Social determinants of HIV infection among men who have sex with men in the Philippines

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SOCIAL DETERMINANTS OF HIV INFECTION IN MEN WHO HAVE SEX WITH MEN IN THE PHILIPPINES

by

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ABSTRACT

Since 2007, the number of prevalent HIV cases in the Philippines has been growing exponentially each year. In 2014, 84% of the new cases were attributed to sexual transmission by men who have sex with men (MSM). To provide insight on this rising epidemic, social determinants of HIV infection among MSM were analyzed using a social ecological model, consisting of individual, network, community, and public policy levels. The following determinants were found most relevant to MSM in the Philippines: (1) individual: genital ulcer disease, number of male partners, injection drug use (IDU) and non-IDU substance abuse; (2) network: receptive and unprotected anal sex, and social media usage; (3) community: the lack of access to preventive services, VCT and ART, and stigma; (4) public policy: homophobia, condom availability, and sexual health education. Stigma was found to interact with multiple determinants at every level.

Condom use was found to be a key determinant to target for expansion. Using health belief model constructs, barriers to self-efficacious behavior might be identified for future interventions. Lastly, individual, network, and community levels might be the most feasible in HIV prevention for MSM until attitudes toward MSM and condom use change at the societal level.
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USAID “Usapan” Series
AIDS Surveillance and Education Project
AIDS Prevention and Control Law

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Lack of circumcision
Frequency of male partners/high lifetime partners
Injection drug use
Non-injection drugs and alcohol use

Social and Sexual Networks
Receptive anal sex
Unprotected sex
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LIST OF ABBREVIATIONS

AIDS ................................................................. Acquired Immunodeficiency Syndrome
ART ...........................................................................Antiretroviral therapy
ARV ............................................................................Antiretroviral
ASEP ................................................................. AIDS Surveillance and Education Project
DOH ................................................................. Department of Health
FP .............................................................................Family planning
GNI ........................................................................ Gross National Income
HBM .........................................................................Health Belief Model
HIV ...........................................................................Human Immunodeficiency Virus
IDU .............................................................................Injection drug use
LGU ............................................................................Local government units
MSEM ........................................................................ Modified social ecological model
MSM ............................................................................ Men who have sex with men
NSP ............................................................................ Needle and syringe program
PLWHA ................................................................. People living with HIV/AIDS
PNAC ................................................................. Philippines National AIDS Council
PrEP ............................................................................ Pre-exposure prophylaxis
PRISM2 ........................................ Private Sector Mobilization for Family Health Project’s Phase 2
PWID ............................................................ People who inject drugs
RCT .................................................................. Randomized control trial
TasP .................................................................. Treatment as prevention
TPB ................................................................ Theory of Planned Behavior
TRA ................................................................ Theory of Reasoned Action
UAI ................................................................ Unprotected anal intercourse
UNAIDS ........................................................ Joint United Nations Programme on HIV/AIDS
UNICEF ......................................................... United Nations International Children’s Emergency Fund
VCT .................................................................. Voluntary counseling and testing
WHO ................................................................ World Health Organization
WPRO ............................................................. WHO Western Pacific Regional Office
INTRODUCTION

Human Immunodeficiency Virus (HIV) was first discovered and brought into the international spotlight in the 1980s, characterized as the agent that caused a sudden rise in usually rare, opportunistic infections and diseases in men who have sex with men (MSM) such as Pneumocystis carinii pneumonia and Kaposi’s sarcoma (AIDS.gov, 2015a). This condition was termed Acquired Immunodeficiency Syndrome (AIDS)—now known to be caused by two lentiviruses, HIV-1 and HIV-2—which arose from cross-species transmission of similar simian immunodeficiency viruses (SIV) in primates (Sharp & Hahn, 2011). According to Sharp and Hahn (2011), HIV-1 is the more prominent virus responsible for the AIDS epidemic worldwide, while HIV-2 has lower transmission rates, very little mother-to-infant transmission, and even lower rates of progression to AIDS upon infection. However, it is important to note that people living with HIV and/or AIDS (PLWHA), regardless of whether they were infected with HIV-1 or HIV-2, cannot be distinguished from each other once they have progressed to disease (Rowland-Jones & Whittle, 2007).

HIV primarily targets the body’s immune system, specifically targeting CD4+ T cells and depleting them, thus making the individual immunodeficient, leaving the body unable to fight off a wide range of infections (World Health Organization, 2016b). Without treatment, HIV infection leads progressively to AIDS, which is clinically defined in adults by the World Health Organization (WHO) (2016b) as having a documented CD4+ count less than 200 per mm$^3$. When an individual has AIDS, his or
her life expectancy drops severely. However, it is important to note that each clinical stage of HIV, prior to AIDS diagnosis, has its own symptoms and case criteria; as such, this review focuses on confirmed HIV infection regardless of its staging.

This virus is transmitted through an exchange of body fluids—blood, seminal fluid, pre-seminal fluid, rectal fluid, vaginal fluid, and breast milk—which can include needle sharing mother-to-child transmission (AIDS.gov, 2015b). The populations that are disproportionately affected by HIV include: people who inject drugs (PWID), gay men and other MSM, transgender persons, and sex workers (USAID, 2016). According to United Nations Children’s Emergency Fund (UNICEF), the Southern Africa sub-region includes the countries with the highest prevalence rates of HIV infection. For example, in 2016, Swaziland and Botswana have the highest two HIV prevalence rates in the world, with estimated HIV prevalence rates of 27% and 25%, respectively (World Bank, 2016b). Given the local stigma around gay sex in so many places, MSM face particular challenges preventing HIV. This review is specifically focused on HIV infection in a population of MSM in the Philippines.
Specific Aims and Objectives

This review seeks to consolidate and analyze the different social determinants of HIV infection in MSM in the Philippines in order to provide feasible and well-informed recommendations for public health interventions and future research. This is particularly important considering the recent and alarming epidemic of HIV infection in the Philippines.

The specific aims of the study are:

1. Analyze the social determinants of HIV infection using a multi-level approach;
2. Review existing theoretical frameworks that analyze HIV infection in the Philippines;
3. Provide a theoretical framework to analyze the barriers to reducing risk of HIV infection; and
4. Formulate an appropriate recommendation for a behavior change intervention.
Context

The Philippines is a Southeast Asian country composed of over 7,000 islands organized into three main regions: Luzon, Visayas, and Mindanao. Its capital is Manila, located in Luzon. In 2014, the Philippines had a total population of 99.14 million (World Bank, 2016).

Historically, the Philippines experienced different political regimes due to its rich colonial history. The Philippines was colonized by Spain for over three centuries from 1521-1898. Afterward, the country was governed by the US from 1898-1945, until its independence in 1946. Subsequently, its government was influenced by the US, as shown by its mostly democratic rule in the post-colonial era. In addition to government, the country’s colonial history exerted vast influences on its language, religion, and culture (British Broadcasting Corporation, 2015).

Economically, the Philippines is categorized as a lower middle income country, with a gross national income (GNI) per capita of $3,500 (World Bank, 2016a). Although the Philippines experienced impressive growth in the 1990s, growth has slowed during the first years of the 21st century (BBC, 2015).

