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Behavioral interventions to reduce HIV risk behavior for MSM and transwomen in Southeast Asia: a systematic review

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ABSTRACT

This systematic review aims to gain insights from existing literature from Southeast Asian countries to improve future HIV prevention programs for men who have sex with men (MSM) and transgender women (transwomen). We conducted a systematic search in six international databases for literature published prior to 1 January 2015. We included studies describing behavioral interventions targeting MSM and/or transwomen, and conducted in at least one Southeast Asian country. Five out of 575 screened studies met the inclusion criteria and reported a significant intervention effect on at least one outcome measure, that is, condom use (with casual or commercial partner), water-based lubricant use, number of sex partners, HIV prevention knowledge, or willingness to use pre-exposure prophylaxis. Peer education/outreach was the most commonly employed type of intervention in the five included studies and was usually delivered as an element of a larger intervention package, together with condom distribution and the provision of drop-in centers. Motivational interviewing was effective, while internet-based interventions appeared to be a viable platform for intervention delivery. Nevertheless, research on behavioral interventions among MSM and transwomen in Southeast Asia is limited. Future interventions should be culturally appropriate, theoretically grounded, and rigorously evaluated. Only then can we best address the HIV epidemic among MSM and transwomen in this region.

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behavioral intervention;
Southeast Asia; review

Introduction

Men who have sex with men (MSM) and transgender women (transwomen) are disproportionately burdened by the HIV epidemic in Southeast Asia (UNAIDS, 2013). Therefore, it is critical for prevention programming to effectively reduce HIV transmission among these populations. In general, HIV prevention programs for MSM and transwomen in Southeast Asian countries are based on a comprehensive package of services to reduce HIV transmission among these groups (van Griensven & de Lind van Wijngaarden, 2010). The package has four components: (1) prevention; (2) access to HIV treatment, care, and support; (3) enabling environment; and (4) strategic information (UNDP, 2009). Mathematical modeling indicates that to gain a significant impact on behavior change and the number of new HIV infections, at least 80% of the high-risk population should be covered by a HIV prevention program (Commission on AIDS in Asia, 2008). However, most countries using these packages reported less than 60%

program coverage for MSM in year 2013 (UNAIDS, 2013) and less than 50% of HIV testing coverage in the Global Report 2012 (UNAIDS, 2012).

Meanwhile, there are hardly any data on transwomen in this region. In the global HIV response, transwomen have often been reported as MSM or as a subpopulation within that group. Transwomen have not been properly acknowledged as a distinct population with specific needs and characteristics (UNDP, 2012). Thus, both HIV prevention program coverage and HIV prevalence specifically among this group are unknown.

Low coverage of HIV prevention programs and the alarming high HIV prevalence indicate that intervention efforts for MSM, and probably transwomen, in this region need to be improved. To increase program coverage and ensure the effectiveness of interventions, it is essential to employ insights from the behavioral sciences in developing intervention approaches (Bartholomew, Parcel, Kok, Gottlieb, & Fernández, 2011). Previous reviews have synthesized literature on behavioral HIV interventions

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(Higa et al., 2013; Johnson et al., 2008; Lu et al., 2013), and nearly all of these reviews are from the upper-middle-income countries. Therefore, our systematic review examines the effectiveness of behavioral interventions at reducing risky sexual behavior specifically among MSM and transwomen in Southeast Asia.

Methods

We searched six electronic databases: EMBASE, Medline PsycINFO, Web of Knowledge, Cochrane Central, and PubMed. We retrieved all studies that were published prior to 1 January 2015. We used search terms for behavioral intervention, combined with MSM and transwomen terms and terms representing Southeast Asian countries. Full search terms are described in the [appendix](#). List of countries observed in this study refers to one made by United Nations (United Nation Statistic Division, 2013). A detailed search string is provided in the [appendix](#).

A study was included in this review if it: (1) described a behavioral intervention that specifically targeted MSM and/or transwomen; (2) was conducted in at least one Southeast Asian country; and (3) reported effectiveness results on at least one behavioral outcome measure. The review excluded studies with the following criteria: (1) not included particular data analysis for MSM and/or transwomen; (2) not original research (e.g. comments, reviews, editorials); and (3) not published in English.

