



Published in final edited form as:

AIDS Educ Prev. 2017 April ; 29(2): 175–190. doi:10.1521/aeap.2017.29.2.175.

Beliefs and perception about HIV/AIDS, self-efficacy, and HIV sexual risk behaviors among young Thai men who have sex with men

Natawan Khumsaen, Ph.D., RN.^{B,C,D} [A Post-doctoral Fellow] and Rob Stephenson, Ph.D.^{A,B} [Professor]

^ADepartment of Health Behavior and Biological Sciences, School of Nursing, University of Michigan, 400 North Ingalls, Ann Arbor, MI 48104, USA. ^BThe Center for Sexuality and Health Disparities, University of Michigan, Ann Arbor, MI 48104, USA. ^CBoromarajonani College of Nursing, Suphanburi, Thailand

INTRODUCTION

In Thailand, since the onset of the HIV/AIDS epidemic in the late 1980s, men who have sex with men (MSM) have been heavily affected by HIV (Beyrer et al., 2011), and continue to represent the majority of HIV incidence and prevalence, with young MSM (15–24) representing the greatest proportion of new HIV infections (van Griensven et al., 2013). Data show a persistently high prevalence of HIV infections among Thai MSM in Bangkok: 17.3% in 2003; 28.7% in 2005; 32.7% in 2007; 28.3% in 2009; and 21.3% in 2011 (van Griensven et al., 2013). The increasing rate of HIV infections among young MSM is particularly worrying, with reported high levels of sexual risk taking among this group (Holtz et al., 2015). This ongoing HIV transmission is due, in part, to binge drinking. Alcohol consumption is a big problem among young Thai MSM. Alcohol use has long been found as an important risk factor related to HIV infection in Thai MSM (Holtz et al., 2015; van Griensven et al., 2005). Moreover, disease perceptions might determine the ways patients manage their symptoms. Particularly, perception of HIV as a chronic disease can influence the self-care strategies used in response to HIV-related symptoms, which are linked to patients' health outcomes (Norcini Pala & Steca, 2015). One pathway to providing prevention for young Thai MSM may be through understanding the perceptions of their risk HIV and the extent to which they view HIV as a health priority. Previous research on Thai MSM focused primarily on condom use, and has not fully examined the extent to which young MSM think they are at risk of HIV. This study aims to examine the relationships of HIV/AIDS beliefs, self-efficacy for AIDS preventive behaviors, perception of HIV as a chronic disease, and HIV risk behaviors among young Thai men who have sex with men. This knowledge has the potential to inform prevention messages for young Thai MSM.

^D Corresponding author's knatawan@hotmail.com.

Theory: the Expanded Health Belief Model (EHBM)

The expanded health belief model (EHBM) (Rosenstock, Strecher, & Becker, 1988) provided the framework for this study. By including the construct of self-efficacy, the EHBM is a powerful approach to understanding health-related behaviors and behavior change (Rosenstock et al., 1988; Norman & Brain, 2005). The EHBM consists of six concepts: (a) perceived susceptibility, (b) perceived severity, (c) perceived benefits, (d) perceived barriers, (e) cues to action, and (f) self-efficacy (Rosenstock et al., 1988). According to the EHBM, individuals will take a health-related action if they perceive that a negative health condition can be avoided, hold positive attitudes that taking a recommended action will result in avoiding the condition, and believe they can be successful in enacting the recommended action (Rosenstock et al., 1988). Studies have shown that the constructs of the EHBM have predicted sexual risk behaviors such as condom use at last anal sex, Never HIV Tested, and partner unknown status among MSM (Volk & Koopman, 2001; Winfield & Whaley, 2002; Bauermeister, Hickok, Meadowbrooke, Veinot, & Loveluck, 2014). However, the model has not been applied to understanding the sexual risk behavior of young Thai MSM.

