厚生労働科学研究費補助金 エイズ対策研究事業
男性同性間のHIV感染対策とその評価に関する研究

アジアのMSMにおけるHIV疫学、リスク、予防のレビュー研究:
アジアのMSMと日本のネットワークの構造について

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研究要旨

Since 2000, more sophisticated HIV epidemiological data collected among MSM in Asia indicates high levels of infection rates in many countries including Thailand, Indonesia and China despite low infection levels among general populations[1]. This paper aims to present data on HIV risk and infection rates among MSM in Asia, in particular North Eastern Asia, including Taiwan, Hong Kong, and Singapore, and compare it with data regarding Japanese MSM. Furthermore, travel and immigration data will be presented to elucidate the level of gay and bisexual men traveling between Asia and Japan. In conclusion, Japan shares a number of features with the Asian epidemic, including late appearance of HIV infection by global standards, previous assumptions of a heterosexual sexual epidemic due to lack of adequate HIV epidemiological surveys in homosexual populations, diverse homosexual identities, high levels of social and structural stigma which have resulted in low levels of government funding and services for gay and bisexual men.

A.研究目的

Retrospective analysis indicates high increases of HIV infection rates among MSM in Asia have been occurring since the late 1990s. In response to this, a number of international aid donor organizations have conducted research on HIV infection and risk factors among MSM in the Asian region. However, much data is focused on lower income countries in South and South-east Asia, as well as China. This paper attempts to collate data on Northern Asia, including higher income countries of Hong Kong, Singapore, Taiwan and Japan. The aim of this research is to assess the connectedness of the Asian and Japanese HIV epidemic in Asia and Japan by comparing HIV risk and epidemiological data, and by analyzing travel and immigration rates in and out of Japan.

B.研究方法

A literature search was conducted using PubMed and Google Scholar internet data bases to collect HIV risk and epidemiology relating to MSM in Asian countries, in particular high income and northern- Asian countries. Japanese MSM related surveillance data was collated from Ministry of Health Labour and Welfare AIDS Research

Reports, surveillance data and published literature were used for comparison. The literature search revealed 77 documents. Data were collected on the levels of male same sexual behavior, syphilis prevalence and HIV incidence among MSM, HIV related risk factors, and evaluation of Asian governments' funding of MSM prevention campaigns. Furthermore, Japanese immigration and travel statistics and academic literature on Japanese MSM residing overseas were analyzed to evaluate the level of travel by MSM to and from Japan and Asia.

C.研究結果

While HIV epidemiological, behavioral and social data on MSM in Asia was rather sparse up until the late 1990s, there has been more sophisticated level of data collected since 2000. The exception to this is South Korea, for which no MSM behavioral data was located. Findings presented will include the epidemiological pattern of HIV among MSM in Asia, related behavioral risk factors, and governments' response.

1. The epidemiology of HIV among MSM in Asia

Until the late 1990s, HIV infection in Asia was presumed to be predominantly through sex work and infecting drug use[2]. However, recent epidemiological data indicates previously undocumented HIV epidemics among MSM through-out Asia[3)4)].

The first indications of an emerging epidemic among MSM came from epidemiological research conducted among MSM in Bangkok and Phuket in Thailand which observed a jump in reported HIV incidence from 17.3 % in 2003 to 28.3 % in 2005[5)6)]. High increases in HIV infection rates among MSM in Thailand in the early 2000s are also consistent with hidden epidemics among MSM in other parts of Asia, including Cambodia, Vietnam, Indonesia, India, and northern Asian countries China, Hong Kong and Singapore[7-9)] (See Table 1).

Table 1. HIV infection prevalence among MSM in a number of countries in Asia

Location	Year	Prevalence %	Study design
Bangkok Thailand	2003	17.3%	Time-location sample with sero-testing
Bangkok Thailand	2005	28.3%	
Singapore	2002	5.8%	I'net questionnaire
Singapore	2004	8.0%	I'net questionnaire
Hong Kong	2006	4.1%	Sero-testing with I'view
Beijing China	2004	0.4%	RDS with sero-testing
Beijing China	2005	4.6%	RDS with sero-testing
Beijing China	2006	5.8%	RDS with sero-testing
Taiwan	2006	8.0%	Sero-testing at bath house
Osaka Japan	2005	6.0%	Dance party questionnaire
Tokyo Japan	2005	4.0%	Gay-bar Questionnaire

(Action for AIDS 2004, Chen 2006, Kimura 2005, Kimura 2005, Ma 2007, PRiSM 2006, van Griensven 2005)

Similar to the assumption that homosexual transmission was not prominent in the Asian

HIV epidemic, HIV in Japan was previously presumed to be a globally unique pattern of one dominated by neither heterosexual or homosexual transmission[10]. The recent pattern of late appearance of HIV generally, and increasing infection among MSM in Japan since 2000[11] (See Figure1 and 2) is consistent with the situation among MSM in many parts of Asia, that of a previously hidden and un-reported epidemic among homosexually active men.