The screening of studies was done in two phases by two reviewers. The first phase was based on title and abstract, and in the subsequent phase, full papers were examined. Citation tracking was performed by checking the reference list of papers selected in the final phase. Two reviewers independently extracted data from the full text of each study, and tabulated information into a summary table. The extracted information was then compared and verified to form a consensus among both reviewers.

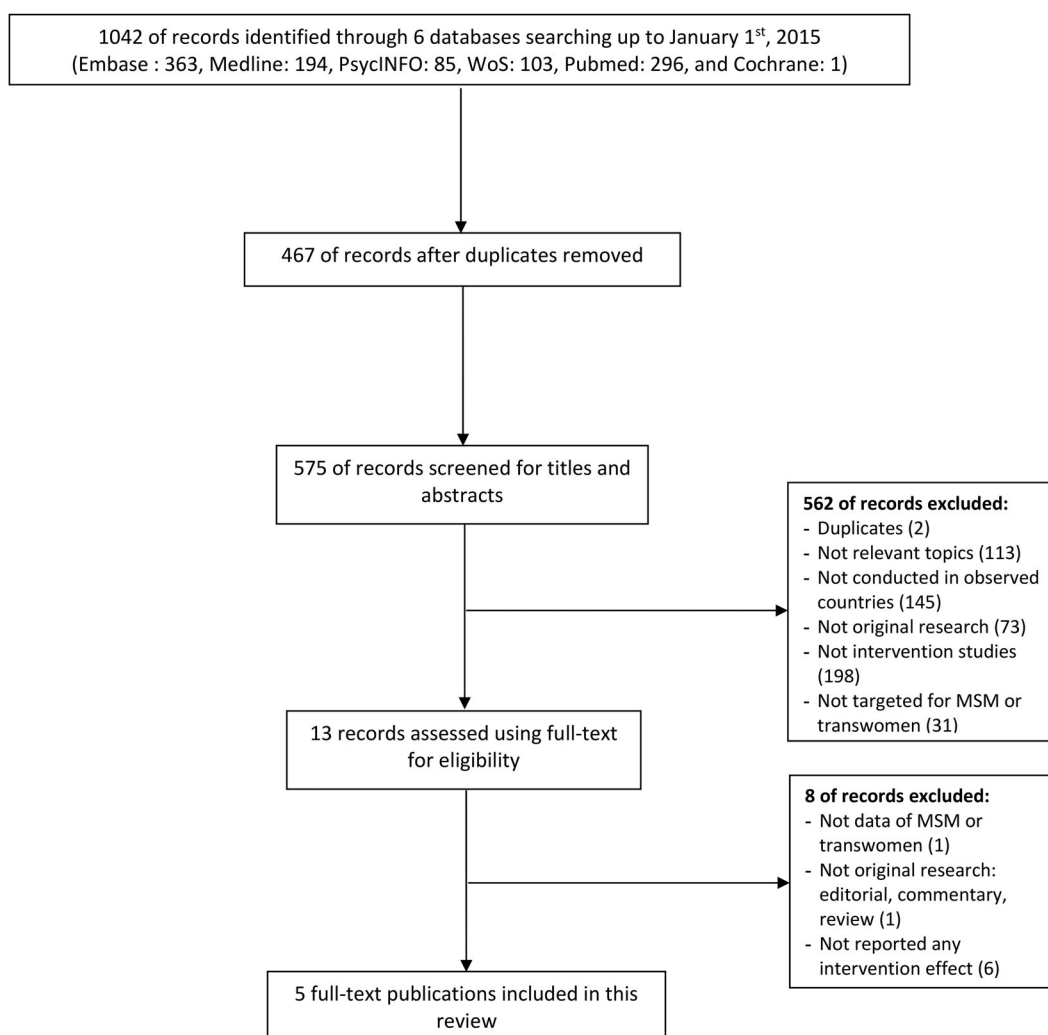


Figure 1. Flowchart review procedure.

Results

Figure 1 shows our screening process. The cross-database search revealed 1042 publications, including 575 unique studies. After the first 2 phases of screening, 13 papers were selected for the final selection based on the full text when available. Finally, five studies were eligible for inclusion in this review (Figure 1).

