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Social Media Use And Safe Sex Practices Among Chinese Gay Men

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SOCIAL MEDIA USE AND SAFER SEX PRACTICES AMONG CHINESE GAY MEN

by

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ABSTRACT

With the number of Chinese gay men affected by HIV rising annually and social media serving as popular information sources, this study aims to examine the information channels used by Chinese gay men to acquire safer sex knowledge and to test the effect of safer sex knowledge, information channel use, safe-sex communication with sexual partners on Chinese gay men's safer sex practices. Due to the sensitive topic and hard-to-reach population, a snowball sampling method was used to recruit eligible participants. Specifically, an online survey was designed and distributed to three LGBT-NGO-related WeChat groups. A total of 191 valid data points were used in the study. Different from previous studies on safer sex knowledge and safer sex practices, this study focused on a marginalized group and examined some of their unique information channels. Descriptive data reveal that social media platforms surpassed traditional channels (e.g., books, school, parents) becoming the most frequently-used channel to obtain safer sex knowledge. In addition, the findings revealed that even though Chinese gay men had high levels of sexual knowledge, they tended not to practice safer behaviors consistently. Chinese gay men also did not communicate with their sexual partners about their previous sexual relationship, HIV/STD testing and results. Regression analyses discovered that safer sex knowledge level and social media use for safer sex knowledge can predict condom use for anal sex. Surprisingly, social media use was associate with high-risk sexual behaviors such as not limiting sexual activity to only one person who only has sex with you. On the other hand, traditional channel use for safer sex knowledge was associated with HIV/STD testing behavior. Implications on health promotion on safer sex practices and HIV/STD prevention were discussed.

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CHAPTER ONE: INTRODUCTION

HIV continues to be a public health crisis with 1.7 million people around the world were newly infected with the disease in 2019 (UNAIDS, 2020). While news HIV infections have significantly declined over the past decade, China has been facing an annual increase in new cases since 2015 (Statista, 2020). According to an infectious disease report issued by National Health Commission of the People's Republic of China (2020), over 70 thousand individuals contracted HIV in 2019 and nearly 21 thousand people died from HIV-related causes. Furthermore, it has also been reported that HIV remains the deadliest infectious disease and causes the most deaths among all infectious diseases in China. World Health Organization (2020) reported that 95% new HIV cases were due to unsafe-sexual behavior in Asia and correct and consistent condom use provides great protection against HIV. Thus, even though the percentage of infected people remains low, compared to other countries, it is still crucial to enhance education on prevention of HIV and safe sex due to the large population in China.

Despite the prevalence of HIV in China is low, certain regions and populations have been reported to be more heavily impacted than others (Sixth Tone, 2017). It is important to note that the number of HIV infections among men who have sex with men have rapidly risen in the past few years, especially for younger individuals (Zhang, 2018). Even though health professionals have put many HIV prevention efforts on the gay community, the public still holds negative views of gay men, believing it is the homosexuality puts people at the risk of HIV, rather than risky sexual behavior. Although China has decriminalized homosexuality, the attitude on the governmental level towards homosexuality is still "not opposed and not advocate," which makes the gay community continue to be a marginalized and somewhat invisible group. Not only is

there a misunderstanding about Chinese gay men from the public, but also a number of physicians hold the same belief that being gay is a direct route of HIV transmission. This severely negatively influences the public attitudes towards homosexuality and HIV. Past research has found that this social stigma of homosexuality has hindered gay men from learning proper sexual health information and the discussion of sex in general are taboo and sensitive due to the conservative nature of Chinese culture (Li & Shah, 2007; Xiao, 2012; Zhang, 2018). Unlike students from Western countries, Chinese adolescents still have very limited access to sex education during the free nine-year compulsory education (six years of primary education and three years of secondary education). China's top legislative body did not pass an amendment making sex education mandatory until 2020, which indicates that most Chinese children still do not receive sexuality education that meets international standards (Wu, 2020). On Oct. 17, 2020, the National People's Congress Standing Committee declared that schools should conduct "age-appropriate sex education for minors, increasing their awareness and ability to protect themselves against sexual abuse and sexual harassment" (Wu, 2020).

With many challenges gay men are facing in China, little attention has been paid to their situation of sex education and safer sex behaviors. At the same time, social network sites including those specifically designed for gay communities have offered Chinese gay men a new space for a variety of information (Liu, 2020). For example, Blued, one of the largest gay dating apps in China, has created a safe and supportive place for this marginalized community (Liu, 2020). Social media platforms like Blued have allowed for unprecedented open discussion, connection and raised visibility for Chinese gay communities. However, there has been no detailed investigation of the availability of health information related to safer sex on these social media platforms. It is still not known whether Chinese gay communities have easy access to the

safer sex knowledge to protect themselves and to halt the spread of sexually transmitted diseases. Moreover, there's evidence that the lack of formal sex education is linked to a spike in HIV infections (Griffiths et al., 2016). It is important for people to have the correct information to make health-related decisions. Thus, it is critical to understand how Chinese gay men are acquiring safer sex information and their safer sex practices and to examine the role of social media in fulfilling their health-related informational needs. The current study aims to find the popular information channels among Chinese gay men and to examine the correlations between their sexual knowledge and their actual safe sex behaviors.

