

REVIEW ARTICLE

Interventions to Reduce HIV-related Stigma in the Healthcare Settings: A Scoping Systematic Review

Natalia Che Ishak, Hayati Kadir Shahar, Rosliza Abdul Manaf

Department Community Health, Faculty Medicine & Health Sciences, University Putra Malaysia (UPM), 43400, Serdang, Selangor, Malaysia

ABSTRACT

HIV-related stigma will discourage the efforts in preventing new infections and engaging people to receive treatment, care and support programmes. Identifying the valuable interventions programmes to reduce HIV-related stigma in a healthcare setting is vital in order to deliver the best health services. A scoping systematic review was conducted. Articles were searched based on Pubmed and ScienceDirect search engines. The key words used were HIV stigma, intervention and healthcare. Published English articles in the past ten years involving HIV stigma intervention studies, and studies that involved healthcare workers in a healthcare setting were included. Reviewed articles, systematic review and meta-analysis articles were excluded. Primary screening of titles and abstract of 85 articles were done. Secondary screening of 19 articles resulted in 8 articles, included in this manuscript. Most of the reviewed articles showed, application of the Integrated Theoretical Model in the intervention programme as a guide and utilising combined intervention components are effective tools in delivering the intervention programme. The stigma reduction-intervention programme should focus on the intervention components as a whole including training of HCW, role plays, group discussions, games, sharing of information and contacts with PLHIV as well presentations and lectures. An integrative model of behavioural prophecy is perceived and it is particularly essential for interventions that focus on creating and fortifying the aim in conducting the chosen behaviour.

Keywords: HIV-related stigma, Healthcare workers (HCW), People living with HIV (PLHIV), HIV reduction-intervention

Corresponding Author:

Hayati Kadir Shahar, PhD
Email: hayatik@upm.edu.my
Tel: +603-97692424

INTRODUCTION

It is difficult to anchor the people living with HIV (PLHIV) to be involved in HIV treatment, care, and support programmes if HIV-related stigma still exists in the healthcare environments. Besides that, it will also discourage the efforts in preventing HIV new infections. It is crucial to identify the valuable interventions programmes to reduce HIV-related stigma in the healthcare setting, in order for the best health services may be provided to people living with HIV (PLHIV).

Stigma refers to an attribute that associated a person to reduce the bearer from a whole and usual person to undesirable quality (1). HIV-related stigma is defined as the negative and prejudice attitudes as well as abuse directed at PLHIV (2). HIV stigma is related to social isolation and the feelings of rejection which can lead to delayed of engagement in healthcare among PLHIV (2).

The impact of HIV-related stigma in healthcare settings

is enormous. Public health inspired by HIV-related stigma to the undertaking of the fight of HIV and AIDS in various methods. It results in the deferral of preventive behaviours, deferral of diagnosis, aversion of the health-seeking behaviours, and condensation of excellence in treatment obtained by PLHIV (3). HIV-related stigma will keep PLHIV from looking for health amenity on the off chance that they would be officially confronted with unwelcoming treatment or their secrecy would not be regarded (4). It is crucial to initiate effective intervention programmes to reduce HIV-related stigma in healthcare environments and remove an obstacle in accessing prevention and treatment services for PLHIV. Individual or health care organisation involvement is important to solve the challenges. Implementation, scale-up of targeted, coordinated, time-bound, evidence-based and multisectoral actions are required to eliminate HIV-related stigma among healthcare workers (HCW) (5). Levels of stigma comprise of experiences, attitudes, and practices of the HCW should be monitored in healthcare settings. Besides that, it is important to provide continuous medical and educational training for the health workers to address HIV-related stigma in healthcare settings. A supportive and conducive environment is vital in providing a stigma-free healthcare setting by reviewing and reforming laws,

policies and institutional practices. In a meanwhile, the healthcare workers labour rights can be protected through the effective implementation of occupational health and safety standards. Meaningful participation and involvement of PLHIV, key populations (KPs) and community-based organization (CBO) are important in reducing HIV-related stigma in the healthcare setting (5).