Gains in treatment of HIV have led to HIV now being characterized as a chronic yet manageable disease (Deeks, Lewin, & Havlir, 2013; Scandlyn, 2000); the understanding of the perception of HIV as a chronic disease among high risk population such as MSM is crucial as it may influence the risks they choose to take (Hoy-Ellis & Fredriksen-Goldsen, 2007). This paper examines three components of perception of HIV as a chronic disease: perception of health threat, perception of self-management, and perception of status disclosure. Perception of HIV as a health threat has been shown to influence sexual risk behaviors among MSM (Downing, 2014; van der Snoek, de Wit, Mulder, & van der Meijden, 2005). In order for one to perceive a disease to be a threat, they must first perceive themselves to be susceptible to the disease and perceive the disease to be severe (Strecher & Rosenstock, 1997). If an individual perceives a disease to be a threat, they may adopt risk reduction behaviors. Perception of self-management: due to the complicated treatments, HIV as a chronic disease requires patients' self-management (Nolte & McKee, 2008). Self-management of a serious chronic disease entails a continual reworking by patients themselves. Studies have suggested that perceived self-management plays a critical role in improving several health outcomes (Gifford & Groessl, 2002; Lorig et al., 1999), including safe sex behaviors. Perception of status disclosure: several studies have documented that HIV status disclosure represents a significant barrier to getting HIV tested (Fortenberry et al., 2002; Mahajan et al., 2008; Holzemer & Uys, 2004). Studies of HIV-positive MSM in Western countries suggest that disclosure of HIV-positive status is associated with safer sex with casual partners whose HIV status is negative or unknown (Golden, Brewer, Kurth, Holmes, & Handsfield, 2004; Klitzman et al., 2007; Simoni & Pantalone, 2004). Understanding how these three concepts of HIV beliefs are associated with sexual risk taking among young Thai MSM is essential for designing effective and appropriate interventions specifically targeting young Thai MSM.

METHODS

Data Collection

This study used a quantitative descriptive cross-sectional design. Participants were recruited for a self-administered survey via Facebook. Banner ads marketing a “*Young Thai Men’s Health Survey*” were placed on Facebook. Ads were targeted to men who indicated an interest in men on their profiles and reported residency in Thailand. All banner ads and surveys were in Thai. Clicking on the advertisement led potential participants to information regarding the survey. The respondents were told the survey would take approximately 30 minutes, guaranteed anonymity and informed that participation was voluntary. Respondents were not compensated for participation. After obtaining electronic informed consent, respondents were invited to complete the survey. Being born male, being between 18–21 years of age and self-reporting having had sex with a man in the previous 6 months were requirements for eligibility for survey participation. Study data were collected during a single period of data collection from September 1–15, 2015.

Instrument Translation Process

In this study, all research instruments were first developed in draft form in English, then refined and translated into Thai language by the two bilingual experts from Thailand who are fluent in both languages and familiar with the content. Next, the Thai version was back-translated into English by another two persons who are fluent in both languages and blinded to the original version. Then, comparison between the back-translated one and the original one were made. Lastly, an agreement between two versions was reached.

Ethical Considerations

This study was approved by the University of Michigan Institutional Review Board (IRB). Men were shown a short paragraph about the study procedures at the beginning of the survey. In this study, electronic informed consent was obtained. Subsequently, the participants were invited to complete the survey.

Survey Measures

Demographic data: The first part of the survey included questions on the participants’ demographic characteristics: age, residence, education, and employment. The survey also collected information on participants’ sexual orientation. Finally, participants were asked if they were currently in a sexual relationship with another man; with “relationship” defined as someone called a boyfriend, partner, or someone that the participants have felt a special emotional commitment.

AIDS health belief: To examine the HIV/AIDS beliefs, the AIDS Health Belief Scale (AHBS) was used. This scale was originally developed in English by Zagumny and Brady (1998) based on the Health Belief Model (HBM). It is a validated tool that measures the degree of health belief related to HIV/AIDS (Zagumny & Brady, 1998). The instrument contains five domains: perceived susceptibility to HIV/AIDS, perceived severity of HIV/AIDS, perceived benefits of condom use, perceived barriers to condom use, and cues to

action for HIV/AIDS prevention. Each of the domains related to a specific probability estimate on the part of the individual (Zagumny & Brady, 1998).

In domain 1, perceived susceptibility to HIV/AIDS refers to one's beliefs of the chances of acquiring HIV (Tarkang & Zotor, 2015). The respondents were asked how they believed in the chances of acquiring HIV (e.g. 'I am afraid that I might contract AIDS' and 'I believe that I can be exposed to HIV infection if my sex partner is heterosexual'). A total score, for perceived susceptibility domain in the instrument, has a possible range of 4 to 20, which was obtained by summing the response scores across the 4 relevant items. In each item, the respondents were asked to indicate their belief related to HIV/AIDS ranged from 1 (strongly disagree) to 5 (strongly agree). Higher scores represented a greater amount of the belief of the chances of acquiring HIV/AIDS.

In domain 2, perceived severity of HIV/AIDS refers to individual's beliefs of how serious a condition and consequences of HIV/AIDS are (Tarkang & Zotor, 2015). The respondents were asked how they believed in the seriousness of HIV/AIDS (e.g. 'I would rather have any other terminal illness than AIDS' and 'AIDS is probably the worst disease a person can get'). A total score, for perceived severity domain in the instrument, has a possible range of 4 to 20, which was obtained by summing the response scores across the 4 relevant items. In each item, the respondents were asked to indicate their belief related to HIV/AIDS ranged from 1 (strongly disagree) to 5 (strongly agree). Higher scores represented a greater amount of the belief of HIV/AIDS seriousness.