HIV prevalence in the Philippines is estimated to be 0.06% in 2014, which ranked it as the 118th highest prevalent country in the world (Central Intelligence Agency, 2016). However, since 2007, the initially slow and mostly heterosexual spread of HIV in the Philippines transformed into a rapidly accelerating epidemic, with MSM accounting for 85% of the new cases in 2014 (Ross et al, 2015).
Review of Best Practices

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has been compiling best practices in order to promote field-tested, hands-on HIV programs and disseminate the resources worldwide (UNAIDS, 2007a). In this section, I will provide a brief summary of some best practices that are relevant to MSM populations. To guide this discussion, I adapted the WHO’s HIV prevention recommendations for MSM and transgender people to serve as general categories, which are summarized in Table 1.

Prevention of sexual transmission

Prevention of sexual transmission is the most relevant goal for MSM because that is the predominant mode of transmission in the population. Because of its prophylactic properties, consistent condom use is the best practice to reduce the transmission of HIV in MSM. Efforts to promote condom use also address the barriers associated with inconsistent condom use, such as alcohol use (Reis, Melo & Gir, 2016).

Voluntary male circumcision has been a successful intervention for preventing HIV transmission, primarily in men who engage in sexual intercourse as the insertive partner, such as in heterosexual and some homosexual intercourse (Wiysonge et al., 2011). It is important to note that male circumcision will be a less effective strategy for MSM who tend to engage in receptive anal sex.

Lastly, serosorting, defined as deliberately choosing a partner with the same HIV serostatus in order to reduce the risk of spreading or acquiring HIV, has been shown to be an effective practice among MSM but only when compared to sexual intercourse between
known serodiscordant partners (Golden, Stekler, Hughes & Wood, 2008). While serosorting may confer benefits to MSM, its reliance on the accurate knowledge of one’s HIV serostatus (as well as his partner’s serostatus) makes it an unreliable HIV prevention strategy on its own.

\textit{HIV counseling and testing}

HIV testing and counseling can be both provider-initiated and client-initiated. Studies have shown that voluntary counseling and testing (VCT) can reduce risky sexual behavior, such as unprotected sex and frequent sexual partners, especially in those who receive a seropositive test result (Fonner, Denison, Kennedy, O’Reilly & Sweat, 2012). Therefore, by reducing risky sexual behaviors, VCT is an effective tool at reducing HIV transmission in MSM.

\textit{Behavioral interventions}

Behavioral interventions focus on decreasing risky behaviors to reduce the chance of HIV infection. For example, a randomized, controlled trial (RCT) among MSM in the US found that one-on-one counseling that examined self-justifications for their most recent instances of unprotected anal intercourse (UAI) reduced the proportion of UAI at 6 and 12-month follow-up periods (Dilley et al., 2002). In addition, providing telephone-based motivational enhancement therapy and HIV counseling intervention to MSM were both able to promote safer sex practices (Picciano, Roffman, Kalichman & Walker, 2007). These one-on-one interventions provide MSM with focused attention and privacy,
which are important elements of a strategy to reach a population whose sexual behaviors are quite hidden. Using internet-based strategies may be another effective approach. An example of this type of intervention is the Men’s INTernet Study-II, in which interactive online video modules were utilized to reduce UAI in MSM (Rosser et al., 2010).

In contrast, community strategies capitalize on peer interaction and group dynamics in order to successfully deliver their interventions. For example, the Gay Men’s Task Force in Glasgow used peer educators to increase the likelihood of HIV testing among other homosexual men in the community (Williamson, Hart, Flowers, Frankis & Der, 2001). Williamson et al. (2001), utilized gay bars for the evaluation of their study which allowed them to reach a large number of homosexual men. This type venue-targeted intervention, particularly in clubs or bathhouses, where a large number of MSM meet potential sexual partners, has proven successful at reducing risky sexual behaviors among MSM that are at a high risk of HIV (Huebner et al., 2006).

Substance use

The WHO strongly recommends harm reduction approaches for HIV prevention among PWID (WHO, 2016a). Rather than punishing PWID through the criminalization of their behavior, harm reduction seeks to reduce the morbidity and mortality rates associated with key HIV populations, such as PWID (Drucker, Lurie, Wodak & Alcabes, 1998). Because problems with substance use are often underscored by dependence, one effective harm reduction strategy is to promote the mental health wellness of PWID and other harmful substance users. For example, researchers found that an intervention using
psychosocial skill building and cognitive-behavioral therapeutic techniques successfully reduced the likelihood of harmful behaviors, such as needle sharing and drug injection, as well as promoted safe sex behaviors, such as condom usage (Latkin, Sherman & Knowlton, 2003).

Another example of harm reduction strategy is the promotion of needle and syringe programs (NSPs), where sterile injecting equipment can be exchanged for used, contaminated ones. Empirical evidence shows that NSP can reduce HIV transmission among PWID, albeit likely with the support of other harm reduction strategies (Aspinall et al., 2014). In addition, recent research predicts that supervised injection facilities—where PWID can safely inject illicit drugs under the supervision of qualified staff, such as nurses—can be an effective, yet more controversial, strategy as well (Jozaghi & Jackson, 2015).

**HIV care and treatment**

Anti-retroviral therapy (ART) is the only known effective treatment for HIV. It involves a medication regimen for PLWHA consisting of a combination of at least three HIV medicines, according to WHO (2013) guidelines. ART has been estimated to reduce mortality in infected individuals by 50% compared to those who do not initiate ART (HIV-CAUSAL Collaboration, 2010).

Because adherence to ART is critical for effective therapy, interventions that promote medication adherence among PLWHA is important. Different intervention modalities, such as in-person counseling, technology-mediated reminders (e.g. cellphone,
computers, wrist-watches), or a mixture of both, have shown varying degrees of success in promoting medication adherence (Shaw & Amico, 2016). Although these reminders are generally effective, it is important to tailor the modality to the population it is trying to serve.

**Notable Interventions in the Philippines**

**USAID “Usapan” Series**

The Usapan series—literally translated as “talk” in Filipino—is part of USAID’s Private Sector Mobilization for Family Health Project’s Phase 2 (PRISM2). PRISM2 seeks to assist the Philippines’ Department of Health (DOH) and local government units (LGUs) in scaling up family planning (FP) and maternal and child health (MCH) through the partnerships with the private sector (USAID, 2015). Specifically, Usapan is a behavior change intervention series using private practicing midwives (PPM) to connect men and women to FP resources (USAID, 2014). Although the strategy was able to direct a meaningful conversation about contraceptive-usage, it did not target men effectively (USAID, 2013). In addition, it was used largely to increase the uptake of condom usage under the guise of FP. Although some MSM have heterosexual relationships, this method of condom distribution to address the MSM-centric HIV epidemic in the Philippines was not the most effective. However, because the Usapan series was considered one of the best practices to come out of the PRISM2 project, it might be a reasonably effective strategy to employ when targeting MSM. It would be a matter of altering its content to emphasize the condom as a prophylactic instead of simply a contraceptive.
AIDS Surveillance and Education Project

The AIDS Surveillance and Education Project (ASEP) was executed in the Philippines during 1993-2003 by USAID in partnership with WHO and PATH to provide technical support to the country’s DOH in two prongs: education and surveillance. (Aquino et al., 2003). It was a multi-level intervention that sought to improve knowledge of HIV in the Philippines and reduce the risk of infection during a time when the HIV prevalence was much lower. For example, it used peer educators and mass media to disseminate HIV-related information. Meanwhile, it promoted collaboration among LGUs, non-governmental organizations (NGOs) and other stakeholders to establish local AIDS councils and lobby for increasing condom access in sex work establishments, among other successes. Lastly, the project disseminated behavioral monitoring surveys to help NGOs contextualize their prevention efforts.