HIV-related stigma reduction-interventions are almost certainly valuable if they are founded by hypothesis and evidence-based intervention approaches as well as cooperative planning (6). Researches noted that regulation for the evolution of HIV-related stigma reduction-interventions in numerous settings is compatible with the use of socio-psychological hypotheses (7). The health-related behavioural research and interventions can be well described through The Health Belief Model, The Theory of Reasoned Action, and The Social Cognitive Theory as well as The Integrated Theoretical Model.

This manuscript aims to identify the best intervention components and model to reduce HIV-related stigma in healthcare settings and improve healthcare services to PLHIV.

MATERIALS AND METHODS

A systematic review was conducted and articles were searched based on Pubmed and ScienceDirect search engines. A literature search was undertaken with the aim to identify published studies on HIV stigma that focused on intervention to decrease the HIV stigma among the HCW. The key words used were HIV stigma, intervention and healthcare. Figure 1 PRISMA 2009 flow diagram illustrates the flow of literature search. The search focused on the publications of English articles published from the year 2008 to 2018. Reviewed articles, systematic review and meta-analysis articles were excluded. The inclusion criteria were: (1) articles that involved HIV stigma intervention studies, and (2) studies that involved healthcare workers in a healthcare setting. The initial search revealed 82 articles with full text searched from the search engines and an additional 18 articles were found from other sources. Duplication articles were removed and 85 articles underwent primary screening for relevance articles based on titles and abstract. The abstracts of the articles were read thoroughly. After screening, 19 articles underwent secondary review for eligibility. Finally, 8 articles were included in the final literature search. The flow diagram is illustrated in Figure 1 and the result is summarised in Table I.

RESULTS

Published research on HIV Stigma Intervention among Healthcare Workers from the year 2008 – 2018, discussing intervention component, model/theory and

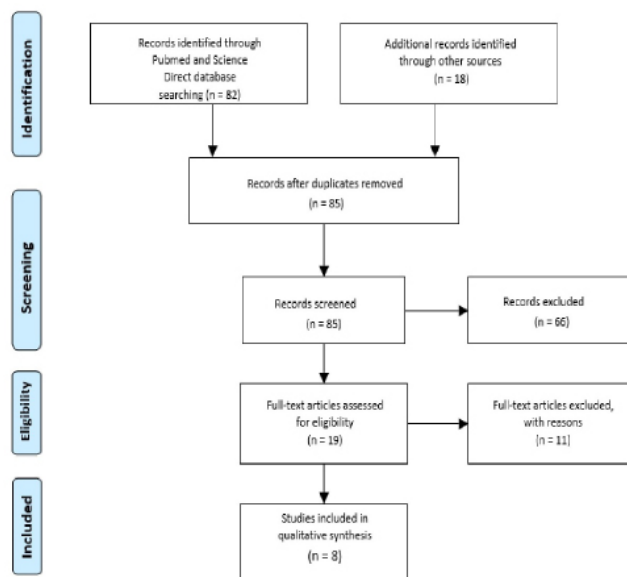


Figure 1: PRISMA 2009 Flow Diagram Intervention to Reduce HIV-Related Stigma in the Healthcare Settings

results of the intervention involved were discussed in Table I.

DISCUSSIONS

HIV-related stigma in healthcare settings is predictable in noticeable circumstances. Therefore, it must be attended crucially by the HCW (8). Besides that, HIV-related stigma imperils the dispute against the epidemic as well. Therefore, it is a necessity that healthcare policy- inventors and bureaucrats highlighting the HIV-related stigma reduction- interventions in healthcare environments to tackle HCW negative attitudes and hypothetical biases (4). HCW engaged in healthcare credentials are anticipated to deliver comprehensive care to PLHIV and to assist the PLHIV to deal with pressure and to diminish the HIV-related stigma. HIV-related stigma in healthcare environments reduction will be beneficial to both the HCW and also the PLHIV (9).