In domain 3, perceived benefits of condom use refer to one's beliefs in the effectiveness of recommended preventive health actions including consistent and correct condom use during sexual intercourse to prevent HIV/AIDS (Tarkang & Zotor, 2015). The respondents were asked how they believed in the effectiveness of consistent and correct condom use during sexual intercourse to prevent HIV/AIDS (e.g. 'I think it is worth the effort to have condoms readily available' and 'If a condom is not available, it would be worth the effort to discontinue sexual activity to obtain a condom'). A total score, for perceived benefit domain in the instrument, has a possible range of 4 to 20, which was obtained by summing the response scores across the 4 relevant items. In each item, the respondents were asked to indicate their belief related to HIV/AIDS ranged from 1 (strongly disagree) to 5 (strongly agree). Higher scores represented a greater amount of the belief in the efficacy of the behavior to reduce HIV/AIDS risk.

In domain 4, perceived barriers to condom use refer to individual's beliefs in the tangible and psychological costs of using condom to reduce HIV/AIDS risk (Tarkang & Zotor, 2015). The respondents were asked how they believed in the tangible and psychological costs of using condom to reduce HIV/AIDS risk (e.g. 'Using a condom seems like an insult to my partner' and 'It is embarrassing (to me) to buy condoms'). A total score, for perceived barrier domain in the instrument, has a possible range of 4 to 20, which was obtained by summing the response scores across the 4 relevant items. In each item, the respondents were asked to indicate their belief related to HIV/AIDS ranged from 1 (strongly disagree) to 5 (strongly agree). Higher scores represented a greater amount of the belief in the psychological costs of the behavior to reduce HIV/AIDS risk.

In domain 5, cues to action for HIV/AIDS prevention refer to experiences/events, either personal (e.g., physical symptoms of a health condition) or environmental (e.g., media publicity) that motivate individual's readiness to reduce HIV/AIDS risk (Tarkang & Zotor, 2015). The respondents were asked about the events or experiences, personal (physical symptoms of a health condition), interpersonal or environmental (media publicity) that motivate their readiness to reduce HIV/AIDS risk (e.g. 'I know someone live/dead with HIV/AIDS' and 'I discussed AIDS with the doctor/ nurse/health care provider'). A total score, for cue to action domain in the instrument, has a possible range of 8 to 40, which was obtained by summing the response scores across the 8 relevant items. In each item, the respondents were asked to indicate their belief related to HIV/AIDS ranged from 1 (strongly disagree) to 5 (strongly agree). Higher scores represented a greater amount of the belief to activate readiness to reduce HIV/AIDS risk.

Overall, the AHBS contains 24 items and a total score range of 24 to 120. Higher scores indicated a higher degree of health belief related to HIV/AIDS. The instrument was validated on 216 undergraduate students at a southeastern university, USA with a reported internal consistency of .82. It was further validated on 401 late adolescents with an internal consistency of .83 (Zagumny & Brady, 1998). For this study, a Thai translation of the scale, which had documented content and convergent validity by the experts, was employed. Cronbach's alpha coefficient was .71 for the overall 24-item AHBS.

Self-efficacy for AIDS preventive behaviors: To examine the influence of self-efficacy on HIV risk behaviors, the AIDS-Prevention Self-efficacy scale was used. It is a validated rating scale developed by Kasen and colleagues (Kasen, Vaughan, & Walter, 1992). This instrument consists of three domains: self-efficacy in refusing sexual intercourse, self-efficacy in questioning potential sex partners, and self-efficacy in condom use.

In domain 1, self-efficacy in refusing sexual intercourse refers to one's belief about the ability to have successful performance of refusing sexual intercourse (Kasen et al., 1992). The respondents were asked about their beliefs regarding their ability to have successfully refuse sexual intercourse (e.g. 'How sure are you that you would be able to say NO to having sexual intercourse with someone you have known for a few days or less?' and 'How sure are you that you would be able to say NO to having sexual intercourse with someone whose sex and drug use history is not known to you?'). In each item, the respondents were asked to indicate how confident they were about engaging in each behavior ranged from 1 (not at all sure) to 5 (very sure). A total score, for the refusing sexual intercourse component of the instrument, has a possible range of 9 to 45, which was obtained by summing the response scores across the 9 relevant items. Higher scores indicated a higher self-efficacy for refusing sexual intercourse.