Although the program was lauded as a successful intervention for a low-prevalence setting during its time, the replicability of its best practices must be contextualized into the new, growing MSM-centric epidemic in order to be successful.

AIDS Prevention and Control Law

The Philippines AIDS Prevention and Control Act was established in 1998 by the government of the Philippines in collaboration with the Philippines National AIDS Council (PNAC). UNAIDS (1999) endorsed it as a best practice because of its multi-
sectoral involvement in promoting HIV/AIDS awareness and prevention, fully protecting the rights and liberties of PLWHA, and giving a platform to PLWHA to utilize their experiences to educate the public.

The review also noted that the language of the law showed that concessions were made to garner support from conservative lawmakers, which shows that interventions at the policy level must be flexible amidst stigmatizing attitudes.

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DETERMINANTS ANALYSIS

To analyze the social determinants of HIV infection among MSM in the Philippines, it is important to consider the different factors in multiple levels as well as their interactions across them. To this effect, I adapted Baral et al.’s Modified Social Ecological Model (MSEM) (Figure 1), specifically for sexual transmission of HIV in MSM (2013). This model organized the determinants into the following levels: individual, social and sexual networks, community, public policy, and HIV epidemic stage.

Figure 1. Modified social ecological model for HIV risk in men who have sex with men. This shows the original MSEM framework that serves as the base for the determinant analysis. Adapted from Baral et al., 2013
**Individual**

Baral et al. (2013) describes the individual level as biological or behavioral factors that influence the HIV risk in the population. In this level, the authors proposed the following determinants relevant to MSM: Genital Ulcer Disease (GUD), lack of circumcision, frequency of male partners, lifetime partners, injection drug use, and non-injection drug use and alcohol.

*Genital Ulcer Disease*

Genital ulcers—often resulting from sexually transmitted disease—increase the infectiousness of HIV through a number of biological mechanisms, such as the recruitment of HIV susceptible inflammatory cells to the genital area and the disruption of mucosal barriers to infection (Fleming & Wasserheit, 1999). These ulcers also bleed, contributing to dissemination of blood, which is known to be able to transmit HIV.

Larger lesions, purulent, and multiple ulcers have been found to be significantly associated with higher HIV shedding (Paz-Bailey, Sternberge, Puren, Steele & Lewis, 2010). These are important to consider, especially for HIV-positive MSM that are taking ART to suppress their viral load because viral shedding would still promote the transmission of HIV even if they are under treatment.

Currently, there are no conclusive data on the prevalence of genital ulcer diseases and its correlation with HIV transmission in the Philippines.
Lack of circumcision

Circumcision has been employed as a protective intervention in many high HIV-risk countries (Tobian et al., 2015). This is because the inner surface of the foreskin contains cells, called Langerhans cells, which are postulated to be a point of viral entry in uncircumcised males (Szabo & Short, 2000). In a study of homosexual men in Sydney, Australia, it was found that the transmission rate of HIV for unprotected anal intercourse was approximately six times higher in insertive participants who were uncircumcised compared to those who were circumcised (Jin et al., 2010).

Although circumcision is historically a religious ritual unrelated to Catholicism, the Philippines is a predominantly Catholic nation that practices it as a norm. Male circumcision in the Philippines is predominantly considered a cultural tradition, often regarded as a rite of passage into manhood (Lee, 2005). Because of this social norm, there is little rational for interventions using voluntary circumcision as a prophylactic for reducing HIV infection in the Philippines.

Frequency of male partners/high lifetime partners

Research has shown that a higher number of male sex partners is associated with HIV infection among MSM (Buchbinder et al., 2005). This makes sense because sexual transmission is one of the main routes of HIV infection, especially in MSM populations. Because the Philippines’ predominant religion is Catholicism, monogamy is promoted and sexual relations are expected to only occur within married individuals. However, because there are no legal partnerships available for same-sex couples in the Philippines,
MSM may not experience this same pressure. A study on sexually experienced young adults in the Philippines found that more males reported same-sex behavior than females; in addition, these males had more sexual partners compared to females (Cheng, Gipson, Perez & Cochran, 2014). In addition, despite the increasing rates of premarital sex among Filipino men, research has shown that most of them disapprove of premarital sex in others (Gipson, Gultiano, Avila & Hindin, 2012). Although the promotion of monogamy has been used in HIV prevention programs, the mismatch in norms and attitudes in the Philippines suggests that it might be an outdated approach as a HIV prevention strategy.

Injection drug use

In addition to sexual transmission, injection drug use is another major pathway for HIV infection, which is accomplished by the use of a needle already contaminated with HIV-infected blood from a previous user. The factors that affect likelihood of transmission include: larger amount of blood introduced, concentration of virus in the blood, size of the needle, depth of penetration, and location of injection (Canadian Paediatric Society, 2008). Being both PWID and MSM will increase the risks for HIV infection, which is illustrated in Kral et al.’s (2001) investigation of sexual transmission of HIV in PWID, which found that MSM PWID were 8.8 times likely to be infected compared to heterosexual PWID.

In the Philippines, injection drug use only accounted for approximately 6% of the new cases of HIV infection in 2014, which is eclipsed by the much larger 80% attributed
to same-sex contact among MSM (Ross et al, 2015). However, data are not available for MSM who are also injection drug users in the Philippines.

Lastly, although needle exchange programs are successful interventions to reduce the risk of HIV infection among PWID, the acceptability of these programs in the Philippines is contested. This is further discussed the public policy level under criminalization.

Non-injection drugs and alcohol use

Heavy alcohol and amphetamine use have been shown to be risk factors for HIV infection, which likely work through associations with high-risk sexual behavior or even some physiological effects of the substance, such as prolonged sexual contact and decreased efficacy of ART (Koblin et al, 2006). The use of nitrite inhalants—or colloquially known as “poppers”—is also associated with HIV infection in MSM (Buchbinder et al., 2005).

In a study on same-sex behavior and health risks in young adults in the Philippines, substance abuse and drug use were more likely to be reported by young adults who reported same-sex behavior compared to those who did not report such behaviors (Cheng, Gipson, Perez & Cochran, 2013).

Social and Sexual Networks

Determinants at the network level consist of interpersonal connections that yield higher likelihood of exposure to HIV infection among MSM (Baral et al., 2013). The
following determinants characterize the nature of network connections among MSM that increase their risk of infection within their networks: receptive anal sex, unprotected sex, membership in black and ethnic minority groups, and social media usage.