Characteristics of study populations

Table 1 describes detail characteristics of the selected studies and their study population. Of the five included studies, three were conducted in Thailand (Kasatpibal et al., 2014; Pawa et al., 2013; Rongkavilit et al., 2013), one in Vietnam (Oldenburg et al., 2014), and one in Laos (Longfield, Panyanouvong, Chen, & Kays, 2011). Only three of the included studies had both baseline and follow-up intervention data (Longfield et al., 2011; Oldenburg et al., 2014; Rongkavilit et al., 2013). Three studies targeted MSM (Kasatpibal et al., 2014; Oldenburg et al., 2014; Rongkavilit et al., 2013), and two observed transwomen (Longfield et al., 2011; Pawa et al., 2013). Two studies addressed specific sub-populations of MSM, that is, HIV-positive young MSM (Rongkavilit et al., 2013) and male sex workers (Oldenburg et al., 2014).

Characteristics of interventions

All studies covered interventions at the individual level (Table 2). Two studies also had interventions at the group- and community levels (Longfield et al., 2011; Pawa et al., 2013). Only one study explicitly indicated that the intervention was developed on the basis of behavioral change theory (Longfield et al., 2011). The time span of the interventions ranged from 12 weeks to 2 years, although detailed information on exposure duration was scarce. Two studies employed a peer-based approach alongside condom distribution and drop-in centers (Longfield et al., 2011; Pawa et al., 2013). One study applied peer education as a single approach (Oldenburg et al., 2014), and one intervention with four counseling sessions tested the application of motivational interviewing (MI) targeted to HIV-positive MSM (Rongkavilit et al., 2013). One study evaluated the implementation of a web-based HIV prevention program tailored to MSM (Kasatpibal et al., 2014).

Effects of interventions

All studies in this review reported significant intervention effects in the hypothesized direction on at least

Table 1. Descriptive characteristics of studies on behavioral interventions for MSM and transwomen in Southeast Asia ($n = 5$): 1995–2014.

Author, year	Study design	Location	Target group	Site of recruitment	Number of participant	Mean age (range)	Education level (%)				Level of income at most
							PS	SS	HS	DH	
Longfield et al. (2011)	Pre-post without control (Two rounds cross-sectional studies)	Laos: Vientiane, Luang Prabang and Savannakhet	Transwomen	Frequent visitors of <i>kathoey</i> congregating venues	288	22.4 (15–35)	8	71	21	–	25–75USD
Rongkavilit et al. (2013)	Randomized trial	Thailand: Bangkok	MSM	HIV+ Young MSM encouraged by their treating physician	74	22.5 (16–25)	2	4	47	47	NA
Pawa et al. (2013)	Quasi-experimental (matched cross-sectional study)	Thailand: Pattaya	Transwomen	Transwomen at congregating venues	238	24.6	6	39	43	11	667–1000USD
Oldenburg et al. (2014)	Cross-sectional study	Vietnam: Ho Chi Minh City	MSM	Male sex worker at 32 cruising sites and by telephone through the pimps.	281	20–25 (13–30+)	8	34	40	18	94–468USD
Kasatpibal et al. (2014)	Quasi-experimental (Pre-post without control)	Thailand: Chiang Mai	MSM	MSM living in both urban and rural areas, recruited with the help by MSM organization	162	23.7 (15–36+)	–	–	55	45	167–667USD

Abbreviation: D, Diploma and Higher; HS, High-secondary School; PS, Primary School; SS, Secondary School.

Table 2. Characteristic of behavioral interventions targeting MSM and transwomen in Southeast Asia ($n = 5$): 1995–2014.

Author, year	Intervention's name	Intervention type	Target group	Level	Deliverer	Duration/interval	Outcome measure	Intervention effects
Longfield et al., (2011)	PSI's Kathoy-specific intervention	Peer education/outreach; drop-in centers for group discussions and team-building activities.	Transwomen	Individual, Group, and Community	Peer educator	Two years daily basis implementation	CU with casual and regular partners at last sex; Knowledge; Attitude; Intention	CU with casual partner†
Rongkavilit et al., 2013	Healthy choices	Individual counseling and MI	MSM	Individual	MI trained interventionist	12 weeks consisted of four sessions at week 1, 2, 6 and 12. Each session took approximately 60 min	Number of sex partners; UAS, HIV sexual risk score; alcohol and drug use; ARV adherence; mental health score; motivational readiness; self-efficacy	Number of sex partner†
Pawa et al. (2013)	Sisters	Peer education/outreach; drop-in cent; and home visit.	Transwomen	Individual, Group, and Community	Outreach worker, peer educators, and volunteers	12 months	CU at last sex with any partners; consistent CU and CU/Water-based lube with commercial, casual, and regular partners; HIV testing	CU†; CU and water-based use†; HIV testing†
Oldenburg et al., 2014	Not specified	Peer education	MSM	Individual	Peer educator	Not specified	Willingness to use PrEP; UAS with male client and non-commercial partner	Willingness to use PrEP†
Kasatpibal et al., 2014	Web-based HIV education program	Internet-based HIV prevention	MSM	Individual	Research team and Web-designer expert	The sample group logged into the designated website for four months	HIV knowledge and practices score; CU; Condom negotiation; HIV info seeking behavior; number of partners	HIV prevention knowledge†; HIV prevention practices†