In domain 2, self-efficacy in questioning potential sex partners refers to individual's belief about the ability to question potential sex partners (Kasen et al., 1992). The respondents were asked about their beliefs regarding their ability to question potential sex partners (e.g. 'How sure are you that you would be able to ask your boyfriend about sexual relationships that he has had in the past?' and 'How sure are you that you would be able to ask your

boyfriend if he has ever injected drugs such as heroin or cocaine into his/her veins?'). In each item, the respondents were asked to indicate how confident they were about engaging in each behavior ranged from 1 (not at all sure) to 5 (very sure). A total score, for the questioning potential sex partner component of the instrument, has a possible range of 4 to 20, which was obtained by summing the response scores across the 4 relevant items. Higher scores indicated a higher self-efficacy for questioning potential sex partners.

In domain 3, self-efficacy in condom use refers to a person's belief about the ability to use condoms (Kasen et al., 1992). The respondents were asked about their beliefs regarding their ability to use condoms (e.g. 'How sure are you that you would be able to use a condom correctly?' and 'How sure are you that you would be able to walk into a store and buy condoms?'). In each item, the respondents were asked to indicate how confident they were about engaging in each behavior ranged from 1 (not at all sure) to 5 (very sure). A total score, for the condom use component of the instrument, has a possible range of 9 to 45, which was obtained by summing the response scores across the 9 relevant items. Higher scores indicated a higher self-efficacy for using condoms.

Overall, this instrument consists of 22 items and a total score range of 22 to 110. Higher scores in this scale indicated a higher self-efficacy to engage in HIV/AIDS preventive behaviors. The instrument was validated on 181 tenth grade students from six high schools in New York state, USA with a reported internal consistency of .81 (Kasen et al., 1992). Moreover, in the study conducted among Taiwanese adolescents, reliability of this scale as measured by Cronbach's alpha .90 was reported (Lee, Salman, & Fitzpatrick, 2009). For this study, a Thai translation of the scale was used. The Cronbach's alpha among young Thai MSM in this study was .70.

Perception of HIV/AIDS as a chronic disease: This is the first study to explore perception of HIV/AIDS as a chronic disease among young Thai MSM. In a comprehensive review of the literature, no existing tool was found to measure perceptions of HIV/AIDS as a chronic disease. New questions were developed by the team to measure the concept of perceptions of HIV/AIDS as a chronic disease.

A review of the research literature showed that one factor that may influence MSM sexual risk behaviors is perceived threat of HIV infection (Downing, 2014; Ma et al., 2013). For a chronic disease like HIV, an individual's risk of infection depends on the degree of perception of threat. So, perception of health threat was then included as one of the domains in this measurement. Perception of health threat refers to one's belief of how serious of HIV/AIDS health threat would be in comparison to three selected chronic conditions: diabetes, cancer, and heart disease. In this domain, the respondents were asked to prioritize HIV relative to other chronic diseases (diabetes, cancer, and heart disease). The respondents were asked how serious they thought the health threat of HIV was relative to diabetes, cancer, and heart disease (e.g. 'How serious of a health threat would HIV be relative to diabetes?' and 'How serious of a health threat would HIV be relative to cancer?'). A total score, for the perception of health threat domain, has a possible range of 0 to 30, which was obtained by summing the response scores across the 3 relevant items. The responses were assigned one

point, creating a scale index range of 0 to 10. Higher scores indicated more perceived health threat of HIV/AIDS.

Respondents were asked how easy they thought it would be to manage HIV in comparison to diabetes, cancer, and heart disease (e.g. 'If you were HIV positive, how easy would it be to manage your health compared to if you had diabetes?' and 'If you were HIV positive, how easy would it be to manage your health compared to if you had heart disease?'). A total score, for the perception of self-management domain, has a possible range of 0 to 30, which was obtained by summing the response scores across the 3 relevant items. The responses were assigned one point, creating a scale index range of 0 to 10. Higher scores indicated more perceived self-management of HIV/AIDS.

Perception of status disclosure refers to one's belief of how willing he would be to tell the others about his HIV infection in comparison to diabetes, cancer, and heart disease. In this domain, the respondents were asked to prioritize HIV relative to other chronic diseases (diabetes, cancer, and heart disease). The respondents were asked how willing he would be to tell the others about his HIV infection in comparison to diabetes, cancer, and heart disease (e.g. 'If you were HIV positive, how easy would it be to manage your health compared to if you had diabetes?' and 'If you were HIV positive, how easy would it be to manage your health compared to if you had cancer?'). A total score, for the perception of status disclosure domain, has a possible range of 0 to 30, which was obtained by summing the response scores across the 3 relevant items. The responses were assigned one point, creating a scale index range of 0 to 10. Higher scores indicated more willingness to disclose HIV status.

