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# HIV/AIDS Prevention: Factors Affecting Risky Sexual Behaviors among MSM in Shenzhen, China

Karen Behringer

*University of Connecticut Health Center*

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**HIV/AIDS Prevention:  
Factors Affecting Risky Sexual Behaviors among MSM in Shenzhen, China**

Karen Behringer

BSN, Seattle Pacific University, 1982

A Thesis

Submitted in Partial Fulfillment of the

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APPROVAL PAGE  
Master of Public Health Thesis

**HIV/AIDS Prevention:  
Factors Affecting Risky Sexual Behaviors among MSM in Shenzhen, China**

Presented  
Karen Behringer, BSN

Major Advisor: \_\_\_\_\_  
Judy Lewis, M.Phil

Associate Advisor: \_\_\_\_\_  
Stephen L. Schensul, Ph.D.

Associate Advisor: \_\_\_\_\_  
Kevin D. Dieckhaus M.D.

University of Connecticut

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## Introduction

The prevalence of HIV infection in China among men who have sex with men (MSM) appears to be increasing in the last few years. Since the MSM population in China is relatively hidden and difficult to reach, there has been limited data regarding HIV risk in MSM, but existing data has reported high levels of unprotected anal sex and high numbers of both male and female sexual partners among MSM. This has raised concerns not only for the health and well being of the MSM population, but also that MSM may be a potential bridge for the spread of HIV into the population at large.

The Shenzhen Center for Disease Control and Prevention (CDC) is the municipal public health agency where the author completed a four-month public health practicum in the HIV/AIDS Division, which is the setting the author chose to examine the factors affecting the risky sexual behaviors of MSM. The CDC's HIV AIDS Division has been conducting a MSM HIV prevention, surveillance, and screening program in the city since 2002, but there had been limited analysis of the surveillance data, which included a behavioral survey. The purpose of this thesis is to perform a secondary analysis of survey data collected by the Shenzhen CDC in order to provide baseline information about the HIV knowledge, risk behaviors, and HIV prevalence rates in MSM living in Shenzhen China. The thesis begins with an overview of global HIV/AIDS, MSM, and China. The research goal, analytical model, methodology and results are then described. The thesis concludes with discussion of the results, the limitations of

the study and recommendations for future study. The results of this analysis will be used to inform the expansion of the existing MSM peer outreach program as well as future research and HIV prevention programs.

## **Background**

### ***Global HIV/AIDS***

HIV/AIDS continues to be a major global public health issue, despite improved accessibility to anti-retroviral treatment and increased prevention programs. The WHO estimates that worldwide in 2007, 33.2 million people were living with HIV and that 2.5 million people were newly infected with HIV.<sup>1</sup> The nature of the HIV epidemic varies considerably throughout the world. The distribution of HIV has settled into two main patterns: generalized epidemics throughout the population in sub-Saharan African countries; and, epidemics in other regions that are primarily concentrated among groups with high risk behaviors such as sex workers, men who have sex with men, and intravenous drug users.

In the WHO Asia Region in 2007, there were an estimated 4.9 million people living with HIV, and an estimated 440,000 people were newly infected during the year.<sup>2</sup> The epidemiology of the HIV epidemic in this region is complex. In many of the countries in this region, the HIV epidemic has been largely driven by sex work and injecting drug use (IDU). Typically, the chain of HIV transmission begins first with IDU, and then spreads among commercial sex workers. Next HIV is passed to the clients of sex workers, who then transmit the virus to their female sexual partners. The final link in the chain is transmission of the virus from mother to child.<sup>3</sup> This transmission relationship is not always linear, and may include many interconnections amongst the at risk groups and

with the general population. A country is considered to have a generalized epidemic when HIV infection rates grow to greater than 1% among the general population, and the rates among high-risk groups have reached saturation levels.<sup>4</sup>

In Asia, Thailand, Cambodia and Myanmar are considered to have generalized epidemics, while the epidemics in Papua New Guinea, China, Indonesia, Vietnam and Malaysia are still considered concentrated. Epidemics in Mongolia, Lao PDR, Philippines, Timor- Lest and the Pacific Island member states are categorized as low level.<sup>4</sup> Several factors may contribute to the wide variation in the spread and evolution of HIV in Asia, since the chain of transmission is generally the same. These include variations in behavioral factors and the timing of HIV introduction into the populations most at risk. This region is the most populous region in the world, which means that even small increases in HIV prevalence rates results in significant numbers of people living with HIV/AIDS.<sup>4</sup>

Today it is estimated that at least 5-10% of HIV infections worldwide occur as the result of male-to-male sex, although the proportion of cases attributable to this mode of transmission varies a great deal between countries.<sup>5</sup> HIV/AIDS was first recognized in 1981 in the United States in young men who self identified as being gay. As the epidemic progressed in developed nations, it remained concentrated for the most part in groups marginalized from society. Currently, male-to-male sex is a prominent mode of HIV transmission in much of the developed world.<sup>5</sup>

Research since the beginning of the epidemic has consistently shown that the main sexual risk behavior among MSM has been unprotected anal intercourse with higher risk associated with being the receptive partner. Koblin and colleagues found in a longitudinal study conducted from 1999 through 2001 in six US cities that MSM reporting unprotected receptive anal sex with unknown HIV status partners were at increased risk for HIV acquisition.<sup>6</sup>

There are three factors that affect the vulnerability of men who have sex with men to the HIV virus. These are biological, social/ cultural, and behavioral factors. Biologically anal sex, if unprotected, is much more likely to transmit the HIV virus with receptive sex carrying a higher risk. Some men may have other sexually transmitted infections, especially those with rectal symptoms, which go undiagnosed due to lack of awareness, stigma about genital body parts, and fear of discrimination in accessing testing services.<sup>7</sup> STI's, particularly those with ulcerative symptoms, have been shown to increase the risk for HIV transmission.<sup>8</sup>

While the social acceptance of men who have sex with men varies greatly worldwide, in many cultures it is a practice that is taboo, remains hidden, and in some countries is illegal. This lack of acknowledgment that sex between men occurs means prevention messages may focus largely on heterosexual sex. With little or no appropriate information for MSM, they may believe that they are not at risk. Men having sex with men, especially commercial sex workers, may be reluctant to access healthcare services for HIV and STI screening and treatment due to fear of arrest and fines and/or humiliation and discrimination from

insensitive health care workers. Additionally, they may have difficulty accessing lubricants and condoms, both essential in reducing HIV transmission during anal sex, in settings where this practice is not acknowledged. And male commercial sex workers may not have much power in negotiating condom use with their clients or they may make an economic choice to have unprotected sex for higher pay.<sup>7</sup>

Some behaviors in MSM may increase their vulnerability to HIV. Multiple sex partners and buying or selling sex increases the likelihood of coming into contact with an infected person. Lack of condom and lubricant use, influenced by the social factors described above, adds to the likelihood that HIV transmission will occur with that contact. Drug and alcohol use, common in some settings where MSM socialize, could influence decision-making about condom use and choice and number of partners.<sup>7</sup>

### ***MSM***

The term “men who have sex with men” or MSM is used in this thesis to encompass the extraordinarily varied communities of men found throughout the world. Men grouped under this term have different experiences, lifestyles, identities, and behaviors. Since MSM focuses on sexual behavior rather than on identity, some men find the terms confusing or irrelevant, especially in China. In Asian culture men do not tend to self identify as either being gay or homosexual; instead an identity based on gender is more common. So the term MSM is an

attempt to be inclusive of all men who have sex with men, regardless of how they see themselves.<sup>9</sup>

For Chinese MSM, familial and hierarchical ties are far more important factors than individual self identity, thus the concept of identifying as either gay or homosexual is relatively new in Chinese culture. Nevertheless, some Chinese will refer to other MSM as comrades or “gay” (tong zhi). Due to these cultural differences, there may be many subgroups of men who have sex with men in a community, with few common connections between these groups.<sup>9</sup> This makes HIV outreach and prevention to MSM in China challenging when the target population is so diverse and unconnected.

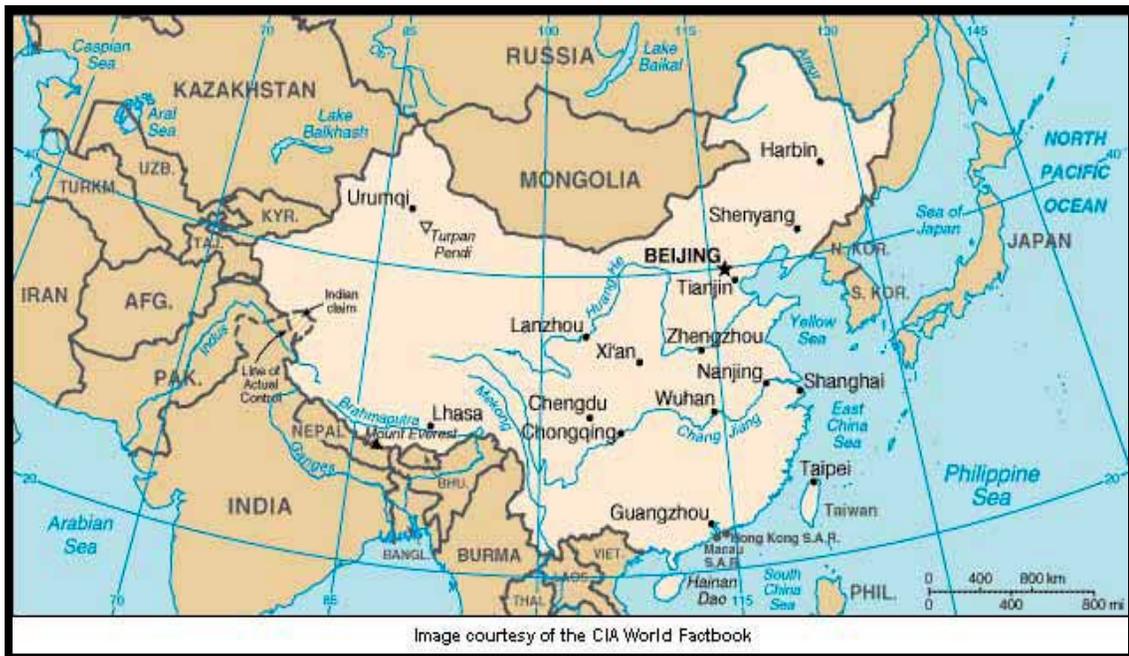
## ***China***

### ***Land and People***

China is usually described as being part of East Asia, and is situated south of Mongolia, west of the Korean peninsula, north of Southeast Asia, and east of South and Central Asia. It has a total area of nearly 9,596,960 square kilometers, and a varied topography, although 69% of the land is comprised of mountains, hills, and highlands. While China has many major rivers, such as the Yangzte and the Yellow Rivers, the longest river in southern China is the Pearl River, which is 2,214 kilometers long. It forms the rich Pearl River Delta region near Guangzhou, Macau, Hong Kong and Shenzhen. The climate of the country is varied, including the cold temperate regions of northern China, the tropical

zone in the South, and the sub arctic conditions in the Himalayan Mountains to the west.<sup>10</sup>

**Figure 1. Map of China**



In 2006, China's population was estimated to be 1.3 billion. It is the most populous nation in the world, yet it had an annual population growth of only 1% in 2006. The average total life expectancy at birth for the same year was 72 years. The most densely populated provinces are in the eastern part of the country, and the nation's overall population density was 135 persons per square kilometer in 2003. The four largest cities in China are Chongqing, Shanghai, Beijing and Tianjin. In 2004, 38% of the population lived in urban settings, although rural to urban migration is increasing.<sup>10</sup>

Han Chinese make up the largest ethnic group in China, comprising 91.5% of the population. There are 55 other nationalities/ethnic groups that are officially recognized by the Chinese government. Standard Chinese or Mandarin is the official language, although there are other major dialects commonly spoken such as Cantonese, Shanghaiese, Fuzhou, and Hokkien-Taiwanese. In addition, because of the large number of ethnic minorities, numerous minority languages are also spoken. The traditional religions of China include Buddhism, Taoism and Confucianism. Even though the Constitution of China grants citizens of freedom of religious belief, estimates of the numbers of adherents to various beliefs are challenging, because there is still persecution toward certain religions. One example of this was the outlawing of the religious movement Falun Gong in 1999.<sup>10</sup>

### ***Economic, Political, and Healthcare Systems***

The evolution of the economic, political, and healthcare systems in China over the past 60 years provides a basis for understanding the context and scope of HIV/AIDS in the MSM population. The health of the Chinese people has steadily improved since the Chinese Communist Party came to power in 1949.<sup>11</sup> The new government quickly created a public healthcare system including government owned and funded hospitals, specialty centers and clinics throughout the country. The private practice of medicine disappeared. The public sector provided access to primary care for everyone. In rural areas, people with only basic health care training, the so-called barefoot doctors, provided primary

care. In 1954 a National STD control program was established to create community mobilization, mass screening and treatment.<sup>12</sup>

This system achieved huge improvements in health from 1952 to 1982. Infant mortality fell from 200 to 34 per 1000 live births and life expectancy increased from 35 to 68 years.<sup>12</sup> The centralized public health program succeeded in controlling most infectious diseases; in 1964, data indicated the virtual eradication of STDs.<sup>13</sup> By the beginning of the 1980s, China was undergoing the epidemiological transition previously seen in Western countries; chronic diseases were replacing infectious diseases as the leading causes of illness and death.<sup>12</sup> Yet, during the same period, STDs began to reemerge and the first scattered cases of syphilis were detected in 1979.<sup>13</sup>

China launched a series of economic reforms and more open trade policies in the late 1970s. Under the leadership of Deng Xiaoping, Special Economic Zones (SEZ) were established in five areas of China; the first one was established in Shenzhen in 1980. The SEZ's were to provide the opportunity to develop capitalism with Chinese characteristics. The liberal trade policies attracted huge foreign investments in manufacturing, and in 1984 China quickly opened 14 other coastal cities to overseas investment. A year later there was further expansion of these coastal areas, and by 1992 China had opened a number of border cities as well as all the capital cities of inland provinces to overseas investment. Meanwhile in the rural areas, the government suddenly and completely dismantled communes and by 1984 the agricultural economy was largely privatized.<sup>10</sup>

At the same time that these economic policies were being implemented, changes were made in the structure and financing of Chinese health care. The public health system was decentralized, and a system of price regulation on healthcare services was imposed by the central government. The unintended effects were that all Chinese faced overall rises in health care prices, many rural healthcare clinics closed without subsidy from the central government, and the public health system was seriously unprepared for the SARS outbreak in 2003.<sup>12</sup>

China today is the second largest economy in Asia. According to the World Bank, China's economic growth of about 9% per annum has helped to bring an estimated 400 million people out of absolute poverty within the past 30 years. In 1985 average income in China was \$280; in 2006 the average income was \$2,025. Prospering rural and urban economies resulted in improvements in key human development indicators; one example is that adult illiteracy rate fell by more than half, from 37% in 1978 to less than 5% in 2002.<sup>14</sup> But at the same time this tremendous economic growth had three unintended effects on the health of the population.