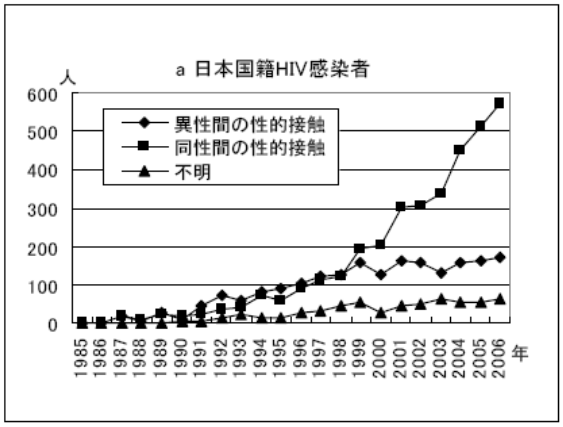

Figure 1. Yearly HIV infection among Japanese nationals by infection route (MHLW Surveillance Data)

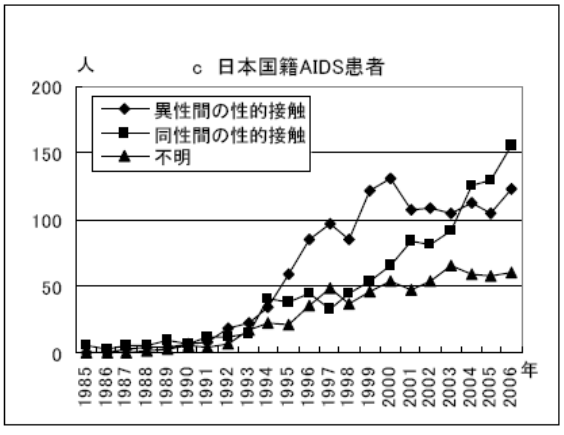

Figure 2. Yearly AIDS diagnosis among Japanese nationals by infection route (MHLW Surveillance Data)

Epidemiological HIV surveillance surveys among MSM in Japan were also late to be established, with the first such surveys conducted among gay and bisexual communities in the year 2000[12]. HIV testing rates among the general population have been quite low, thus the high representation of MSM in surveillance data can be partially explained by the activities of gay NGOs in promoting HIV testing events and services as a part of prevention activities[13].

HIV testing among MSM in Asia is low in comparison with MSM populations in Australia, North America and Europe (See Table 2). This is partially related to low self-perceptions of risk, lack of accessible STI services, and low levels of knowledge of HIV among gay and MSM on individual and group levels[14].

Table 2. Life time rates of HIV testing among MSM in a number of countries in Asia

Location	Year	Testing rate	Study design
Beijing	2006*	32%	RDS/sero-testing
Bangkok	2005*	21%	RDS/sero testing
Hong Kong	2004*	14%	Random sample telephone I' views with adult men
Taiwan	2006*	76%	Sero-testing and I' view with bath house attendees
Singapore	2004*	50%	gay portal I'net survey
Tokyo	2005*	36%	dance-party survey
Osaka	2005*	28%	gay bar survey
Melbourne	2006#	84%	gay community survey
Sydney	2006#	63%	gay community survey
US	1999*	84%	Random sample of MSM, telephone I' view/Sero-testing
London	2004*	69%	Sero-testing

* life time experience
# under-went testing in the previous 12 months
(Catania JA 2001, Dodds 2004, Frankland 2007, Ko 2006, Kimura 2005, Lau 2004, Ma 2007, van Griensven 2005, Zablotska 2007)

2. Factors contributing to HIV Risk among MSM: Unprotected Anal Sex

The literature identifies behavioral, social and structural factors impacting on MSM's risk for HIV infection. Behavioral factors include: wide-spread and diverse same sex behaviors and identities, high levels of unprotected anal sex, high levels of syphilis prevalence, and increasing levels of HIV infection among MSM as a population group. Social and structural factors include: stigmatization of same sex behaviors and government inactivity in providing MSM targeted organizational support, information and prevention activities.