*Receptive anal sex*

When participating in anal intercourse, the roles of MSM are dichotomized into: the receptive role, or the “bottom”, and the insertive role, or the “top”. Transmission of HIV differs depending on which role is taken. In insertive partners, HIV-infected blood from the easily torn, thin rectal tissue can enter through the urethra or the foreskin, if uncircumcised. In addition, studies have also shown that the fluid produced by the mucosal membranes in the rectum can contain HIV in infected individuals, which can enter in a similar fashion (Kelley, et al, 2011).

Meanwhile, in receptive partners, semen and pre-seminal fluids from the insertive partner can cross the mucous membrane in the rectum. Jin et al. found that the risk of HIV transmission in receptive unprotected anal intercourse is higher than in insertive unprotected anal intercourse; this risk can be up to 10-fold in the receptive partners if the insertive partners ejaculated in their rectum (2010).

*Unprotected sex*

Using data obtained from a sample of MSM in the US, consistent condom usage is reportedly 70% more effective at reducing risk of HIV infection when compared to no usage of condoms (Smith, Herbst, Zhang & Rose, 2015). In order to reap this benefit,
condom usage must be correct and consistent; thus, it is important to look at factors that affect inconsistent or incorrect condom usage. Research by Gangcuangco, Tan, and Berba (2013) that sampled MSM in Metro Manila showed that although 96% believed that condoms protected against HIV infection, only 3% used condoms consistently. Some reasons for inconsistent use include a belief in their partner’s seronegativity, diminished pleasure from using condoms, and condom unavailability. Condom usage is a complex determinant affected by multiple levels; it is further discussed in the section “interaction across levels.”

**Black and ethnic minority groups**

While belonging to a specific ethnic minority is more relevant in some settings (e.g. the US), it is not relevant in the Philippines where the population is relatively homogenous ethnically.

**Social media**

Social media as a determinant to HIV infection has had mixed effects because it has been shown to be used effectively as a vehicle for disseminating beneficial HIV interventions—such as increasing HIV literacy, providing social support for MSM, and reaching hard-to-reach populations—but it has also been associated with negative risks—such as misinformation about HIV and increasing the frequency of sexual partners (Nelson & Carey, 2016). For example, frequent and longer use of gay sexual networking websites was associated with increased odds of high-risk condomless anal intercourse.
(Lorimer, Flowers, Davis & Frankis, 2015). Meanwhile, a social-media based HIV-testing recruitment strategy yielded a threefold increase in seropositive test outcomes compared to test outcomes in traditional testing venues—implying that this strategy was able to reach a higher proportion of high-risk individuals (Feldacker, Torrone, Triplette, Smith & Leone, 2011).

A study conducted in East and Southeast Asia found that using the Internet to meet sexual partners for MSM has a role in facilitating risky sexual behavior; however, the usage of these social networking sites alone do not facilitate this greater risk (Wei, Lim, Guadamuz & Koe, 2014). This suggests that online social networking sites are often used by MSM to meet sexual partners, interventions that target these venues must take into account the risky characteristics the users may have outside the website.

Lastly, it is important to note that Filipino MSM do not use online gay dating sites for strictly sex, dating, or other relations; rather, data have shown that these sites were also used to explore personal issues as they relate to developing one’s sexual identity (Castaneda, 2015). The complexity of social media usage among MSM in the Philippines suggests that a nuanced, identity-centric approach might make it an effective strategy to use in HIV prevention.

**Community**

Community level determinants consist of characteristics of the larger groups (geographical, religious, cultural, expanded networks, etc.) that pertain to individuals (Baral et al., 2013). This level in the MSEM consists of the following determinants: lack
of preventive services, lack of voluntary counseling and testing access, lack of ART access, and stigma.

**Lack of preventive services**

According to the HIV prevention guidelines from the WHO (2014), preventive services include: comprehensive condom and lubricant programming, harm reduction for people who inject drugs, prevention of transmission in health-care settings, ARV-related prevention, and voluntary medical male circumcision. Condom usage and availability, IDUs, and circumcision are discussed in the public policy, network, and individual levels, respectively. This subsection will focus mainly on ARV-related prevention, such as pre-exposure prophylaxis (PrEP).

Pre-exposure prophylaxis (PrEP) is a relatively new HIV prevention method allows HIV negative individuals to take a daily pill to reduce their risk of HIV infection. The pill, commercially named Truvada, was FDA approved in 2012 and is the first and only one of its kind available to the public. The iPrEx clinical trial reported that PrEP reduced the risk of HIV acquisition in MSM and transgender women by up to 92% in participants that had high adherence to the regimen (Grant et al., 2010). In addition, studies have shown that PrEP usage has relieved anxiety around sex and HIV in both seropositive and seronegative MSM in San Francisco (Hojilla et al., 2015).

Currently, PrEP is not available in the Philippines. However, the WHO’s Western Pacific Region Office (WPRO) is working with the country’s DOH to implement a PrEP pilot project in Manila (WPRO, 2015).
Lack of voluntary counseling and testing access

The Philippines AIDS Prevention and Control Act of 1998 sought to promote the dissemination of resources of interest to people with HIV as well as those believed to be at risk for HIV—which includes providing VCT (Congress of the Philippines, 1998). As stated, this bill required legal consent of a parent or guardian if a person under the legal age of 18 requested counseling and testing services. It is reasonable to believe that this undermines the agency of young MSM to know their HIV serostatus because it risked exposing youth to the potentially stigmatizing attitudes from their parents. However, a new bill was filed in 2015 that sought to amend the AIDS Prevention and Control Act of 1998 to allow minors aged 15 to 17 years to consent to HIV testing and treatment, provided they meet certain criteria—among which is membership to key populations of high HIV risk (Senate of the Philippines, 2015). If passed, this bill would greatly expand the access to VCT to young MSM and other persons at risk for HIV.

Lack of antiretroviral therapy access

Research on serodiscordant couples has shown that early initiation of ART by an infected partner led to reduced rates of sexual transmission of the virus (Cohen et al., 2011). Soon after, the WHO (2012) recommended that administering ART regardless of CD4 count is integral to reducing HIV transmission, an approach known as “treatment as prevention” (TasP) on a population level. The effectiveness of TasP as a population-level
intervention for reducing HIV infection relies on strict adherence to ART to achieve and maintain an undetectable viral load (Hoffmann & Gallant, 2014).

According to the World Bank (2014), ART coverage in the Philippines—measured as the percent of PLWHA receiving ART—has increased from 10% to 24% from 2011-2014. While this is a positive trend, it is still very low and suggests a possible reason for the rapidly rising HIV epidemic in the Philippines. Although there are no conclusive studies investigating the barriers to ART in the Philippines, research suggests that lack of needed human resources, HIV-related stigma, and socioeconomic factors continue generally to be significant barriers to ART expansion in low and middle income countries (Bartlett & Shao, 2009).