The first effect was the increasing disparity in economic and health indicators between urban and rural residents; income inequality rose from 28 percent in 1981 to 41 percent today.<sup>15</sup> The under five-mortality rate for children in 2002 was 39 per 1000 in rural areas and 14 per 1000 in urban settings.<sup>12</sup> The maternal mortality rates in remote rural areas in 2004 were 3 to 7 times higher than urban rates.<sup>16</sup> The second effect was that rates of improvement for many health indicators slowed in the 1990s, and in some instances reached a plateau;

this is currently the case for child and maternal mortality rates.<sup>17,16</sup> And lastly, there was an increase burden of disease. Rates for sexually transmitted infections (STI's) have risen dramatically. In 1980 there were 48 reported cases of the eight reportable STI's, but by 2004 this number was 742,022.<sup>18</sup> The reemergence of old infectious diseases and the development of new infectious diseases, such as SARS and HIV, made public health officials recognize the vital importance of a strong and integrated national public health system.<sup>19,20</sup>

### ***Migration***

Another factor influencing health is rural to urban migration. The Chinese government instituted a system of mandatory household registration (*hukou*) in 1958 as a way to manage the massive influx of rural people to urban areas. The *hukou* provides citizens with access to social welfare and health insurance systems. The policy was quite restrictive and included a grain rationing system that effectively limited internal migration. In 1984, in response to the dismantling of the agricultural collectives and a simultaneous move to a Chinese capitalist economy, the 1958 restrictions were ended and replaced with more liberal control measures. These new measures still require all households to register as either urban or rural, but allow migrant workers (*wai lai gong*) to apply for a temporary residence certificate (*zan zhu zheng*). Few register with urban officials upon their arrival and apply for *zan zhu zheng*, due to the cost and variable benefits received.<sup>21</sup>

There were approximately 147 million migrants in China in 2005, with most of them being rural to urban migrants.<sup>22</sup> Migrants are typically male, 20 - 24 years old, and largely unmarried or married and living away from their spouse. Most migrants return to their rural hometown periodically because their permanent residency registration is still there and because they maintain close family ties. This continuous rural-urban-rural population movement has led to concern that it may play a crucial role in the spread of HIV epidemic in China.<sup>23</sup>

### ***MSM in China***

Prior to the 19th century, there was no stigma against sexual relations between men, as long as these relationships did not interfere with marriage and the fertility of women. In the early 20th century, sex between men was labeled unethical and punished by law. In 1957, the Supreme Court of China stated that consenting sex between adult men was not criminal, and in 1993 the Ministry of Public Security restated this opinion. However during this time, sex between men was ideologized and stereotyped by the Communist Party, portraying MSM as a cultural threat from Western nations. This conservative attitude began changing with the opening up of China in the 1980's, and by 2001 homosexuality was struck from a list of psychiatric disorders in China.<sup>24</sup>

The sexual culture in China is focused on procreation; failure to produce offspring, especially a son, is viewed as the most undutiful act towards one's parents.<sup>25</sup> This societal emphasis on social order and procreation has resulted in the stigmatization of homosexual behavior, causing many MSM to conceal their

sexual preference. Estimates of the size of the MSM population in China vary; one report puts the figure at 5 to 10 million men.<sup>26</sup> To avoid societal and family pressures, MSM may be married and / or engage in heterosexual behaviors. The Liu et al. review of ten behavioral studies of MSM in China between 2001 and 2004 found approximately one half of Chinese MSM reported having sex with a woman, and one third had been married to a woman.<sup>25</sup> Other more recent studies reflect a wide variation in sexual behavior and marriage. In one 2004 study in Guangzhou, 31.8% of MSM reported regular female partners and 25.9% were currently married to a woman.<sup>27</sup> In a Beijing study in 2006, only 9.6% of MSM had married a woman and only 4.2% were still married.<sup>28</sup>

## ***HIV/AIDS in China***

### ***Epidemiology***

The first HIV/AIDS cases were detected in China in 1985 among foreigners and Chinese returnees. It was not until 1989 that the first indigenous cases were reported. These were among intravenous drug users (IDU) in Yunnan province, near China's southwest border. HIV spread steadily to IDUs in nearby cities, then from IDUs to their sexual partners and children, and by 2002 to IDUs in all provinces throughout mainland China.<sup>29</sup> In the 1990s, an outbreak of HIV, driven by blood collection contamination, became apparent in commercial plasma donors in the east central provinces of China. The magnitude of this outbreak, fortunately, was much lower than was previously imagined. In 2004

screening in Henan indicated in infection rate of 8.9%. However, the HIV infection rate among former plasma donors contributed to HIV transmission to people receiving blood transfusions, either from unscreened blood or locally acquired blood.<sup>30</sup>

Overall, the HIV/AIDS epidemic in China continues to remain one of low prevalence, with pockets of high infection rates in specific subpopulations and in some localities. The epidemic continues to grow, but at the same time, the rate of growth is slowing. The major change in the epidemic in 2007 is that heterosexual transmission has now become the main mode of transmission, replacing intravenous drug use. The Chinese Ministry of Health, UNAIDS and the WHO jointly estimated that by the end of 2007, approximately 700,000 people in China were HIV-positive. The estimated new HIV infections in 2007 were 50,000, and there were an estimated 20,000 AIDS-related deaths. The HIV infection rate among the general population was estimated at 0.5%, and the estimated number of AIDS cases was 85,000.<sup>31</sup>

The modes of transmission for the estimated 50,000 newly HIV infected in 2007 were heterosexual transmission, 44.7%; homosexual transmission, 12.2%; IDU, 42%; and, mother to child transmission (MTCT), 1.1%. The geographic distribution for the 2007 estimates showed five provinces (Xinjiang, Yunnan, Guangxi, Henan, and Sichuan) accounted for 53.4% of the 700,000 living with HIV.<sup>31</sup>

The figures for reported cases are useful in understanding the changes occurring in the mode of transmission since the beginning of the HIV epidemic.

At the end of October 2007, among the reported cumulative number of people living with HIV, 38.5% were infected by IDU, 19.3% were former blood and plasma donors and recipients, 17.8% were through heterosexual transmission and only 1% through homosexual transmission. This cumulative data reflects the impact that intravenous drug use and contaminated blood collection had on HIV transmission in the past, but the reported cases in the last few years reflect a changing mode of transmission. In 2005, heterosexual transmission accounted for 10.7% of the total newly reported HIV-positive cases and by 2007 it had reached 37.9%. Yearly data collected from 1995 through 2007 from sentinel surveillance on IDU, sex workers, and pregnant women shows the while the infection rate among these three groups continues to increase, the rate of increase has slowed.<sup>31</sup>

### ***HIV/AIDS and MSM in China***

HIV rates in Asia have been increasing in men who have sex with men, raising the concern that this trend may prevail in China. Reported HIV infection rates in Bangkok, Jakarta, and Phnom Penh have been between 2.5% and 22% in men who have sex with men.<sup>3</sup> Prevalence rates of HIV infection in China are reported at 2.1% (n=753), 3.2% (n=526), and 3.1% (n=481), by Zhang<sup>28</sup>, Ruan<sup>18</sup>, and Choi<sup>32</sup> respectively. While these rates appear relatively stable, Ma et al. did three consecutive cross-sectional surveys measuring the HIV prevalence in Beijing in 2004, 2005, and 2006 and reported rates of 0.4% (n= 325), 4.6% (n= 427), and 5.8% (n=540), respectively.<sup>33</sup>

The three factors that contribute to the acquisition of HIV by men who have sex with men, biological, behavioral, and social/cultural, need to be examined specifically in the context of China. The main biological factor affecting MSM is the presence of sexually transmitted infections, which are on the rise globally, as well as in China. STI's are significant, because not only can they facilitate the acquisition of HIV, but they also can be a marker for risky sexual practices that can transmit HIV. The rising rates of STI's in MSM, especially syphilis and gonorrhea, have been described in the United States and in the United Kingdom by Wolitski et al.<sup>34</sup> and by Dodds et al., respectively.<sup>35</sup> The cases of gonorrhea in MSM attending STI clinics in 26 US cities increased from 5% in 1992 to 13% in 1999.<sup>34</sup> The increase of STI's among the general population in China over the last two decades has been remarkable; for example the incidence of syphilis has increased from 0.17 cases per 100,000 in 1989 to 4.31 cases per 100,000 in 1998.<sup>13</sup> Diagnosis of sexually transmitted infections, including HIV/ AIDS syphilis and gonorrhea, increased to 3.5% in 2006, compared with 2005.<sup>28</sup>

Studies in Chinese MSM show high coinfection rates with a variety of STI's. Among 144 men recruited from gay bars in five cities in Jiangsu province in 2003, 6.9% had active syphilis, 7.8% were infected with herpes simplex virus-2, and 13.2% had genital warts.<sup>36</sup> Yet, while the men in this group had high STI prevalence, no one was found to be HIV infected. In contrast, a 2005 community-based sample of 526 MSM in Beijing found that 11.2% of the participants tested positive for syphilis and 3.2% were HIV seropositive.<sup>18</sup> A recent cross-sectional

study of 753 MSM recruited from a voluntary counseling and testing clinic in Beijing in 2005 and 2006, found a prevalence of HIV-1 infection of 2.1% and a syphilis infection of 7%. Among the HIV positive MSM, 93.8% had serological evidence of one or more coinfections (syphilis, chlamydia, ureaplasma urealyticum, toxoplasma gondii, and hepatitis C).<sup>28</sup>

While these studies provide cross-sectional views of the prevalence of STIs, there has been only one study that has examined the trends in HIV and STI prevalence among MSM in China. Ma et al. used a respondent driven sampling method to conduct three serial cross-sectional surveys in Beijing in 2004, 2005 and 2006. They detected a possible rise in prevalence of HIV from less than 1% in 2004 to greater than 5% in 2006.<sup>33</sup> This apparent rise was accompanied by an increase in syphilis infection, from 4.5% in 2004 to 9.9% in 2006, and self-reported history of STDs. Although the prevalence of HIV among MSM reported in these studies is currently low, HIV has the potential to spread rapidly among MSM, based on their risky sexual practices.

Studies in China have documented high levels of risky sexual behavior, similar to those found in the United States and the UK.<sup>6,35</sup> These include high levels of unprotected anal intercourse and increasing numbers of male sexual partners. In Guangzhou, He et al. reported that 54.7% of MSM (n=201) had unprotected anal sex with other men<sup>27</sup> and in Jiangsu province, Jiang et al. found that 46% of MSM (n=144) reported unprotected anal intercourse in the past three months.<sup>36</sup> A Beijing study by Choi et al. had similar findings, 49% of MSM (n= 482) reported unprotected anal intercourse with men

in the last six months.<sup>37</sup> The two studies that have reported on trends in HIV prevalence and sexual behavior in MSM have had conflicting findings. Zhang et al. found that between 2002 and 2006, there was an increase in reported “always using condoms with anal sex in the last six months” and a decrease in unprotected anal sex from 90% to 72%. While Ma et al. found no increase in consistent condom use reported yearly between 2004 and 2006.<sup>28,33</sup>

In addition to unprotected sex, findings of the number of both male and female sexual partners among MSM are troubling. Ruan<sup>18</sup> and Zhang<sup>28</sup> both found that greater than 10 lifetime male sex partners was associated with HIV seropositivity, while Choi reported that seropositivity was associated with having more than 20 male sexual partners.<sup>32</sup> The number of female partners varied; 31.8% of MSM in He’s study<sup>27</sup> reporting regular female partners, 28.8% in Ruan’s had sex with women,<sup>18</sup> and 28% of MSM had sex with both men and women in the past six months in Choi’s study.<sup>37</sup> These results provide insight into the potential for HIV transmission from the MSM subgroup into the population at large.

While the above studies provide some baseline information about the sexual risk behaviors of MSM, they only reflect a certain subpopulation of MSM, namely urban well-educated men who access established MSM venues. Current understanding about MSMs who are harder to reach and less visible, such as rural MSM and male commercial sex workers or money boys is limited, and few studies have been published in English. There is one qualitative study done by Wong and colleagues in 2004 among 24 rural MSM in Yunnan province. They

identified multiple sexual partners, commercial sex, and drug and alcohol consumption as the significant high-risk behaviors in their study group.<sup>38</sup>

In a Shanghai study comparing HIV risks among two types of male migrants, MB versus general male migrants, He and colleagues found that both types of migrants reported low rates of condom use. Money boys were more likely to use alcohol, had more sexual partners and more casual sex partners and were more likely to engage in other sexual risks.<sup>39</sup> Mi and colleagues surveyed 85 male sex workers in Beijing and Qindao City and found the rate of receptive anal intercourse and insertive anal intercourse with clients was 57.6% and 48.2% respectively, while the rates of condom use while having sex with the above clients was 51.3% and 70.7%, respectively.<sup>40</sup>

### ***Public Policy***

China's HIV/AIDS policy has evolved over the last decade, with major strategic plans outlining the scope of HIV prevention being developed in 1998, 2001, 2003, and 2006. But the real shift in China's acknowledgment of HIV/AIDS came in 2003 on World AIDS Day when Wen Jiabao became the first Chinese Premier to shake hands with an HIV-positive patient.<sup>29</sup> This symbolic move signaled to the country and to the world that the top leadership in China was finally taking control of the HIV/AIDS problem. In 2006, China publicly recognized the existence of MSM for the first time, when the government published in the national media its estimates of the number of MSM living in China.<sup>26</sup> Since China's official acknowledgment of MSM is very new, there are no

specific MSM prevention strategies identified in the two policies currently in effect, the Chinese Government's Four Frees and One Care policy initiated in 2003, and the 2006-2010 Action Plan for Reducing and Preventing the Spread of HIV/AIDS.<sup>41</sup>

The Four Frees and One Care policy offers free voluntary counseling and testing, free antiretroviral treatment, free prevention of mother-to-child transmission, free schooling for children orphaned by AIDS, and care for people with HIV in 127 sites nationwide.<sup>41</sup> The 2006-2010 Action Plan is a comprehensive prevention strategy providing a multi-sectoral response; addressing areas as diverse as the reduction of stigma and discrimination through media campaigns, ensuring safe blood supply, and training of government leaders and healthcare providers in HIV knowledge. It outlines specific targets for all high risk groups by 2010, such as condom use rates not less than 90%, basic HIV knowledge in 90% of the population, and annual increases in the rate of STI's less than 10%.<sup>3</sup> In these plans MSM are not specifically named as a high-risk group.