Intervention Components in HIV Stigma Reduction-Intervention

In reducing HIV-related stigma, the intervention approaches should emphasis and focus on the main origins of the stigma and diminish the terror of infections of HIV among the HCW (10). Therefore, they can deliver health services to the PLHIV without fear of HIV infection (10). Education and exercise as well as providing optimistic strengthening to positive outlooks for PLHIV are also vital in tackling HIV-related stigma in healthcare environments (10). Both fear and value-based stigma should be tackled in the complete intervention platform.

In Yunnan, province of China, an intervention approach involving small group activities through role-plays, games and group discussions revealed a feasible technique in reducing HIV stigma among HCW (11).

Table I: Published research on HIV Stigma Intervention Among Healthcare Workers (2008 – 2018)

No	Authors/Articles	Study Design/Purpose	Description of Study	Intervention Components	Model/Theory	Results/Conclusions/Limitations
1.	Oanh et al, (2008) Improving hospital-based quality of care in Vietnam by reducing HIV-related stigma and discrimination	Cross-sectional study Evaluated a multi-faceted intervention to reduce HIV-related stigma and discrimination in 4 hospitals in Vietnam	<i>Sample:</i> 4 hospitals in two provinces in Vietnam. Total sample size of 1592. <i>Intervention:</i> In all hospitals, intervention included HIV stigma-related components: establishment of a hospital steering committee, staff training, hospital policy development, supplies to facilitate the practice of universal precautions and educational materials. Two intervention arms: <i>Arm 1</i> - staff from 2 hospitals received a half-day training on HIV/AIDS and a full day on universal precautions. <i>Arm 2:</i> Staff from the other 2 hospitals received the same training, but also received training on social stigma co-facilitated by people living with HIV. <i>Measures:</i> Participants completed surveys at baseline and end of intervention	<ul style="list-style-type: none"> • Training • Role-plays 	Integrated Theoretical Model	<i>Results:</i> Stigma measures had improved significantly for both intervention groups (e.g., proportion reporting signs on beds indicating HIV status decreased from 51 to 24 % in Arm 1, and 31 to 7 % in Arm 2), with the combined intervention group showing greater effects. <i>Limitations:</i> cross-sectional data collection – data not matched from baseline to follow-up by participant;
2.	Wu, S et al (2008) A Brief HIV Stigma Reduction Intervention for Service Providers in China	Randomised controlled trial (RCT) Assessed the effect of a brief intervention aimed at reducing HIV-related stigma among service providers in four county hospitals in the Yunnan province of China	<i>Sample:</i> Involved 138 service providers from four county hospitals in Yunnan, China <i>Intervention:</i> HIV stigma reduction intervention programme was done through participatory small group activities, including role-plays, games, group discussions, and testimony by an HIV advocate. <i>Measures:</i> The respondents were assessed at baseline, 3 and 6-month follow-ups.	<ul style="list-style-type: none"> • Role-plays • Group discussions • Games • HIV advocate testimony • Presentation/ Lectures 	Integrated Theoretical Model	<i>Results:</i> Odds for not having negative feelings toward PLWHA was 2.2 times higher among the intervention group than among the control group at 3-month follow-up ($p = 0.0446$) The rate was still significantly higher at the 6-month follow-up (OR = 2.4; 95% CI: 1.0–5.5; $p = 0.0395$) <i>Limitations:</i> Further intervention trials are needed to test the efficacy and long-term outcomes of this intervention.