For this study, a Thai version of the scale, which had documented content and convergent validity by the experts, was used. Cronbach's alpha coefficient was .70 for the overall 9-item Perceptions of HIV/AIDS as a Chronic Disease scale.

HIV Risk Behaviors: Four HIV risk behaviors were selected as outcomes: self-reported condom use at last anal sex in the past 6 months, never been tested for HIV, self-reported having sex with a partner of unknown HIV status in the past 6 months, and self-reported sex while drunk in the past 6 months.

Sample

Overall, 154,210 advertising impressions on Facebook resulted in 16,391 click-throughs (click-through rate: 10.63%) to the banner advertisement and were subsequently exposed to the eligibility screener. Of these, 2,313 (14.11%) began the survey. Of those beginning the eligibility screener, 964 (41.68%) did not meet all the eligibility criteria and were disqualified. And 1,349 (58.32% of respondents to eligibility questions) were eligible. Eligible participants were provided informed consent documents; consenting participants were passed to an online survey.

Of eligible men, 807 (59.82%) began but did not finish the survey, and 542 (40.18%) completed the survey. Of the men who completed the survey, 469 (86.53%) provided data for covariates of interest and were included in the statistical analysis, resulting in an overall response rate of 58.12%. Regarding missing data, the majority of excluded respondents (73)

were missing information on sensitive topics (e.g. drug and alcohol use in the past 6 months; and sex in exchange for money, drugs, shelter, or food). Of the 469 respondents, 158 participants with missing data on the outcomes were excluded from the analysis.

Data Analysis

Data were cleaned and analyzed using the Statistical Package for the Social Science (SPSS) version 22.0 for Windows (IBM Corporation, New York, USA). Only men identifying with a male gender and who provided data for all covariates of interest were included in analysis. A separate logistic regression model was fitted for each of the four HIV risk behavior outcomes (condom use at last anal sex in the past six months; Never HIV Tested; sex with a partner of unknown sero-status status in the past 6 months and sex while drunk in the last 6 months). Covariates were selected based on previous literature regarding their associations with HIV risk behaviors. Covariates considered for inclusion into each model were age, residence, employment status, education, and current male partner. Moreover, key covariates included the AIDS-Prevention Self-efficacy scale, the AIDS Health Belief scale, and the Perception of HIV/AIDS as a Chronic Disease scale.

RESULTS

Demographic characteristics of the respondents are summarized in Table 1. As shown in Table 1, the overall mean age was 19.7 years ($SD = 1.13$). The majority of respondents were 21 years of age (34.5%, $n = 162$). Most of the respondents lived in an urban area (76.3%). Most of the participants were students (79.1%). The vast majority reported high school education (49.7%). Also, with more than half of the sample reported having a current male partner (50.5%).

The results of the logistic regression models are summarized in Table 2. The respondents who reported more self-efficacy in refusing sexual intercourse were more likely to report recent sex with a partner of unknown sero-status (OR 1.06, 95% CI: 1.02–1.10). Respondents who reported less self-efficacy in questioning potential sex partners were more likely to use condom at last anal sex (OR 0.92, 95% CI: 0.86–0.98). Respondents who reported more self-efficacy in questioning potential sex partners were more likely to report having never been HIV tested (OR 1.13, 95% CI: 1.04–1.23). Respondents who reported more self-efficacy in questioning potential sex partners were more likely to report recent sex with a partner of unknown sero-status (OR 1.12, 95% CI: 1.04–1.22). Respondents who reported more self-efficacy in condom use were more likely to report using a condom at last anal sex (OR 1.13, 95% CI: 1.08–1.19).

The less susceptibility to HIV/AIDS respondents perceived, the more likely they were to report having recent sex with a partner of unknown sero-status (OR 0.88, 95% CI: 0.81–0.96). The less severity of HIV/AIDS respondents perceived, the more likely they were to report having never been HIV tested (OR 0.92, 95% CI: 0.85–0.99). The less barriers to condom use respondents perceived, the more likely they were to report condom use at last anal sex (OR 0.84, 95% CI: 0.77–0.91).

The more barriers to condom use respondents perceived, the more likely they were to report having sex while drunk in the last 6 months (OR 1.17, 95% CI: 1.04–1.31). The more cues to action for HIV/AIDS prevention respondents perceived, the more likely they were to report having never been HIV tested (OR 1.19, 95% CI: 1.13–1.25). The more cues to action for HIV/AIDS prevention respondents perceived, the more likely they were to report having sex with a partner of unknown sero-status in the past 6 months (OR 1.07, 95% CI: 1.03–1.12).