CHAPTER TWO: LITERATURE REVIEW

Sources of Sexual Knowledge

When it comes to sexual health, there is still this culture of shaming hovering in Chinese society. Chinese adolescents have very limited access to sexual information from their parents or school. In addition, there has been a long debate about who should be responsible for informing people of sexual knowledge. It is exceptionally important to study what sources are accessible to obtain sex knowledge in China because the topic is considered taboo in Chinese culture. Prior studies have examined the sources from which people learned about safe-sex and its effect on people's safe-sex attitudes and behavior. Generally, researchers have identified and classified sources of sex education into five categories, including peers, teachers (schools), parents, doctors, and media (Li & Shah, 2007; Somers & Gleason, 2001; Somers & Surmann, 2004; Somers & Surmann, 2005). In a study that explored adolescents' preferences for sources of sexual knowledge, Somers and Surmann (2004) revealed that parents were the most preferred source of sexual knowledge with media and siblings being the least favorable sources. As for the impact of the sources, Melchert and Burnett (1990) found that sex education offered by school had positive effects on students' knowledge of safe-sex through a survey. Surveying 717 college women, Moor and Davidson (1999) found that daughters who had their mother as the first sexual information source were more likely to use contraception, compared to those who obtained the knowledge from peers or teachers. Additionally, Somers and Gleason (2001) conducted a survey among 157 high school students, finding that a combination of less education from school and more education from non-sibling family was associated with increased sexual behavior. However, the results did not reveal a significant association between sexual knowledge and different sources. Further, Somers and Surmann (2005) investigated 672 high-school adolescents'

sources and timing of sexual education through a questionnaire, yielding a consistent finding as less school learning about sex leading to more sexual behavior. In addition, the results revealed that later learning of sexual education also contributed to more frequent sexual behavior. It is interesting that the results found other sources (i.e., peers and media) were not significant predictors of sexual attitudes and behavior. In contrast, Li and Shah (2007) found that school and traditional mass media (i.e., books, magazines, television, and movies) were the two key sources of sexual knowledge through the data collected from 682 unmarried adolescents in China.

However, as forementioned, most prior studies have only focused on parent-child communication, school-based programs, and traditional mass media (e.g., Somers & Surmann, 2005; Li & Shah, 2007). As people's approaches to information have changed rapidly, far too little attention has been paid to social media as a source of safer sex knowledge. In the area of health communication, research has studied online health information seeking behavior (e.g., Fox & Duggan, 2013; Zucco et al., 2018). Fox and Duggan (2013) conducted a national survey finding one in three US adults have gone on the internet to diagnose or learn about a health issue.

Social Media Use and Information Seeking

An increasing number of individuals have been using the internet to meet their health information needs (Cline, 2001). Existing research recognizes the critical role played by social media in many aspects including managing relationships and seeking and obtaining information (Allen, 2019; Kim et al., 2014; Zhao & Zhang, 2017; Zucco et al., 2018). According to Fox (2014), majority of people (72%) adult Internet users have used Internet to search for health information, with specific diseases and treatments being the most common. In addition, approximately a quarter of the adult Internet users indicated that they had read other people's

health experience about health issues in the most recent year. The survey results also revealed that only a small number of people were highly engaged. 8% of the internet users said they had posted health-related information online within the past year. Among these highly engaged users, 40% of them said they were sharing their personal health experience on the internet. In a study that surveyed 913 parents in Italy, Zucco and colleagues (2018) found that almost half of the social media users utilized social media to obtain and share information about antibiotics.

In fact, little attention has been paid to social media use to acquire safer sex knowledge. Through a literature review of studies about consumers' health-related information seeking behavior from social media, Zhao and Zhang (2017) revealed that only one out of twenty-one studies between 2011 and 2016 focused on sexual health. Zhao and Zhang (2017) also suggested a need for future research to investigate health information needs in specific health topics. Specifically, Westbrook and Zhang (2015) examined 200 posts about cervical cancer on Yahoo! Answers, finding that posters utilized the platform to acquire information about cervical cancer's relationship to sexual activity. Additionally, the scholars speculate that social media platforms create a comfortable environment for women to seek information regarding private medical situations.

In addition to the informational benefit, Liang and Scammon (2011) revealed the emotional benefit of acquiring health information on social media by utilizing the ethnography research method to study 882 postings on a health social networking site. The study also has suggested that those who have socially stigmatized illness such as HIV and obesity are especially more likely to seek support from social media networks. When it comes to gay men who might deal with the higher risk of HIV, social media seems even more beneficial. Setting in traditional media background, Morton and Duck (2000) surveyed 76 gay men to investigate the effects of

gay media content on their safe-sex attitudes. The results revealed that dependency on gay media for sexual health information was a strong predictor of attitudes toward safe-sex. It is vital to examine if social media has similar effects.

Even though people generally have free access to health information via social media, the reliability and quality of health-related information on social media are controversial (Zhao & Zhang, 2017). Belt et al. (2013) surveyed 635 people in Netherlands and revealed that people found health information acquired on social media as least reliable compared to medical professionals, while the Internet was found to be the most popular source for health-related information. Similarly, Rutsaert and colleagues (2013) collected data from 493 people in Belgium to examine the challenges that people faced when seeking information on social media. It was found that trustworthiness was the main barrier for information seeking on social media. However, the results of the quality of online health information were inconsistent. Cole et al. (2016) recruited medical doctors and individuals who had experience with the health issues to assess the quality of 25 health-related discussion threads sampled from three social media cites. The topics included HIV, diabetes, and chickenpox. It was found that most of the information in the discussion threads was in good quality, while only very small amount (5%) was considered poor quality.

Knowledge Level of HIV/STD/Safe-sex

To date, several studies have investigated the impact of knowledge on safer sex practices with mixing results. Lagarde and colleagues (2001) surveyed 4624 non-spousal partners aged 15-49 years old in Africa to study the relationship between participants' educational level and the frequency of condom use. The results showed that higher educational level associated with

higher frequency of condom use for both men and women. Additionally, education was found to be the most influential predictor of condom use, compared to age, sex, occupation, and number of partners before marriage. However, their study only measured participants' general educational level instead of specifically testing their knowledge level of safe-sex. Further, Somers and Gleason (2001) surveyed 157 high school students in the U.S. to measure their safer sex knowledge and sexual behavior and experience. The results found that more safer sex knowledge was related to more safe-sex behavior (e.g., contraception) and liberal sexual attitudes.