**Stigma**

Since the global AIDS epidemic was recognized in the 1980s, stigma has surrounded and victimized persons who are infected with HIV as well as certain groups that are perceived as being at high risk for infection. While overt expressions of HIV and AIDS-related stigma has been shown to have a downward trend, it has been found that covert forms of stigma—such as discomfort associated with PLWHA or toward HIV itself—persist (Herek, Capitanio, & Widaman, 2002). Due to the nature of AIDS as a deadly illness, it probably would have brought on inherent stigma to the persons infected; however, certain already stigmatized groups have been disproportionately affected by this disease, resulting in dual stigma for many individuals, including MSM, PWID, and sex workers (Herek & Glunt, 1988).
Stigma is defined as “typically a social process, experienced or anticipated, characterized by exclusion, rejection, blame or devaluation that results from experience, perception or reasonable anticipation of an adverse social judgment about a person or group” (Weiss, Ramakrishna, & Somma, 2006). Evidence has shown that stigma has negative effects on people living with HIV and AIDS, such as depression, anxiety and low-self esteem, and even lower medication adherence (Lee, Kochman, & Sikkema, 2002; Dowshen, Binns, & Garofalo, 2009; Rintamaki, Davis, Skripkauskas, Bennett, & Wolf, 2006). In addition, stigma affects people who do not necessarily have the disease but belong to populations with a high risk of infection, which results in lower HIV testing rates (Myers, Orr, Locker, & Jackson, 1993).

Stigma largely enacts its effects through interacting with other determinants across the MSEM. As such, it will also be discussed in other sections.

Public Policy

Criminalization

A 2008 policy brief by UNAIDS debunks the two main justifications used by governments to promote HIV criminalization—punishing harmful conduct and preventing HIV transmission—and instead urges them to limit the application of the law to intentional, malicious transmission (UNAIDS, 2008). Criminalization has harmful effects, such as increasing fear and hidden behaviors, and decreasing uptake of HIV prevention and treatment services (Poteat et al., 2011). While there is no criminalization against people living with HIV or transmission of HIV in the Philippines, the
Comprehensive Dangerous Drugs Act of 2002 was amended to criminalize possession and distribution of drug instruments, such as syringes, which heavily constrains PWID, another key HIV population (Congress of the Philippines, 2014).

The Philippines AIDS Prevention and Control Act of 1998 promotes HIV education and prohibits discrimination based on HIV serostatus (Congress of the Philippines, 1998). The existence of this specific protective legislation at the country level suggests that interventions addressing criminalization of HIV or MSM in the Philippines might not be the most effective at reducing HIV infection.

**Homophobia**

According to Nieblas, Hughes, Andrews, and Relf (2015), MSM experience homophobia at different levels—such as, internalized homophobia, societal homophobia, and homophobia in health care—which are associated with increased HIV transmission. At the public policy level, homophobia can manifest itself through the lack of legal protections and non-inclusive health insurance policies for same-sex couples (McKirnan, DuBois, Alvy & Jones, 2013).

A 2013 national survey conducted by Social Weather Stations in the Philippines found that a slight majority of adult Filipinos show a sympathetic attitude toward gays and lesbians (Licudine & Aldave, 2015). However, Manalastas and Del Pilar (2005) analyzed data from Social Weather Stations from 1996 and 2001, which suggested that Filipinos held negative attitudes toward gays and lesbians. These findings suggest a positive shift in the public’s view on these sexual minorities in recent years. However,
research has shown that childhood exposure to homophobic attitudes has lasting effects into adulthood, which includes partaking in more HIV risk behaviors, such as having more sexual partners (Nelson et al, 2016). As such, homophobic attitudes could be a prime target for HIV prevention strategies.

Human rights contexts

The human rights context of a country is closely associated with other public policy level determinants, such as homophobia and criminalization. For example, in countries where same-sex behavior is criminalized, MSM often face blackmail and extortion (Thoreson & Cook, 2011). These human rights abuses have been associated with higher risk sexual behavior, such as unprotected anal sex (Baral et al., 2011). Although legislative protections may help in reducing the experiences of human rights abuses among MSM, Zahn et al. (2016) suggest these formal, legal changes are not enough to protect them. In the Philippines, it was found that although anti-discriminatory legislation for PLWHA was present, discrimination still occurred in practice, such as instances of refusal to treat because of HIV/AIDS status and the violation of confidentiality, among other examples (Ortega, Bicaldo, Sobritchea & Tan, 2005). Unfortunately, there are few documentation and research studies investigating these abuses in the Philippines. Because these human rights abuses are associated with stigma, homophobia, and criminalization among other determinants across the levels in the MSEM, it will not be discussed as a separate determinant for MSM in the Philippines.
Condom availability

In 2012, against heavy opposition from religious Catholic groups, the nation passed the Responsible Parenthood and Reproductive Health Act, which aimed to improve access to reproductive health resources, including condoms at government health centers (Center for Reproductive Rights, 2014). However, the language of the bill portrayed condoms consistently as primarily a tool for FP rather than risk reduction for HIV and other STDs. This school of thought with regard to condom usage is supported by findings from focus group discussions by Lucea et al (2013). Although condoms are now made available, MSM are left out of the program’s exclusionary ideology. As such, condom usage will be discussed in a later section in the context of stigma and attitudes about unprotected sex.

Exclusion from national surveillance

In resource-low settings, MSM are excluded from surveillance systems, which prohibit epidemiological studies that could benefit HIV prevention studies (Beyrer, 2010). This is not the case in the Philippines because the National HIV/AIDS Sentinel Surveillance System—which is praised by the USAID—includes MSM as one of the key populations under surveillance (USAID, 2005).

Sexual health education

Compared to other low and middle-income countries, HIV knowledge among MSM in the Philippines is generally low (Adam et al, 2009). However, the
The aforementioned Responsible Parenthood and Reproductive Health Act of 2012 also included providing educational resources on reproductive health and sexuality (United Nations Population Fund, 2014). This change in legislation shows promise in improving HIV-related knowledge in the Philippines, beyond just MSM populations.

Also, it is important to note that comprehensive sexual education was not the norm in the Philippines before the passage of this bill. As such, it is reasonable to believe that the adults who did not have access to these materials in their youth were influenced by different attitudes and beliefs that come with abstinence-only sexual education.

A study on college students in the Philippines showed that increased knowledge about HIV and AIDS is significantly associated with a more positive attitude toward it (Galindo, 2014). It is important to note that the college population that the study sampled was studying at a Catholic institution, which can be reasonably generalized to the mostly Catholic population of the Philippines. While it cannot be generalized to the proportion of the population that do not possess higher education, this study has shown the importance of HIV and AIDS education in mitigating the stigmatizing attitudes that are associated with determinants across the MSEM.

**HIV Epidemic Stage**

The topmost level in the MSEM is the stage of the HIV epidemic. Baral et al. (2013) mentions that the stage of the epidemic is what ultimately predicts the risk of HIV infection amidst the various determinants, regardless of the level in the MSEM. Because
this level is simply a restatement of the problem epidemic, it is left out of the determinant analysis.
Table 2. Summary of social ecological determinants in the MSEM in the context of MSM in the Philippines.