Behavioral research from a number of Asian countries indicates high levels of male to male sexual activity among men. While many of the sexual behavior studies have been conducted on convenience samples, including military conscripts, and are primarily young populations of men, the figures of 3% of to 18% indicate high levels of male same sexual activity (See Table 3).

Table 3. Prevalence of life-time same sex behavior among men in a number of countries in Asia

Location	Year	Prev %	Recruitment
Thailand	1993	3%	Interview survey with general adult population
Thailand	1993	16%	Military conscripts
Vientiane Laos	2004	18%	Young males
Hong Kong	2004	4.60%	Population based telephone survey with men 18 to 60
Japan	1999	1.2%*	Random sample Interview survey with adult general population

* Survey question asked the experience of same-sex sexual attraction

(Kihara 1999, Lau 2004, Sittriai 1993, Toole 2006 2004)

Adoption of a gay identity is not dominant among MSM in Asia, and there is a great deal of diversity in the types of homosexual identities adopted by men[14)15)]. Japanese data used for comparison relates to an interview survey conducted among adults which asked about experience of sexual intercourse or attraction to someone of the same sex[10)]. The methodological use of interviewers may have resulted in the low response rate to the question, as by international comparisons, Japanese same sex behavior among males is low.

One factor that has inhibited HIV epidemiological and prevention research for MSM in Asia has been the lack of indigenous research on homosexual behavior and culture[14)16)]. This is also true for Japan which only a small number of researchers involved in HIV prevention among MSM. The social research available indicates a number of similarities between MSM in Asia and Japan, including low levels of gay community organizing and openly taking on of gay identities[17-19)]. Similarly, while epidemiological data is being conducted in gay community attached gay and bisexual men, there is still little information known about MSM who consider themselves to be heterosexual, or for whom prefer to be hidden to avoid social stigma and discrimination associated with being homosexual in Asia[14)]. The same is also true for Japan[14)].

While population based studies have established that same sex behavior among men in Asia is high, MSM in Asia have a number of risk behaviors that make them vulnerable to HIV. These include: high levels of

unprotected anal sex (See Table 4), lack of knowledge about associated risk, high levels of transactional sex, high numbers of sex partners and low perceptions of self risk[14].

Table 4. Prevalence of unprotected anal-sex among MSM in a number of countries in Asia

Location	Year	Prevalence %	Unprotected sex
China Beijing	2005	79%	Regular male partner/in past 6 months
China Beijing	2007	68%	Unprotected sex with man in past 6 months
Taiwan	2005	22%	last bath-house visit
Hong Kong	2004	60%	Anal sex/last 6 months
Singapore	2004	30.8%	Unprotected anal sex with boy friend/ last month
		20.1%	Unprotected anal sex with casual partner/last month
Japan	2006	18.2%	Didn't use condom with last anal sex/ regular partner
		8.6%	Didn't use condom with last anal sex/ casual partner

(Ruan 2005, Ma 2007, Chen 2005, Kimura 2005, Lau 2004)

For example, the percentage of MSM using condoms with sex with commercial and casual partners is lower than the rates of condom use reported by male partners of female sex workers in the same cities (See Figure 2). This indicates low levels of knowledge among MSM regarding risk practices and prevention methods.

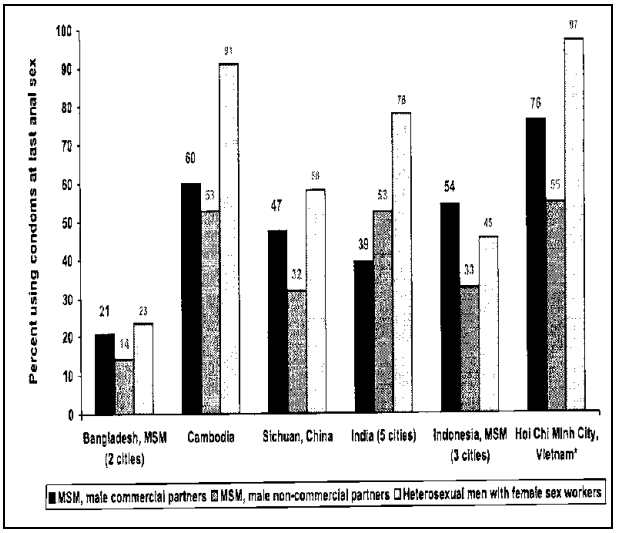

Figure 2. Percentage of MSM using condoms at last sex with commercial and non-commercial partners compared with condom use reported by clients of female sex workers in same locations (MAP 2004, Colby 2003, Girault 2004)

