eagly & Chaiken, 1998; Ostrom, 1969).

Measurements of HIV/AIDS-related knowledge

In the studies that were included, standardized measurements for assessing HIV/AIDS-related knowledge were lacking. Researchers in two-thirds of the studies (n=24) developed their knowledge scale by compiling/selecting items from other studies and reporting on the reliability and validity of their scale, while in the other 13 studies, the validity and reliability of the scales that were used were not reported. One study used a single item to rate the participants' knowledge of infectious diseases, nine studies used 4-10 items, eight used 11-20 items, and 14 used 23-198 items, but six studies did not provide information on the number of items used to assess such knowledge.

The majority of the studies assessed factual knowledge using multiple choice items. The content of most knowledge items covered factual information on HIV transmission and prevention, care and treatment, universal precautions, knowledge of human rights, and informed consent. Examples of the questions included "The AIDS virus is found in high concentrations in saliva, tears, and urine", "HIV can be transmitted by shaking hands, touching, or kissing on the cheek with people living with HIV/AIDS", "In hospital setting, HIV can be transmitted by handling dry linen without gloves, blood splash on intact skin, serving food to HIV-positive patient, coming close to HIV-positive patient", "Condom are an effective means of reducing AIDS transmission", "There is a vaccine known to prevent HIV", etc.

Measurements of attitudes towards PLWHA

The measures of the attitudes towards PLWHA also varied considerably across the studies. A total of 40 studies assessed general attitudes/prejudices/beliefs or stigma toward PLWHA. The majority of the studies (70%, n=28) adopted validated measurements from other studies, and 12 studies used self-developed measurements without validation. One study measured attitudes with a single item, nine studies with 4-10 items, 12 with 12-20 items, and 12 with over 20 items, while the remaining studies did not provide information about the number of attitudes items (n=6).

The content of these measurements included various domains of attitudes, including emotions toward PLWHA (such as a fear of the transmission of disease, avoidance, blaming or judgement, sympathy, or empathy), the patients' human rights, the imposition of measures/restrictions on the patients' rights, self-efficacy, comfort level in caring for patients, the rights and responsibilities of health professionals, and their attitudes towards specific categories of HIV/AIDS patients. The majority of the studies used Likert-scale measurements. For examples, attitudes towards PLWHA was assessed on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree), which included questions such as "Women who are HIV positive should not bear children", "People get infected with HIV because they engage in irresponsible behaviours", "I feel more sympathetic toward people who get AIDS from blood transfussion than those who get it from intraveous drug abuse", "A health professional with HIV/AIDS should not be working in any area of health care that requires patient contact".

Measurements of behaviours towards PLWHA

A total of 22 studies measured the behaviours of healthcare workers toward PLWHA. However, there was also a lack of standardized measurements of behaviour. Approximately half (n=13) of the measurements were adopted or modified from previous studies and validated. Three studies used a single item to assess the participants' willingness to care for PLWHA or the practise of standard precautionary measures when deciding whether or not to provide such care. Ten studies used 2-5 items, five studies used 8 or more items, and three studies did not provide information about the number of items that were used to assess the willingness to provide care for PLWHA.

The content of the measurements of behaviour included a willingness/reluctance to care for PLWHA, acts of discrimination or the intention to discriminate, and HIV/AIDS-related infection control behaviour. The majority of the studies used a Likert-scale to assess the behaviour of the participants. Examples of such questions were "It will be hard for me to deal with a large number of HIV/AIDS patients in the future", "Because I suspected a patient to be HIV-positive, I let another health care worker deal with that patient", "I give the same amount of attention to all my patients regardless of their HIV status", etc.

Outcomes of the interventions

HIV/AIDS-related knowledge

A total of 37 studies measured HIV/AIDS-related knowledge as outcomes (Table 2). The majority of the studies (n=31/37) reported a significant improvement in HIV/AIDS-related knowledge. Two studies with multiple approaches achieved a long-term improvement in HIV/AIDS-related knowledge at the 12 and 46 months follow-up session. One study reported some improvement, but it was without statistical significance. Two quasi-experimental studies that employed a single approach (information or contact) found no statistically significant improvement in the HIV/AIDS-related knowledge of the participants.