It is important to note that past results of the effect of knowledge level of safe-sex have been inconsistent. Lou and Chen (2009) assessed 823 adolescents' safer sex knowledge, their attitudes toward sex, and safe-sex behavior through a survey study. The results revealed that there was no significant association between knowledge of sex and safe-sex behavior. Additionally, safer sex knowledge was found to have a direct negative impact on sexual attitudes (i.e., attitudes toward premarital sexual permissiveness). In other words, participants with higher level of knowledge of sex showed less premarital sexual permissiveness and did not show increased safer sex practices. Ryan et al. (2007) analyzed data from the National Longitudinal Study of Adolescent Health revealing that knowledge influenced males and females in different ways (Ryan et al., 2007). Specifically, men with higher level of condom use knowledge were more likely to use contraception in a consistent fashion; females with greater reproductive health knowledge were more likely to use contraception consistently. Differently, Shipitsyna and colleagues (2012) studied the relationship between STD positivity and knowledge of safe-sex by recruiting 432 participants in Russia for an STD test and a safe-sex knowledge assessment. The results indicated that knowledge of safe-sex was not a significant predictor of STD positivity.

Safe-sex Communication with Partners

Safe-sex communication with partners is defined as discussing safer sex with a partner as a type of informational exchange (Noar et al., 2006). This discussion between sexual partners is recognized as a way to assess one's level of risk before sex and is one of the most important predictors of safer sex practices such as condom use (e.g., Noar et al., 2006; Reynolds-Tylus et al., 2015; Sheeran et al., 1999; Troth & Peterson, 2000). Through a meta-analysis of 53 articles studying safer sexual communication, Noar and colleagues (2006) found that topics of safe-sex communication could include partners sexual history, STDs/HIV status, and condom use. Prior studies explored predictors of safe-sex communication. Troth and Peterson (2000) surveyed 237 college students in Australia to examine the correlations between assertion, family conflict resolution style, and safe-sex communication with partners. The results revealed that assertion and paternal conflict avoidance were predictors reluctance to communicate about safe-sex. Similarly, in a survey among 1349 university students in the US, Diiorio and colleagues (2000) revealed that the perceived quality of communication with parents, the perception of a partner's attitude towards communication, confidence in the ability to discuss safe-sex with partners were associated with safer sex communication. However, the results only yielded a weak correlation between safe-sex communication and condom use, which is inconsistent with other past studies. Other factors were also examined to predict safe-sex communication and safer sex practices. For example, Li and Samp (2019) conducted an online questionnaire among 352 college students to examine the effect on sexual relationship power and safe-sex communication and practices. In the study, sexual relationship power was defined as the ability of one partner to influence sexual outcomes and decisions such as condom use. The results varied between men and women. Men who had equal relational power to their partners were more likely to communicate about condom

use, whereas women with greater sexual relationship power tended to engage in more conversations about condom use.

Safer Sex Practices

According to Johns Hopkins Medicine (n.d.), safer sex practices include: 1) Think twice before beginning sexual relations with a new partner. First, discuss past partners, history of STDs, and drug use; 2) Use condoms every time you have sex; 3) For oral sex, help protect your mouth by having your partner use a condom; 4) Avoid drinking alcohol or using drugs as this increases the chance that you will participate in high-risk sex; 5) Have regular tests for STDs; 6) Be aware of your partner's body. Look for signs of a sore, blister, rash, or discharge; 7) Check your body frequently for signs of a sore, blister, rash, or discharge; 8) Consider sexual activities other than vaginal, oral, or anal sex. These are techniques that do not involve the exchange of body fluids or contact between mucous membranes. Because our study focuses on men who have sex men and the interaction between the partners, the safer sex practices emphasized in this study are comprised of 1) using condom for anal sex; 2) using condom for oral sex; 3) avoiding using alcohol or drugs before or during sex; 4) limiting sexual activity to only one partner who is having sex only with you.

According to UNAIDS (2020), about 20% of all people did not know they had HIV. Song and colleagues (2011) surveyed 307 young gay men and found that the HIV-testing behavior was correlated to sexual risk behaviors such as having multiple sexual partners and history of STDs among men who have sex with men. Thus, in addition to using condoms, having HIV tests and discussing the tests with sexual partners are also important for safer sex practices. Centers for Disease Control and Prevention (CDC) also suggests that men who have sex with men should get

an HIV test preferably every 3 to 6 months (2020) and an STD test at least once a year (2014).

CHAPTER THREE: RESEARCH GOALS AND QUESTIONS

Reviewing the existing research literature, it is vital to examine the relationship between social media use and sexual outcomes (i.e., safer sex knowledge level, safe-sex communication, and safer sex practices) among Chinese gay communities. The first research goal is to find the patterns in safer sex information seeking among Chinese gay communities on both social media channels and traditional channels (i.e., school, doctors, parents, TV/Radio, etc.). The second research goal is to find the frequency of following safer sex practices among Chinese gay men. The third research goal is to explore the correlation between cognition and behavior, specifically between safer sex knowledge and safer sex practices. The fourth research goal is to find the prevalence of safe-sex communication between sexual partners. Last research goal is to test the impact of social media use and traditional channel use on safer sex practices.

Accordingly, I propose the following research questions:

RQ 1: What information channels do Chinese gay men use to learn about safer sex knowledge?

RQ 2a: Is safer sex knowledge level associated with safer sex practices?