Data indicates high rates of syphilis among MSM through-out Asia. Syphilis prevalence among MSM is an indicator of unsafe sexual behaviour, as well as increased risk for HIV infection. Syphillis prevalence among MSM in Asia ranged from 5.5% in Phnom Pehn to 13.5% in Shiang Hai[1] (See Table 5). Surveys conducted in Bangkok in Thailand and Beijing, Hangzhou, Shiang Hai and Jiangsu in China were based on computer assisted interviews of behavioral sexual behavior as well as collection of biological sero sampling markers of existing or past syphilis infection. The Taiwanese survey, conducted in 2006 at a bath house found sero-markers for syphilis among 18% of the MSM sample[20]. In Singapore and Japan, Syphilis data obtained from internet surveys conducted

among samples of gay and bisexual men found 4.4% of MSM in Singapore[21] and 10.6% of Japanese MSM indicating life-time syphilis infection[22].

Table 5. Prevalence of syphillis among MSM in a number of countries in Asia

Location	Year	Prevalence	Method
Beijing China	2006	9.9%	RDS/sero-testing (current syphilis infection)
Bangkok Thailand	2005	6.8%	Time-location sample/ questionnaire/ sero-testing
Pnom-Pehn, Cambodia	2004	14.4%	Questionnaire/ sero-testing
Ho Chi Minh, Vietnam	2000	7.0%	MSM attending clinic for voluntary testing
Singapore	2004	4.4%	Internet questionnaire asking life-time experience of syphilis infection
Hong Kong	2004	5.7%	Telephone survey asking experience of STD infection
Taiwan	2006	18.0%	Sero-testing at bath-house
Japan	2005	10.5%	I'net survey asking life-time experience

(Action for AIDS 2005, Cao 2002 in Colby 2004, Chen 2006, Girault 2004, Hidaka 2005, Lau 2004, Ma 2007, van Grensven 2005)

HIV infection rates among MSM are high even in countries with low HIV prevalence among general adult populations (See Table 6).

Table 6. Percentage of Adult HIV Prevalence Attributable to MSM in a number of Asian capital cities 2005-2006

City	Prevalence
Bangkok	30%
Pnom-Pehnh	8%
Hanoi	28%
Beijing	35%
Yangoon	36%
Singapore	23%
Tokyo	64%

(van Griensven 2007)

Rates of HIV among MSM are up to 10 times higher than general populations. For example, in Bangkok Thailand, estimates that 3% of adult men have sex with men, HIV prevalence among MSM is 28.3% while HIV prevalence among the general adult population is 1.4% giving a 30.3% of adult HIV prevalence attributable to MSM[6]. Similarly, while Japan is considered a low prevalence country with a HIV prevalence rate among the general population of less than 1%, 63.6% of new HIV infections in 2006 were among MSM.

3. Sex Work

A number of local factors also impact on the vulnerability of MSM to HIV infection including sex work, drug use, and internal and cross border travel. Asian data indicates that payment for sex among MSM is quite prevalent[14]. For example, in Cambodia, 82.8% of Cambodian MSM reported being paid for sex by a male partner[8]. In the Cambodian survey, MSM reporting receiving money for sex one day, and paying for sex on another, indicating the difficulty in making clear definitions about who is the sex worker and

client in MSM sexual exchanges. In Japan, 15.8% of MSM respondents an internet survey answered that they had paid money for sex, with 10.2% answering that they had received money for sex[22]. While female sex workers are often brothel based, and are the focus of prevention programs, male sex workers are often difficult to reach, and transactional sex is often infrequent, exchange of money of favors may be ambiguous making outreach and prevention programs to these groups difficult.

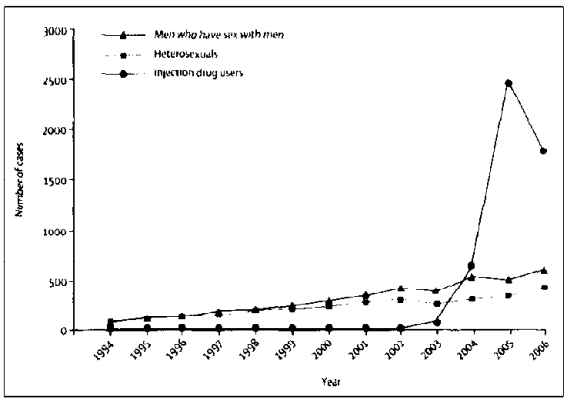

Figure 3. Annual numbers of HIV-1 infected persons according to infection route reported to the Taiwan Centers for Disease Control (Centers for Disease Control Taiwan 2006)