3.	Uys, L et al (2009) Evaluation of a Health Setting-Based Stigma Reduction Intervention in Five African Countries	Pre and Post Experimental Study Design Explore the results of an HIV stigma intervention in five African health care settings using case study approach.	<i>Sample:</i> Involving team of approximately 10 nurses and 10 PLHIV in each setting ($n = 134$) <i>Intervention:</i> Both team, nurses and PLHIV completed demographic questionnaire, the HIV=AIDS Stigma Instrument-Nurses (HASI-N), HIV=AIDS Stigma Instrument for PLHA (HASI-P), a self-efficacy scale, and a self-esteem scale, both before and after the intervention <i>Measures:</i> The questionnaire measured before and after the intervention for both teams.	<ul style="list-style-type: none"> • Sharing information • Increasing contact with the affected group • Improving coping through empowerment 	Integrated Theoretical Model	<i>Results:</i> Less stigma and increased self-esteem among PLHIV in intervention teams ($p = 0.014$) <i>Limitations:</i> Need further evaluation research with control groups and larger samples and measuring change over longer periods of time is beneficial.
4.	Li, L et al (2013) Reducing HIV-related stigma in health care settings: A randomized controlled trial in China	Randomised controlled trial (RCT) RCT in hospitals in China called “White Coat, Warm Heart” to decrease healthcare providers’ stigmatizing attitudes/behaviours and increase comfort when working with PLHIV in primary care settings	<i>Sample:</i> 44 service providers randomly selected from each of 40 participating hospitals in 2 provinces in China. Hospitals were randomized to intervention or control group. Recruited and trained 20-25 popular opinion leaders (POLs) from each intervention hospital site to educate and change stigmatizing attitudes/behaviour in intervention hospitals <i>Intervention:</i> Health facilitators implemented the intervention of training POLs; POLs attended 4 group sessions and 3 refresher training sessions over the course of the project to spread behaviour change messages. No POLs were identified/trained for the control group hospitals. <i>Measures:</i> Surveys done at baseline, 6, and 12 months.	<ul style="list-style-type: none"> • Group discussion • Problem solving/ role play • Skill building • Interactive games 	Integrated Theoretical Model	<i>Results:</i> Significant improvements for the intervention group in reducing prejudicial attitudes ($p < 0.001$), reducing avoidance intent towards people living with HIV ($p < 0.001$), and increasing institutional support in the hospitals ($p = 0.003$) at 6 months after controlling for service providers’ background factors and clinic-level characteristics. <i>Limitations:</i> Implemented in 2 provinces – generalizability to other areas is limited
5.	Varas-Dhaz, N, et al (2016) The role of emotions in the reduction of HIV/AIDS stigma among physicians in training	Randomised controlled trial (RCT) RCT to reduce HIV/AIDS stigma among Latino/Spanish-speaking healthcare providers (HCPs) in training in Puerto Rico	<i>Sample:</i> 507 second-year medical students at the 4 largest medical schools in Puerto Rico <i>Intervention:</i> Groups of 20 randomized into intervention or control group. Control group received HIV epidemiology workshop and intervention group received intervention called “SPACES,” a 9-hour workshop divided into 3 sessions: 1) education about stigma and its consequences 2) role of negative emotions in promoting HIV stigma attitudes and 3) skills for interactions with PLWH without stigma <i>Measures:</i> HIV stigma, emotions associated with HIV, HIV knowledge at baseline, after workshop, 6- and 12-months post-intervention.	<ul style="list-style-type: none"> • Lectures – information sharing • Group discussion • Interaction with PLHIV 	Social Cognitive Theory	<i>Results:</i> Fear of transmission in intervention group = 27.2% as compared to control group = 39.6% <i>Limitations:</i> Self-selection bias, as medical students volunteered in limited free time.