Respondents who reported being less willing to disclose HIV status were more likely to report having never been HIV tested (OR 0.95, 95% CI: 0.93–0.99). Respondents aged 19 were more likely to report having never been HIV tested, compared with respondents aged 18 (OR 3.16, 95% CI: 1.26–7.90), and those aged 21 were more likely to report having never been HIV tested (OR 3.16, 95% CI: 1.30–7.66). Respondents who reported having a current male partner were more likely to report recent sex while drunk (OR 2.435, 95% CI: 1.375–4.314). Notably, residence, education level, and employment status were not significantly associated with any of the HIV risk outcomes.

DISCUSSION

The current study examined the relationships of HIV/AIDS beliefs, self-efficacy for AIDS preventive behaviors, perception of HIV as a chronic disease, and HIV risk behaviors among young Thai men who have sex with men.

Consistent with the previous studies (Bauermeister et al., 2014; Klein, 2014), the result of our study showed that self-efficacy for AIDS preventive behaviors was significantly associated with sexual risk behaviors among young Thai MSM. Our results illustrate that MSM with high self-efficacy were more likely to negotiate safer sex and reduce their HIV/AIDS risks. As anticipated, individuals with confidence in the ability regarding HIV/AIDS prevention were more likely to consistently practice safe sex behaviors. Our findings support the idea that self-efficacy would be a link to safer sex behaviors; it could also be the important factor that is necessary to modify HIV risk behaviors (Wulfert & Wan, 1993). Congruent with the EHB (Rosenstock et al., 1988), self-efficacy is the direct antecedent of behavior; so, self-efficacy has been proposed to affect HIV/AIDS preventive behaviors (Lee et al., 2009; Kasen et al., 1992). The scientific literature suggests that self-efficacy was significantly associated with sexual risk behaviors such as condom use at last anal sex, drunken sex, partner of unknown sero-status, and having never been tested for HIV (Sohn & Cho, 2012; Prati et al., 2014). Particularly, young MSM who demonstrated high self-efficacy during sexual activities were more likely to consistently practice safe sex when compared with their peers who reported low self-efficacy (Brown, Serovich, Kimberly, & Umasabor-Bubu, 2015). The results of this study indicate that improving self-efficacy, particularly for negotiation of safer sex practices among young MSM may lead to reduction in HIV transmission among this population in Thailand.

Consistent with previous studies that have highlighted the role of risk perception in shaping risk behavior (Shi, Kanouse, Baldwin, & Kim, 2012; Crosby, Salazar, & DiClemente, 2004; Prati et al., 2014), our findings illustrated that perceived susceptibility to HIV/AIDS,

perceived severity of HIV/AIDS, perceived barriers to condom use, and cues to action for HIV/AIDS prevention were significantly associated with sexual risk behaviors among young Thai MSM. These associations may have been the results of a rational decision-making process in which a person weighs the costs and benefits associated with a particular behavioral practice of taking action; when individuals are faced with a potential threat to their health, they consider their susceptibility to, and the severity of, the health threat (Janz & Becker, 1984). Our findings mostly support the application of EHBM to understanding HIV risk behaviors among young Thai MSM.

Nonetheless, a non-significant relationship between perceived benefits of condom use and sexual risk behaviors was shown. A possible explanation would be that although the Thai Ministry of Public Health launched a nationwide campaign (“a 100% condom use”) in 1990; nevertheless, in 1998, the Thai administration cut health care subsidy for condom use campaign because a financial crisis hit Thailand in mid-1997. Since then, Thailand’s 100% condom use campaign has weakened, and financial support has been directed at treatment rather than prevention (Treerutkuarkul, 2010). Hence, lack of such campaign might decrease perceived benefits of condom use among young Thai MSM. Further research is needed to examine associations between perceived benefits of condom use and sexual risk behaviors among young Thai MSM.

With regard to perception of HIV as a chronic disease, our finding revealed that perception of status disclosure was significantly associated with having never been tested for HIV. Thai MSM who had less willing to disclose HIV sero-status were more likely to report having never been tested for HIV, the first time found in Facebook-registered Thai MSM. This finding is novel in the area of HIV risk behaviors among young internet-using Thai MSM in an online survey. This is similar to previous global evidence (Ng et al., 2014; Li et al., 2014) and might be explained by the fact that those MSM who less likely to disclose their HIV sero-status might be fearful of HIV-related stigma and discrimination, shamefulness, and worried regarding confidentiality (Bird & Voisin, 2011; UNICEF, 2014). More research into this finding is needed.