4. Drug Use

There is a large body of international data on the connection between drug use, MSM and unprotected sex. While drug use in Asia is highly implicated as a transmission route for HIV, the delay in collecting epidemiological data among MSM has resulted in inadequate levels of knowledge about how drug use is implicated with HIV risk behavior among MSM, and accordingly there is a lack of programs for MSM. Taiwan's situation indicates how dramatically the impact of injecting drug use can have on the increase in HIV infections in a short time span. In 2002, an increase in heroin importation into Taiwan, combined with an increase in needle sharing, led to a dramatic increase in HIV infections (See Figure 3).

While the epidemiological data published by the Taiwanese CDC treats IDU and MSM as separate infection route categories, sentinel survey indicates drug use among MSM to be high[20]. The rapid increase in HIV infection in Taiwan is not implausable in Japan.

While little research exists on Asia in particular, the literature contains a large body of research on the connection between drug use and dance party attendance. Circuit dance parties, which are popular among MSM in Asia (For explanation see http://en.wikipedia.org/wiki/Circuit_party) have been associated with unprotected unsafe sex, increased risk of STIs, and drug use in the United States[23-25].

Data on drug use among MSM samples in Japan includes an internet survey among MSM in Japan[22] which found that 59% of respondents had a lifetime experience of drug use, as well as from gay community dance parties and gay bars in Osaka. In the 2005 survey among gay bar patrons in Osaka, 61.4% of

respondents indicted they had used amyl nitrite, 21.1% 5Meo-DiPT, and 10.6% had used amphetamines during sex[17]. Of the respondents in this survey, only 36.9% reported never having using drugs during sex. Similarly, in a survey conducted at gay community and other dance parties in Tokyo, 48% of respondents reported using amyl nitrites, 8.8% 5MeO-DiPT and 5.3% reported using some other kind of drug[26]. In Japan, HIV sentinel surveillance is conducted among patients being treated for drug addiction in psychiatric hospitals and wards[27]. This data, along with HIV surveillance data, indicates that needle sharing and HIV transmission through needle use is increasing[11]. Despite increasing amounts of seizure of illegal narcotic drugs, particularly amphetamines in the Tokyo area, [28], there is a lack of behavioral and risk data among drug using populations and Japan's criminal justice policy strictly opposing drug use creates a barrier to undertaking research and public health HIV prevention approaches.

5. Travel

Travel, migration and instability have been implicated in facilitating HIV infection within Asia, and globally. Asian countries are popular travel destinations for Japanese. Gay dance parties in Thailand, Singapore, Philippines and Japan attract gay travelers. While data collected on Asian MSM in San Francisco, and Asian students in Sydney include Japanese in survey respondents, findings indicate low levels of knowledge of the HIV situation and prevention in the (overseas) countries they are residing, as well high risk practices including drug taking{Choi, 2005 #63}. While little research has been conducted on the level of travel within Asia undertaken by MSM, a telephone survey of men in Hong Kong found that among the 283 sexually active MSM respondents, 15.2% had traveled to mainland China in the previous 6 months for sex, and that cross-border networks correlated highly with anal sex with commercial sex workers, engagement in unprotected anal sex, and reported having an STI in the previous 2 months[29]. Furthermore, a social survey conducted among HIV positive MSM in Hong Kong, indicated that half of the 198 participants had traveled overseas for commercial sex and circuit parties, with the most popular tourist destinations being Thailand, Taiwan and Japan[30]. Spatial linkage of the geographical sexual networks outside of Hong Kong of HIV positive MSM is represented in Figure 4.

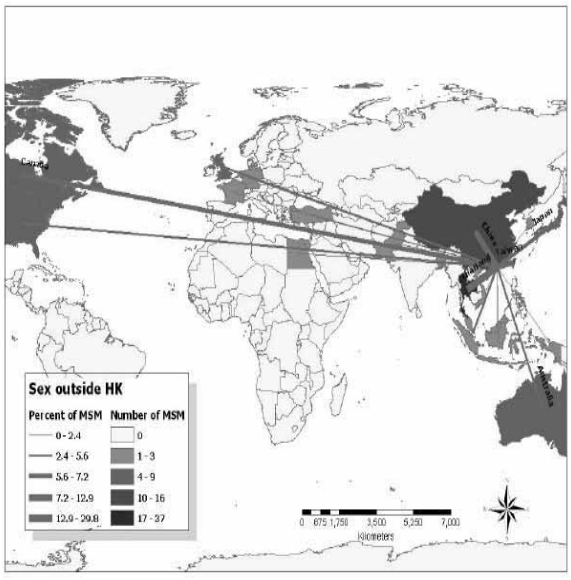

Figure 4. HIV positive MSM's links with sex partners outside Hong Kong (Lee et al. 2007) (Line thickness represents proportion of survey respondents, and color indicating absolute number of

respondents having sex in the country).