## ***Shenzhen***

### ***Location and Demographics***

Shenzhen is a coastal city in the South of China in Guangdong province, situated just across the border from Hong Kong. Prior to its designation as the first special economic zone in China in 1980, Shenzhen was a small fishing village with a population of approximately 30,000. Today its total area is 1952

square kilometers, and within that, the size of the special economic zone is 395 square kilometers. The city is divided into six districts, Luohu, Futian, Nanshan and Yantian districts which are all within the special economic zone, and Bao'an and Longgang districts are outside it.

**Figure 2. Map of Shenzhen**



By the end of 2006, the city officially had 8.4 million permanent residents. Among these regular residents, only 1.9 million had *hukou* and 6.4 million were without *hukou*.<sup>42</sup> Shenzhen is a migrant city, whose population increases continuously with labor market demands in the manufacturing and construction sectors. Unofficially, the migrant population of Shenzhen is estimated at approximately 4 to 6 million people, bringing the total unofficial city population to between 12 and 14 million.<sup>43</sup>

The economic structure of Shenzhen is based on manufacturing, financial services, and logistic services. The main manufacturing sector is the high-tech industry, such as computer software, IT, and video and audio products. This export oriented industry makes up half of the economy. The financial institutions of banking, securities, and insurance support the manufacturing industries in Shenzhen and the rest of Guangdong province. Finally, the export processing zones, customs supervised warehouses, and seaport support the logistics of exporting manufactured goods from throughout the province overseas.<sup>43</sup>

Since Shenzhen is one of China's major centers for foreign trade and exports, it is a city with frequent and high-volume cross-border traffic. In 2007 there were 177.7 million people crossings, and 15.3 million motor crossings, which was an increase by 6.4% and 0.9% respectively, compared to 2006. There were 94.7 million people crossings through the Luohu border to Hong Kong alone, which is the border crossing most convenient to the downtown area of Shenzhen.<sup>44</sup> Finally, in 2006, a reported 378 million people visited Shenzhen's special economic zone.<sup>43</sup>

## ***Shenzhen Center for Disease Control and Prevention***

### ***General Description***

The Shenzhen Center for Disease Control and Prevention (CDC) is a non-profit public health service unit organized by the Shenzhen municipal government. It is under the direction of the Central Chinese Center for Disease Control and Prevention, the national body responsible for overall public health in

China. It began operating independently in May 2003; having been reorganized based on the former Shenzhen Hygiene and Anti-Epidemic Station (established in 1979). Its main responsibilities include: disease control and prevention, public health emergency response, health hazards monitoring and control, laboratory testing and analysis, and health education and health promotion. The CDC conducts research in the following fields; infectious disease (SARS, malaria, viral hepatitis, influenza, avian flu, HIV), non-communicable diseases, parasitic disease, and environmental and occupational and health hazards. Additionally, it trains masters, doctoral and postdoctoral students in public health. It is located in the Luohu district of Shenzhen, and has a staff of 264.<sup>45</sup>

### ***Shenzhen CDC HIV/AIDS Division***

The Shenzhen CDC's HIV/AIDS Division consists of the voluntary counseling and testing center site (VCT), the HIV laboratory, the maternal HIV program, and prevention programs for female sex workers, men who have sex with men, and the general population. This department has the central HIV confirmation laboratory in Shenzhen, which is certified by the Ministry of Health. The lab conducts a variety of national, provincial and municipal scientific research projects involving HIV nucleic acid testing, subgroup analysis, and drug resistance mutations. It has a staff of approximately 12, not including laboratory workers.<sup>45</sup>

The HIV/AIDS division has a number of international collaborative working arrangements including the United States CDC Global AIDS Program

(GAP), the University of Washington Medical School, the University of California at San Francisco, and the Clinton Fund. In addition to working closely with the Central Chinese CDC domestically, Shenzhen CDC works with the Guangdong provincial CDC, the Chinese University of Hong Kong, the Hong Kong Health Administration, Hong Kong AIDS Care, the MSM Web in Guangzhou, and the Shenzhen STI Prevention and Treatment Center.<sup>46</sup>

### ***Shenzhen CDC HIV/AIDS MSM Prevention Program***

The Shenzhen CDC, under the leadership of Professor W. Cai, began behavior investigation and HIV screening among men who have sex with men in 2002 and has continued until the present. Their work was interrupted and suspended by the SARS outbreak in 2003. The program has focused primarily on outreach, education, and testing. They provide free HIV and syphilis testing at MSM venues, and concurrent with testing, administer a questionnaire, provide counseling and information regarding safe sex and HIV, and distribute free condoms and lubricant. The questionnaire focused on HIV knowledge and attitudes, sexual behaviors, and condom use. Since August of 2004, a team of MSM volunteers has been organized to provide peer education with support from Chinese GAP.<sup>46</sup>

### ***Shenzhen CDC MSM Peer Education Volunteers***

The head volunteer, Jason S. organizes and runs all volunteer activities, under the direction of Professor Cai. Presently the volunteers number between

40 and 60. All of them have been recruited and screened by Jason. The volunteers are critical to the functioning of the MSM prevention program. The volunteers perform the following duties:

- Publicize upcoming events and programs via the Internet, phone calls and posters
- Staff the screening events at the MSM venues, including set up, distribution of condoms and prevention literature, encouragement of screening, review of survey questionnaire with respondents, and if necessary, answer questions
- Monitor the need for condoms, lubricants, and prevention materials at all the venues, deliver items as needed
- Organize and implement outdoor activities via the internet— weekly in Shenzhen (sports in a local park) and monthly outside of the city (day bus trips outside of Shenzhen for mountain hikes, swimming and Frisbee at the beach)
- Host prevention education among MSM on the Internet through a variety of online chat rooms
- Speak at public events, conduct radio, TV and newspaper interviews on HIV/AIDS in general, and specifically in the MSM community
- Serve as an accessible resource to men in the community for questions/concerns regarding the social issues of HIV/AIDS

- Provide a informal network of support for HIV-positive men in the community

Since they are the only group of volunteers organized by the HIV/AIDS division, the MSM volunteers are frequently involved in prevention activities outside of the MSM community. For example, on World AIDS Day December 2007, a group of 15 volunteers participated in a HIV/AIDS awareness educational program at the largest factory in Shenzhen that employs 30,000 workers. They distributed condoms, red ribbons and prevention literature and interacted with the workers answering questions about HIV/AIDS. Two of the volunteers, including one who is HIV-positive, were interviewed at the event on stage before 15,000 factory workers in a Shenzhen suburb.

### ***MSM Venues in Shenzhen***

The program has identified approximately 36 venues in the Luohu and Futian districts of Shenzhen frequented by men who have sex with men. These include bars, parks, family clubs, sauna centers, and gym or athletic centers. In China, a family club is an establishment that may advertise massage services, but in reality is a place where men go mainly to buy sex. Most of these venues advertise on the known MSM web sites and are easily identified as being for comrades (tong zhi). Since the program's inception in 2002, Prof Cai with the help of the volunteers has established a remarkable rapport with the venue owners and managers. He has enlisted their support in prevention activities and most display a plaque at their entrance, which states they are a member of the

Rainbow Network in collaboration with the Shenzhen CDC HIV/AIDS Division. Some venues, particularly the bars, hold quizzes and shows and give prizes for knowledge about HIV/AIDS prevention. Prior to 2005, the police frequently closed down MSM venues and venue managers were detained. However, since 2006 detentions have ceased.<sup>46</sup>

## Research Goal

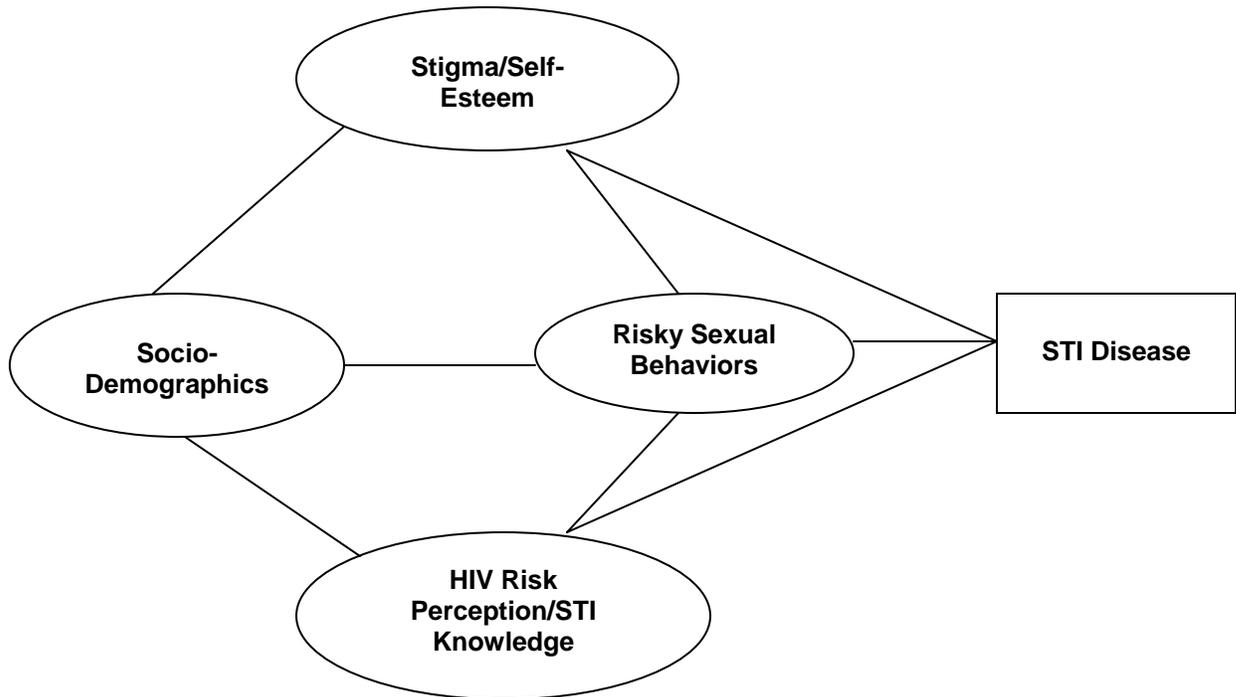
This was a secondary analysis of survey data collected by the Shenzhen CDC. The overall purpose was to provide baseline information about HIV/AIDS risk in MSM, both quantitative and qualitative, in preparation for future research and expansion of the current HIV/AIDS prevention program.

### *Specific Aims*

- Document the current epidemiology of HIV and syphilis in Shenzhen
- Examine relationships between socio-demographic factors and HIV/STI status
- Examine the relationships between risky sexual behaviors and HIV risk perception/ STI knowledge, and stigma/self esteem

## Analytical Model

Figure 3. Analytical Model



This analysis will examine the relationship between the dependent domain, STI disease, and the risky sexual behaviors among MSM in Shenzhen. The sequence in the analysis is that HIV risk perception and STI knowledge, and stigma/self-esteem will affect the sexual practices of MSM. The levels of STI knowledge and HIV risk perception and the experiences of stigma and self-esteem in turn will be affected by socio-demographic factors. This model hypothesizes that MSM who are involved in greater sexual risk behavior will be more likely to have an STI disease.

STI disease refers to either a positive syphilis or HIV test result done by the Shenzhen CDC at the time of the survey questionnaire. Risky sexual behaviors refers to number, gender, and relationship of current sexual partner, condom use with same and opposite sex partners, condom use with anal sex, selling or buying sex, lifetime number of same sex and opposite sex partners, history of STI symptoms, and STI diagnosis. HIV risk perception/STI knowledge refers to the number of sources of safe sex information, opinions about condom use with same sex and opposite sex partners, reasons for no condom use with same sex partners, and the probability of becoming infected with HIV.

Stigma/self-esteem refers to participants feeling insulted or humiliated because of their same sex relationships, feeling pressure to marry from society or family, and either personal depression or depression of a close friend. Socio-demographics refer to age, education, marriage, employment, salary, and length of time living in Shenzhen.

## Methodology

### *Quantitative Data*

#### *Study Participants and Recruitment*

The Shenzhen CDC collected the data used in this thesis between April 2006 and November 2007, as part of their ongoing surveillance for HIV prevalence and risk behavior in MSM. The survey was completed by 861 men, 18 surveys could not be used due to incomplete or missing information. There were 81 respondents (participants in the Chinese CDC Multicenter Trial in 2006 were contacted to repeat the screening in 2007) who were removed from the sample in 2007 because they had completed screening and the survey instrument both in 2006 and 2007. Finally, 293 responses in 2007 were not used due to significant changes in the survey instrument, which are described in the next section. This resulted in a sample of 468 for this analysis.

Survey participants were 18 years or older and were recruited in three ways. The first method was through advertising one to two weeks in advance on the Internet at the following web sites: <http://t4321.bjiao.com>, <http://hi.baidu.com/tongzhixing>, <http://blog.sina.com.cn/szcdc>.<sup>46</sup> Second, MSM volunteers distributed and posted flyers with upcoming dates and locations of testing and education sessions at various MSM venues identified by the Shenzhen CDC.

The third method, snowball sampling, was utilized only for surveys done in conjunction with the Central Chinese CDC Multi-center Study on Homosexuals of

China. This was a two-year study conducted in Shenzhen, Beijing, Shenzhen, Chengdu, Kunming, and Shenyang. In addition to HIV and syphilis testing, the multi-center study offered HSV, gonorrhea, and chlamydia screening and a specific behavioral survey created by the Central Chinese CDC. Participants at venues had blood drawn for an HIV and syphilis screening test, and were given a blue card. When they completed the survey, they were given 3 yellow cards to give to their friends. The yellow card explained the voluntary testing program, and asked the recipient to go to the central Shenzhen CDC VCT Center in Luohou on a specific date if they wished to participate. Those with yellow cards who completed testing and the survey received 3 red cards to distribute to friends; red cards had the same information as yellow cards, with different times and dates for the next screening session at the Shenzhen CDC. Red card MSM participants were then given green cards, like the yellow and red cards, to distribute to friends. The participants with a blue, yellow or red card were given 50 yuan (approximately \$6.50 US) for introducing new people to the study. In 2006, 220 of 345 participants were recruited in this manner, and in 2007 the number was 11 of 123 participants.

Given the limitations of the sampling method used in this project, the target population was limited to MSM who visit traditional gay venues such as gay bars, public bathhouses or sauna centers, and gyms. MSM were defined as male respondents who reported ever having sex with another man. In addition to the multi-center study done at the Shenzhen CDC, sampling was done at two different locations prior to the beginning of an outdoor activity organized by CDC

MSM volunteers via the Internet. One location was on a bus parked in an athletic stadium in Luohu, the other was at a gym in Luohu. The following is a summary of the MSM venues: 2006 two different bars, 2007 five different bars, bus, gym, and one sauna.