MSM who reported having a current male partner were more likely to engage in sexual risk behaviors than MSM who did not. This is consistent with the literature (Pines et al., 2016; Bowers, Branson, Fletcher, & Reback, 2012). A possible explanation might be that having a current male partner may cause MSM to abandon safe sex practice because of their emotional connection or erotic desire (Bowers et al., 2012). Therefore, the likelihoods for sexual risk behaviors (e.g., drunken sex and condom non-use) may increase. The finding underscores a need for development of HIV prevention intervention for MSM and their current male partner.

Moreover, we found age to be associated with having never been HIV tested, but not with reporting condom use at last anal sex, having partner unknown sero-status, or with engaging in drunk sex. Respondents aged 19 were more likely to report having never been HIV tested, compared with respondents aged 18, and those aged 21 were more likely to report having never been HIV tested. This finding is consistent with previous findings in Thailand (UNICEF, 2014).

Several limitations of the study should be noted. First, all data from the respondents were self-reported. Some of them may have over or underreported their sexual activities such as using or not using a condom; although the measures were taken to create conditions that encouraged valid responses from the respondents. Although this study tried to reduce concerns regarding privacy by using an anonymous online survey, some participants may give incorrect responses because of issues regarding perceptions of HIV/AIDS and social desirability. Second, use of a convenience sample of young Thai MSM and online recruiting limited the external validity of this study; so, generalizability of the study findings is also limited. Lastly, online young Thai MSM samples participated in this study are only samples of MSM who use the Internet. Hence, this online survey did not reach young Thai MSM with limited access to the Internet and oversample from urban areas. In this study, approximately three-fourths (76.3%) of the respondents reported living in urban area and almost one-fourth (23.7) were from rural area.

Despite these limitations, this study makes a valuable contribution to Thai public health policy, particularly the HIV prevention policy in MSM. This study is the first to investigate factors related to HIV risk behaviors (condom use at last anal sex, never been HIV tested, partner unknown sero-status, and drunk sex) among an online-recruited sample of young MSM in Thailand. Our findings can be used to inform and guide the implementation of 'Thailand National Operational Plan Accelerating Ending AIDS (2015–2019)' which focuses on tailored service packages for MSM and launches a unique strategy, *Reach-Recruit-Test-Treat-Retain*, to decrease the prevalence of HIV among MSM (National AIDS Committee, 2015).

CONCLUSIONS

The main significance of this study was to provide preliminary evidence of the applicability of self-efficacy and other domains in the EHBM to understand sexual risk behaviors and perception of HIV as a chronic disease in young Thai MSM. The findings of this study suggest that risk reduction interventions and health education interventions should incorporate AIDS health beliefs and self-efficacy for AIDS preventive behaviors as the means to facilitate behavior change among MSM community.

Acknowledgments

Source of support: The authors also disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: the authors wish to thank the National Institutes of Health (NIH) for funding the study (Grant # D43 TW009883 - Strengthening Nurse NCD Research and Training Capacity in Thailand). This publication resulted in part from research supported by the Center for Sexuality and Health Disparities at School of Nursing, University of Michigan.

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Table 1. Descriptive Statistics of an online-recruited sample of young MSM in Thailand (N=469)

Variable	n(%)
Age (in years) (<i>M</i> = 19.74, <i>SD</i> = 1.13)	
18	92(19.6)
19	98(20.9)
20	117(24.9)
21	162(34.5)
Residence	
Urban	358(76.3)
Rural	111(23.7)
Employment status	
Employed	78(16.6)
Unemployed	20(4.3)
Student	371(79.1)
Education	
Primary school	6(1.3)
High school	233(49.7)
College/University	230(49.0)
Current Male Partner	
Yes	237(50.5)
No	232(49.5)

Table 2.

Logistic regression results with odds ratios (and 95% confidence intervals) for reporting condom use at last anal sex in the past 6 months, having never been HIV tested, having partner unknown status, and engaging in drunk sex among an online-recruited sample of young MSM in Thailand