RQ 2b: Is social media use associated with safer sex practices?

RQ 2c: Is traditional channel use associated with safer sex practices?

RQ 3a: Is safer sex knowledge level associated with safe-sex communication with partners?

RQ 3b: Is social media use associated with safe-sex communication with partners?

RQ 3c: Is traditional channel use associated with safe-sex communication with partners?

RQ 4a: Is safer sex knowledge level associated with STD and HIV testing behavior?

RQ 4b: Is social media use associated with STD and HIV testing behavior?

RQ 4c: Is traditional channel use associated with STD and HIV testing behavior?

CHAPTER FOUR: METHODS

Sample & Procedures

To study the proposed research questions, an anonymous online survey was developed and hosted by Qualtrics. As gay communities are still a hard-to-reach populations in China, we used a snowball sampling method to recruit eligible participants. Data collection was conducted between February 16, 2021 and March 4, 2021. I reached out to Beijing LGBT Center and Chinese Rainbow Network (CRN), two leading non-profit organizations for the LGBT communities in China to recruit qualified participants. The survey link was distributed to both Beijing LGBT Center and CRN's WeChat groups. WeChat groups are created by individuals who share similar or the same interests. Three WeChat groups were involved in this study, having 480, 106, and 340 members respectively. In the recruitment message, I asked group members to share the survey link to their Chinese gay friends who were not in the group. The initial sample yielded 443 participants who were Chinese adults over the age of 18. Female participants and heterosexual male participants were excluded. In addition, to make sure that participants paid adequate attention to the survey questions, we inserted 6 attention check questions throughout the survey. The questions were randomly placed within the questionnaire and asked participants to select a designated answer (e.g., please select "sun" from the options below). During the data cleaning process, we excluded those who were not able to select at least 3 correct answers. A total of 191 valid data points were collected and used for data analysis. All participants volunteered to take the experiment with no incentives or rewards. All procedures and measures were approved by the researcher's university Institutional Review Board.

After participants gave consent to participate, the survey first asked them to answer a set of questions to test their knowledge of HIV, STD, and safe-sex. Then, participants were asked to

rate the frequency of obtaining safer sex knowledge information on both traditional and social media channels. Following the question, participants were told to answer their specific social media use related to safe-sex knowledge (e.g., like, report, or repost the post). After that, the participants were asked questions to report their past safe-sex behavior (i.e., condom use) and safe-sex communication with partners. The survey took approximately 20 minutes. At the end of the survey, we collected participants' demographic information such as age, income, relationship status, and the number of partners they have been with in the past two years to see the correlation between these variables and safe-sex behavior.

Measures

Social Media Use for Safer Sex Information

This measure was adapted and modified from a 4-item scale created by Gong and Verboord (2020). First, we listed common social media sites and traditional channels in China and asked the participants "How often do you use the following channels to obtain information related to safer sex practices?" The participants responded on a 5-point scale to the question to indicate their information channel for safe-sex information (1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Often, 5 = Very often). Specifically, social media channels include Weibo, WeChat, QZone, Baidu Tieba, Short video platforms such as Douyin, Zhihu, Tianya, News App, Douban, and Gay Dating App such as Blued. Weibo is the Chinese equivalent of Twitter and has about 523 million monthly active users, as of the third quarter of 2020 (Thomala, 2021). With over 1.2 billion monthly active users in the last quarter of 2020 worldwide, WeChat is the most popular messaging social media app in China, where users can direct message others or create groups to communicate (Thomala, 2021). In addition, WeChat users can also post "Moments" to

share all kinds of information. QZone is a microblogging website where users can keep diaries, post photos, listen to music, and more. Both Baidu Tieba and Tianya use forums for users with common interests to communicate with each other. Douyin is the equivalent of TikTok where users make a variety of short videos about dancing, comedy, and education. Douban is a Chinese social networking website where people can browse all kinds of information related to film, books, events, and more. It also allows users to create interest groups to communicate. Separated from social media channels, traditional channels were defined as information channels that have been used regularly before the social media era, which include mass media channels like print media, broadcasting, books and face-to-face channels like sexual partners, parents, relatives, friends, classmates, doctors, school education. Second, we measured how often participants communicated with others about safer sex practices via social media, face-to-face, phone calls, text messages. Third, we measured participants' safe-sex information sharing behavior on social media. Specific social media use includes "like the post", "comment on the post", "repost the post", "follow the account", "tip the account", and "forward the post to others." At last, one item asked the participants how often they posted safe-sex information on different social media platforms. The participants answered all of the questions on a 5-point scale (1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Often, 5 = Very often).

Sources of Sexual Knowledge

Different from information channels where messages are disseminated to people, information sources specifically refer to those individuals, organizations, or media that are creating and delivering health messages (Paige et al., 2017). Adapted and modified from Somers and Surmann (2005) and Zhang and Shah (2007), the sources of sexual knowledge were assessed

by two items. Participants were asked to indicate the top three main sources from which they learned about each topic: reproductive system, puberty, sexual intercourse, STD, HIV, and safe-sex protection behaviors. The response options include “friends”, “school”, “parents”, “relatives”, “doctors”, “print media”, “broadcasting”, “porn sites”, and “social media”. The two items respectively asked participants for top three sources before and after the first time they engaged in a sexual relationship.

