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## A systematic review of interventions to reduce HIV-related stigma among primary and secondary school teachers

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### Abstract

HIV/AIDS-related stigma (HIV stigma) affects every aspect of adolescents' HIV management. Adolescents living with HIV (ALWH) are particularly vulnerable in schools where they have described experiencing HIV stigma. Teachers play a significant role in their students' lives. Stigmatizing attitudes or behaviors by teachers not only impact ALWH directly, but may influence the attitudes and behaviors of their peers. There is a dearth of literature exploring interventions to address HIV stigma in school-based settings. The objective of this review is to examine interventions to reduce HIV stigma among teachers globally. To conduct this systematic review, we used the PRISMA guidelines. Two articles met the inclusion criteria. Both eligible studies aimed to reduce HIV stigma among teachers or teachers in training through teacher training interventions in sub-Saharan Africa. The interventions included an interactive CD-ROM, a 2-day workshop, and peer facilitated workshops. Both studies demonstrated a significant decrease in HIV stigma in at least one study measure. Findings from this review are inconclusive. There is evidence to suggest that interventions can successfully decrease HIV stigma among teachers, but it is very limited. More research is needed in order to develop, implement, and evaluate stigma reducing interventions in the classroom.

### Keywords

HIV; stigma; teachers; adolescents

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## Introduction

Approximately 1.7 million adolescents (10–19 years old) are living with HIV (ALWH) globally (United Nations Children’s Fund [UNICEF], 2020). Adolescents remain at high risk from HIV, with over 30% of new HIV infections occurring among adolescents 15–25 years old globally (World Health Organization [WHO], n.d.), and they have higher rates of morbidity and mortality from HIV compared to children and adults (Kenya Ministry of Health [MOH] & National AIDS Control Council [NACC], 2016; WHO, 2018). HIV stigma remains a critical threat to ALWH, affecting every aspect of HIV management, including maintaining ART adherence, HIV disclosure, and how and when they take responsibility for their own care (McHenry et al., 2017).

ALWH report complex HIV-related experiences in the classroom, including experiencing HIV stigma from teachers directly (Baxen & Haiping, 2015; Chory et al., 2021; McAteer et al., 2016; Singh et al., 2017) and within their curriculum (Singh et al., 2017); pressures to keep their HIV status secret resulting in medication non-adherence; and being treated differently by teachers (Chory et al., 2021). The school setting is an important social environment for developing peer networks and where youth spend most of their waking hours, and yet there is a dearth of literature on how to reduce HIV stigma in this setting (Chory et al., 2021). Teachers play a significant role in students’ lives; the manner in which teachers speak and teach about HIV may affect adolescent knowledge, attitudes, and beliefs (K/A/B) about HIV, both for ALWH directly and their un-infected peers (Nyatsanza & Wood, 2017). Altering teachers’ K/A/B about HIV may impact their own stigmatizing behaviors and reduce the stigmatizing content within their teaching and classrooms, improving the environment for adolescents broadly. Effective strategies or interventions to achieve these goals with teachers are not well-known; therefore, the objective of this review is to examine and describe interventions to reduce HIV stigma among primary and secondary school teachers globally.

## Methods

We used the Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines (Moher et al., 2015) and searched online databases including PubMed, PsycInfo, Scopus for peer reviewed articles, and grey literature by searching the HIV/AIDS Clearing House, USAID Development Experience Clearinghouse, UNESCO HIV and AIDS Education Clearinghouse, WHO and UNAIDS. The search strategy was completed on June 9, 2020 and combined search keywords with Boolean operators: (‘stigma,’ OR ‘discrimination,’ OR ‘prejudice’) AND (‘HIV,’ OR ‘AIDS’) AND (‘intervention,’ OR ‘program,’ OR ‘education,’ OR ‘curriculum,’ OR ‘training,’ OR ‘teachers,’ OR ‘schools’).