Exposures	Condom Use at Last Anal Sex (N=420)			Never HIV Tested (N=469)			Partner Unknown Status (N=420)			Drunk Sex (N=311)		
	OR	(95% CI)	p-value	OR	(95% CI)	p-value	OR	(95% CI)	p-value	OR	(95% CI)	p-value
<i>Age (in year)</i>												
18		1.00 (reference)			1.00 (reference)			1.00 (reference)			1.00 (reference)	
19	1.370	0.647, 2.899	0.411	3.163	1.265, 7.908	0.014	0.777	0.347, 1.739	0.539	1.230	0.481, 3.147	0.665
20	0.622	0.313, 1.234	0.174	2.065	0.800, 5.330	0.134	1.264	0.583, 2.737	0.553	0.799	0.309, 2.070	0.645
21	0.727	0.373, 1.415	0.348	3.160	1.304, 7.661	0.011	1.071	0.513, 2.233	0.856	1.474	0.622, 3.491	0.378
<i>Residence</i>												
Rural		1.00 (reference)			1.00 (reference)			1.00 (reference)			1.00 (reference)	
Urban	1.260	0.748, 2.124	0.385	1.051	0.564, 1.958	0.875	0.853	0.478, 1.523	0.591	2.435	1.375, 4.314	0.202
<i>Education</i>												
Primary school		1.00 (reference)			1.00 (reference)			1.00 (reference)			1.00 (reference)	
High school	2.264	0.318, 16.147	0.415	322	0.000, 0.000	0.999	384	0.000, 0.000	0.999	705	0.000, 0.000	0.999
College/university	1.794	0.245, 13.111	0.565	458	0.000, 0.000	0.999	458	0.000, 0.000	0.999	655	0.000, 0.000	0.999
<i>Employment</i>												
Student		1.00 (reference)			1.00 (reference)			1.00 (reference)			1.00 (reference)	
Employed	0.553	0.297, 1.027	0.061	1.588	0.805, 3.131	0.182	1.662	0.864, 3.194	0.128	1.369	0.647, 2.895	0.411
Unemployed	1.053	0.339, 3.276	0.928	0.995	0.243, 4.075	0.995	1.153	0.314, 4.233	0.831	0.393	0.079, 1.957	0.254
<i>Current male partner</i>												
No		1.00 (reference)			1.00 (reference)			1.00 (reference)			1.00 (reference)	
Yes	0.650	0.415, 1.017	0.059	1.543	0.924, 2.579	0.098	1.349	0.830, 2.193	0.227	2.435	1.375, 4.314	0.002
<i>Self-efficacy for AIDS preventive behaviors</i>												
Self-efficacy in refusing sexual intercourse	0.985	0.949, 1.021	0.402	0.987	0.949, 1.027	0.520	1.061	1.021, 1.104	0.003	0.965	0.920, 1.011	0.136
Self-efficacy in questioning potential sex partners	0.923	0.862, 0.988	0.021	1.137	1.043, 1.239	0.004	1.129	1.041, 1.225	0.003	0.971	0.894, 1.055	0.494
Self-efficacy in condom use	1.137	1.083, 1.193	0.000	1.019	0.965, 1.077	0.497	1.028	0.975, 1.083	0.306	1.035	0.974, 1.099	0.269
<i>AIDS Health Belief</i>												

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Exposures	Condom Use at Last Anal Sex (N=420)			Never HIV Tested (N=469)			Partner Unknown Status (N=420)			Drunk Sex (N=311)		
	OR	(95% CI)	p-value	OR	(95% CI)	p-value	OR	(95% CI)	p-value	OR	(95% CI)	p-value
Perceived susceptibility	0.998	0.927, 1.073	0.947	0.940	0.860, 1.028	0.177	0.886	0.814, 0.965	0.005	1.000	0.908, 1.102	0.998
Perceived severity	0.980	0.918, 1.046	0.539	0.923	0.858, 0.994	0.034	1.034	0.964, 1.108	0.349	1.032	0.948, 1.124	0.461
Perceived benefits	0.975	0.876, 1.085	0.641	0.940	0.835, 1.060	0.313	0.951	0.846, 1.069	0.401	0.998	0.880, 1.130	0.969
Perceived barriers	0.842	0.772, 0.917	0.000	0.953	0.862, 1.053	0.342	0.963	0.877, 1.057	0.429	1.170	1.042, 1.313	0.008
Cues to action	1.032	0.988, 1.079	0.158	1.195	1.135, 1.258	0.000	1.078	1.030, 1.129	0.001	1.008	0.954, 1.066	0.778
<i>Perception of HIV as a chronic disease</i>												
Health threat	0.981	0.952, 1.011	0.207	1.035	0.999, 1.072	0.054	1.018	0.985, 1.051	0.290	1.009	0.972, 1.047	0.640
Self-management	1.000	0.699, 1.035	0.983	1.001	0.962, 1.042	0.955	0.985	0.949, 1.022	0.420	0.987	0.945, 1.031	0.570
Status disclosure	1.008	0.981, 1.036	0.551	0.959	0.930, 0.990	0.009	1.005	0.978, 1.034	0.706	1.014	0.982, 1.048	0.393

*** p<.01

* p<.05