Safer Sex Knowledge Level

A 14-item scale adapted and modified from Shipitsyna et al. (2012) was used to assess participants’ knowledge level of HIV/STD transmission routes, prevention measures, and safer sex practices. Different from past measures used to assess heterosexual participants’ safe-sex knowledge, we did not include items that asked about contraception because our participants were men who have sex with men. For each item (e.g., “A person can have negative test for HIV and still transmit it to others” and “It is okay to start sex without a condom and put it on before ejaculation.”), participants were provided options including “true”, “false”, or “I don’t know”. Each item was scored with a “1” for correct responses and “0” for incorrect and “I don’t know” responses. Then, we computed a knowledge score for each participant by adding up the scores for each item, where a higher score indicates higher level of safer sex knowledge. The mean of participants safer sex knowledge level is 12.1 (SD = 1.59).

Testing Behavior

To measure participants’ HIV and STD testing behavior, participants responded to two questions: “When was the last time you had an HIV test?” and “when was the last time you had a

test for STDs?" Participants responded on the following scale: 1 = More than two years ago, 2 = One year to two years ago, 3 = Six months to one year ago, 4 = One month to six months ago, 5 = Within a month. Options "I have never had a test," "Prefer not to answer," and "I do not remember" were scored 0. Two items were averaged to compute a measure of testing behavior (M = 2.26, SD = 1.67). A reliability analysis was performed to examine the internal consistency of the two items. This reliability analysis revealed that these items formed a reliable scale (Cronbach's α = .87).

Safe-Sex Communication with Partners

According to Noar et al. (2006), a 3-item scale was created to measure safe-sex communication with partners. Participants were asked how often they discussed with a new sexual partner about previous relationships, history of STDs, and history of HIV before beginning sexual relations. The participants answered the questions on a 3-point scale (1 = never, 2 = Sometimes, 3 = Always). Three item scores were averaged to obtain a measure of safe-sex communication with partners (M = 2.20, SD = 0.55). A reliability analysis was performed to examine the internal consistency of the three items. This reliability analysis revealed that these items formed a reliable scale (Cronbach's α = .79).

Safer Sex Practices

Four items were created to measure participants' actual safe-sex behavior. These items were adapted and modified from Turchik and Garske (2008). Participants answered how often they engaged in safer sex practices including "using condom during anal sex", "using condom during oral sex", "avoiding using alcohol or drugs before or during sex", "limiting sexual activity

to only one partner who is having sex only with you" on a five-point Likert scale (1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Often, 5 = Very often). The scores were averaged and a higher score indicates higher engagement with safer sex practices. However, the scale had a low level of internal consistency, as determined by a Cronbach's alpha of 0.47. Because they are all doctor recommended safer sex practices, it is decided that each item will be regarded as separate practices. The mean of "using condom during anal sex" is 4.32 (*SD* = 0.99). The mean of "using condom during oral sex" is 1.77 (*SD* = 1.10). The mean of "avoiding using alcohol or drugs before or during sex" is 4.13 (*SD* = 1.20). The mean of "limiting sexual activity to only one partner who is having sex only with you" is 3.52 (*SD* = 1.42).

CHAPTER FIVE: RESULTS

The purpose of this study is to analyze what information channels Chinese gay men use to obtain safe-sex knowledge, their social media use (i.e., like, comment, repost, follow, etc.), predictors of their safer sex practices, safe-sex communication with partners, and their HIV/STD testing behavior. The IBM SPSS Statistics 27 software was used for all data entry and analysis. Statistical significance was set at $p = .05$.

Demographics

Table 1 shows the detailed demographic characters of participants. The mean age of participants was 26.92 (*SD* = 4.77) and had a range between 19 and 41. 26 (13.5%) of the participants had education below bachelor's degree, while 65 (40.9%) had a bachelor's degree and 42.8% (68) had a master's degree or doctoral degree. In terms of income, 40 (20.9%) made less than ¥50,000 ($7,700) in 2020; 28 (14.7%) earned between ¥50,001 and ¥99,999 ($15,000); 29 (15.2%) made between ¥100,000 and ¥199,999 ($30,000); 37 (19.3%) made over ¥200,000 ($46,000); 57 (29.8%) did not answer or did not want to disclose their income information. Participants were from 26 out of the 34 provincial-level administrative region.

Among these 191 participants, 178 (93.2%) were out to their close friends (i.e., their close friends know their gay sexuality). 53 (27.75%) were out to their colleagues; 63 (32.99%) were out to their family; 20 (10.47%) were out to their neighbors. 8 (4.19%) were still completely in the closet (i.e., no one else knows they are gay). Regarding participants' marital status, most of the participants (86.4%) were never married. 11 (5.8%) were married at the time of completing the survey. 3 (1.6%) answered divorced. It is worth noting that China has not legalized gay marriage as of March 2021, which indicates those who answered married or

divorced were in a heterosexual marriage.

Table 1; Sociodemographic Characteristics of Participants

	n	%
Age		
19-25	58	30.4
26-30	47	24.6
31-35	19	10.0
36-41	8	4.1
Missing	59	30.9
Highest education		
Less than high school	2	1.0
High school graduate	2	1.0
Some college credit, no degree	14	7.3
Associate's degree	8	4.2
Bachelor's degree	65	34.0
Master's degree	62	32.5
Doctorate degree	6	3.1
Missing	32	16.8
Individual income in 2020		
Less than ¥50,000 ($7,700)	40	20.9
Between ¥50,001 and ¥99,999 ($15,000)	28	14.7
Between ¥100,000 and ¥199,999 ($30,000)	29	15.2
Between ¥200,000 and ¥299,999 ($46,000)	19	9.9
Between ¥300,000 and ¥399,999 ($61,500)	5	2.6
More than ¥400,000 ($61,500)	13	6.8
Missing	57	29.8
Current relationship status		
Single, no sexual partners	65	34.0
Single, have friends with benefits	42	22.0
In a committed relationship	58	30.4
Missing	26	13.6
Marital status		
Never married	165	86.4
Married	11	5.8
Divorced	3	1.6
Missing	12	6.3

Note. N = 191. Missing values include those who did not answer or answered "Prefer not to answer."