While the Hong Kong social network research indicates that MSM travel for the purpose of meeting and having sex with MSM, there is a lack of data on the connectedness between MSM in Asia and Japan. Examination of national travel data indicates that by year overseas tourists from Asia to Japan has increased exponentially due to the Japanese governments tourist promotion campaigns and the low value of the Japanese Yen (See Figure 5). While Japanese travel overseas has been increasing year by year, For Japanese travelers, visits to and from nearby Asia are particularly numerous (Figure 6).

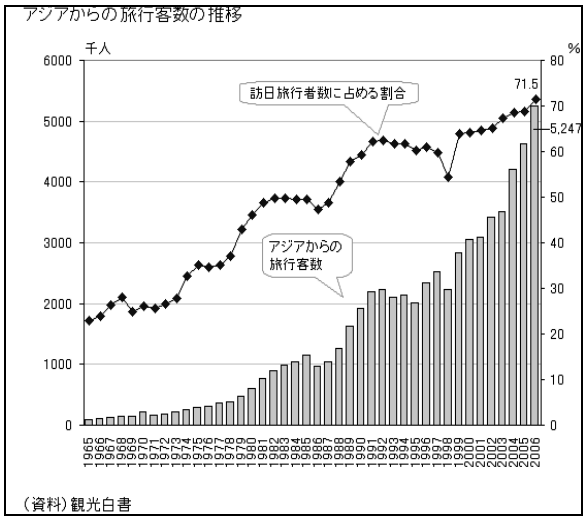

Figure 5. Annual numbers of Asian visitors to Japan (bars) and total number of visitors (line) to Japan

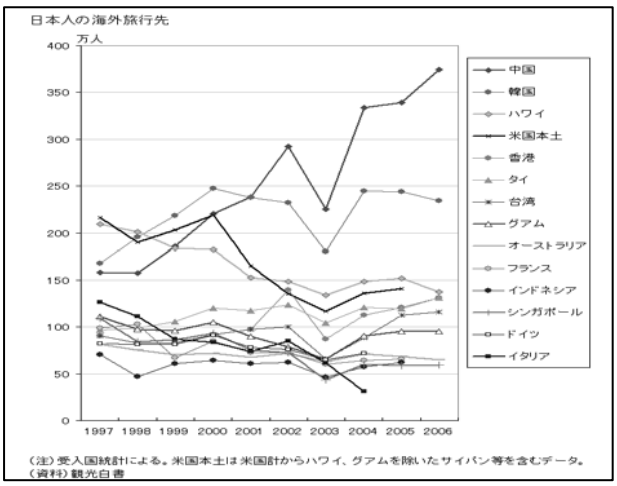

Figure 6. Annual number of Japanese travelers to most popular 14 countries of destination

Japan is a popular destination for foreign labor, particularly for workers from low income countries, who make up the majority of foreigners residing in Japan (See Figure 7).

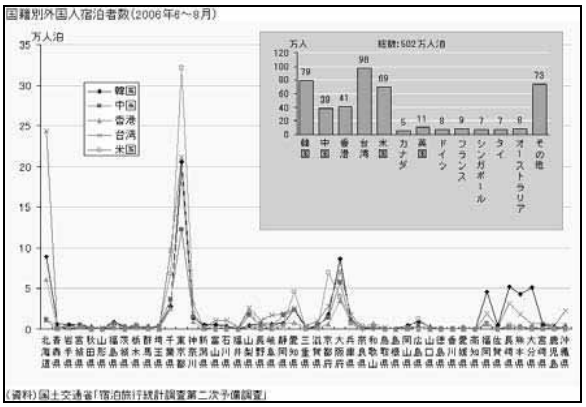

Figure7. Location and nationality of registered foreign residents in Japan.