<table>
<thead>
<tr>
<th>MSEM Level</th>
<th>Determinant</th>
<th>Relevance</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual</strong></td>
<td>Genital Ulcer Disease</td>
<td>Yes</td>
<td>While there is no conclusive data on GUD for MSM in the Philippines, they are still at risk.</td>
</tr>
<tr>
<td></td>
<td>Lack of circumcision</td>
<td>No</td>
<td>Male circumcision is a norm in the Philippines.</td>
</tr>
<tr>
<td></td>
<td>Frequency of male partners/high lifetime partners</td>
<td>Yes</td>
<td>MSM in the Philippines have the capacity to have multiple sexual partners.</td>
</tr>
<tr>
<td></td>
<td>Injection drug use</td>
<td>N/A</td>
<td>While IDU is a significant predictor of HIV prevention, this is not the focus of the study.</td>
</tr>
<tr>
<td></td>
<td>Non-injection drug use and alcohol</td>
<td>Yes</td>
<td>Evidence showed that excessive alcohol use was a significant predictor of HIV infection for MSM in the Philippines.</td>
</tr>
<tr>
<td><strong>Social and sexual networks</strong></td>
<td>Receptive anal sex</td>
<td>Yes</td>
<td>Evidence showed that preference for receptive anal sex was significantly associated with HIV infection for MSM in the Philippines.</td>
</tr>
<tr>
<td></td>
<td>Unprotected sex</td>
<td>Yes</td>
<td>MSM in the Philippines report low condom use even if they are well aware of its benefits.</td>
</tr>
<tr>
<td></td>
<td>Black and ethnic minority groups</td>
<td>No</td>
<td>The Philippines has a relatively homogenous ethnic makeup.</td>
</tr>
<tr>
<td></td>
<td>Social media usage</td>
<td>Yes</td>
<td>MSM in the Philippines use social networking apps to find sexual partners.</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td>Lack of preventative services</td>
<td>Yes</td>
<td>PrEP is not available in the Philippines.</td>
</tr>
<tr>
<td>Public policy</td>
<td>Lack of voluntary counseling and testing access</td>
<td>Yes</td>
<td>VCT in the Philippines requires user to be at least age 18 to avail of the service without parental consent.</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------</td>
<td>-----</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Lack of anti-retroviral therapy access</td>
<td>Yes</td>
<td>The Philippines has a low uptake of ART among PLWHA.</td>
</tr>
<tr>
<td></td>
<td>Stigma</td>
<td>Yes</td>
<td>Stigma influences other determinants across levels.</td>
</tr>
<tr>
<td></td>
<td>Criminalization</td>
<td>No</td>
<td>Criminalization of PLWHA or MSM is not an issue in the Philippines.</td>
</tr>
<tr>
<td></td>
<td>Homophobia</td>
<td>Yes</td>
<td>Same-sex marriage in the Philippines is not legal. In addition, while attitudes are changing, historical homophobia has lasting effects.</td>
</tr>
<tr>
<td></td>
<td>Human rights contexts</td>
<td>N/A</td>
<td>Abuse of human rights is not considered a separate determinant in this study.</td>
</tr>
<tr>
<td></td>
<td>Condom availability</td>
<td>Yes</td>
<td>MSM in the Philippines still cite availability as a barrier against condom use.</td>
</tr>
<tr>
<td></td>
<td>Exclusion from national surveillance</td>
<td>No</td>
<td>The Philippines uses the National HIV/AIDS Sentinel Surveillance System, which has data on MSM as a key population at risk for HIV.</td>
</tr>
<tr>
<td></td>
<td>Sexual health education</td>
<td>Yes</td>
<td>Data has suggested that HIV knowledge among MSM in the Philippines is low. Comprehensive sexual education is also not the norm in the Philippines.</td>
</tr>
<tr>
<td>HIV epidemic stage</td>
<td></td>
<td>N/A</td>
<td>This is not considered a separate social determinant in this study.</td>
</tr>
</tbody>
</table>
Interaction Across MSEM Levels

In addition to analyzing the determinants in their respective level in the MSEM, relationships across levels were explored to illustrate the nuanced and permeating effects of each.

Condom usage

Condom usage is a recurring theme in this application of the MSEM. At the public policy level, it is implicated by the country’s policies on providing free condoms as contraceptives, per its new Responsible Parenthood and Reproductive Health Act of 2012. This rather late uptake in access to reproductive health materials illustrates stigma experienced by MSM at the community level. Among the barriers to condom access and usage investigated in young adults in the Philippines, the stigma-related barriers relevant to MSM are: the Catholic Church’s teachings; being judged while purchasing condoms; and conservative attitudes toward sex (Lucea et al, 2013).

Without adequate distribution of condoms and other prophylactics, downstream determinants such as the frequency of unprotected sex will increase.

HIV stigma

Stigma manifests itself in two different ways to negatively affect MSM in the Philippines with regard to HIV risk. These are sexual and HIV stigma, resulting in the aforementioned “dual stigma” experienced by MSM (Herek & Glunt, 1988).
In our determinant analysis, stigma manifested itself through the homophobia present at the public policy level. Without legal protections awarded for same sex relationships, homophobia is reinforced at the public policy level. This discourages MSM from participating in activities that would involve publicly disclosing their sexuality. As such, it negatively affects the utilization of HIV preventive services, VCT and ART.

In addition, sexual stigma against MSM affects sexual education efforts in the Philippines by excluding MSM relationships and activities in the curricula; instead it focuses on heterosexual relationships and FP. Without adequate knowledge on safe sex practices, young MSM are left without tools to reduce exposure to HIV infection in their social and sexual networks.

Lastly, it is important to note that perceived stigma, regardless of the existence of actual stigmatizing attitudes, can affect MSM on an individual level. This self-stigma can be internalized and negatively affect self-esteem and self-efficacy (Corrigan, Larson & Rusch, 2009). In turn, these can reduce health-seeking behaviors that protect against HIV infection.

**Appropriate Levels for a Behavior Change Intervention**

According to this determinant analysis, interventions for behavior change would likely be most effective if targeted at individual, social and sexual network, and community level determinants. Considering the Philippines’ HIV-related policies, enacting change in the public policy level would require too much time for lobbying and therefore would not be efficient in addressing the quickly growing epidemic. In addition,
even if public policies were to change to promote HIV-related health-seeking behaviors, it would rely on the uptake of individuals, which is subject to the determinants in the aforementioned levels. Figure 2 shows the determinants that are most relevant to MSM in the Philippines in an edited social ecological model.

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**Figure 2. Modified social ecological model for HIV risk with determinants relevant to MSM in the Philippines.**
THEORETICAL FRAMEWORK

As stated in my specific aims, this paper seeks to conceptualize HIV-related behavior change in MSM in the Philippines through a theoretical framework. Because a dearth of evidence exists on MSM in the Philippines, there is no formal framework in the literature made for the current epidemic. As such, I reviewed various frameworks for HIV-related behaviors in different populations to gather best practices.

Individual Level Frameworks

Theory of Reasoned Action/Theory of Planned Behavior

The Theory of Reasoned Action (TRA) postulates that a behavior is predicted by the intention to do the behavior, which is in turn influenced by subjective norms and attitude toward the behavior (Sneed & Morisky, 1998). Afterward, the Theory of Planned Behavior (TPB) was made after adding another construct—perceived behavioral control—to account for behaviors that are not completely voluntary. Because of the similarity between the two theoretical frameworks, they are both discussed in this same section.