Information Channel and Social Media Use

To answer RQ 1, descriptive statistics were used to investigate the prevalence of different

channels that participants used to obtain safe-sex information (see Table 2 for details). Across all different channels, the most five used channels were WeChat (*M* = 3.47, *SD* = 1.28), Zhihu (*M* = 2.71, *SD* = 1.09), Gay dating App such as Blued (*M* = 2.68, *SD* = 1.23), My sexual partners (*M* = 2.64, *SD* = 1.20), and Weibo (*M* = 2.62, *SD* = 1.26). Out of these top 5 channels, four of them belong to social media channel. The 5 least used channels were Tianya (*M* = 1.28, *SD* = 0.59), Relatives (*M* = 1.32, *SD* = 0.79), Parents (*M* = 1.38, *SD* = 0.85), QZone (*M* = 1.59, *SD* = 0.91), and Baidu Tieba (*M* = 1.83, *SD* = 1.04). It is worth noting that quite a few participants mentioned non-profit organizations also served as an information channel for them to learn safe-sex information. Specifically, workshop hosted by these NGOs was a common place where these participants gained the knowledge.

Table 2; The Prevalence of Channels People Use to Obtain Safer Sex Information

Channels	*Mean*	*SD*
Weibo	2.62	1.26
WeChat	3.47	1.28
QZone	1.59	0.91
Chinese search engines	2.54	1.20
Foreign search engines	2.61	1.30
Baidu Tieba	1.83	1.04
Short video platforms like Douyin	2.02	1.20
Zhihu	2.71	1.09
Tianya	1.28	0.59
Douban	2.12	1.17
Gay dating Apps like Blued	2.68	1.23
My sexual partner(s)	2.64	1.20
Parent(s)	1.38	0.85
Relatives	1.32	0.79
Friends	2.56	1.22
Classmates	2.01	1.15
Doctors	2.45	1.27
Print media like books/magazines	2.24	1.06
Broadcasting like TV/radios	2.04	0.99
News App	2.16	1.02
School education	2.12	1.07

Note. Participants answered the questions on a 5 point scale (1 = Never, 5 = Very often).

In order to compute an overall score for social media use and traditional channel use, we averaged each group of channels respectively. A reliability analysis revealed that these items formed reliable social media use scale (Cronbach's $\alpha = .77$) and traditional channel use scale (Cronbach's $\alpha = .77$). A paired t test was calculated to compare social media use and traditional channel use among participants. The analysis produced a significant t value ($t_{(178)} = 2.86$, $p = .005$, $d = 0.76$). An examination of the means revealed that participants used social media channels more frequently ($M = 2.25$, $SD = .62$) than they used traditional channels ($M = 2.08$, $SD = .71$). Cohen's d showed a fairly large effect size.

Table 3 lays out the detailed the frequency of participants' engaging in different social

media use behaviors. The most frequent behavior participants engaged in when reading information about safe-sex on social media was liking the post ($M = 2.63$, $SD = 1.14$). The second most frequent behavior was following the account ($M = 2.56$, $SD = 1.15$). The least frequent behavior was tipping the account ($M = 1.66$, $SD = .82$). A Repeated Measures ANOVA was used to examine the difference between these behaviors. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(14) = 71.40$, $p < .001$, therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity ($\varepsilon = .91$). The results showed that there was a significant difference among these behaviors [$F(4.55, 823.38) = 51.10$, $p < 0.001$]. Post hoc tests using the Bonferroni correction revealed that the frequency of liking the post was significantly different from all other behaviors except following the account ($p < 0.001$); Commenting the post was significantly different from following and tipping the account ($p < 0.001$); reposting was significantly different from forwarding to other platforms, following the account, and tipping the account ($p < 0.001$); Forwarding to other platforms was significantly different from following and tipping the account ($p < 0.001$); Following the account was significantly different from tipping the account ($p < 0.001$).

Table 3; The Frequency of Social Media Use Behaviors

Behavior	*Mean*	*SD*
Like the post	2.63	1.14
Comment on the post	2.19	1.00
Repost	2.28	1.11
Share on other platforms	2.09	0.93
Follow the account	2.56	1.15
Tip the account	1.66	0.82

Note. Participants answered the questions on a 5 point scale (1 = Never, 5 = Very often).

In terms of posting behavior, descriptive statistics (see Table 4 for details) showed that WeChat was the most used social media platforms for participants to post information related to

safe-sex (M = 2.01, SD = 1.13). Tianya was the least used platform to post this kind of information (M = 1.15, SD = .42). It is important to note that participants in general did not post safe-sex related information on social media. A Repeated Measures ANOVA was used to examine the difference between these social media platforms. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(35) = 363.26$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .68$). The results showed that there was a significant difference among these platforms [$F(5.45, 974.57) = 36.48$, $p < 0.001$].

Table 4; The Frequency of Posting Safer Sex Information on Different Social Media

Social Media	*Mean*	*SD*
Weibo	1.66	0.94
WeChat	2.01	1.13
QZone	1.34	0.69
Baidu Tieba	1.26	0.59
Short Video Apps (e.g. Douyin)	1.26	0.61
Zhihu	1.41	0.76
Tianya	1.15	0.42
Douban	1.39	0.76
Gay Dating Apps (e.g. Blued)	1.77	1.04

Note. Participants answered the questions on a 5 point scale (1 = Never, 5 = Very often).