Foreigners in Japan face a number of problems regarding HIV prevention and support. Lack of multi-lingual information and NGOs providing health and HIV related support for foreigners in Japan, and the isolation of many foreign workers means that many people are not able to access information regarding HIV transmission, HIV testing and support in the case of a HIV positive diagnosis. The few NGOs providing

support to foreigners are not necessarily able to deal with the specific needs of MSM[31]. Many workers do not have working visas or insurance, making them unable to access health services. While HIV infection rates among MSM in Japan have been quite low, in recent years, the numbers of foreign MSM diagnosed with HIV and AIDS has been slowly increasing indicating a need for HIV prevention information, outreach and support for foreign MSM.

As well as longer term visitors to Japan, anecdotal evidence from community center 'acta' in Shinjuku 2 chome in Tokyo, is that foreign gay and bisexual men, particularly from Asia, are more visible at gay bars and events in Tokyo. Similarly, since 2005, the number of foreign MSM in HIV and AIDS surveillance statistics have been increasing (See Figure 8 and 9).

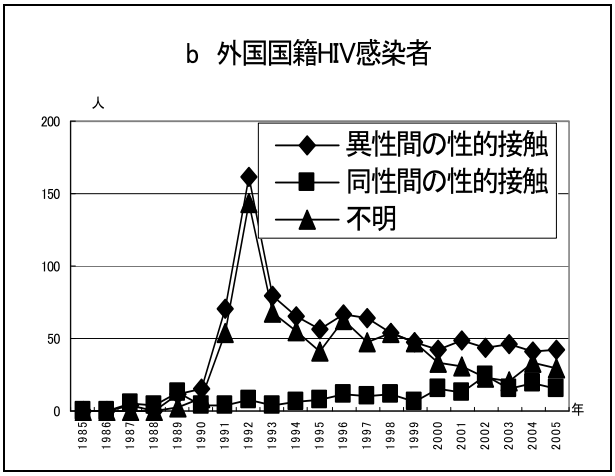

Figure 8. HIV Infection among foreign nationals in Japan (MHLW AIDS Surveillance Data)

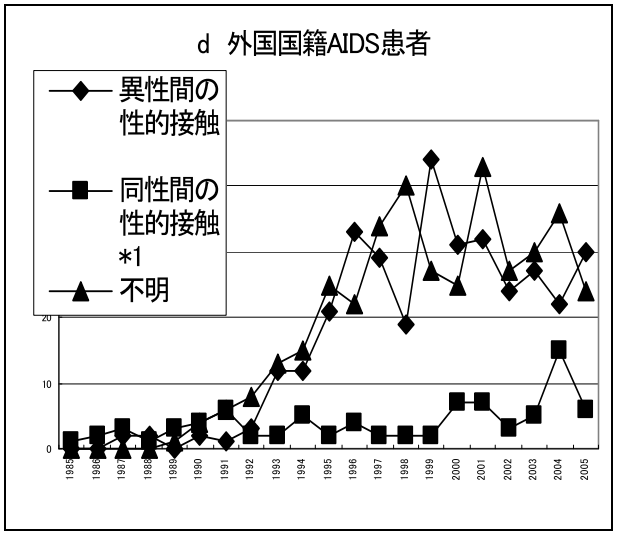

Figure 9. AIDS Infection among foreign nationals in Japan (MHLW AIDS Surveillance Data)

Increasing HIV infection rates among foreign MSM in Japan and the lack of adequate HIV prevention information and support for MSM will need to be addressed in interventions for MSM in Japan in the near future.

6. Why are Asian MSM disproportionately represented in HIV infection cases?

There are a number of reasons for the high disproportion of MSM among national and city HIV/AIDS cases. Data presented in earlier parts of this party indicate that high levels of male to male sex, HIV transmissive risk behavior, and STIs among MSM account for how HIV infection has spread in MSM in Asia populations. However, it is clear that particularly in the case of countries such as Thailand and Cambodia, which have internationally recognized success in averting rapidly increasing HIV infection rates among sex workers and heterosexual populations, that social and policy factors have impeded a rapid and effective response to HIV infection among MSM.