Abbreviation: CU, condom use; MSM, men who have sex with men; PrEP, pre-exposure prophylaxis.

one outcome measure. Of those, two studies from Laos (Longfield et al., 2011) and Thailand (Pawa et al., 2013) showed that the intervention effects corresponded with the increase of condom use at last sex among transwomen. The Laos study found that transwomen with high intervention exposure were more likely to use condoms when having sex with casual partners than those with low exposure. The Thailand study showed that transwomen who had been exposed to any intervention services were more likely to use condoms at last sex with any partner, and were more likely to consistently use condoms with commercial partners. Moreover, this study also indicated a significant effect of the outreach approach on condom use at last sex with any sex partner as well as a significant effect of drop-in center participation on HIV testing uptake.

The three interventions targeting MSM had significant and positive effects on reduced number of sex partners (Rongkavilit et al., 2013), increased score of HIV prevention knowledge and practices (Kasatpibal et al., 2014), and willingness to use Pre-Exposure Prophylaxis, respectively (Oldenburg et al., 2014). A study evaluating a web-based intervention found significant reduction in risky behaviors among its participants except for condom use with regular partner, condom negotiation, and number of sex partners (Kasatpibal et al., 2014).

Discussion

To our knowledge, this is the first review on behavioral interventions aimed at the prevention of HIV transmission among MSM and transwomen in Southeast Asia. Five out of 575 screened studies met the inclusion criteria of our systematic review and reported a significant intervention effect on at least one outcome measure. Peer education/outreach was most commonly employed and was usually delivered as an element of a larger intervention package, together with condom distribution and the provision of drop-in centers. MI was effective, while internet-based interventions appeared to be a viable platform for intervention delivery.

The use of peer-led HIV prevention for MSM and transwomen is commonly found in similar reviews (Higa et al., 2013; Huang et al., 2013; Lu et al., 2013). Peer educator/outreach for MSM and transwomen were mostly recruited from members of the communities themselves (Alliance China, 2012; amFAR The Foundation for AIDS Research, 2009). Thus, using peers as deliverers may support a comfortable intervention atmosphere for these populations. Our review supports another review which concluded that peer-led interventions reduced the overall unprotected sex among MSM (Ye et al., 2014). One study in this review also reported

that MI was effective in reducing the number of sex partners of young MSM living with HIV (Rongkavilit et al., 2013). The adaptation of MI in behavioral interventions has been growing (Harris, Kiekel, Brown, Sarmiento, & Byock, 2010; Morgenstern et al., 2009; Outlaw et al., 2010), and there is evidence of efficacy in integrating MI into a peer-led intervention (Outlaw et al., 2010).

One study in this review found that an internet-based intervention was effective to improve HIV prevention practices among MSM (Kasatpibal et al., 2014). This aligns with a number of rigorous studies that have been published on the effect of internet-based interventions on reducing high-risk sexual behavior among MSM (Carpenter, Stoner, Mikko, Dhanak, & Parsons, 2010; Ko et al., 2013; Rosser et al., 2010). An internet-based intervention can still be used despite issues of social and cultural stigma, discrimination, and even criminalization, which have been associated with high-risk sexual behavior by MSM in many developing countries, including Southeast Asian countries (Beyrer, 2008).

We applied rigorous systematic review methods exploring characteristics and the efficacy of behavioral interventions. However, this review has limitations. First, we could not conduct a meta-analysis because too few data were suitable to merit such analysis. Second, all study elements and intervention characteristics were extracted solely based on papers published in international peer-reviewed journals. Consequently, this review may not present a comprehensive overview of information about the interventions in the selected countries. Lastly, the majority of studies included in our review evaluated interventions using study designs with weak internal validity.