Verbal informed consent was obtained from all study participants before they completed a self-administered questionnaire and had blood drawn for HIV and syphilis antibodies. Syphilis testing was done by RPR test, and HIV testing was done using the Eliza and Western blot tests. Of the 468 participants in this analysis, 16 were not tested either because they declined testing, or had an unsuccessful blood draw. Shenzhen CDC staff and MSM volunteers were available to assist participants in completing the questionnaires, if requested. Completed questionnaires were crosschecked by staff for missing or unclear answers before participants left. Participants were asked for a cell phone number where they could be called in order to receive their test results. Negative HIV test results were text mailed to participants; all participants who tested positive received a phone call from one of the CDC HIV/AIDS Division doctors. Anyone testing positive for either HIV or syphilis was given referrals for treatment, further testing and follow-up care.

### ***Survey Instrument***

The standardized questionnaire included basic demographic characteristics (age, education, length of time living in Shenzhen, income, living situation). Questions pertaining to behavior and practices included age of

initiating sex with men, lifetime number of male and female sex partners, and gender and relationships with current sex partners. In 2006 and April, May, and June 2007 (2007 version 1) only, MSM were asked about the following behaviors for the past six months: condoms used for anal sex, number of sexual contacts with someone of the same sex, commercial sex work, and illegal drug use. Four different versions of the standardized questionnaire were utilized in 2007, with significant changes in both the nature and wording of the questions. For this thesis, only data from the 2006 and 2007 version (Appendix A) were included for analysis, because both surveys had identical questions and contained the most detailed, consistent questions regarding sexual risk behavior.

### ***Statistical Methods***

Data were entered into an EpiData database by Shenzhen CDC staff. All data files were then exported to SPSS version 15, and frequencies and distributions were examined. Chi-square analyses were used to test for associations between the outcome domain Risky sexual behaviors and the three other independent domains: Socio-Demographic characteristics, Stigma/self-esteem and HIV risk perception/STI knowledge. In order to facilitate analysis, for the variables having more than one possible response, the number of each possible response was totaled and this range of number of responses was then dichotomized. This was done for the following variables: source of safe sex information, reasons for not using condoms with same sex partner, usual venue to find sex partner, type of same sex practices, history of STI symptoms and STI

diagnoses. Additionally, the following variables were also dichotomized for chi-square analysis; age, years living in Shenzhen, marital status, opinion about condom use with same sex partner, opinion about condom use with opposite sex partner, probability of AIDS, number of sex contacts with same sex, condoms used for anal sex last six months, actual condom use with same sex partners, actual condom use with opposite sex partner, lifetime number of same sex partners, and lifetime number of opposite sex partners.

Two sets of variables in the risky behavior domain were checked for correlation and then combined to make new variables. Positive HIV test and positive syphilis test were combined to make the new variable STI disease. Condom use (never/sometimes) with anal sex in the last six months was combined with current condom use (occasional/never) with same sex partner to create the new variable same sex condom use. The following risky behavior domain variables were checked for reliability (Cronbach's Alpha .661) and then were combined to create a new risky behavior scale: Number of same sex partners, number of same sex contacts, anal sex in the last six months, bought or sold sex in the last six months, sold sex ever, reported STI symptoms ever, reported STI diagnoses ever. The risky behavior scale was then dichotomized to form a new variable, high and low risk behavior (high score =3-7 risks reported). Multivariate logistic regression models were constructed to select independent risk factors for the four following outcome variables: commercial sex work, STI disease, risky behavior, and same sex condom use.

## ***Qualitative Information***

### ***General Observation***

The author observed one venue session on November 11, 2007 at an MSM bar, where HIV education and counseling was done, survey questionnaires were completed, and blood samples were taken for HIV and syphilis testing. The author visited other MSM venues, in the company of the Shenzhen CDC MSM volunteers, including three family clubs (male brothels), a sauna, a gym, and three MSM bars. During the author's 4-month practicum with the HIV/AIDS division, she conducted two three-hour training sessions for 15 to 20 of the CDC's MSM volunteer group. In addition, the author and staff from the HIV/AIDS division made visits to a community-based VCT clinic and the AIDS ward at the Shenzhen Chronic Disease Hospital and observed a World AIDS Day educational program where a CDC MSM volunteer (who is HIV-positive) was interviewed. The author hired a Chinese translator for all of her work and observations.

### ***Informal Interviews***

A variety of Shenzhen CDC HIV/AIDS Division and MSM leaders were interviewed by CDC staff which the author was able to observe. These included the head of the MSM intervention program, key MSM volunteers, two money boys, the owner/manager of family club, two sauna/gym center owners, and one HIV positive MSM. A Chinese translator was provided for all of the interviews. The purpose of the interviews was to gain a better understanding of how people

from the community view issues surrounding HIV/AIDS and MSM. This purpose and the interview process were explained to each participant and verbal consent was obtained. The interviews lasted approximately 1 to 1 1/2 hours and were conducted in an open-ended conversation style. The topics covered included community attitudes about MSM and HIV/AIDS, and local customs regarding MSM sexual behaviors and condom use. The information from these observations was used to inform the interpretation and discussion of the results.

## Results

### *Quantitative*

#### *Socio-Demographic*

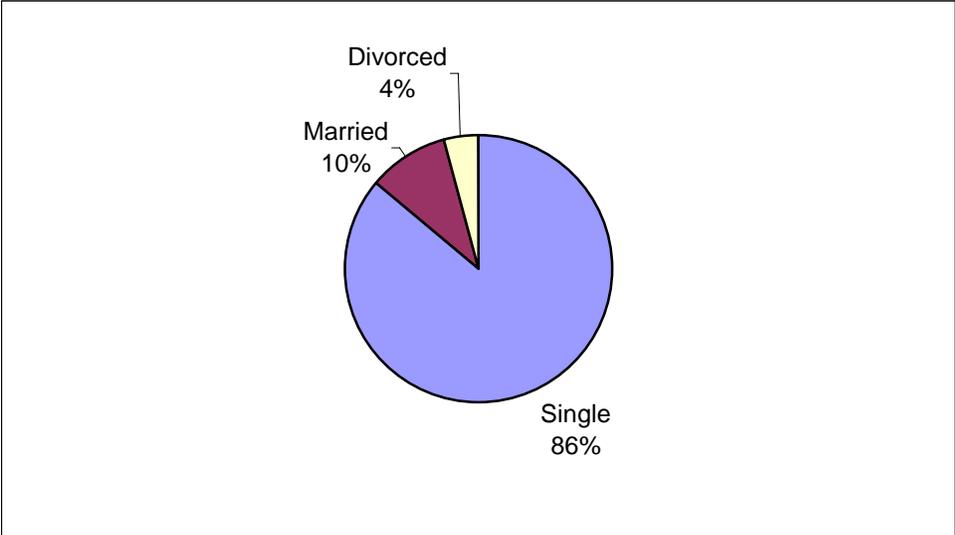
Table 1.1 shows the demographic characteristics for the study population. The mean age of participants was 26 years, with the range from 18 to 51. Most of the study participants had lived in Shenzhen for one year or less, or from one to five years, 40.4% and 34.8% respectively. The majority of men, 89.5%, were from Chinese provinces other than Guangdong province and came from a big city or town, 69.7%.

**Table 1.1 Socio-Demographic Characteristics**

Variable	N	%	Variable	N	%
<b>Age</b>			<b>Employment</b>		
Range		18-51	Student	14	3
Mean		26	No Job	136	29.1
<b>Age</b>			Working	315	67.3
18-22	149	31.8	<b>Salary</b>		
23-26	163	34.8	Below 1000	109	23.3
27-34	113	24.1	1000-4999	279	59.6
>34	41	8.8	5000-9999	62	13.2
<b>Years Living in Shenzhen</b>			Over 10000	11	2.4
< = 1 Year	189	40.4	<b>Marital Status</b>		
>1 Year	163	34.8	Single	401	85.7
> 5 Years	84	17.9	Married	45	9.6
>10 Years	24	5.1	Divorced	19	4.1
<b>Originally from</b>			<b>Living situation</b>		
Shenzhen	11	2.4	Alone	145	31
Guangdong province	39	8.3	With roommate	229	48.9
Other provinces in China	399	89.5	With wife	14	3
Other	1	0.2	With boyfriend	49	10.5
<b>Originally from</b>			With girlfriend	22	4.7
Big city and town	326	69.7			
Small city/ town	133	28.4			
<b>Education</b>					
University/College	126	26.9			
High School	305	65.2			
Elementary	22	4.7			

The percentage of men who reported being married or divorced was 9.6% and 4.1% respectively. Most men (65.2%) reported a high school education. The income of most respondents was between 1000 and 4999 yuan per month (approximately 142.00-714.00 US \$).

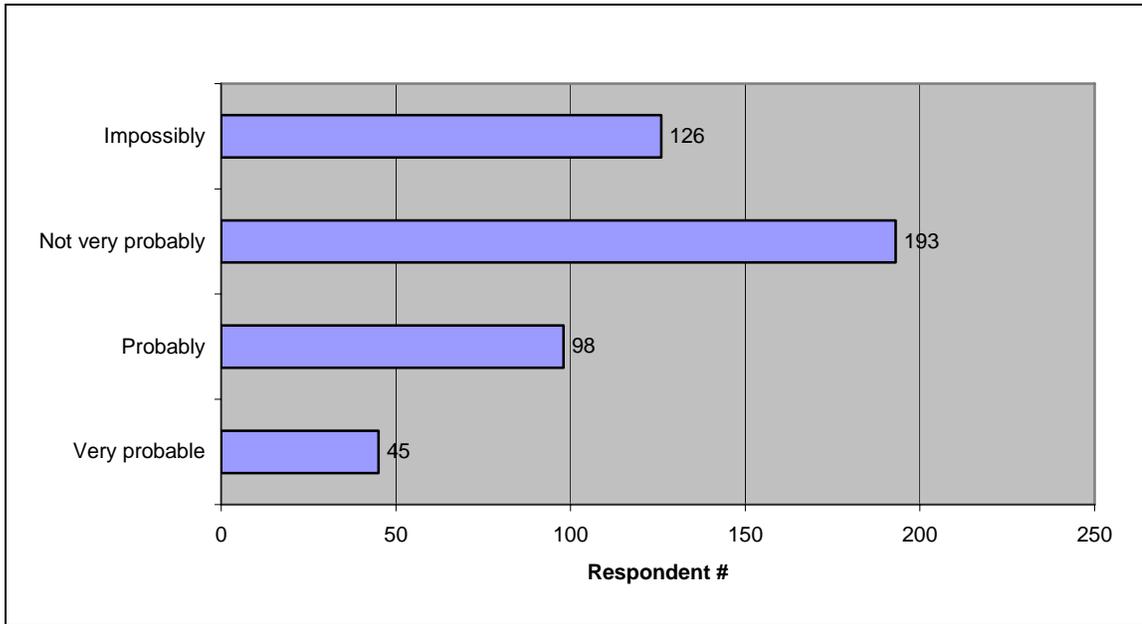
**Figure 4. Marital Status**



***HIV Risk Perception/STI Knowledge***

The majority of respondents listed books and the Internet as their main sources of safe sex information 64.4% and 46.6% respectively and most men reported two or more sources of safe sex information, 56.8%. The majority of men, 74.4%, reported that they had read AIDS educational materials. Regarding their probability of becoming infected with HIV, 41.2% responded not very probably, and 26.9% stated impossibly.

**Figure 5. Perception of HIV Risk**



Participants' opinions about condom use with same sex and opposite sex partners were similar; 74.8% and 73.5% respectively thought condoms were necessary. The two most common reasons for not using a condom with a same sex partner were "my partner is young and appears healthy" and "my partner is a steady sex mate and lover" reported at 25.6% and 27.1%, respectively. While 41.7% of respondents said they would pay for an HIV test, 84.8% stated they would accept a free HIV test.

**Table 1.2 HIV Risk Perception/STI Knowledge**

Question	N	%	Question	N	%
<b>Ever heard of AIDS</b>	452	96.6	<b>Condom use with opposite sex partner</b>		
<b>Sources of safe sex information</b>			Necessary	325	73.5
Book	302	64.5	Unnecessary	57	12.9
Friends	199	42.5	No opposite sex partner	60	13.6
TV	211	45.1	<b>Probability of AIDS</b>		
Internet	218	46.6	Very probable	45	9.6
Doctor	122	26.1	Probably	98	20.9
Gay venue	137	29.3	Not very probably	193	41.2
<b>Total sources of safe sex information</b>			Impossibly	126	26.9
0-1 sources	198	42.3	<b>Pay for HIV test</b>	195	41.7
2 or more sources	266	56.8	<b>Accept free HIV test</b>	397	84.8
<b>Ever read AIDS education materials</b>	348	74.4	<b>Seek treatment for STI</b>		
<b>Check exp condoms</b>	267	57.1	Hospital	391	83.5
<b>Check quality condoms</b>	299	63.9	Private clinic	56	12
<b>Use lubricants with condoms</b>	394	84.2	TCM	22	4.7
<b>Condom use with same sex partner</b>			Self medicate	62	13.2
Necessary	350	74.8			
Unnecessary	50	10.7			
Never give it a thought	48	10.3			
<b>Reasons no condom use same sex</b>					
Difficult communication before sex	60	12.8			
Partner young, appears healthy	120	25.6			
Influence each other's feelings	61	13			
Partner is steady sex mate/ lover	127	27.1			
Partner intellectual/decent job/not promiscuous	83	17.7			
Afraid of rejection	52	11			
Troublesome to put on	32	6.8			
Lessen the pleasure of sex	68	14.5			
Inconvenient to use in public places	21	4.5			
Difficult to get/inconvenient to carry	31	6.6			
I don't like using condoms	26	5.6			
Partner doesn't like using condoms	38	8.1			
Affected by drugs	9	1.9			

***Stigma/ Self- Esteem***

In terms of MSM attitudes and discrimination, more than a quarter of respondents (28%) reported they had been insulted or humiliated by

heterosexual people due to their intimate relationship with someone of the same sex. Additionally, men felt the general attitude towards MSM was unfriendly, 36.5%, and discriminatory, 23.7%. While 49.1% reported that they had been married or were planning to marry someone of the opposite sex due to pressure from society or family, only 34% reported difficulty associating with family and society. Feelings of depression and suicide (self or close friend) or their close friends were reported by 39.5% of respondents. The majority of respondents felt there should be legal acknowledgment for homosexuals, 60.7%, and 71.6% felt that homosexual people should be treated equally in distribution of welfare and resources in the country.