continue.....

Table 1: Published research on HIV Stigma Intervention Among Healthcare Workers (2008 – 2018) (continued)

No	Authors/Articles	Study Design/Purpose	Description of Study	Intervention Components	Model/Theory	Results/Conclusions/Limitations
6.	Lohiniva, A. L et al (2015) HIV stigma intervention in a low-HIV prevalence setting: a pilot study in an Egyptian healthcare facility	Randomised controlled trial (RCT) Evaluate stigma-reduction intervention in a healthcare setting in Egypt and in the Middle East and North Africa region. Besides that, it also contributes to knowledge on how to address stigma in low-HIV prevalence settings.	<i>Sample:</i> Involving physician and nurses for intervention (n = 696) and control team (n = 508) from two hospitals. <i>Intervention:</i> Involving five interactive training modules including discussions and practical exercises: (1) a module on HIV background and stigma, (2) a module on medical ethics, (3) a module on childbirth, and (4) two modules addressing infection prevention and control measures, including standard precautions and aseptic techniques for invasive procedures. <i>Measures:</i> Stigma was measured at baseline and at three months post-intervention.	<ul style="list-style-type: none"> • Interactive trainings involving discussions and practical exercises 	Integrated Theoretical Model	<i>Results:</i> Overall value-based and fear-based stigma scores were significantly lower in the intervention hospital compared to the control hospital (2.1 and 1.1 compared to 3.8 and 3.2, respectively; $p < 0.001$). <i>Limitations:</i> In the future, the randomized controlled trials with larger sample sizes and longer duration of follow-up should be performed to validate the results and identify specific strategies in order to reduce stigma in low prevalence settings.
7.	Batey et al. (2016) Adaptation and implementation of an intervention to reduce HIV-related stigma among healthcare workers in the United States: Piloting of the FRESH workshop	Pre and Post Experimental Study Design. Assess feasibility and acceptability of adaptation of FRESH Workshop (Finding Respect and Ending Stigma around HIV) in the US, healthcare setting workshop with both healthcare workers and people living with HIV PLHIV to address HIV stigma.	<i>Sample:</i> 17 healthcare workers, 19 PLWH in 2 workshops conducted in Alabama <i>Intervention:</i> 1.5-day workshop including both healthcare workers and PLWH designed to sensitize to HIV stigma and develop collaborate strategies to increase HIV awareness and decrease stigma . Topics included HIV knowledge, methods for addressing stigma and coping, among others. <i>Measures:</i> Questionnaire completed pre and post-workshop, included open ended questions.	<ul style="list-style-type: none"> • Presentations • Group discussions • Interactive exercises. 	Social Cognitive Theory	<i>Results:</i> Increased awareness of stigma in the health facility among HCW ($p = 0.047$) <i>Limitations:</i> Small sample size; convenience sample
8.	Geibel et al. (2017) Stigma reduction training improves healthcare provider attitudes toward, and experiences of young marginalized people in Bangladesh	Nested cohort study design Evaluation of a stigma reduction training program for healthcare providers in Bangladesh	<i>Sample:</i> 300 health care providers in Bangladesh participated in the stigma reduction training. Survey of 637 of their clients ages 15-24 assessed satisfaction with provider services. <i>Intervention:</i> 2-day HIV and sexual and reproductive health and rights training (including a 90-minute session on stigma issues) and 1 day training 6 months later. Training topics included exercises assessing their own stigma experiences, talking about sex, gender norms, trans and MSM terminology and competency. <i>Measures:</i> Baseline provider survey measuring stigmatizing attitudes towards young people and another survey after 6 months. Client satisfaction surveys after provider interactions after baseline and 6-month provider education and assessment	<ul style="list-style-type: none"> • Presentation • Group discussion 	Integrated Theoretical Model	<i>Results:</i> Provider agreement that PLHIV has engaged in irresponsible behaviours decreased minimally (55.0% - 45.7%; $p = 0.006$). <i>Limitations:</i> Lack of comparison group, conducted mostly among female providers in one large NGO.

The intervention was focusing on issues concerning HIV procedures and policies, warrant admission to universal precautions and post-exposure prophylaxis, enhance information about the transmission of HIV, and strengthen the healthy working atmosphere with PLHIV (11). The level of fear among PLHIV was successfully decreased through the intervention. Besides that, it also enhanced the knowledge and practice of universal precautions by healthcare providers (11). It is proof that face-to-face interactive experience with PLHIV is a valuable technique in changing HCW undesirable HIV attitude and opinions towards them (11). Another study was done in China shown new behavioural developments are most efficiently set up when a crucial mass of popular opinion leaders (POLs) have adopted and endorsed the new style (12). The intervention involved the training featured in group discussions, games, and role-plays showed a significantly higher reduction in prejudicial attitude towards PLHIV (12). Initially, the intervention programme was piloted to the medical students in Puerto Rico which were significantly showed a reduction in negative attitudes toward PLHIV.