This review revealed that even though HIV programs have been running for a long time (van Griensven & de Lind van Wijngaarden, 2010), efforts in conducting a thorough evaluation of the intervention effectiveness for MSM and transwomen in Southeast Asia have only emerged over the past five years. Future interventions should be culturally appropriate, theoretically grounded, and rigorously evaluated. Only then can we best address the HIV epidemic among MSM and transwomen in Southeast Asia.

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Disclosure statement

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Appendix

Search terms used

Embase

("male homosexual"/exp OR "male to female transsexual"/exp OR (((male* OR man OR men) NEAR/3 (homosex* OR gay OR bisexual)) OR MSM OR MSMW OR gay* OR homosex* OR bisexual OR transgender* OR transsexual* OR (("with men" OR "between men" OR "man man" OR "male male" OR "same sex" OR anus OR anal OR gay OR homosex* OR bisexual) NEAR/3 (sex* OR intercourse*)):ab,ti) AND ("behavior therapy"/exp OR "health education"/de OR "health promotion"/de OR "social marketing"/de OR "sexual behavior"/de OR "safe sex"/de OR "behavior control"/de OR "health behavior"/de OR "sexual education"/de OR "behavior change"/de OR (((behav* OR communit* OR soci* OR sociocult* OR cultur* OR health*) NEAR/3 (therap* OR treatment* OR intervention* OR modif* OR prevent* OR program* OR promot* OR control* OR train* OR improv* OR campaign* OR change*)) OR ((intervention* OR treatment* OR therap* OR promot* OR communicat* OR education* OR improv*) NEAR/3 (program* OR strateg*)):ab,ti) AND ("Southeast Asia"/exp OR ((Southeast* OR "south east" OR "south eastern") NEAR/3 Asia*) OR (Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burm* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*):ab,ti)

Medline

(exp "Homosexuality, Male"/ OR "Transgendered Persons"/ OR (((male* OR man OR men) ADJ3 (homosex* OR gay OR bisexual)) OR MSM OR MSMW OR gay* OR homosex* OR bisexual OR transgender* OR transsexual* OR (("with men" OR "between men" OR "man man" OR "male male" OR "same sex" OR anus OR anal OR gay OR homosex* OR bisexual) ADJ3 (sex* OR intercourse*)):ab,ti) AND (exp "behavior therapy"/ OR "health education"/ OR "health promotion"/ OR "social marketing"/ OR "sexual behavior"/ OR "safe sex"/ OR "behavior control"/ OR "health behavior"/ OR "sexual education"/ OR (((behav* OR communit* OR soci* OR sociocult* OR cultur* OR health*) ADJ3 (therap* OR treatment* OR intervention* OR modif* OR prevent* OR program* OR promot* OR control* OR train* OR improv* OR campaign* OR change*)) OR ((intervention* OR treatment* OR therap* OR promot* OR communicat* OR education* OR improv*) ADJ3 (program* OR strateg*)):ab,ti)

AND (exp “Asia, Southeastern”/ OR ((Southeast* OR South east*) ADJ3 Asia*) OR (Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burm* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*).jn,cp,in,ab,ti.)

Cochrane central

((((male* OR man OR men) NEAR/3 (homosex* OR gay OR bisexual*)) OR MSM OR MSMW OR gay* OR homosex* OR bisexual* OR (“with men” OR “between men” OR “man man” OR “male male” OR “same sex” OR anus OR anal OR gay OR homosex* OR bisexual*) NEAR/3 (sex* OR intercourse*)):ab,ti) AND (((behav* OR communit* OR soci* OR sociocult* OR cultur* OR health*) NEAR/3 (therap* OR treatment* OR intervention* OR modif* OR prevent* OR program* OR promot* OR control* OR train* OR improv* OR campaign* OR change*)) OR ((intervention* OR treatment* OR therap* OR promot* OR communicat* OR education* OR improv*) NEAR/3 (program* OR strateg*)):ab,ti) AND (((Southeast* OR “south east” OR “south eastern”) NEAR/3 Asia*) OR (Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burm* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*):ab,ti)