A study on Tanzanian teachers found that perceived behavioral control, as conceptualized by the TPB, significantly predicted the intended use of voluntary HIV counseling and testing services (Kakoko, Astrom, Lugoe & Lie, 2006). Perceived behavioral control as a significant predictor of behavior means that psychosocial barriers,
such as stigma and suspicion against confidentiality, hamper the individual’s agency in doing the behavior (Kakoko et al., 2006).

**Health Belief Model**

The Health Belief Model (HBM) (Figure 3)—made by Hochberg in 1956—seeks to explore the perceptions of our target population that contribute to their risky behaviors by analyzing the following constructs: perceived susceptibility, perceived severity, perceived barrier, and perceived benefits. Cues to action and self-efficacy were two addition constructs added later on.

In a study on Chinese MSM and high-risk sexual behavior, Li et al. (2016) used the HBM to highlight the importance of certain socio-cultural cues, such as the notion that “true love” did not need a condom or that high frequency of male partners is attributed to the lack of legal protections for same-sex relationships. In addition, they also found that “ding xin wan” or treatment optimism—the notion that safe sex is not as important because available HIV treatment can effectively manage the disease—was an important cue to action in their population (Li et al., 2016).

They also explored the controversial influences of filial piety in Chinese communities, where it has both risk and protective factors for HIV prevention (Li et al., 2016). Because filial piety is also a prevalent sociocultural value in the Philippines, it would be reasonable to explore interventions centered on that.

Meanwhile, when looking at perceived susceptibility in the HBM, Downing-Matibag and Geisinger (2009) differentiated between trusting partners are disease free
and trusting that one is in a community that is relatively disease free. This difference in levels of trust is important to consider especially because HIV stigma largely affects perceptions of people in both individual and community-wide levels.

Researchers using the HBM found that self-efficacy is a major factor to consider when making interventions that seek to increase the uptake of HIV prevention strategies and treatment regimens (Li et al., 2016; Workagegn, Kiros & Abebe, 2015; Lin, Simoni & Zemon, 2005). However, situational characteristics, such as spontaneity and alcohol/drug use, are important moderators of self-efficacy that should be considered (Downing-Matibag & Geisinger, 2009).

Figure 3. The Health Belief Model. Adapted from Nutbeam and Harris, 2014.
Social and Sexual Network Level Frameworks

Social Network Theory

A systemic review on low and middle income countries found that social network-focused interventions show promise, especially in resource-low settings, where the social networks may be the only reliable source of support (Perkins, Subramanian & Christakis, 2014). This is especially true for HIV transmission in MSM because transmission is sexual, and therefore, social in nature. For example, social network strategies, such as respondent-driven sampling, have even been shown to be effective at reaching hard-to-reach populations (Girault et al., 2015).

Social network strategies are also useful for visualizing the transmission of diseases. The graphical representation of network connections can provide important clues to the phenomena being studied. Evidence has shown that sexual network structure sheds light on the stage of the epidemic—particularly that network density and concurrent, overlapping sexual partnerships give insight on the intensity of the epidemic (Potterat et al., 2002).

Lastly, network analyses emphasize the types of connections between individuals. It therefore gives researchers insight into how interpersonal relationships uniquely act as determinants to health outcomes, allowing public health practitioners to provide contextually relevant interventions. For example, a network analysis in a rural province in China showed that condom usage in committed relationships are important to consider because they are linked to HIV secondary transmission among serodiscordant couples
that, presumably, do not know their HIV status (Fu et al., 2010). This highlights the potential usefulness of interventions that encourage condom usage regardless of relationship status.

However, social network-centric data should be viewed carefully, especially when analyzing sensitive topics, such as sexual relationships. This is because biases, such as social desirability biases, might underestimate the connections obtained in the community (Helleringer, Kohler, Chimbiri, Chatonda & Mkandawire, 2009).

**Community Level Theories of Behavior**

Howard-Grabman and Snetro (2003) define community mobilization as “a capacity-building process through which community members, groups, or organizations plan, carry out, and evaluate activities on a participatory and sustained basis to improve their health and other conditions, either on their own initiative or stimulated by others.” Researchers found that the following elements indicate the effectiveness of a community-based intervention: formal governance, strong leadership, active member participation, diverse membership, collaboration among member agencies, and group cohesion (Zakocs & Edwards, 2006). As a result, it is distinguished from lower level interventions because it seeks to entrust the community itself to sustain its own health promotion, or at least have a large stake in it. Because the community level in the MSEM encompasses both individual and network level, interventions at the community level often target downstream determinants as well. Therefore, most community interventions are also called multi-level approaches. However, what separates them is that these interventions
target groups of people at a time. For example, researchers used the aforementioned social network theory in a social mapping activity to identify highly influential figures in a community (Igras, Diakite & Lundgren, 2016). These influential people are those who are able to diffuse ideas effectively, which are particularly noteworthy from a community intervention standpoint.

Health promotion interventions that engage entire communities must take into account their respective sociocultural norms in order to be effective. A community level intervention on Latino adolescent mothers and their partners successfully utilized culturally relevant materials, such as contextualized indigenous teachings and family values in order to increase safer sex practices among participants (Koniak-Griffin et al., 2008). Interventionists that are well informed are integral to the success to their respective plans. In fact, UNAIDS advocates for the greater involvement of PLWHA in decision-making processes because they provide valuable lived experiences that supplement programs in addition to dispelling stigma surrounding PLWHA (UNAIDS, 2007b).
RECOMMENDATIONS

According to this determinant analysis, condom use was one of the key behaviors to target for expansion. This was evidenced by the mismatch of high perceived benefits of using condoms and low usage among MSM in the Philippines. To further understand this phenomenon, I propose using the HBM’s constructs (Table 3) to explore the factors underlying the low rates of condom use in the population.

Research suggests that the perceived susceptibility of MSM in the Philippines may be low but data on perceived susceptibility is outdated (Amadora-Nolasco, Alburo, Aguilar & Trevathan, 2002). However, media coverage of the rising epidemic may suggest an increase in perceived susceptibility in recent years.

According to the determinant analysis, MSM have a reasonably high perceived benefit to condom use. In addition, stigma and availability were described as perceived barriers. At the same time, there was no conclusive data found on perceived severity and self-efficacy. Lastly, MSM in the Philippines are getting mixed cues to action because although condom use is being somewhat controversially promoted, they are not the primary targets of these messages.

An appropriate intervention to promote condom use among MSM might emphasize the increased susceptibility regardless of the country’s relatively low prevalence of HIV. MSM might be included as a target demographic in the country’s promotion of sexual health rather than limiting it to a context of contraception. This
would decrease the stigma associated with buying condoms and reasonably increase self-efficacy to use them when engaging in sexual intercourse.

Promoting condom use would also help to address the other determinants identified in the MSEM. For example, because GUD are often sexually transmitted, increased condom use will deter its spread. In addition, condom usage will also attenuate the increased risks from multiple partners and receptive anal sex.

Because MSM in the Philippines use social media as a tool for self-discovery, dating, and casual sex, social media approaches may represent a promising strategy to use for educating MSM about prevention strategies and general HIV/AIDS knowledge. It could also present a novel way to connect MSM to ART and VCT services in the Philippines.