**Table 1.3 Stigma/Self- Esteem**

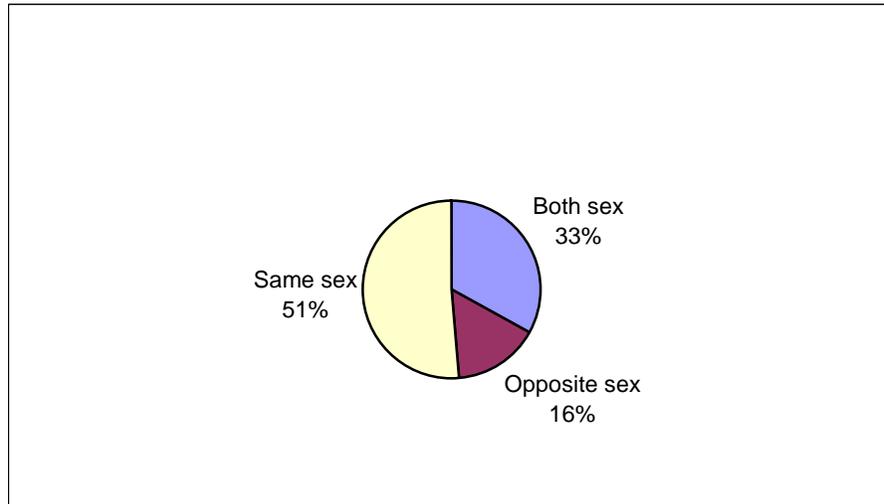
<b>Variable</b>	<b>N</b>	<b>(%)</b>
<b>Insult/ humiliation</b>	131	28
<b>General attitude towards MSM</b>		
Tolerant	183	39.1
Not friendly	171	36.5
Discriminating	111	23.7
<b>Depression</b>	185	39.5
<b>Pressure to marry</b>	230	49.1
<b>Difficulty associating with family</b>	159	34
<b>Equal treatment for homosexuals</b>	335	71.6
<b>Legal acknowledgement for homosexuals</b>	284	60.7

### ***Risky Sexual Behaviors***

The most common types of sex men reported (more than one response possible) ever engaging in were mutual masturbation (60%), oral sex (52.4%), and anal sex (51.7%). With regard to the number of times they had same sex contacts in the last six months, 33.8% reported less than five times, 22% between five and 10 times, 31.8% more than 10 times, and 11.1% reported none. More than three quarters of respondents, 83.3%, reported having anal sex during the same time period. Condom were reported used sometimes (45.1%) and each time (45.9%) with anal sex in the last six months. In describing general condom use with a same sex partner (for no specific time period) only 37.6% used condoms each time. Regarding general condom use with an opposite sex partner (for no specific time period), only 30.3% used a condom each time.

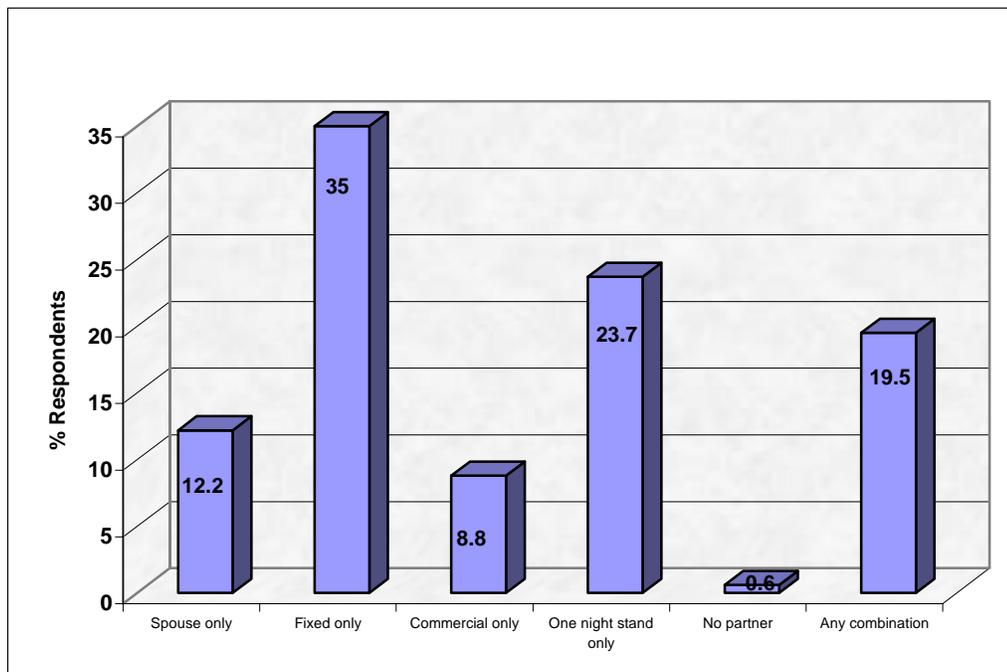
The Internet was the most common venue to find a sex partner (39.1%), although there was a fairly even distribution between other venues, which included bars, gyms/saunas, and other MSM gathering places. While more than half of respondents, 51.1% reported that their present sex partner was of the same sex, 15.6% reported a current opposite sex partner and 32.9% reported they had current partners of both sexes (Figure 6).

**Figure 6. Present Partner Gender**



In terms of the relationship of their current sexual partner (more than one response possible) 35% reported a fixed relationship, 12.2% a spouse, 8.8% a commercial relationship, 23.8% as a one-night stand, 0.6% no partner, and 19.4% reported more than one type of relationship (Figure 7).

**Figure 7. Type of Relationship with Present Sex Partner(s)**



Sixty seven (14.3%) men reported more than 50 lifetime same sex partners and eighty five (18.2%) men reported more than 10 opposite sex partners. While 36.1% of participants reported that they had ever offered sexual service for money, 46.2% responded that they had sold or bought sex in the past six months (these variables combined indicated 36.5% were engaged in commercial sex work). 44.4% of the respondents reported they had been tested for an STI; the most common STI infection reported was gonorrhea (10.3%). More than a quarter of men (26.7%) reported they had been diagnosed with an STI. The most common STI symptom that participants reported was genital itching and pain (19.4%), although 69% said they had never had any symptoms of STI. Almost one-third (31.2%) reported one or more STI symptoms. The lifetime use of drugs, such as cocaine, marijuana, opium, and MDMA, was

reported by 21.4%. Screening tests results showed less than 1% of respondents tested positive for HIV, while 17.6% had positive syphilis test results.

**Table 1.4 Risky Sexual Behaviors**

Variable	N	%	Variable	N	%
<b>Buy/sell sex, last 6 months</b>	216	46.2	<b>Report following types of sex ever*</b>		
<b>Number sex contacts with same sex, last 6 months</b>			Oral sex	245	52.4
Less than 5 times	158	33.8	Friction between thighs	139	29.7
5-10 times	103	22	Mutual masturbation	281	60
More than 10 times	149	31.8	Body friction	183	39.1
None	52	11.1	Anal sex	242	51.7
<b>Anal sex, last six months</b>	390	83.3	<b>Number of same sex partners ever</b>		
<b>Condom used anal sex, last 6 months</b>			Less than five	151	32.3
Never	24	5.1	5 to 10	94	21
Sometimes	211	45.1	10 to 20	91	19.4
Each time	215	45.9	20 to 50	43	9.2
<b>Role in anal sex</b>			More than 50	67	14.3
Insertive always	103	22	None	15	3.2
Receptive always	61	13	<b>Number of opposite sex partners ever</b>		
Both	269	57.5	Less than five	230	49.1
<b>Current condom use with same sex partner</b>			Five to 10	74	15.8
Each time	176	37.6	More than 10	85	18.2
Most of the time	144	30.8	None	76	16.2
No sex with MSM	10	2.1	<b>Offered sexual service for money ever</b>	169	36.1
Occasionally	113	24.1	<b>Gender of sex service for money clients</b>		
Never	14	3	Male	84	17.9
<b>Current condom use with opposite sex partner</b>			Female	14	3
Each time	142	35.1	Both	53	11.3
Most of the time	76	18.8	<b>Infected with STI ever</b>		
No sex with opp partner	109	27	Gonorrhea	48	10.3
Occasionally	69	17.1	Urethritis	31	6.6
Never	8	2	Syphilis	22	4.7
<b>Current sex partner gender</b>			Warts	20	4.3
Both sex	154	32.9	Other diseases	10	2.1
Opposite sex	73	15.6	No disease	342	73.1
Same sex	239	51.1	<b>STI diagnosis (1 or 2)</b>	125	26.7
<b>Current sex partner relationship</b>			<b>Report following STI symptoms ever</b>		
Spouse	85	18.2	Pustule	19	4.1
Fixed	225	48.1	Swelling	20	4.3
Commercial	76	16.2	Itch/pain	91	19.4
One night stand	187	40	Rash	27	5.8
<b>Usual venues to find sex partner*</b>			Open sore	30	6.4
Bars	157	33.5	No symptom	323	69
Gyms and sauna centers	101	21.6	STI symptoms (1 or more)	146	31.2
MSM gathering places	133	28.4	<b>Tested for STI ever</b>	208	44.4
Internet	183	39.1	<b>Age of first sexual activity</b>		
Introduced by friends	153	32.7	Range		10-43
<b>HIV positive test result</b>	4	0.9	Mean		19
<b>Syphilis positive test result</b>	80	17.1	<b>Condom use with first sexual activity</b>	174	37.2
<b>STI disease<sup>1</sup></b>	83	17.7	<b>First sex partner was male</b>	211	45.1
<b>Commercial sex work<sup>2</sup></b>	169	36.5	<b>Relationship first sex partner</b>		
<b>Same sex condom use<sup>2</sup></b>	257	56.7	Friend	352	75.2
			Client	21	4.5
			Other	75	16

<sup>1</sup> Defined as having a positive HIV and positive syphilis test

<sup>2</sup> Defined as having bought /sold sex in last 6 months and having sold sex ever

<sup>3</sup> Defined as condom use anal sex, last 6 months and condom use with same sex partner

\*Percents do not total 100, >1 response possible

## ***Bivariate Analysis***

### ***Socio-Demographic Characteristics and Risk***

Men who paid for sex or had sex for money in the recent six months were more likely to be younger (OR 1.79), to have been living in Shenzhen for one year or less (OR 1.8), to be single (OR 1.95), to have ever used drugs (OR 2.15), and were less likely to have a university/college education (OR 0.42). The men who reported offering sexual service for money ever were likely to be younger (OR 2.16), to have been living in Shenzhen for one year or less (OR 1.78), to be single (OR 2.55), to have ever used drugs (OR 2.23), and were less likely to have a university/college education (OR 0.49).

Men who reported a history of ever having an STI diagnoses were more likely to be older (OR 1.61), married (OR 2.11), and more likely to have ever used drugs (OR 1.86). Men who reported ever having one or two STI symptoms were less likely to have a university/college education (OR 0.58) and men who tested positive for syphilis were more likely to be older (OR 2.87). Finally, men who reported never or sometimes using condoms for anal sex in the past six months were less likely to have been living in Shenzhen for one year or less (OR 0.63). None of the other demographic variables showed statistically significant associations with condom use for anal sex.

**Table 2.1: Bivariate Analysis Socio-Demographic Characteristics and Risk**

Variables	n (%)	Chi			n (%)	Chi		
		OR (95% CI)	square	P value		OR (95% CI)	square	P value
<b>Buy /sell sex in last 6 months</b>				<b>Ever offered sexual service for money</b>				
<b>Age</b>								
18-24	128(59.8)	1.79(1.23-2.59)	9.590	0.002	107(64.1)	2.16(1.46-3.19)	15.137	< 0.001
>25	86(40.2)				60(35.9)			
<b>Years Living in Shenzhen</b>								
1 Year	103(48.6)	1.8(1.24-2.62)	9.457	0.002	83(49.7)	1.78(1.20-2.61)	8.495	0.004
>1 Year	109(51.4)				84(50.3)			
<b>Education</b>								
University/College	40(19)	0.42(0.27-0.65)	15.657	< 0.001	32(19.4)	0.49(0.31-0.78)	9.262	0.002
High and Elem School	171(81)				33(80.6)			
<b>Marital Status</b>								
Single	195(90.3)	1.95(1.12-3.40)	5.632	0.018	156(92.3)	2.55(1.34-4.84)	8.631	0.003
Married/Divorced	21(9.7)				13(7.7)			
<b>Ever used drugs</b>	61(28.4)	2.15(1.37-3.38)	11.318	0.001	51(30.4)	2.23(1.42-3.50)	12.500	< 0.001
<b>STI Symptoms</b>				<b>STI Diagnosis</b>				
<b>Age</b>								
18-24	68(46.6)	1.36(0.92-2.02)	2.443	0.118*	54(43.2)			
>25	71(56.8)				71(56.8)	1.61(1.07-2.44)	5.217	0.022
<b>Education</b>								
University/College	29(20.7)	0.58(0.36-0.93)	5.088	0.024	28(23.3)			
High and Elem School	111(79.3)				92(76.7)	0.79(0.55-1.14)	1.633	0.201*
<b>Marital Status</b>								
Single	122(84.1)	1.28(0.73-2.23)	0.782	0.377*				
Married/Divorced	26(21)				26(21)	2.11(1.22-3.66)	9.386	0.007
<b>Ever used drugs</b>	36(24.7)	1.20(0.88-1.62)	1.320	0.249*	37(29.6)	1.86(1.16-2.98)	6.798	0.009
<b>Positive syphilis</b>				<b>Condom used anal sex, last 6 mo<sup>1</sup></b>				
<b>Age</b>								
18-24	25(31.3)				111(47.4)	0.69(0.47-1.00)	3.712	0.054*
>25	55(68.8)	2.87(1.71-4.79)	16.920	< 0.001	123(52.6)			
<b>Years Living in Shenzhen</b>								
< 1 Year	31(40.8)	0.96(0.58-1.59)	0.180	0.893*	85(36.6)	0.63(0.43-0.92)	5.721	0.017

\* not statistically significant

<sup>1</sup> Never or sometimes

In comparing the means of all the socio-demographic variables with the risky behavior scale, two significant associations were found, using one-way ANOVA analysis. Working MSM reported fewer risky behaviors (chi-square 2.81, SD 1.82) compared to students (chi-square 3.29, SD 1.49), and unemployed

men (chi-square 3.48, SD 1.90),  $F=6.26$ ,  $p=.002$ . MSM with an elementary school education reported greater risky behaviors (chi-square 3.38, SD 2.03) compared to those who were high school educated (chi-square 3.16, SD 1.86) and college educated (chi-square 2.69, SD 1.77),  $F= 3.15$ ,  $p= .044$ .