Three strategies including sharing information,

increasing contact with the affected group, and improving coping through empowerment are combined intervention approaches involving nurses and PLHIV done in five African countries. The intervention showed positive outcomes in reducing HIV-related stigma in healthcare environments (13). It is also resulting in increased awareness and conjoint support between the health providers and PLHIV (13). This intervention also established some drive in all the settings for sustained activity.

The SPACES (stigma-free spaces in medical scenarios) programme has been recognised as a successful HIV/AIDS stigma-reduction programme for healthcare providers (14). This programme was piloted to medical students in Puerto Rico initially and was delivered via lectures – information sharing, group discussions and interactions with PLHIV. The programme noted a significant reduction in the negative attitudes towards PLHIV.

Egypt is a country with low-HIV prevalence settings which the prevalence is below 0.2% (15). In high prevalence settings, HIV-related stigma is less

challenging compared to those in low-HIV prevalence settings. Therefore, in low-HIV prevalence setting the stigma can lead to greater fear of the disease (16). Interactive training intervention involving five modules including a module on HIV background and stigma, a module on medical ethics, a module on childbirth and two modules addressing infection prevention as well as control measures comprises standard precautions and aseptic techniques for invasive procedures discussions and practical exercises were delivered through discussions and practical exercises (17).

Through the intervention programme, both fear-based and value-based stigma was successfully reduced between the participants in the intervention group as compared to the control group (17). Finding Respect and Ending Stigma around HIV (FRESH) Workshop is an intervention programme conducted in the United States. The intervention was tailored from a similar strategy applied in Africa, focusing on the reduction of HIV-related stigma among the HCW (18). The intervention involved both healthcare workers and PLHIV. It was delivered through presentations, group discussions, and interactive exercises. The study revealed that HIV-related stigma reduction-intervention conducted in a workshop format and consisting of both HCW and PLHIV can change attitudes and perceptions of both types of participants (18).

Besides that, a study done in Bangladesh indicates that a targeted stigma reduction intervention can rapidly improve provider attitudes and increase service satisfaction among key populations. The intervention was delivered via presentation and group discussion and was significantly decreased HIV-related stigma among the HCW in Bangladesh (19).

Application of Theoretical Framework in HIV Stigma Reduction-Intervention

The health-related behavioural research and interventions are well explained through various theory as summarised in Table II. However, in this review, the majority of the articles applied Integrated Theoretical

Table II: Theory of the health-related behavioural research

Theories	Explanation
Health Belief Model (HBM)	Hypothesizes that beliefs about susceptibility and perceptions about the benefits of prevention will influence patients' readiness to act based on six criteria which are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cue to action and self-efficacy.
Social Cognitive Theory (SCT)	The interaction between personal factors, environmental factors, and behaviour will influence the individual to learn through their own experiences as well as by observing the actions of others.
Theory of Reasoned Action	Hypothesizes that the decision about health are pre-disposed by a person's opinion and it explained why some people have behavioural changes and others not
Integrated Theoretical Model	Focuses on attitudes, norms, control, and self-efficacy to identify the precise belief targets for behaviour change interventions

Model and Social Cognitive Theory as an intervention guideline.

Based on the Integrated Theoretical Model, the likelihood of a behaviour to be performed is higher only if a person has a strong intention, the necessary skills/abilities, and a conducive environment (20). The best intercession will be coordinated towards building their ability or evacuating environmental hindrances in actual situation for individuals who have the coveted aim but are not yet being able to perform it. The model proposes that there are three noteworthy determinants of intentions if solid aims to play out of the given conduct have not yet been made (20). These are states of attitudes toward playing out the conduct, perceived norms in regards to playing out the conduct and one's self-efficacy as to playing out that conduct.