A number of factors have been put forward to account for the delay in conducting adequate epidemiological surveys and implementing HIV preventive programs among MSM in Asia. The Thai government's success in promoting the 100% Condom Program targeting sex work and extra-marital sex (read heterosexual) is estimated to have prevented 8 million new HIV infections. While the government has been defended for its surveillance and prevention approach towards MSM[32], analysis of how the explosion of HIV infections occurred number reveals a number of criticisms of the Thai approach. A number of barriers have been identified as to why the 100% Condom Program did not translate into effective prevention for MSM in Thailand, These include: stigmatization of homosexual behavior within Thai society, changes in the political environment which were less accommodating of commercial venues for MSM, lack of a strong commitment to public health approach, lack of MSM's inclusion in the Thai national AIDS plan, weak gay community organization, and lack of research on sexual and social research on Thai MSM's behaviour and sexual networks[16)33]. A lack of surveillance and weak prevention efforts among Thai MSM allowed HIV to increase rapidly from 17.3% among MSM in Bangkok to 28.3%. Furthermore, low levels of HIV testing and unwillingness to disclose HIV status indicates the high amount of stigma in the Thai Department of Health and Thai society in creating a barrier to prevention, despite a successful national HIV prevention program[14].

Weakness in their approaches to MSM prevention and support is common to all countries in the Asian region. Examination of governments' HIV policy and program responses indicates that MSM have not been prioritized in national surveillance, AIDS plans and funding. A UNAIDS study among 20 countries in Asia found that although 60% of national surveillance included MSM in data collection, 15% did not collect behavioral and HIV infection data among MSM populations[34]. Furthermore, 40% of countries did not mention MSM in national AIDS plans, and 75% of countries did not have targeted funding for MSM programs (See Figure9). Positive aspects of governments' responses included the fact that 40% advocated for HIV interventions among MSM, and 100% had consultations between MSM communities, UN and governments. The study estimates that only 8% of the MSM population in respondent countries has access to comprehensive prevention services.

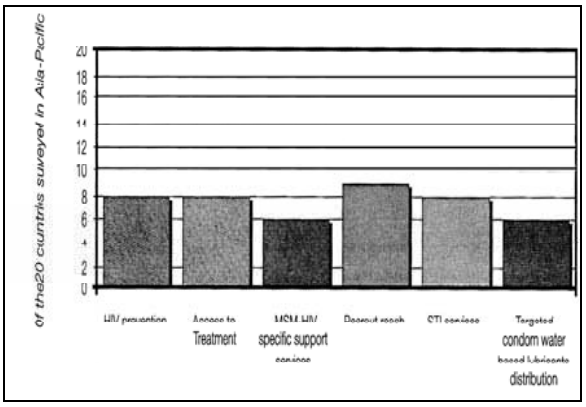

Figure9. Number of country respondents with MSM specific programs/interventions in their National AIDS Plans (UNAIDS Response Survey 2006 conducted among 20 countries in Asia including Pakistan, India, Bangladesh, Nepal, Sri-Lanka, Bhutan, Maldives, China, Mongolia, Indonesia, Philippines, Thailand, Laos, Cambodia, Vietnam, Myanmar, Malaysia, Singapore, Papua New Guinea, Fiji.

In relation to Japan specifically, a number of limitations have also been identified in relation to the Japanese government's response to HIV among MSM. First, social discrimination of homosexuality leading to stigma and harassment has been reported by a large number of gay and bisexual men[22] which is a large barrier to the provision of accurate information about homosexual transmission of HIV in schools, and in HIV prevention pamphlets produced by the government[13]. Further more, low levels of stable funding for NGO activities and poor coordination between local government and NGOs[13)35], as well as reducing levels of financial support for local government HIV prevention and support have been identified in Japan.

7. What is needed to improve MSM's access to HIV prevention and support?

High and increasing prevalence among MSM populations necessitates scaling up of surveillance data on national MSM epidemics, inclusion of MSM in national plans, and increased funding and support to community organizations to provide prevention and support services. Furthermore, regional partnerships with MSM organizations bring visibility to MSM issues at a national level, encouraging the emergence of leaders within communities, legal and policy changes, and local advocacy are encouraged in order to foster advocacy for MSM.

D. 考察

1. Lack of epidemiological data and stigma have resulted in lack of detailed epidemiological data on MSM populations in Asia, and while MSM specific NGOs are providing outreach to the most visible MSM populations, coverage of hidden MSM populations is poor.
2. There is a large amount of male to male sexual behavior with a large diversity of homosexual identities among MSM in Asia, which have dense and loose network characteristics.
3. There are generally low levels of community mobilization among gay and MSM communities.
4. Little is known about the numbers, characteristics and behaviors of gay travelers to and from Japan and Asia.

E. 結語

1. Accessibility to HIV prevention and treatment services for MSM including education, sexual health clinics, condoms and lubricant need to be increased.
2. More financial support is needed for outreach including the funding of MSM community centers and MSM NGOs.
3. Epidemiological research focusing on the risk behavior, HIV related knowledge, and sexual and social networks of foreign MSM in Japan are needed.

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