Psycinfo

(exp “Male Homosexuality”/ OR (((male* OR man OR men) ADJ3 (homosex* OR gay OR bisexual*)) OR MSM OR MSMW OR gay* OR homosex* OR bisexual* OR (“with men” OR “between men” OR “man man” OR “male male” OR “same sex” OR anus OR anal OR gay OR homosex* OR bisexual*) ADJ3 (sex* OR intercourse*)):ab,ti) AND (exp “behavior therapy”/ OR “health education”/ OR “health promotion”/ OR “social marketing”/ OR “psychosexual behavior”/ OR “safe sex”/ OR “behavior modification”/ OR “health behavior”/ OR “sexual education”/ OR “behavior change”/ OR ((behav* OR communit* OR soci* OR sociocult* OR cultur* OR health*) ADJ3 (therap* OR treatment* OR intervention* OR modif* OR prevent* OR program* OR promot* OR control* OR train* OR improv* OR campaign* OR change*)) OR ((intervention* OR treatment* OR therap* OR promot* OR communicat* OR education* OR improv*) ADJ3 (program* OR strateg*)):ab,ti) AND (exp “Southeast Asian Cultural Groups”/ OR (Southeast* ADJ3 Asia) OR (Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burma* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*).jn,cp,in,ab,ti.)

Web-of-Science

TS = (((((male* OR man OR men) NEAR/3 (homosex* OR gay OR bisexual*)) OR MSM OR MSMW OR gay* OR homosex* OR

bisex* OR (“with men” OR “between men” OR “man man” OR “male male” OR “same sex” OR anus OR anal OR gay OR homosex* OR bisexual*) NEAR/3 (sex* OR intercourse*))) AND (((behav* OR communit* OR soci* OR sociocult* OR cultur* OR health*) NEAR/3 (therap* OR treatment* OR intervention* OR modif* OR prevent* OR program* OR promot* OR control* OR train* OR improv* OR campaign* OR change*)) OR ((intervention* OR treatment* OR therap* OR promot* OR communicat* OR education* OR improv*) NEAR/3 (program* OR strateg*))) AND (((Southeast* OR “south east” OR “south eastern”) NEAR/3 Asia*) OR (Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burm* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*))

Pubmed

((“Homosexuality, Male”[mh] OR “Transgendered Persons”[mh] OR gay*[tiab] OR men who have sex with men [tiab] OR homosex*[tiab] OR bisexual*[tiab] OR MSM[tiab] OR MSMW[tiab] OR transgender*[tiab] OR transsexual*[tiab] OR (gay[tiab] OR homosex*[tiab] OR bisexual*[tiab]) AND (men[tiab] OR male[tiab] OR males[tiab])) OR ((with men[tiab] OR man man[tiab] OR male male[tiab] OR same sex[tiab] OR anus[tiab] OR anal[tiab] OR gay[tiab] OR homosex*[tiab] OR bisexual*[tiab]) AND (sex[tiab] OR sexual[tiab] OR intercourse*[tiab]))) AND ((“Behavior therapy”[mh] OR “Sexual Behavior”[mh:noexp] OR “Safe Sex”[mh] OR “Health education”[mh] OR “Behavior control”[mh] OR “Health behavior”[mh] OR “Health promotion”[mh] OR “Sex education”[mh] OR ((behavior*[tiab] OR behavior*[tiab] OR social*[tiab] OR sociocult*[tiab] OR cultur*[tiab] OR communit*[tiab] OR communicat*[tiab] OR education*[tiab] OR informat*[tiab] OR aware*[tiab] OR network*[tiab] OR guidan*[tiab] OR prevent*[tiab] OR control[tiab] OR controls[tiab] OR condition*[tiab] OR health[tiab] OR healthy[tiab]) AND (therapy[tiab] OR therapist*[tiab] OR therapies[tiab] OR treat[tiab] OR treated[tiab] OR treatment [tiab] OR treating[tiab] OR interven*[tiab] OR strateg*[tiab] OR modif*[tiab] OR program*[tiab] OR promot*[tiab] OR campaign*[tiab] OR market*[tiab] OR train*[tiab] OR improve*[tiab] OR change*[tiab])) OR ((intervent*[tiab] OR treatment*[tiab] OR train*) AND (program*[tiab] OR strateg*[tiab]))) AND ((“Asia, Southeastern”[mh] OR Southeast Asia[tiab] OR Southeastern Asia[tiab] OR Brunei* OR Cambodia* OR Indonesia* OR Lao* OR Malay* OR Myanmar* OR Burma* OR Singapore* OR Philippin* OR Thai* OR Timor* OR Viet*))