The effect size for HIV/AIDS-related knowledge was extracted or calculated from 12 studies (Table 3), including one pre-post study. The short-term effect size ranged from small to large (d=0.06-2.89). One RCT study achieved a large effect size with a 5-day information only approach (d=0.86), and seven studies that combined information with skills building and/or contact strategies achieved a large effect size immediately after the intervention. The above interventions lasted from 100 minutes to 13 hours.

One RCT study reported a large effect size (d=38.8) at the 9-month followup session (Operario et al., 2016). It combined information giving, skills building, and contact strategies in an intervention programme that consisted of one week of group training and two months of clinical practice. Two sections of the study focused on presentations, case studies, a group discussion on problem solving and feedback.

Attitudes towards caring for PLWHA

The assessments of the attitudes towards PLWAH measured the general attitudes towards PLWHA, the affective attitudes towards caring, and self-efficacy and the perception of the level of skills required to provide such care.

General attitudes towards PLWHA

A total of 40 studies assessed general attitudes towards PLWHA (Table 2). The majority of them (n=28) measured attitudes towards AIDS or PLWHA, 11 measured HIV/AIDS-related stigma or prejudice, and one study assessed attitudes towards HIV/AIDS. In a total of 31 studies, a significant improvement was observed in attitudes towards PLWHA. In five studies a long-term effect was observed at the 12-month follow-up session. Among the five studies, three adopted a training the trainer model, and another two were guided by social and behavioural theories. Two studies did not report the statistical results. Seven studies reported improved attitudes, but these did not reach the level of significance.

The effect size for attitudes towards PLWHA were extracted or calculated from 13 studies, including one pre-post study. As shown in Table 4, the short-term effect sizes ranged from small to large (d=0.02-19.98). One RCT guided by the social cognitive theory reported a small long-term effect size at the one-year follow-up session (d=0.30).

Affective attitudes towards caring for PLWHA

A total of 14 studies assessed the affective attitudes towards caring for PLWHA (Table 2). Nine studies measured the fear, worry, anxiety, blame, or mood related to care. Six reported a significant improvement in the fear or mood related to caring for PLWHA. One study, which involved the simple giving of information, reported reduced anxiety levels but without statistical significance. Two studies combining the giving of information and contact with PLWHA did not achieve a statistically significant improvement in fear of contagion among the participants.

Five studies measured the comfort level in caring for PLWHA. Four studies with two or three approaches (information, counselling, in combination with skills building or contact with PLWHA) achieved a significant improvement in the level of comfort in caring for PLWHA after the intervention. The effect of two studies was maintained at the 7-month and 46-month follow-up sessions, respectively. However, one study with three 1-hour sessions that combined the information, skills building, and contact approaches failed to achieve a significant improvement in the level of comfort in caring for PLWHA (Kemppamen, Dubbert, & Williams, 1996).

Self-efficacy and perceived skills for caring

Eight studies measured the participants' self-efficacy and perceived skills in caring for PLWHA (Table 2). In five studies that measured the participants' self-efficacy in caring, and in two studies that measured their level of skills in caring for PLWHA significant improvements were reported in self-efficacy and skills after the intervention. However, one study of nurses did not find improvements in self-efficacy in caring.

Behaviour towards PLWHA

Among 22 studies that measured changes in behaviour towards PLWHA, 14 measured the participants' willingness/reluctance to care for PLWHA (Table 2). Of these, a significant improvement in the willingness to care was reported in 10 studies. In two studies, the effect was maintained at the 12-month and 46-month follow-up sessions, respectively. However, in three experimental studies (one RCT, two quasi-experimental studies) a statistically significant improvement was not achieved in the willingness of the participants in the intervention to care for PLWHA.

The effect size of the willingness to care for PLWHA was extracted or calculated from six studies. As shown in Table 5, the short-term effect sizes ranged from small to large (d=0.16 to 0.58, η^2=51.6-53.5%). One RCT study found that a large effect size in the willingness to care for PLWHA was achieved in both arms of the intervention (an informative lecture plus an interactive game with PLHWA, and an educational lecture plus a 90-minute interpersonal sharing session lead by PLWHA) and that the effect maintained at the one-month follow-up session (Mak, Cheng, Law, Cheng, & Chan, 2015).

Acts of discrimination by the participants or their intention to discriminate were measured in four studies (Table 2). Three studies with multiple approaches achieved a significant reduction in discriminatory behaviour on the part of the participants toward PLWHA after the interventions, while one study that employed an information only approach failed to achieve a statistically significant reduction in discriminatory behaviour.