Articles must have included the following: (1) one component to reduce HIV stigma among teachers implemented in schools for children 18, (2) at least one quantitative HIV stigma outcome measure, (3) experimental or quasi-experimental design, (4) incorporated didactic and participatory instruction with the inclusion of a peer support element, and (5) published in English language. We included studies from all geographic locations. Due to the low number of studies meeting our initial criteria, we expanded the search to include

interventions to reduce HIV stigma targeting primary and secondary soon-to-be-teachers at the time of their formal academic training.

Two researchers (CA and RM) conducted the search, exported articles into EndNote X9, removed duplicates and reviewed article titles and abstracts to determine eligibility. Disagreements were resolved by a third researcher (AC). RM reviewed full text articles and AC provided secondary review of the included studies. References from articles obtained from the search were reviewed and screened for additional publications. This process is represented in Figure 1. RM extracted data from the included studies into an Excel spreadsheet for analysis. The extracted data can be found in Table 1.

## Results

We identified 11,135 potentially relevant articles and reports. After removing duplicates and non-English documents, a total of 8,774 peer-reviewed articles and gray literature remained for title and abstract review (Figure 1). Full text review was completed for twenty-six articles, followed by review of references in articles meeting inclusion criteria. Data extraction was conducted for three peer-reviewed articles and one gray literature report. One peer-reviewed article and the gray literature report did not meet inclusion criteria and were removed after data extraction. Two articles were included in the review.

Chao and colleagues (2010) implemented an intervention in the Pietermaritzburg region of South Africa, targeting primary and secondary school teachers, enrolled in two intervention arms. One group (N=60) participated in an interactive CD-ROM-based training and the other (N=60) participated in a two-day Care and Support Workshop (CSW). Outcomes were measured with a 5-point Likert scale questionnaire adapted from the Demographic and Healthy Survey (MEASURE Evaluation, 2001) and HIV/AIDS Knowledge and Attitudes Scale for Educators (Koch & Singer, 1998) that asked participants to agree or disagree with statements regarding attitudes towards people living with HIV (PLWH). There were no significant differences between the CD-ROM and CWS interventions, and outcomes were not disaggregated by intervention group. Of the 112 teachers with complete data, 69 had a reduction in overall stigma, 32 had an increase and 11 remained the same ( $p < 0.01$ ; McNemar's test). The overall change in the composite score after the intervention was also significant ( $p < 0.01$ ; Wilcoxon signed rank test), with an average decrease of 1.69 points out of a max score of 55.

Norr and colleagues (2007) implemented the *Mzake ndi Mzake* intervention targeting primary school teachers in training in Malawi. As a part of their college education program, teacher trainees completed six months of didactic training, followed by a year-long internship. After the internship, trainees returned to college for a six-week period of review and examinations, at which point trainees were enrolled in the intervention. The authors report complete data for 286 participants enrolled in the program (Norr et al., 2007). Findings from HIV prevention focus group discussions with primary school teachers in training in Malawi were used to adapt a 6-item questionnaire for use in this setting (Kachingwe et al., 2005; Norr et al., 2004). Norr et al. (2007) found significantly less agreement around stigmatizing attitudes in four of the six measures post intervention.

Although there were significant reductions in HIV stigma beliefs, 59% of respondents still agreed with stigmatizing perspectives after the intervention. Respondents were significantly more likely to agree that PLWH should disclose their status to their family, friends, or partner ( $p < 0.01$ , t-test) after the intervention (Norr et al., 2007).

Both studies used a pre-and post-test assessment of HIV stigma; neither group used a control group. Both studies demonstrated a significant decrease in HIV stigma in at least one study measure (Table 2).

## Discussion

The findings of this review, two articles published over a decade ago, highlight the critical lack of interventions to reduce HIV stigma among teachers. There is evidence that teachers have HIV-stigmatizing beliefs and that they impact PLWH negatively, (Baxen & Haiping, 2015; Chory et al., 2021; McAteer et al., 2016; Singh et al., 2017) but we do not have sufficient data on effective interventions to alter these beliefs. Both reviewed studies showed some evidence of effectiveness for interventions to decrease stigma in teachers and teacher trainees, but these studies had a number of limitations, including lacking control groups, small sample sizes, unclear recruitment methods and short-term evaluation periods.