**Table 2.2: Socio-Demographic Characteristics and Risky Behavior Scale Means Comparisons**

Variable	Mean	N	Std. Deviation	F	Sig.
<b>Employment</b>				6.261	0.002
Student	3.2857	14	1.48989		
Unemployed	3.4773	132	1.90004		
Employed	2.8092	304	1.81753		
<b>Education</b>				3.153	0.044
College	2.6911	123	1.77011		
High school	3.1560	294	1.85737		
Elementary school	3.3810	21	1.85110		

### ***HIV Risk Perception/STI Knowledge***

Men who thought their risk of HIV infection was low (not very probable or impossible) were less likely to have had anal sex in the past six months (OR 0.55), were less likely to have never or sometimes used a condom for anal sex in the last six months (OR 0.4), were less likely to have ever offered sexual service for money (OR 0.54), and were less likely to have an STI symptom a STI diagnosis (OR 0.44) (OR 0.63), respectively (Table 2.2). Men who reported a high HIV risk (probable or very probable) were more likely to have experienced insult /humiliation (OR 2.26), depression themselves or of a close friend (OR 1.97), and difficulty associating with family/society (OR 1.84).



10 to 50 lifetime same sex partners (OR 1.82), having anal sex (OR 2.47), and having bought/sold sex (OR 1.46). It was also associated with history of both STI symptoms (OR 1.74), and diagnoses (OR 1.99). The pressure to marry was associated with being older (OR 2.18), a greater number of same sex partners (OR 1.50), and the history of STI symptoms (OR 1.67) and diagnoses (OR 2.01).

Men who reported great difficulty in associating with their family and society were less likely to use condoms with anal sex (OR 1.49). A history of STI symptoms (OR 1.95), buying and selling sex (OR 1.89) and offering sex for money (OR 1.80) was also associated with difficulty in associating with family and society.

**Table 2.4: Bivariate Analysis Stigma/ Self -Esteem and Risk**

	n (%)	OR (95% CI)	Chi square	P value	n (%)	OR (95% CI)	Chi square	P Value
<b>Anal sex, past six months</b>					<b>Condom used anal sex, last 6 mo <sup>1</sup></b>			
Insult/humiliation				*	81(35.40)	1.95(1.28-2.98)	12.418	0.002
Depression	167(42.9)	2.47(1.40-4.33)	2.466	0.001				*
Difficulty associating				*	93(39.7)	1.49(1.01-2.20)	4.012	0.045
Pressure to marry	202(52.5)	1.85(1.11-3.08)	4.751	0.016				*
<b>Buy /sell sex in last 6 months</b>					<b>Ever offered sexual service for money</b>			
Insult/humiliation	76(36)	1.95(1.29-2.93)	10.196	0.001	58(32.5)	1.65(1.09-2.50)	5.570	0.018
Depression	96(44.7)	1.46(1.05-2.12)	1.459	0.047				*
Difficulty associating	90(42.1)	1.89(1.28-2.79)	1.893	0.001	71(42.5)	1.80(1.21-2.68)	1.801	0.004
Pressure to marry				*				*
<b>STI Symptoms</b>					<b>STI Diagnosis</b>			
Insult/humiliation	57(39.9)	2.15(1.40-3.28)	12.756	<0.001	50(41)	2.18(1.40-3.38)	12.350	<0.001
Depression	71(49)	1.74(1.17-2.59)	7.550	0.006	64(52)	1.99(1.31-3.02)	10.618	0.001
Difficulty associating	65(44.8)	1.95(1.29-2.92)	1.945	0.001				*
Pressure to marry	84(58.7)	1.67(1.11-2.49)	6.342	0.012	77(62.6)	2.01(1.31-3.08)	10.665	0.001
<b>Number lifetime same sex partners <sup>2</sup></b>					<b>Number lifetime opposite sex partners <sup>3</sup></b>			
Insult/humiliation	71(36)	1.93(1.28-2.93)	1.938	0.002	56(35.7)	1.67(1.09-2.54)	5.811	0.016
Depression	96(48)	1.82(1.25-2.67)	9.774	0.002				*
Difficulty associating				*				*
Pressure to marry	111(56.1)	1.50(1.03-2.19)	4.619	0.032				*
<b>Pressure to marry</b>					<b>Depression</b>			
Age > 25	131(59.8)	2.18(1.50-3.17)	16.907	<0.001				
<b>Difficulty associating</b>					<b>Depression</b>			
Insult/humiliation	64(41.3)	2.43(1.60-3.70)	17.729	<0.001	70(38.7)	2.21(1.46-3.34)	14.500	<0.001
<b>Pressure to marry</b>					<b>Depression</b>			
Insult/humiliation	81(35.8)	1.99(1.31-3.02)	10.961	0.001				
<sup>1</sup> Never or sometimes used in last 6 months <sup>2</sup> 10 to >50 same sex partners <sup>3</sup> 5 to 50 opposite sex partners * Not statistically significant								

## Multivariate Logistic Regression

Multivariate logistic regression analysis demonstrated that low HIV risk perception (OR 1.85), college education (OR 1.69), living in Shenzhen for more than one year (OR 1.73), and never experiencing insult or humiliation (OR 1.89)

were associated with a high score (3-7 risks reported) on the risky behavior scale (Refer to Table 3.1). Regression analysis also demonstrated that difficulty associating with family/society (OR 2.09) and a high HIV risk perception (OR 2.46) were associated with infrequent same sex condom use by MSM.(Refer to Table 3.2)

**Table 3.1: Multivariate Logistic Regression Analysis for Factors Associated with Risky Behavior Scale <sup>1</sup>**

Variable	B	S.E.	Wald	df	Sig	Exp(B)
Low HIV risk perception	0.615	0.248	6.162	1	0.013	1.850
College education level	0.530	0.251	4.448	1	0.035	1.690
< 1 year living in Shenzhen	-0.548	0.234	5.504	1	0.190	0.578
Insult/humiliation	-0.640	0.260	6.085	1	0.014	0.527

<sup>1</sup>Comprised of number of same sex partners, number of same sex contacts, anal sex in the last six months, bought or sold sex in the last six months, sold sex ever, reported STI symptoms ever, reported STI diagnoses ever

**Table 3.2: Multivariate Logistic Regression Analysis for Factors Associated with Same Sex Condom Use <sup>1</sup>**

Variable	B	S.E.	Wald	df	Sig	Exp(B)
Low HIV risk perception	-0.901	0.254	12.574	1	<.000	0.406
Difficulty associating with family/society	0.736	0.252	8.548	1	0.003	2.087

<sup>1</sup>Condom use with anal sex in the last six months and current condom use with same sex partner

Regression analysis established that commercial sex workers were more likely to have lived in Shenzhen for one year or less (OR 1.71), to have a high school education (OR 2.07), and to have a high HIV risk perception (OR 1.7). (Refer to Table 3.3) Men with STI disease (positive HIV and syphilis test results) were more likely to be between the ages of 18 to 24 (OR 2.72). (Refer to Table 3.4)

**Table 3.3: Multivariate Logistic Regression Analysis for Factors Associated with Commercial Sex Work**

Variable	B	S.E.	Wald	df	Sig	Exp(B)
Low HIV risk perception	-0.523	0.249	4.572	1	0.032	0.588
College education level	-0.728	0.279	6.829	1	0.009	0.483
< 1 year living in Shenzhen	0.542	0.236	5.252	1	0.002	1.719

**Table 3.4: Multivariate Logistic Regression Analysis for Factors Associated with STI Disease <sup>1</sup>**

Variable	B	S.E.	Wald	df	Sig	Exp(B)
Age 18-24	1.001	0.327	9.363	1	0.002	2.721

<sup>1</sup> Positive HIV test result and positive syphilis test result

The following variables were included in each of the logistic regression models: HIV risk perception, reasons for lack of condom use with opposite sex partners, opinion about condom use with same sex partners, opinion about condom use with same sex partners, number of sources of safe sex information, insult/humiliation, depression, pressure to marry, difficulty associating with family/society, marital status, age, education level, and length of time living in Shenzhen.

## **Qualitative**

### ***General Observations***

#### **MSM Volunteer Trainings**

The training sessions were conducted by the author in November and December 2007; one was held in a karaoke room at an MSM bar, while the other was in a private room of a local restaurant /coffee bar. The age of the men

attending ranged from 16 through 30. The majority of participants were employed, working in business, government, IT and hotel/restaurant work. Approximately half of the participants in the second training had not attended the first session, and for some men this was their first participation in any volunteer activity. The topics covered included HIV prevalence and incidence in US and China, US prevention programs, HIV transmission and testing, and HIV signs and symptoms. Both the session started out with short presentations by the author, but quickly turned into a more of a discussion style format among the participants facilitated by the author. Men participated eagerly and shared a broad range of experiences from HIV prevention work to coming out to their coworkers. They had many questions regarding HIV transmission, especially regarding tears, saliva and biting. There was an extended discussion regarding oral sex and the need to use condoms for it. Some men had confusion regarding the types of HIV testing being done, and the reasons for the window periods associated with testing.

The volunteers who had shared that they were gay (and their involvement as a CDC MSM volunteer) with coworkers either worked in small work settings (restaurant, self owned business) or less traditional industries (IT). Those working in large settings (banks, city municipal departments i.e., Metro transport, public works) feared discrimination and loss of their job and tended to socialize little with their coworkers outside of work. Some volunteers expressed concerns regarding the group's ability to effectively counsel and advise MSM around the issues of stigma, discrimination, and living with HIV. They voiced concern at the

lack of dedicated office space where they could work and meet safely, and talked about renting their own office, starting a hotline, and setting up support groups. The majority of volunteers expressed frustration about the lack of mental health counseling available for MSM, especially those who are HIV-positive, to help them deal with their stress.

### MSM Bars

The author visited three different gay bars, one bar on numerous occasions. All of the bars were located in the busy commercial district of Shenzhen, on busy streets among restaurants, hotels, and small shops. None were on the street level; access was either by stairs or elevator. The first bar consisted of two levels; one large main room with a dance floor, and multiple karaoke rooms on the second level. The second bar had a large lobby entrance, where the money boys tended to sit on narrow benches lining one wall. The lobby walls contained HIV prevention posters and racks with safe sex pamphlets. A long hallway had small Karaoke rooms on each side. Entertainment in this bar consisted of karaoke, male dancers, informal standup comedy by male cross-dressers, and money boys parading on the dance floor to music, dressed just in underwear or in blue jeans with no shirt. The third bar was one very large main room with booth like seating. Entertainment in this bar was singing by men dressed as women, and pole dancing by MSM, singly and in groups. The money boys in this bar also came out onto the dance floor to music, dressed in tight fitting pants with no shirts.

The clientele at all bars was similar; the majority were men, ages ranged from late teens to mid to late 40s. There were a handful of women in each of the bars, in similar age ranges. There were a few men dressed as women in each of the bars. Very loud music was played, the majority of people smoked, and there was no dancing by the clientele, just the “performers.”

### MSM Saunas/Bathhouses

Two saunas were visited by the author. The first sauna was on the third floor of a nondescript large apartment complex. The visit took place in the late afternoon and so there were very few clients present, and it was possible to tour the whole facility. There were showers, steam rooms and an outdoor swimming pool. There was also a large karaoke room and bar, “resting room” with big screen television, 8-10 rows of lounge (full body sized) bed/couches with pillow backs (room was very dark and one man was covered with a quilt and sleeping). No other clients were observed as the visit was during the daytime. There were 5 or 6 small regular rooms off one corridor, tile floor and walls, with an elevated section and plastic covered mats. The 2 VIP rooms had a big bed, chairs and table.

According to the owner, people come because they have a good time, and they know it is safe. People enjoy showering, steam room, mahjongg, working out, spending time together in the small rooms, and in summer, swimming. Regular customers of the sauna are company employees and factory workers. The range of ages is 18-60, with an average age of 30. People who come here

are usually older than the men who go to bars, according to the owner. The club is open from 7 in morning until 12 at night, but most men come at night. Two thirds come for sex and one third for relaxing, but only 20% of those looking for sex succeed, according to the owner and one of his friends. The reason men come to this sauna is that sex doesn't cost money. The sauna's policy is no sex for money, as it is against the law. The owner provides free condoms, some of which he receives from the Shenzhen CDC.

The sauna the author visited was located just off of a busy commercial street, on the ground level. This sauna was visited on a weekend evening, when there were many clients so it was not possible to see the whole setup. Rather, the owner described it. The owner (aged early 30s) characterized his sauna as the best men's sauna in Shenzhen and the most expensive. It consisted of sauna, steam room, gym, two rooms with tables for playing mahjong, resting rooms, and 3 private rooms. The majority of clients were over 30, and married with children. The author observed approximately 20 clients there, mostly middle-aged. Most were sitting at tables playing mah-jongg, dressed in either pajama like bottoms or a bath towel wrapped around their waists.

### MSM Family Clubs

(Visits to the first two family clubs were done in the company of the main MSM volunteer, Jason, with no translator available to the author for any interpretation) The first family club the author visited was located only three blocks from the Shenzhen CDC on a busy commercial street. It was in a rundown

apartment building with no elevator, on the third floor. The club consisted of a three-bedroom apartment with a small balcony overlooking the street. There were 12 money boys living and working there, from age 16/17 to early 20s. The “mommy” (brothel manager/owner) was in his late 30s. The author arrived at this family club around 4 PM, just as the men appeared to be waking up for the day and getting ready for work. They dressed in the kitchen, a small room with a curtain for a door; their clothing was stored in bins stacked against the kitchen wall. No clients were observed.

The second family club was in a quiet mixed commercial/residential district, in the third floor of a building that housed a restaurant, a bar, and a gym. It advertised as offering massage services. The visit took place at 9 p.m. The author met approximately 20 money boys, aged 20 to 30. The money boys here are all had cell phones, which they were constantly answering. There was a lot of coming and going by the money boys, it appeared they were just starting the evening’s work; they were picking up messages and getting condoms. The mommy here was in his early 30’s. The author observed two clients leaving the family club; both were middle-aged. One was dressed in business attire; the other was dressed in the traditional burnt red robes of a Buddhist monk. The author observed several more clients; they were all middle-aged and well dressed.

The third family club was again on a busy commercial street, on the second level of the building. It advertised as providing massage services. It had a large reception area/lobby, with one wall of glass allowing clients to look into an

exercise room where the money boys were working out. The second floor contained many small rooms, either with lounge chairs set up for foot massage or low massage tables/beds. The owner stated that there were apartments on the upper floors where the money boys lived, which the author did not observe.

#### World AIDS Day Educational Program

This event took place at the Fugicam factory (largest electronics factory in Shenzhen) located in a Shenzhen suburb. The event was held in an athletic stadium; CDC staff and MSM volunteers and the author handed out HIV prevention materials and condoms to the 15,000 workers as they arrived in the stadium. The two-hour educational program was being televised and broadcast live to other Fugicam factories throughout China. The HIV-positive MSM volunteer who was interviewed, XS, appeared on stage totally camouflaged, so that his identity could not be recognized. He wore a large hat, a bulky scarf wrapped around his neck, and a plastic mask covering his entire face. His real name was not used and he spoke in a soft tentative voice throughout the interview as he described how he became infected with HIV. At the conclusion of the program, the group of CDC staff and volunteers could not publicly acknowledge and congratulate him on his presentation, as he had asked that his HIV status not be disclosed to most of the other volunteers.