HIV/AIDS-related infection control practices were assessed in five studies. Three studies that combined information and skills building strategies with a contact or counselling skills approach achieved a significant result in HIV/AIDS-related control behaviours, as did another study featuring a seven-week training intervention. However, another two-day intervention using an information only approach did not achieve a statistically significant improvement in

HIV/AIDS-related control behaviours (Charuluxananan, Migasena, Somboonviboon, Chinachot, & Kunthollaxami, 2000).

Discussion

The purpose of the review was to describe current evidence on HIV/AIDS-related stigma interventions among professionals and students from health-related disciplines. The majority of the included studies demonstrated promise in improving the participants' knowledge, attitudes, and willingness to care for PLWHA. The characteristics of the interventions and the implications for developing a stigma-reduction intervention related to PLWHA are discussed below.

Intervention approaches

The social cognitive theory, cognitive behavioural theory, and intergroup contact theory the most frequently adopted frameworks. It has been suggested that theory-guided interventions are more likely to produce significant results in improving behaviour than those not guided by theory (Avery, Donovan, Horwood, & Lane, 2013; Noar, Black, & Pierce, 2009). It is recommended that the social cognitive theory, cognitive behavioural theory, and intergroup contact theory be adopted when developing interventions, in order to reduce the stigmatized attitudes of health professionals towards PLWHA.

This review identified various approaches that were employed in stigma-reduction interventions for professionals and students in health-related disciplines. These included the giving of information, the building of skills, counselling, contact with or sharing by PLWHA, biomedical protection, and structural approaches. In the majority of the interventions, various combinations of multiple approaches were adopted, making it difficult to conclude which was the best combination of approaches for reducing stigma. However, there was evidence that the single approach of giving information over a short period was less likely to generate as large an effect size as interventions in which multiple approaches were used over a longer duration. Thus, it is concluded that in interventions to reduce the stigmatized attitudes of health professionals towards PLWHA multiple approaches and a longer duration / multiple sessions should be adopted to achieve the intended results.

Contact with and sharing by PLWHA was identified as the second most commonly adopted approach in these interventions. This approach is also widely used in interventions to reduce stigmatized attitudes towards other disadvantaged populations or people with certain conditions, such as those with mental illness, sexual minorities, and patients with tuberculosis (Chaudoir, Wang, & Pachankis, 2017; Couture & Penn, 2003; Heijnders & Van Der Meij, 2006). This approach is based on the intergroup contact theory (G. Allport, 1954). In this theory, four conditions must be met for optimal intergroup contact: equal status, common goals, intergroup cooperation, and institutional support (G. W. Allport, Clark, & Pettigrew, 1954). It has been suggested that contact between healthcare providers and PLWHA reduces prejudice toward the PLWHA (Mak et al., 2017).

The findings from this review indicate that interventions are especially useful in improving a participant's HIV/AIDS-related knowledge. However, the results related to attitudes and behaviours were mixed, although the overall evidence was positive. There was collinearity between the various dimensions of stigma (cognitive, affective, and willingness to care), in that one dimension may affect the other (Hanisch et al., 2016). Future studies should examine the relationships among these various dimensions.

Outcome measures

Standardized measurements of knowledge, attitudes, and behaviours were lacking in the intervention studies that were included. This was identified as an unsolved problem in the field (Brown et al., 2003; Mahajan et al., 2008; Mak et al., 2017; Sengupta et al., 2011; Stangl et al., 2013). Most of the studies used self-developed measurements, and many failed to report on the validity and reliability of the measurements. The priority is to first define the various dimensions of stigma, and then to develop standardized ways of measuring the effectiveness of stigma-reduction interventions.

Implications

This review of interventions to reduce HIV/AIDS-related stigma among healthcare providers and students from health-related disciplines has several implications. First, multiple approaches should be adopted in interventions to reduce stigma related to PLWHA, such as the giving of information, the building of skills, and contact with or sharing by PLWHA. Social cognitive theory and intergroup contact theory may also guide the development of the contents to be included in such interventions. Second, measurements of stigmatized attitudes should be carefully selected or developed. A validated and standardized method of measurement should be developed and tested before an intervention is implemented.

Limitations of the study

There are several limitations to the review. First, due to the heterogeneity of the interventions, study design, and measurements, a meta-analysis could not be conducted. Second, as many of the studies were rated as being of poor quality and utilized invalidated measurements, the results should be interpreted with caution.