Although there is limited evidence about the effectiveness of interventions to decrease stigma among teachers, interventions have been successful in decreasing HIV stigma among other populations (Hartog et al., 2020; Mak et al., 2015; Stangl et al., 2013). A meta-analysis and systematic review of HIV stigma reduction programs found that interventions generally reduced negative attitudes towards PLWH and improved HIV-related knowledge (Mak et al., 2017). Similarly, Chao *et al.* (2010) identified a significant association between general HIV knowledge and transmission risk with stigma reduction, which should be leveraged when developing future interventions. These interventions targeted community members, healthcare professionals, institutionalized individuals, or students. The sub-analysis also identified significant moderators that affected intervention effectiveness, including sample type, intervention settings, and number of intervention sessions. This review found that interventions tend to be more successful among professional participants, such as healthcare professionals, compared to non-professional, community members and students, which may indicate that interventions will be more likely to succeed among teachers (Mak *et al.*, 2017)

Future studies should examine teacher attitudes at longer intervals following intervention, how intervention effects are disseminated from participants to colleagues, longer-term changes in teaching and classrooms, changes in experiences among students, and facilitators and barriers of teacher participation in HIV-related trainings. It is difficult to evaluate interventions' effectiveness due to the heterogeneity of outcome measures used to assess stigma (Mak et al., 2017; Stangl et al., 2013). As we continue to explore the impact of HIV stigma – and strategies to reduce stigma -- developing validated HIV stigma measures for global use will also be critical.

## Conclusion

Findings from this review on interventions targeting HIV stigma reduction among teachers are inconclusive. More resources and research are needed in order to develop, implement, and evaluate stigma reducing interventions in the classroom.

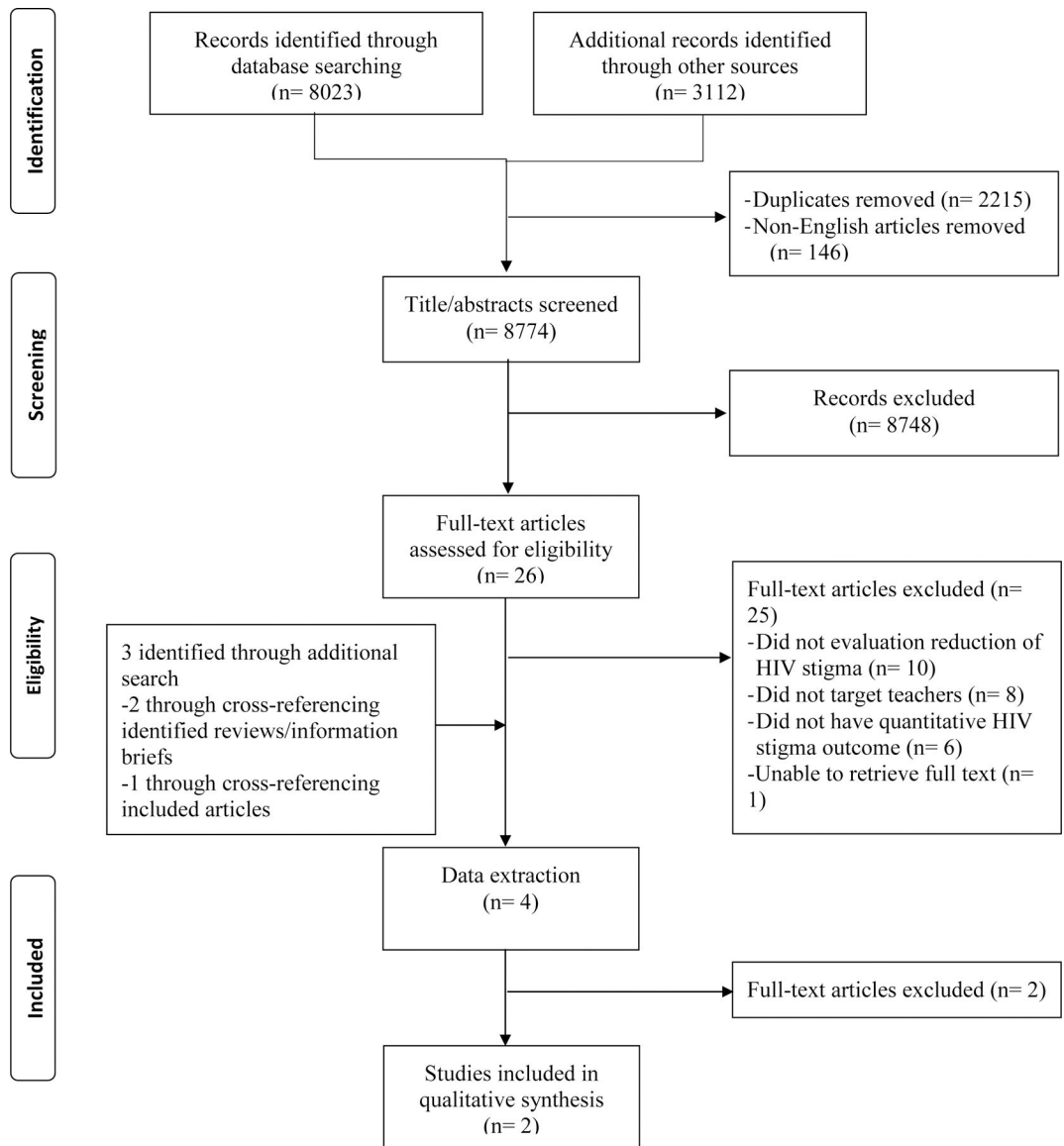
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**Figure 1:**  
PRISMA Flow Diagram