As discussed in Social Cognitive Theory there are two essential factors that decide the selection of health defensive conduct which is the individual must trust that the constructive results or advantages of playing out the conduct must outperform the adverse results and the individual must trust that she or he can play out the coveted conduct even in the season of different conditions or obstructions that thwart that execution of that conduct (21). Besides that, psychological components through socio-auxiliary variables related to the hierarchical performance are offered through the Social Cognitive Theory theoretical outline (21). This hypothesis gives exact rules on how to outfit individuals with abilities, the self-administrative capacities and the feeling of adequacy.

Various theories have been applied to health-related behavioural research and interventions in understanding and predicting any given behaviour. However, there are still some argument and limited variables in understanding and predicting it (20).

CONCLUSION AND RECOMMENDATIONS

Conventional stigma reduction- interventions that would apply to all health conditions are troublesome and impractical to create. It is because the specificity, as well as the multifaceted nature of the conditions and elements, are variable in every individual's understanding of stigma. However, it is conceivable to propose noteworthy techniques that can be adjusted to uncommon conditions. Designing the HIV-related stigma approach is crucial to viably avert HIV-related stigma in healthcare environments essentially in the health facilities where PLHIV are conceded and taken care of for some days.

Most of the reviewed articles showed that utilising combined intervention components are effective tools in delivering the intervention programme. The stigma reduction-intervention programme should focus on the intervention components as a whole including

training of HCW, role plays, group discussions, games, sharing of information and contacts with PLHIV as well as presentations and lectures. Participatory approach involvement through informative sharing regarding types and levels of stigma was found to help and build HCW and management support for stigma reduction-interventions in healthcare environments very well (22). Collaboration between infirmiry management, HCW, public health experts and PLHIV are important to ensure that healthcare settings are appropriate and accessible for PLHIV. Besides, the educational module related to HIV-related with stigma ought to be created and fused into the preparation of all HCW.

Majority of the articles applied Integrated Theoretical Model in their intervention programme. The target for change was identified from the initial implication by using the integrated model (20). The aims of the HIV stigma reduction-intervention programme are to reduce the HIV-related stigma in healthcare settings. The model can be applied once the target is identified to describe why certain individuals of the target population are performing the behaviour and others are not (20). It is perceived that the integrative model of behavioural expectation is particularly imperative for interventions that focus on creating and reinforcing the aims to perform coveted conduct. Significant determinants of the given conduct and convictions basic of these determinants can be recognised by the proper use of the integrative model (20). The integrative model of behavioural forecast expresses that individuals don't follow up on their aims either in light of the fact that they come up short on the aptitudes to achieve the behaviour or there are environmental requirements that hamper the execution of the behaviour, or both (20). Thus, an intervention must go for enhancing relationship building abilities' or tending to obstructions to perform the behaviour or both. On the off chance that the issues are identified with aptitudes, it is essential to prepare individuals to enhance abilities that will empower them to perform the planned behaviour. When the issues are identified with a condition, it expels the boundaries (20).

ACKNOWLEDGEMENT

We would like to thank the Director General of Health Malaysia for the permission of this paper's publication. Our deepest gratitude goes to those who have assisted both directly and indirectly in this research.