Conclusion

Overall, the review suggested the HIV/AIDS-related stigma-reduction interventions among healthcare providers and students from health-related disciplines show promise. These results imply that developing standardized measurements should be the top priority in the development of an intervention to reduce stigma related to PLWHA.

Acknowledgement

Funding

The research did not receive any specific grant from funding agencies in the public, commercial or non-for-profit sectors.

Disclosure of interest

The authors report no conflict of interest.

References

Ahsan Ullah, A. (2011). HIV/AIDS-related stigma and discrimination: A study of health care providers in Bangladesh. *Journal of the International Association of Physicians in AIDS Care, 10*(2), 97-104.

Allport, G. (1954). The nature of prejudice. Reading, MA: Addison-Wesley.

Allport, G. W., Clark, K., & Pettigrew, T. (1954). The nature of prejudice.

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International journal of social research methodology, 8*(1), 19-32.

Avery, K. N., Donovan, J. L., Horwood, J., & Lane, J. A. (2013). Behavior theory for dietary interventions for cancer prevention: a systematic review of utilization and effectiveness in creating behavior change. *Cancer Causes & Control, 24*(3), 409-420.

Beattie, T. S., Bhattacharjee, P., Suresh, M., Isac, S., Ramesh, B., & Moses, S. (2012). Personal, interpersonal and structural challenges to accessing HIV testing, treatment and care services among female sex workers, men who have sex with men and transgenders in Karnataka state, South India. *J Epidemiol Community Health, 66*(Suppl 2), ii42-ii48.

Breckler, S. J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of personality and social psychology, 47*(6), 1191.

Brown, L., Macintyre, K., & Trujillo, L. (2003). Interventions to reduce HIV/AIDS stigma: what have we learned? *AIDS Education and Prevention, 15*(1), 49-69.

Charuluxananan, S., Migasena, R., Somboonviboon, W., Chinachot, T., & Kunthollaxami, A. (2000). Effect of national seminar on AIDS and anesthesia upon knowledge, attitude and practice concerning HIV among Thai anesthesia personnel. *Journal of the Medical Association of Thailand= Chotmaihet thangphaet, 83*(2), 174-181.

Chaudoir, S. R., Wang, K., & Pachankis, J. E. (2017). What reduces sexual minority stress? A review of the intervention "toolkit". *Journal of Social Issues, 73*(3), 586-617.

Chisholm, M. A., Ricci, J.-F., & Taylor, A. T. (1999). Implementation and evaluation of an HIV/AIDS intervention program to improve student attitudes toward providing care. *American Journal of Pharmaceutical Education, 63*(1), 72-77.

Cloete, A., Strebel, A., Simbayi, L., van Wyk, B., Henda, N., & Nqeketo, A. (2010). Challenges faced by people living with HIV/AIDS in Cape Town, South Africa: Issues for group risk reduction interventions. *AIDS Research and Treatment, 2010*.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences. 2nd. In: Hillsdale, NJ: erlbaum.

Corrigan, P. W., & Watson, A. C. (2002). Understanding the impact of stigma on people with mental illness. *World psychiatry, 1*(1), 16.

Couture, S., & Penn, D. (2003). Interpersonal contact and the stigma of mental illness: A review of the literature. *Journal of mental health, 12*(3), 291-305.

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of Epidemiology & Community Health, 52*(6), 377-384.

Eagly, A. H., & Chaiken, S. (1998). Attitude structure and function.

Erving, G. (1963). *Stigma: Notes on a spoiled identity*: Jenkins, JH & Carpenter.

Hanisch, S. E., Twomey, C. D., Szeto, A. C., Birner, U. W., Nowak, D., & Sabariego, C. (2016). The effectiveness of interventions targeting the stigma of mental illness at the workplace: a systematic review. *BMC psychiatry, 16*(1), 1.

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American journal of public health, 103*(5), 813-821.

Heijnders, M., & Van Der Meij, S. (2006). The fight against stigma: an overview of stigma-reduction strategies and interventions. *Psychology, Health & Medicine, 11*(3), 353-363.

Joint United Nations Programme on HIV/AIDS. (2000). HIV and AIDS-related stigmatization, discrimination and denial: forms, contexts and determinants. *Research studies from Uganda and India*.

Jones, E. E. (1984). *Social stigma: The psychology of marked relationships*: WH Freeman.