Lastly, further research should be done on investigating the barriers to implementing NSPs in the Philippines. Although injection drug use is not the focus of this paper nor is it driving the HIV epidemic in the Philippines, the effectiveness of implementing the harm reduction program has been shown as more beneficial than otherwise.

In order to guide future strategies, I compiled my recommendations using the Academy for Education Development’s BEHAVE framework (Table 3), which is a tool often used for formative research in public health communication (Parvanta, Nelson, Parvanta & Harner, 2010).
Table 3. Health Belief Model constructs contextualized for condom use by MSM in the Philippines.

<table>
<thead>
<tr>
<th>Health Belief Model Constructs</th>
<th>Construct &amp; Definition</th>
<th>Construct in the Context of MSM in the Philippines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Susceptibility</strong></td>
<td>a person’s belief about how likely he/she is to get a condition</td>
<td>MSM in the Philippines may moderate to high perceived susceptibility to HIV infection because of the rising media coverage of the epidemic.</td>
</tr>
<tr>
<td><strong>Perceived Severity</strong></td>
<td>a person’s belief regarding how serious the condition and its consequences are</td>
<td>No evidence.</td>
</tr>
<tr>
<td><strong>Perceived Benefits</strong></td>
<td>a person’s belief about the effectiveness of the proposed action to reduce the risk or seriousness of the condition</td>
<td>MSM in the Philippines have a reasonably high belief about the effectiveness of condom usage to reduce the risk of HIV infection.</td>
</tr>
<tr>
<td><strong>Perceived Barriers</strong></td>
<td>a person’s belief about costs of doing the advised action</td>
<td>MSM in the Philippines view stigmatizing attitudes and availability as barriers to condom use.</td>
</tr>
<tr>
<td><strong>Cues to Action</strong></td>
<td>events, reminders that encourage action</td>
<td>Condom usage for MSM is not encouraged in the Philippines by external cues because condoms are mostly seen as contraceptive in nature and not prophylactic.</td>
</tr>
<tr>
<td><strong>Self-efficacy</strong></td>
<td>a person’s confidence in his/her own ability to perform action</td>
<td>No evidence.</td>
</tr>
</tbody>
</table>
Table 4. BEHAVE Framework for strategies to reduce risk of HIV infection in MSM in the Philippines.

<table>
<thead>
<tr>
<th>Who?</th>
<th>What?</th>
<th>Benefits &amp; Barriers</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>A specific target audience</td>
<td>Take a specific action</td>
<td>Benefits and barriers that influence the action</td>
<td>Selected program activities that address these benefits and barriers</td>
</tr>
</tbody>
</table>

In order to help:
MSM living in the Philippines

To:
Reduce their risk of HIV infection

We will focus on:
- **Individual**
  - Genital Ulcer Diseases
  - Frequency of male partners
  - Intravenous drug use
  - Non-intravenous drug use and alcohol

- **Social and sexual networks**
  - Receptive anal sex
  - Unprotected anal sex
  - Social media usage

Through:
- **Individual**
  - Designing a health promotion campaign that encourages the use of condoms as prophylactics instead of merely contraceptives
  - Advocating for the benefits of needle exchange programs using empirical field data

- **Social and sexual networks**
  - Using social network strategies, such as respondent-driven sampling to recruit hard-to-reach MSM
  - Partnering with popular gay dating apps, such as Grindr, to provide country-specific
<table>
<thead>
<tr>
<th>Community</th>
<th>health promotion ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of preventive services</td>
<td>o Educating the public on the benefits of PrEP for its eventual dissemination</td>
</tr>
<tr>
<td>VCT access</td>
<td>o Establishing non-formal educational opportunities to subvert the lack of institutionalized comprehensive sexual education</td>
</tr>
<tr>
<td>ART access</td>
<td>o Stigma</td>
</tr>
</tbody>
</table>
CONCLUSION

Through this analysis, I found multiple social determinants of HIV infection in the Philippines across multiple levels of a social ecological model. In addition to singularly affecting rates of HIV infection, these determinants also overlap and interact to exert their effects. In order to address the rising HIV epidemic in the Philippines, interventions at the individual, network, and community levels might be the most feasible to prevent HIV transmission among MSM until attitudes toward MSM and condom use change at the societal level.


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CURRICULUM VITAE

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EDUCATION

Boston University School of Medicine – Boston, MA

- Master of Science in Medical Sciences, 2016 (anticipated)
- Master of Public Health, 2016 (anticipated)

University of California, Davis – Davis, CA

- Bachelor of Science in Psychology, June 2013

EMPLOYMENT HISTORY

Capital One Cafe – Boston, MA

Shift Leader, August 2015 – December 2015

- Trained new baristas, assisted cafe manager with store meetings, and managed mostly opening shifts on top of doing barista work.

Jamba Juice – Antioch, CA

Shift Leader, January 2014 – August 2014

- Manage shifts in one of the district’s highest customer volume stores in terms of team building, excellent product quality, and efficient customer service.

Private Employer – Davis, CA

Caregiver, March 2012 – September 2012
• Assisted quadriplegic patient in-home with his morning routine, which includes:
giving showers, getting vitals, getting dressed and eating breakfast
• Operated heavy lifts and handled bio-waste, such as those from colostomy bags
and tracheostomy tubes.

RESEARCH EXPERIENCE

MURALS Program – Davis, CA

Murals Scholar, September 2012 – June 2013
• Developed and finished a research project, under the supervision of a faculty
  mentor, exploring the relationships among religiosity, sexual prejudice, and
  HIV/AIDS stigma in Filipino Americans and presented my findings in front of an
  audience of my peers

Asian American Center on Disparities Research – Davis, CA

Research Assistant, June 2012 – June 2013
• Recruited research participants into a study on Asian American mental health
  stigma
• Coded qualitative data with a research team of five

UC Davis Medical Center Emergency Department – Sacramento, CA

Research Associate, March 2012 – September 2012
• Screened incoming patients for multiple studies with different sets of inclusion
  criteria
• Briefed patients on their rights as voluntary participants
INTERNSHIPS AND VOLUNTEER EXPERIENCES

Youth+Tech+Health – Oakland, CA

Youth Advisory Board Member, December 2013 – September 2014

- Evaluate and advise existing projects, particularly in mobile health, HIV, and social media strategies for health interventions

Global Forum on MSM & HIV – Oakland, CA

Programs Intern, June 2013 – December 2013

- Advised the organization on existing mobile health strategies for HIV health promotion and treatment
- Wrote facilitator’s guidelines for the MSM curriculum, made for global healthcare workers treating MSM patients

Asian & Pacific Islander Queers, UC Davis – Davis, CA

Retention Chairperson, September 2012 – June 2013

- Facilitated weekly meeting spaces for LGBTQ identified Asian & Pacific Islander (API) students and allies, averaging 15 students a week
- Established and organized UC Davis’ annual APIQ Visibility Week, a week filled with workshops and exhibits on the intersection of gender, sexuality and API identities

Bayanihan Clinic – Sacramento, CA

Undergraduate Volunteer, March 2012 – September 2012

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• Assisted in servicing patients through doing either reception, lab work, taking vitals, and answering general inquiries about the free clinic
• Outreached to Filipino World War II veterans and their families
• Served in the clinic’s Healthy Breast Program by developing breast health education materials