Safer Sex Knowledge Level by Age, Income, Education, and Information Channel Use

A hierarchical multiple regression was run to examine the association between demographic variables and safer sex knowledge level and to determine if the addition of information channel use improved the prediction of safer sex knowledge level over and above age, income, and education alone. See Table 5 for full details on each regression model. The full model of age, income, education, social media use, and traditional channel use to predict safer sex knowledge level was statistically significant, $R^2 = .11$, $F(5, 99) = 2.48$, $p = .037$; adjusted $R^2 = .07$. Together, these independent variables accounted for 7 percent of the variance in

knowledge level. The result revealed that knowledge level was statistically significantly associated with participants' age, which means as participants' age increased, their safe-sex knowledge level increased as well (β = .25, p = .011). However, the addition of social media use and traditional channel use did not lead to a statistically significant increase in R^2 of 0.04, F(2, 99) = 1.94, p = .149.

Table 5; Hierarchical Multiple Regression Predicting Safer Sex Knowledge Level

	Model 1		Model 2	
	β	*t*	β	*t*
Age	0.24*	2.37	0.25**	2.58
Income	-0.14	-1.36	-0.11	-1.06
Education	-0.12	-1.17	-0.11	-1.06
Social media use			0.04	0.41
Traditional channel use			0.17	1.56
R^2	0.08		0.11	
Adjusted R^2	0.05		0.07	
F	2.79*		2.48*	
R^2 Change	0.08		0.04	
F Change	2.79*		1.94	

Note. N = 105. **P < .05*, ***P < .01*

Sources of Knowledge

Table 6 shows the number and percentage of participants obtaining safer sex knowledge from all channels, specifically in areas of reproductive system, puberty, sexual intercourse, STD, HIV, and safe-sex. Table 6 also lays out the difference in sources between before and after participants' first time having sex. Overall, the top two ranked sources of safer sex knowledge were social media and school. The third main source was classmates/friends. The least used sources in all areas were parents and relatives. It is worth noting that participants gained knowledge about sexual intercourse mainly from porn sites and social media, instead of school. Comparing the main sources used before and after the first time participants had sex, the results

reveal that social media took the place of school becoming the most used sources to gain knowledge about reproductive system and puberty.

Table 6; Main Sources of Safer sex knowledge about Reproductive System, Puberty, Intercourse, STD, HIV, and Safe-sex.

Baseline characteristic	Reproductive		Puberty		Intercourse		STD		HIV		Safe-sex	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Friends/Classmates												
Before	47	24.6	48	25.1	36	18.8	28	14.7	25	13.1	29	15.2
After	34	17.8	33	17.3	26	13.6	23	12.0	21	11.0	22	11.5
School												
Before	88	46.1	81	42.4	11	5.8	32	16.8	49	25.7	35	18.3
After	55	28.8	53	27.7	15	7.9	26	13.6	37	19.4	29	15.2
Parents												
Before	4	2.1	10	5.2	1	0.5	3	1.6	4	2.1	4	2.1
After	4	2.1	6	3.1	1	0.5	1	0.5	0	0	2	1.0
Relatives												
Before	0	0	2	1.0	2	1.0	0	0	1	0.5	1	0.5
After	1	0.5	0	0	2	1	1	0.5	1	0.5	2	1.0
Doctors												
Before	10	5.2	6	3.1	4	2.1	24	12.6	24	12.6	20	10.5
After	12	6.3	7	3.7	5	2.6	16	8.4	15	7.9	12	6.3
Social Media												
Before	74	38.6	67	35.1	82	42.9	99	51.8	108	56.5	107	56
After	88	46.1	71	37.2	86	45.0	98	51.3	94	49.2	95	49.7
Print Media												
Before	31	16.2	39	20.4	19	9.9	52	27.2	41	21.5	49	25.7
After	23	12.0	26	13.6	20	10.5	31	16.2	29	15.2	31	16.2
Broadcasting												
Before	8	4.2	8	4.2	7	3.7	17	8.9	17	8.9	14	7.3
After	7	3.7	9	4.7	7	3.7	11	5.8	15	7.9	11	5.8
Porn Sites												
Before	6	3.1	22	11.5	84	44	10	5.2	10	5.2	9	4.7
After	26	13.6	10	5.2	62	32.5	7	3.7	6	3.1	9	4.7

Note. Table reflects the number and percentage of participants selecting each option.

Predictors of Safer Sex Practices

To examine the predictors of safer sex practices, a linear regression analysis (see Table 7 for details) was conducted, revealing that safer sex knowledge level could statistically significantly predict participants' condom use for anal sex, $F(1, 185) = 8.33$, p = .004 and safer sex knowledge level accounted for 3.8% of the explained variability in condom use for anal sex (β = .21).

Table 7; Regression Results of Knowledge Level Predicting Condom Use for Anal Sex

				95% CI			
Variable	B	β	*t*	*LL*	*UL*	*p*	Adjusted R^2
Safer sex knowledge level	.13	.21	2.89	.04	.22	.004**	.04

Note. n = 187. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *p < .05, **p < .01

A linear regression analysis (see Table 8 for details) established that social media use could statistically significantly predict participants' condom use for anal sex, $F(1, 177) = 4.93$, p = .028, and social media use accounted for 2.2% of the explained variability in condom use for anal sex (β = .17).

Table 8; Regression Results of Social Media Use Predicting Condom Use for Anal Sex

				95% CI			
Variable	B	β	*t*	*LL*	*UL*	*p*	Adjusted R^2
Social media use	.26	.17	2.22	.03	.49	.028*	.02

Note. n = 179. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *p < .05, **p < .01

Social media use could also statistically significantly predict participants' condom use for oral sex, $F(1, 177) = 5.33$, p = .022, and social media use accounted for 2.4% of the variance in condom use for oral sex (β = .28). See Table 9 for full details.