Kemppamen, J. K., Dubbert, P. M., & Williams, P. M. (1996). Effects of group discussion and guided patient care experience on nurses’ attitudes towards care of patients with AIDS. *Journal of Advanced Nursing, 24*(2), 296-302.

Lam, R. W., & Kennedy, S. H. (2005). Using metaanalysis to evaluate evidence: practical tips and traps. *The Canadian Journal of Psychiatry, 50*(3), 167-174.

Lanier, M. M. (2018). *The impact of HIV/AIDS on criminology and criminal justice*: Routledge.

Lupton, D. (2013). *Moral threats and dangerous desires: AIDS in the news media*: Routledge.

Mahajan, A. P., Sayles, J. N., Patel, V. A., Remien, R. H., Ortiz, D., Szekeres, G., & Coates, T. J. (2008). Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. *AIDS (London, England), 22*(Suppl 2), S67.

Mak, W. W., Cheng, S. S., Law, R. W., Cheng, W. W., & Chan, F. (2015). Reducing HIV-related stigma among health-care professionals: a game-based experiential approach. *AIDS Care, 27*(7), 855-859.

Mak, W. W., Mo, P. K., Ma, G. Y., & Lam, M. Y. (2017). Meta-analysis and systematic review of studies on the effectiveness of HIV stigma reduction programs. *Social Science & Medicine, 188*, 30-40.

Morris, S. B. (2008). Estimating effect sizes from pretest-posttest-control group designs. *Organizational Research Methods, 11*(2), 364-386.

Noar, S. M., Black, H. G., & Pierce, L. B. (2009). Efficacy of computer technology-based HIV prevention interventions: a meta-analysis. *Aids, 23*(1), 107-115.

Nyblade, L., Stangl, A., Weiss, E., & Ashburn, K. (2009). Combating HIV stigma in health care settings: what works? *J Int AIDS Soc, 12*(1), 15.

O’Connor, S. R., Tully, M. A., Ryan, B., Bradley, J. M., Baxter, G. D., & McDonough, S. M. (2015). Failure of a numerical quality assessment scale to identify potential risk of bias in a systematic review: a comparison study. *BMC Research Notes, 8*(1), 224.

Operario, D., Wang, D., Zaller, N. D., Yang, M.-F., Blaney, K., Cheng, J., . . . Szekeres, G. (2016). Effect of a knowledge-based and skills-based programme for physicians on risk of sexually transmitted reinfections among high-risk patients in China: a cluster randomised trial. *The Lancet Global Health, 4*(1), e29-e36.

Oskamp, S., & Schultz, P. W. (2005). *Attitudes and opinions*: Psychology Press.

Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of experimental social psychology, 5*(1), 12-30.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International journal of evidence-based healthcare, 13*(3), 141-146.

Rahmati-Najarkolaei, F., Niknami, S., Aminshokravi, F., Bazargan, M., Ahmadi, F., Hadjizadeh, E., & Tavafian, S. S. (2010). Experiences of stigma in healthcare settings among adults living with HIV in the Islamic Republic of Iran. *J Int AIDS Soc, 13*(1), 27.

Rao, D., Angell, B., Lam, C., & Corrigan, P. (2008). Stigma in the workplace: Employer attitudes about people with HIV in Beijing, Hong Kong, and Chicago. *Social Science & Medicine, 67*(10), 1541-1549.

Sengupta, S., Banks, B., Jonas, D., Miles, M. S., & Smith, G. C. (2011). HIV interventions to reduce HIV/AIDS stigma: a systematic review. *AIDS and Behavior, 15*(6), 1075-1087.

Stangl, A. L., Lloyd, J. K., Brady, L. M., Holland, C. E., & Baral, S. (2013). A systematic review of interventions to reduce HIV‐related stigma and discrimination from 2002 to 2013: how far have we come? *J Int AIDS Soc, 16*, 18734.

Stutterheim, S. E., Sicking, L., Brands, R., Baas, I., Roberts, H., Van Brakel, W. H., . . . Bos, A. E. (2014). Patient and provider perspectives on HIV and HIV-related stigma in Dutch health care settings. *AIDS Patient Care and STDs, 28*(12), 652-665.

Thornicroft, G., Rose, D., Kassam, A., & Sartorius, N. (2007). Stigma: ignorance, prejudice or discrimination? *The British Journal of Psychiatry, 190*(3), 192-193.