## ***Informal interviews***

### MSM sex work

This description of sex work is based on the author's observation of interviews with two male sex workers and one family club owner. Sex work in Shenzhen is a phenomenon of migration. Men and women come to Shenzhen from all over China in search of better employment opportunities and wages. Since job prospects often do not turn out as the migrants had expected, they are always looking for the next job opportunity that will be better, where they can earn more money. The means by which they begin work as a money boy can occur in three ways; introduction by a friend, recruitment, and deception. An example is:

“I washed hair and did massage (assistant in a hair salon), then I met a client there who lied and told me he had a bigger salon in Shenzhen .....asked me to come and work for him. At that time I thought this seemed reasonable, because I thought I could make more money in city.”

One family club owner said there was no need to recruit men from rural areas

“usually what happens is they come from rural areas and don't have much education. Come to Shenzhen looking for work, when they don't find it, they do this.”

The potential for good income appears to be the main motivator for sex work, yet few responses regarding actual wages earned were elicited. The two money boys interviewed described an average of one to two clients daily, even though they may work six or seven days a week. They evaded specific questions about their monthly earnings. One money boy talked about his wages, saying, “Sex work is hard. Usually only five out of a hundred are lucky enough to make

money as a sex worker.” One family club owner described money boy wages in the following way: “The money boy’s salary depends on number of clients and tips. Average is 30-40,000 Yuan (4,200-5,700 US\$) per month total and some earn 100,000 Yuan (14,000 US\$)” [average factory worker wage reported to be 800 to 1000 Yuan per month (112-140 US\$)]. There appears to be a discrepancy between the number of clients they serve and the purported amount of money they should be making. This raises a number of questions regarding the size of tips they receive, variations in how busy they are, fees charged by mommies (rent, food) and actual wages.

Clients of sex workers tend to be older, less than half of the clients at one family club were married. Older men don’t have enough time and don’t want to take the time to meet people. According to the family club owner, “younger men don’t need to come here.”

Although sex work is illegal in China, there appears to be more tolerance for it in Shenzhen in the last three years. The one family club owner interviewed had worked as a money boy prior to starting his current business, and he described being detained in the past, along with his workers, and fined by the police. Since then, he has learned to develop a good relationship with the police, giving them money and other gifts, such as wine, presents, and taking them to dinner, especially during the holidays. In spite of the fact that there are approximately 30 family clubs like his in Shenzhen, he feels a sense of uncertainty because the police could close the clubs abruptly without any warning.

Once money boys are engaged in sex work, the allure of potential future earnings can be a main reason for continuing the job. The two money boys interviewed expressed different views about their work. One money boy, who identified as being heterosexual, specifically stated he doesn't like what he has to do in relation to his work but also described it in another way "For my curiosity, I do an awkward job." The other money boy clearly liked some aspects of his work, such as the traveling and the income.

For those employed as sex workers in Shenzhen, migration becomes a necessary part of their job. Men migrate to other cities in China to do sex work believing that a fresh face will attract more clients, some want to see what other cities are like (not just the sex work conditions), and some move at the request of clients. Working in a new city was not difficult, both money boys described how easy it was to find a job in a new city. They just went to a family club, told them they had experience working as money boys in Shenzhen, and they were hired and started working the same day.

There is much discussion about future plans among money boys. Future plans for migration usually involved moving to a foreign country where it was perceived more money could be made. Hong Kong, Singapore, and Thailand were the countries most often mentioned. This process involved applying for a passport and a visa. One money boy described some of his coworkers as planning to do sex work in Malaysia, coming to Shenzhen en route and working as a money boy while waiting for their visa. Some described using the visa to a foreign country as a way to work for short periods of time in Hong Kong.

Generally, sex work is spoken of as interim work, a means to something better. One family club owner indicated money boys usually work between six months to two years, yet he knows some money boys with a 10-year work history. One man, having worked as a money boy for two years, describes his future as “if I had enough money I would start my own business, this is not a longtime business.” This again raises the issue of the discrepancy between potential earnings, actual earnings and the reality of saving money while doing this type of work. The following is paraphrased synopsis of the somewhat exceptional case of a heterosexual male sex worker:

S’s introduction to sex work was through his girlfriend. He was working as a security guard at a disco; he met her on her first day working. He describes rescuing her from the bar owner, before she began sex work, because she had been tricked into the job. He was beaten up by the bar owner and lost his job, so started a clothing store business with his girlfriend. They ran the store together for two years, then the store burned down, and they lost everything. His girlfriend returned home to find work; he decided to go to Shenzhen. He knew someone who was working as a waiter there, so he left for Shenzhen thinking he would do similar work. On the train ride there he met a money boy working in Shenzhen. After listening to him describe his work; he was curious about it and the money sounded good. The money boy from the train took him to the family club where he worked; he had a minimal interview and with no experience, was hired on the spot and started working that evening. Employed as a money boy for six months, he plans to work for four more months. By then, he hopes to have saved enough money to start his own business again. He will move back to his hometown, marry his girlfriend, and they will open another clothing store.

### Stigma

Many MSM did not disclose to their parents their sexual preference, but some had a close sibling who they felt comfortable disclosing to. The reasons for nondisclosure included not wanting to disappoint parents, not wanting their

parents to worry about them, and avoiding increased pressure to marry and produce children from their parents. Disclosing sexual preference to coworkers varied with the work setting; men in more traditional business settings felt it was not an option, for one MSM who worked in IT with younger coworkers, all his coworkers knew he was gay.

The sharing of HIV- positive status by MSM was much more limited. The HIV-positive individual interviewed informed his family a year ago, when he was feeling particularly depressed about his future and seriously considering suicide. He wanted to tell his mother before he died, so first told her he was gay, and then that he was HIV-positive. Only one or two of the other MSM volunteers and a handful of CDC staff know his HIV status. The only other HIV-positive MSM he knows was introduced to him by the head MSM volunteer after assurances of confidentiality from both men.

## Discussion

### *Demographic Factors*

The age of participants in this study was similar to recent studies in Beijing and Guangzhou,<sup>18, 27, 28</sup> but they differed in their educational level and length of their residence in the city. The majority of men in this Shenzhen study had a high school or elementary education and more than one third had only lived in Shenzhen for one year or less, while most of the Beijing and Guangzhou participants were college educated and had resided in their respective cities longer. Shenzhen prides itself on being a city of migrants, but mobile populations are challenging to study. Currently there is no English language published data regarding this migrant population in Shenzhen. A Beijing study of male migrants found substantial misconceptions about HIV/AIDS and low reported rates of condom use, regardless of who their sexual partners were.<sup>39</sup> The Beijing findings raise concerns about the HIV knowledge of the present study population, since participants were less educated men new to Shenzhen. The present survey was lacking useable data in this area (HIV knowledge survey questions were unusable due to data management issues), which limited further analysis. This highlights the need for data on HIV knowledge which would be useful for the CDC in refining HIV messages in their literature. The revised survey instrument should include new questions in this area.

Marital status and present sexual partner(s) can both provide insight into the potential for HIV transmission from the high risk MSM group into the

population at large. While the majority of men in this study reported their marital status as single, almost half reported current female sex partners. This represents a noteworthy number of men having sexual contact with women on a regular basis, which can provide a probable means of STI and HIV transmission from the MSM population into the population at large. Heterosexual transmission of HIV infection between MSM and female sexual partners should be emphasized in the Shenzhen CDC HIV intervention activities with MSM.

Almost one third of MSM reported a current high-risk relationship (commercial, one night stand) and almost 1/5 reported multiple partner relationships. These two findings combined, indicate the present partner relationships of MSM as simply presenting more opportunities for HIV/STI transmission. The nature and gender of MSM partner relationships together present a scenario of high potential HIV acquisition and transmission between homosexual men and heterosexual women.

### ***Stigma/ Self- Esteem***

The long-standing history of stigma against homosexuality in China has resulted in many older MSM maintaining marriages or relationships with women so that they conform to societal expectations and family obligation to produce an heir. While the attitudes towards homosexuality slowly began to change in the 1980s with the opening up of China, it has only been in the last few years that society in the larger urban areas has become more tolerant of an open homosexual culture. This is evidenced by two phenomenon noticed in Shenzhen

in the last two to four years; an increase in the number of gay venues (bars, saunas/gyms, and family clubs), and articles in the government controlled local media about MSM. This was also noted by Zhang et al. in Harbin, over the same timeframe, found that more MSMs were self-identifying as homosexual and more were living with a male partner.<sup>47</sup> These findings may signal that very different factors are influencing male-to-male relationships in younger MSM; these factors may result in different risky behaviors for younger and older MSM.

Older men (> 25 years) in this study were more likely than younger men (18-24) to have reported either being married or planning to marry due to family or society pressure. While the pressure to marry was associated with a greater number of same sex partners, a greater number of same sex contacts, and a history of STI symptoms and diagnoses, these associations by age groups (18-22, 23-26, 27-34, >34) were not statistically significant. This may be attributable to the small number of men in the sample over the age of 34 (n=41), resulting in a lack of power to detect statistically significant differences. Never the less, the associations between high-risk behaviors and the pressure to marry indicates that society still exerts influence in this area, and this may be more apparent in older men who are married.

Even as these findings alert us to high-risk behaviors in older men, there's still much we do not know about this subgroup of MSM. A qualitative study to learn more about their self-identity, where they associate and find partners, their HIV/STI knowledge and barriers to condom accessibility and use would be helpful in further understanding this subpopulation. With this knowledge, the

CDC could develop a prevention strategy targeting older men who are having sex with men.

There were significant associations found experiencing insult/humiliation, depression, and difficulty in associating with family and multiple risky sexual behaviors and an increased HIV risk perception. These are complex issues; the study survey instrument elicited only very basic information through one question about each of these factors. In a qualitative study done examining the types and sources of stigma and discrimination in MSM in Shanghai, Liu and Choi traced the stigma associated with homosexuality to social status and relationships, the value of family, perceptions of immorality and abnormality, and gender stereotypes of masculinity. They found “coming out” was not a viable option for most MSM; instead, respondents in their study coped with social discrimination by various elusive means including hiding their activities behind lies and deception.<sup>48</sup> The author’s observations and interviews with MSM confirm that coming out is associated with much stress for MSM, and there are few organized opportunities for MSM to discuss these issues. One reason for the large number of CDC MSM volunteers is that for some it may provide a safe social network in which they can seek support while doing prevention work for the MSM community.

Therefore, it is not surprising that the issues of stigma and discrimination are influencing the sexual behaviors of MSM. While societal changes in attitudes toward homosexuality may take many years to evolve in China, changes have slowly begun to occur in urban settings. Further qualitative study by the CDC

would help to define and validate this relationship between stigma and sexual risk behavior. In the meantime, CDC prevention programs in Shenzhen must be attuned to these issues by continuing to provide opportunities for developing networks for social support from MSM peers. Lastly, there is a complete lack of any form of mental health counseling available in Shenzhen to MSM, including for HIV-positive individuals. The CDC could pilot a mental health program geared specifically towards MSM. It could offer counseling with nonjudgmental mental health professionals, allowing MSM to openly discuss the issues of coping with pressures from family and coworkers.

### ***HIV Risk Perception***

The majority of study participants gauged their risk of infection with HIV as impossible or not very probable. This makes sense since the two most common reasons for not using condoms had to do with the perception there was no need since their partner was young/healthy or a steady sex mate and lover. The paradox of high risk but low perception of risk may be explained by the fact that Chinese MSM have limited knowledge about the extent of HIV/AIDS in China, and particularly among MSM. The perception that they are not at risk may make MSM less attentive to HIV/AIDS prevention information and activities. It may influence whether or not they choose to do routine HIV/STI testing. The current study did not evaluate these factors; the next survey should include questions regarding exposure to HIV prevention and screening activities.

### ***Risky Sexual Behaviors***

In this study, risk behaviors were common. More than one third of MSM reported being commercial sex workers or money boys and commercial sex work is considered a subgroup at increased risk for HIV infection. Mi et al. found that high-risk behavior, such as unprotected receptive anal intercourse and multiple sex partners, was common among male sex workers, along with a low rate of condom use.<sup>40</sup> Interestingly, the money boys in this study were more likely to use condoms each time with anal sex, which contradicts Mi's findings. Both the brothel owner and money boys interviewed reported consistent condom use, even when a client requested that no condom be used and offered more money for this service. This appears to contradict the reality of money driven commercial sex work that they described. One explanation may be that the interviewees and the study participants were telling the Shenzhen CDC what they thought the CDC wanted to hear regarding condom use. Knowing they should be using condoms, they may have been uncomfortable reporting behaviors that they knew were risky in the eyes of the CDC. Yet, one would expect higher STI rates with low condom use rates, but money boys in this study did not have a statistically significant higher rate of positive syphilis and positive HIV test results than those who had not engaged in commercial sex work.

The factors associated with being a commercial sex worker included having a high school level education, a high HIV risk perception, and living in Shenzhen for one year or less. The high level of HIV risk perception contradicts the consistent condom use described; if condoms were being used regularly, the

possibility of HIV exposure should be decreased, and money boys would be expected to report a low risk perception. This high-risk perception highlights the fact that little is known about the other sexual practices and working conditions of money boys that may cause them to feel at risk for HIV. It also suggests that money boys were not accurately reporting the true use of condoms in their work. Qualitative research would be helpful in exploring the risk behaviors of money boys and their clients, including condom use. It would also assist in revising the current survey instrument, so that more accurate quantitative data about commercial sex workers could be gathered.

The education level and short length of time living in Shenzhen, in addition to the qualitative interview data about sex work, all suggest that money boys are more likely to be new migrants to Shenzhen. The education level of adult migrants in China is generally lower than the average adult population.<sup>49</sup> In a qualitative study in Beijing and Nanjing, Hong et al. described significant misinformation about HIV transmission and poor information about STI prevention measures among rural to urban migrants.<sup>49</sup> Since money boys are more likely to be migrants, their potential lack of HIV/STI information and awareness pose challenges for effective HIV prevention. Furthermore, the initial identification and subsequent follow-up of money boys may be hampered by their continued mobility within and outside of China. Further qualitative study by the Shenzhen CDC about these issues would enhance their ability to develop intervention methods specifically reaching out to money boys.