REFERENCES

- Goffman E. Erving Goffman. "Stigma and social identity." *Stigma: notes on the management of spoiled identity*. Prentice-Hall, 1963. Prentice Hall; 1963. p. 1–13.
- Sayles JN, Hays RD, Sarkisian CA, Mahajan AP, Spritzer KL, Cunningham WE. Development and psychometric assessment of a multidimensional measure of internalized HIV stigma in a sample of HIV-positive adults. *AIDS Behav*. 2008;12(5):748–58.
- James M, Mignone J, Roger K, Halli S. Exploring HIV-related stigma in Kerala, India. *J HIV AIDS Soc Serv*. 2013;12(1):81–98.
- Li L, Wu Z, Zhao Y, Lin C, Detels R, Wu S. Using case vignettes to measure HIV-related stigma among health professionals in China. *Natl Institutes Heal*. 2007;36(1):178–84.
- United Nation Programme on HIV/AIDS (UNAIDS). *Zero discrimination in health*. Geneva; 2017.
- Bos AER, Schaalma HP, Pryor JB. Reducing AIDS-related stigma in developing countries: The importance of theory- and evidence-based interventions. *Psychol Health Med*. 2008;13(4):450–60.
- Sutterheim SE, Pryor JB, Bos AER, Liebrechts M, Schaalma HP. Psychological and social correlates of HIV status disclosure: the significance of stigma visibility. *AIDS Educ Prev*. 2011;23(4):382–92.
- Andrewin A, Chien L-Y. Stigmatization of patients with HIV/AIDS among doctors and nurses in Belize. *AIDS Patient Care STDS*. 2008;22(11):897–906.
- Feyissa GT, Abebe L, Girma E, Woldie M. Stigma and discrimination against people living with HIV by healthcare providers, Southwest Ethiopia. *BMC Public Health*. 2012;12:522. Available from: <https://bmcpublihealth.biomedcentral.com/track/pdf/10.1186/1471-2458-12-522>
- Oanh KTH, Ashburn K, Pulerwitz J, Ogden J, Nyblade L. Improving hospital-based quality of care in Vietnam by reducing hiv-related institute for social development studies international center for research on women horizons program. Washington; 2008. Available from: http://pdf.usaid.gov/pdf_docs/Pnadi301.pdf
- Wu S, Li L, Wu Z, Liang L-J, Cao H, Yan Z, et al. A brief HIV stigma reduction intervention for service providers in China. *AIDS Patient Care STDS*. 2008;22(6).
- Li L, Wu Z, Liang LJ, Lin C, Guan J, Jia M, et al. Reducing HIV-related stigma in health care settings: A randomized controlled trial in China. *Am J Public Health*. 2013;103(2):286–92.
- Uys L, Chirwa M, Kohi T, Greeff M, Naidoo J, Makoae L, et al. Evaluation of a health setting-based stigma intervention in five African countries. *AIDS Patient Care STDS*. 2009;23(12).
- Varas-Diaz N, Neilands TB, Rodriguez-Madera SL, Padilla M. The role of emotions in the reduction of HIV/AIDS stigma among physicians in training. *AIDS Care*. 2016;28(3):376–83.
- National AIDS Programme. *Global AIDS response progress report Egypt*. 2014.
- Mahendra VS, Gilborn L, George B, Samson L, Mudoi R, Jadav S, et al. Reducing AIDS-related stigma and discrimination. New Delhi; 2006. Available from: <http://paetc.org/wp-content/>

- uploads/2014/05/horizons.pdf
17. Lohiniva A-L, Benkirane M, Numair T, Mahdy A, Saleh H, Zahran A, et al. HIV stigma intervention in a low-HIV prevalence setting : A pilot study in an Egyptian healthcare facility. *Psychol Socio-medical Asp AIDS/HIV*. 2015;
 18. Batey DS, Whitfield S, Mulla M, Stringer KL, Durojaiye M, McCormick L, et al. Adaptation and implementation of an intervention to reduce HIV-related stigma among healthcare workers in the United States : Piloting of FRESH workshop. *AIDS Patient Care STDS*. 2016;30(11).
 19. Geibel S, Hossain SMI, Pulerwitz J, Sultana N, Hossain T, Roy S, et al. Stigma reduction training improves healthcare provider attitudes toward , and experiences of , young marginalized people in Bangladesh. *J Adolesc Heal*. 2017;60:S35–44. Available from: <http://dx.doi.org/10.1016/j.jadohealth.2016.09.026>
 20. Fishbein M, Yzer MC. Using theory to design effective health behavior interventions. *Int Commun Assoc*. 2003;13(2):164–83.
 21. Bandura A. Organisational applications of social cognitive theory. *Aust J Manag*. 1988;13(2):275–302.
 22. United Nation Programme on HIV/AIDS (UNAIDS). *Reducing HIV stigma and discrimination : A critical part of national AIDS programmes A resource for national stakeholders in the HIV response*. Geneva; 2007.