Table 1:

Study and intervention characteristics from included studies

Author	Article title	Journal information	Country	Study population & sample size	Study design	Intervention strategies & duration	Stigma domains	Instruments used	Instrument validated (Y/N)
Chao et al., 2010	HIV/AIDS stigma attitudes among educators in KwaZulu-Natal, South Africa	<i>Journal Sch Health</i> 2010;80(11): 561–9 Peer-reviewed	South Africa	112 primary/secondary educators	Pre-/post-test No control group	CD-ROM (n=54) 2-day CSW (n=58)	Public attitudes toward HIV	Questionnaire with 11 stigma items related to 4 subscales	Y
Norr et al., 2007	Short-term effects of a peer group intervention for HIV prevention among trainee teachers in Malawi	<i>Afr J AIDS Res</i> 2007;6(3): 239–49. Peer-reviewed	Malawi	286 primary school teacher trainees	Pre-/post-test No control group	Six 2-hour peer groups sessions within 6 weeks	Public attitudes toward HIV	Questionnaire with 6 stigma items	N



**Table 2:**

Outcomes for stigma measures from included studies

Author	Statistical test	Measure	Results			
			Increase (n)	No Change (n)	Decrease (n)	Score Change (n)
Chao et al., 2010	McNemar's test & Wilcoxon's					
		Subscale for moral judgement	32	31	49	-.22
		Subscale for involuntary disclosure	31	34	47	-.019
		Subscale for unwillingness to work with person	23	54	35	-.11
		Subscale for fear of infection	29	21	62	-1.71 **
		Overall stigma scale	32	11	69 **	-1.69 **
Norr et al., 2007	T-test		Pre-Test (% agree)		Post-Test (% agree)	
		AIDS is a punishment from God	31		26 *	
		It's a disgrace if you find out that someone in your family has HIV/AIDS	67		59 **	
		A person living with HIV/AIDS should tell family and friends	88		94 **	
		A person living with HIV/AIDS should tell sexual partners	91		97 **	
		A person living with HIV/AIDS should continue to go to work or school	98		99	
		A person living with HIV/AIDS should be permitted in public places	80		83	

\*  
p<.05\*\*  
p<.01