The factors independently associated with a high score on the risky behavior scale were low HIV risk perception, college education, living in Shenzhen for more than one year, and experiencing insult or humiliation. These findings are surprising; the author expected less educated men would more likely engage in high-risk behavior. Since this study provided no information regarding level of HIV knowledge and prevention, no correlation between general education level and HIV knowledge could be drawn. The low level of risk perception is a concern because it indicates that those MSM engaging in risky behaviors think their sexual practices are safe. Since these MSM were not newly living in Shenzhen, prevention efforts that combine education about sexual risk and practice to MSM more established in Shenzhen could be initiated by the CDC.

The HIV prevalence for this study appears to be lower than the rates found in cross-sectional studies in Beijing,<sup>28,18</sup> yet is comparable to the low prevalence rate detected in Guangzhou.<sup>27</sup> However, the rate of positive syphilis tests detected in this sample, 17.1%, is problematic. The most recent English language studies among Chinese MSM reported syphilis rates ranging from 6.9% to 11.2%,<sup>18,27,28,36</sup> and a systematic literature review of syphilis seroprevalence studies in China from 2000-2005 found that the median prevalence among MSM was 15.6%.<sup>50</sup> This high rate of syphilis in Shenzhen has implications for HIV transmission for two reasons. First, an increased incidence of ulcerative STI's, such as syphilis, is associated with increased risk in HIV transmission.<sup>8</sup> Second, the spread of syphilis generally reflects unsafe sexual practices, which provide more opportunity for the spread of HIV. So even though the rate of HIV infection

in this current sample is low, the high syphilis prevalence combined with risky sexual behaviors suggests the potential for rapid spread of HIV in Shenzhen MSM.

Finally, older men were not only more likely to have tested positive for syphilis, but were also more likely to have a history of both STI symptoms and diagnoses. These findings make sense, given their longer period of potential exposure and their low level of perceived HIV risk. The combination of these findings makes older men in Shenzhen one of the groups most at risk for HIV acquisition and potential transmission to their female partners.

This present study was an initial examination of MSM in Shenzhen. Migration, stigma, education, and HIV risk perception were all found to be important factors in predicting risky sexual behaviors among MSM. Qualitative research to collect more information about these factors will be essential in order for the Shenzhen CDC to design and implement further MSM prevention programs. Shenzhen MSM are at increased risk for HIV acquisition, as evidenced by their high levels of unprotected sex with same sex partners and by the elevated rate of positive syphilis tests. The high number of MSM in this study with female sexual partners and current high-risk sexual partner relationships reflect the potential for HIV transmission to heterosexual women and the larger population. This initial data suggests that Chinese MSM may be headed towards rising HIV infection rates, unless prevention efforts are refined and expanded, guided by qualitative and quantitative research.

### ***Study Limitations***

Since MSM are a hidden subgroup in China, it is difficult to survey a representative sample of this population. This presents challenges both in the source of the study participants and the methods by which they are sampled. Although approximately 36 gay venues have been identified in Shenzhen, this study sampled only 6 venues and included 231 participants recruited through convenience and snowball/respondent driven sampling. Therefore, the study reference group is MSM who frequent gay venues and their acquaintances.

Half of the study participants were recruited through convenience sampling which can result in selection bias. The direction of this bias is unknown. MSM who perceived that they were at higher risk may have sought out participation in the survey in order to receive convenient/free HIV and syphilis screening. And the same time, men at highest risk may be more likely to underreport stigmatized and illegal behaviors, such as commercial sex and drug use. As a result of selection and sampling bias, the study findings cannot be generalized to the larger MSM population in Shenzhen.

The survey instrument and the settings in which it was administered had inherent problems. The survey was lengthy, a total of 53 questions, which took from 15 to 25 minutes to complete. There was no privacy when completing the survey; it was usually administered in same room where blood drawing for the screening tests was also being conducted. The wording of some questions was confusing, and this may have been further compounded in the analysis by the English translation. Since many of the surveys were completed in bars on

weekend nights, some respondents may have wanted to finish the survey quickly, in order to have their blood drawn, and get back to the social scene. This may have contributed to rapid and inaccurate answers.

Since the author was not involved in the design or implementation of the survey and the survey design was not based on a specific research model, information about some factors was not elicited and data from some responses was unusable. Some of the basic factors absent from the survey were details about migration, ethnicity, IVDU, condom use with last anal sex, sexual practices of commercial sex workers and their clients. Data from some survey responses, such as such as level of HIV knowledge, could not be analyzed due to inconsistent wording of the questions and the response categories, coding and data management issues.

## Recommendations

This study was a baseline analysis of risk behavior among MSM, so more in-depth research is needed to confirm and elucidate important relationships that will inform the Shenzhen CDC in its MSM prevention work.

1) Conduct ethnographic research that will facilitate further development of a working research model and identify the less known subpopulations in the MSM community. This data collection would be done through key informant interviews with individuals in the MSM community who by nature of their life experiences and position in the MSM community are able to give constructive perspectives on the collective context and lifestyles of MSM. These individuals would be identified with the assistance of the Director of the Shenzhen CDC HIV/AIDS division MSM program and would include the main MSM peer education volunteer and the director of the MSM prevention program at the Shenzhen Chronic Disease Hospital. Initial questions to these individuals would include the following:

- Describe the different types or groups of MSM that you work with.
- Describe the issues and concerns facing MSM in Shenzhen.
- Describe what you know about MSM, who do not frequent traditional MSM venues such as bars, saunas and family clubs.

2) General ethnographic research that will describe the life experience of individuals from different subgroups of the MSM population. These would consist

of in depth interviews about life history, including childhood, education, family, sexual identity, peer relationships, migration, work and social activities.

3) Conduct ethnographic research that will explore and further define domains affecting risky sexual behavior, describe the sexual practices and migration patterns of money boys, describe current sexual partner relationships and explore the reasons for lack of condom use with both same sex and opposite sex partners. The method for collecting this data would be in-depth interviews. Using the information generated from the key informant interviews, develop an interview guide to collect information from a sample of MSM (to include money boys, employed and unemployed) with questions that would include the following:

- Describe a typical sexual encounter with a male partner, including how you would meet and arrange your first date.
- Describe what you might discuss with a male partner before your first sexual encounter together.
- Describe your current sexual practices.
- Describe the significance of your preferred role in anal sex (insertive or receptive).
- Describe your use of condoms with both male and female partners. Include use of lubricants, availability of condoms, and perceived need for condoms.
- Are the reasons for using/not using condoms different with male and female partners?

- Describe your current partner relationships (male and female).

*The following questions specifically for money boys*

- Describe your typical working day
- Can you describe situations with clients, were you have been asked to engage in sexual behaviors that put you at risk for HIV/STI's? How did you handle the situation?
- Describe where you have traveled and/or worked in the last year
- Describe your future plans
- Describe how you are paid-wages versus tips
- Describe your partner relationships outside of work
- Describe your sexual preference
- Describe who knows about your work as a money boy (family, boyfriend/girlfriend, hometown friends)

To obtain data about reasons for not using condoms with same sex and opposite sex partners, utilize free listing and pile sorting techniques with a group of interviewees. (Initially ask participants to list all the reasons that people don't use condoms. Tabulate those results, record the 10 most common reasons, then ask the next group to sort the most common reasons into similar piles) The data obtained would be analyzed using Anthropac, and utilized in revision of the existing survey questionnaire section on condom use.

To explore the relationships between education level and HIV knowledge, HIV risk perception and risky sexual behavior, and stigma and risky sexual behavior part of the in-depth interviews would include the following questions:

- Describe how you first learned about HIV/AIDS and STI's.
- If you had a question or concern about HIV/AIDS or an STI symptom, where would you seek advice? (Internet, CDC, health professional) Where have you sought advice in the past?
- Tell me what you think your risk of being exposed to HIV/AIDS is.
- Are there sexual practices that you believe are safer than others? Riskier than others?
- Describe what you do to decrease your risk of HIV/STI exposure.
- Describe whom you have told about being MSM (family, coworkers, friends).
- Describe the reactions you received when telling any of the above groups about being MSM.
- Described any incidences where you have been insulted or humiliated for being MSM.
- Describe what kind of social support network you have, in and outside of the MSM community.

This thesis provides baseline information on the factors affecting risky sexual behaviors among MSM in Shenzhen, China. Since there is limited research, especially of the qualitative type, in this area throughout China, the ethnographic studies recommended by the author will contribute to the growing body of knowledge of MSM and HIV risk in China, particularly in money boys. A more complete and rich understanding of the lives, working conditions, and HIV/STI risks of MSM will make much-needed information available to the Chinese government and other agencies involved in developing national

HIV/AIDS prevention policy. At the local level, this information will be useful to the Shenzhen's CDC in the following ways; data generated from future study can assist in the development of a new behavioral survey for future use among MSM, and the main issues identified that put MSM at increased risk for HIV can be used to strengthen and improve the Shenzhen CDC's MSM prevention program.

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Appendix A

2006 Shenzhen CDC MSM Survey

1A	Your gender	Male=1; female=2
1B	Your birth date	
2	You have been living in Shenzhen for	One year=1;over 1 year=2; over 5 years=3; over 10 years=4
3A	Your permanent resident certificate is in (province)	
3B	Your permanent resident certificate is in (city)	Shenzhen=1;Other parts in Guangdong province=2; Other provinces=3; Others=4
3C	Your permanent resident certificate is in	Big city=1;Smaller city or town=2 Rural town or village=3
4A	Your education background	University/college=1 High school=2 Elemental School=3
4B	Your present occupation	Student=1 No job=2 Working=3
4C	Your present salary	Below1000yuan=1; over1000yuan=2;over5000y uan=3; Below 10000yuan=4
5	Your present marriage status	Unmarried=1; Married=2 Divorced or widowed=3
6	Presently you live with	By yourself=1;Roommate=2;Wif e=3; Boyfriend=4;Girlfriend=5

7	Have you heard of AIDS	Yes=1;No=2
8	After HIV infects someone, it will flare up	Soon=1; After some time=2;In some cases soon, in some cases after some time=3
9	After HIV infects someone, how long can it be tested out	Soon=1;In one to three months=2;In half a year=3
10	Through which way doesn't HIV transmit? (you can choose more than one answer)	Answer right=1; answer wrong=0
	Dinner5ware	Answer right=1; answer wrong=0
	Swimming pool	Answer right=1; answer wrong=0
	Restroom	Answer right=1; answer wrong=0
11	Do you drink everyday (including any drink containing alcohol)	No=1;Less than 200 gm=2;200-500gm=3;More than 500gm=4
12	Do you smoke everyday	No=1;Less than 10 cigarettes=2;10-20 cigarettes=3;More than 20 cigarettes=4
13	Have you ever used such drugs as cocaine, marijuana, opium, MDMA, etcetera	Yes=1;No=2
14	Where do you get the knowledge of safe sex? (You can choose more than one answer)	Yes=1; no=0
15	Have you read handbooks or brochures of AIDS education	Yes=1;No=2

16	Have you ever noticed the expiration date of condoms	Yes=1;No=2
17	Will you examine the quality of condoms before using it	Yes=1;No=2
18	What should you do to use condoms to prevent AIDS (you can choose more than one answer)	Yes=1; no=0
19A	Do you use professional water-based lubricant when using condoms	Yes=1;No=2
19B	When you can't find professional water-based lubricant will you use instead toothpaste, baby oil, bath cream or Vaseline etc	Yes=1;No=2
20	Do you think you will be infected with HIV	Very probably=1;Probably=2; Not very probably=3;Impossibly=4;
21	Have you filled in the similar questionnaire before	Yes=1;No=2
22	Have you ever been insulted or humiliated by straight people because of your intimate relationship with someone with same sex	Yes=1;No=2
23	What do you think of the general attitude of the society towards homosexual	Tolerant=1;Not friendly=2;Discriminating=3
24	Do you think that homosexual people should be treated equally and share the distribution of welfare and resources	Yes=1;No=2;I don't care=3
25	Do you and your close friends, bearing pressure from the society, feel depressed or even have a thought of committing suicide	Yes=1;No=2

26	Do you think homosexuals should be acknowledged legally and have their own families	Yes=1;No=2;I don't care one=3
27	Have you been married to or are you planning to marry some one of the opposite sex due to the pressure from the society or your family and relatives	Yes=1;No=2
28	Do you find great difficulty in associating with your family and society	Yes=1;No=2
29	In recent 6 months, did you have anal sex	Yes=1;No=2
30	In recent 6 months, how many times did you have sexual contacts with someone of same sex	Less than 5 times=1;5-10 times=2;More than 10 times=3;none=4
31A	In recent 6 months, how many sex partners of same sex did you have	
31B	In recent 6 months, did you use condoms for anal sex	Never=1; sometimes=2; each time=3
31C	Did you use a condom for latest anal sex	Yes=1;No=2
32	What venues do you usually find sex partners?(you can choose more than 1 answer; No choice is taken as "NONE")	Yes=1; no=0
33A	In recent 6 months, how many sex partners of opposite sex did you have (answer "0" for "none" and go to question35)	
33B	In recent 6 months, did you use condoms for sex with someone of opposite sex	Never=1; sometimes=2; each time=3
33C	Did you use condoms for the latest sex with someone of opposite sex	Yes=1;No=2





41	It costs around 250yuan to have STI and HIV test. Will you pay for the test	Yes=1;No=2;I don't care=3
42	If a doctor offers you a test (confidential), will you take it	Yes=1;No=2;I don't care=3
43	If you suspect of being infected with an STI, where will you go to(you can choose more than 1 answer)	Yes=1; no=0
44	Have you ever taken any professional dermatology-STI test	Yes=1;No=2
45	You have ever found ----- around your reproductive organs or/and anus (you can choose more than one answer)	Yes=1; no=0
46	Your reproductive organ has ever been infected with	Gonorrhea=1;urethritis=2;Syphilis=3;Warts=4;Other disease=5;None=6
47A	You had the first sexual activity at the age of	
47B	Did you use condoms	Yes=1;No=2
48A	Your first sex partner is	male=1;female=2
48B	Your first sex partner is	A friend=1;A client=2;Others=3
49	Up to now, the total number sex partners of same sex	Less than 5=1; 5 to 10=2; 10 to 20=3; 20 to 50=4;More than 50=5;None=6

50	Up to now, the total number sex partners of opposite sex	Less than 5=1;5 to 10=2;More than 10=3;None=4
51	Your sex partners are (you can choose more than one answer)	Yes=1; no=0
52	Your present sex partners are	Some one of same sex and some one of opposite sex=1;Some one of the opposite sex=2;Some one of the same sex=3
53A	Have you ever offered sexual service for money	Yes=1;No=2
53B	If your answer is "Yes" to the last question, those paying for your service are (if your answer is "NO" to the last question, you needn't to answer this question)	Male=1;Female=2;both=3
		Positive=1; Negative=0
		Positive=1; Negative=0