Table 9; Regression Results of Social Media Use Predicting Condom Use for Oral Sex

				95% CI			
Variable	B	β	*t*	*LL*	*UL*	*p*	Adjusted R^2
Social media use	.28	.17	2.31	.04	.52	.022*	.02

Note. n = 179. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *p < .05, **p < .01

Lastly, social media use could statistically significantly predict participants limiting sexual activity to only one partner who is having sex only with them (see Table 10 for details), $F(1, 177) = 4.73$, $p = .031$, and social media use accounted for 2.1% of the explained variability in this dependent variable (β = -.16). In other words, people who used social media for safer sex knowledge were more likely to engage in condom use for anal and oral sex, but less likely to limit sexual activity to only one partner who is having sex only with them. On the other hand, the same analysis did not reveal that traditional channel use could predict any of the doctor recommended safer sex practices, $p > .05$.

Table 10; Regression Results of Social Media Use Predicting Limiting Sexual Activity

				95% CI			
Variable	B	β	*t*	*LL*	*UL*	*p*	Adjusted R^2
Social media use	-.36	-.16	-2.18	-.69	-.03	.031*	.02

Note. n = 179. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *p < .05, **p < .01

Predictors of Testing Behavior

Descriptive statistics (see Table 11) indicate that 94 (53.4%) participants got an HIV test recently within a year, which means nearly half of the participants did not meet the CDC's guideline. 29 (16.4%) indicated that they never got an HIV test before. For STD tests (see Table 12 for details), 78 (44.57%) indicated that they had a test within the past year, which means more than half of the participants did not meet the CDC suggested testing guideline. 47 (26.86%)

answered they had never had an STD test before.

Table 11; Frequency of HIV Testing Behavior

	n	%
Within a month	19	9.9
Between 1 month to 6 months	49	25.7
Between 6 month to 12 months	26	13.6
Between 1 year and 2 years	21	11.0
More than 2 years	24	12.6
I have never been tested	29	15.2
I don't remember	3	1.6
Missing	20	10.5

Note. total n = 191. Missing values include those who did not answer or answered "Prefer not to answer."

Table 12; Frequency of STD Testing Behavior

	n	%
Within a month	16	8.4
Between 1 month to 6 months	39	20.4
Between 6 month to 12 months	23	12.0
Between 1 year and 2 years	21	8.9
More than 2 years	21	11.0
I have never been tested	47	24.6
I don't remember	8	4.2
Missing	20	10.5

Note. total n = 191. Missing values include those who did not answer or answered "Prefer not to answer."

To answer RQ4, a hierarchical multiple regression analysis was conducted to examine the predictors of testing behavior (see Table 13). Two demographic variables (i.e., age and education) were entered into the first model, then three predictors were entered into the model: knowledge level, social media use, and traditional channel use. Together, these predictors accounted for 12 percent of the variance in testing behavior. The addition of knowledge level, social media use, and traditional channel use to the prediction of testing behavior led to a statistically significant increase in R^2 of .14, $F(3, 118)= 6.60$, $p < .001$. Specifically, knowledge level ($\beta = .20$, $p = .027$) and traditional channel use ($\beta = .28$, $p = .003$) were strong predictors and

were positively associated with testing behavior, which means participants who had more safer sex knowledge and used traditional channel to gain safer sex information were more likely to get HIV/STD tests.

Table 13; Hierarchical Multiple Regression Predicting Testing Behavior

	Model 1		Model 2	
	β	*t*	β	*t*
Age	.39	.43	.04	.45
Education	.11	1.22	.14	1.60
Knowledge level			.20*	2.24
Social media use			.02	.22
Traditional channel use			.28**	2.98
R^2	.02		.16	
Adjusted R^2	-.002		.12	
F	.89		4.37***	
R^2 Change	.02		.14	
F Change	.089		6.60***	

Note. n = 124. **p < .05*, ***p < .01, ***p < .001*

Predictors of Safe-sex Communication with Partners

A multiple regression analysis was used to examine predictors of safe-sex communication with sexual partners (See Table 14 for full details). The model was comprised of three predictors: knowledge level, social media use, and traditional channel use. The model accounted for 6 percent of the variance in safe-sex communication with partners ($p = .005$). Traditional channel use for safer sex knowledge ($\beta = .30$, $p < .001$) was a significant predictor of safe-sex communication with partners, which means participants who used traditional channel to gain safe-sex information were more likely to communication with partners about their previous sexual relationship, HIV status, and STD status. The results did not reveal a significant association between knowledge level, social media use, and safe-sex communication with partners ($p > .05$).

Table 14; Multiple Regression Results for Safe-Sex Communication with Partners

				95% CI			
Variable	B	β	*t*	*LL*	*UL*	R^2	Adjusted R^2
Model						.08	.06**
Knowledge level	-.001	-.002	-.03	-.06	.06		
Social media use	-.06	-.07	-.89	-.20	.08		
Traditional channel use	.22	.30***	3.62	.10	.33		

Note. $n = 161$. CI = confidence interval; LL = lower limit; UL = upper limit. *$p < .05$, **$p < .01$, ***$p < .001$

CHAPTER SIX: DISCUSSION

The results of the current study reveal that social media platforms are prevailing information channels for Chinese gay men to obtain safe-sex knowledge, compared to traditional channels such as school or print media. The use of social media to obtain such information is statistically more frequent than the use of traditional channels. Specifically, WeChat, Zhihu, Gay dating Apps, and Weibo are the top four social media platforms for safe-sex information. Among traditional channels, sexual partners are the most used information channel to gain safe-sex knowledge. However, I argue that the reliability and quality of the information from sexual partners are not assured, which lays out a problem for the society. Consistent with previous studies, parents and relatives are among the least used sources for this taboo topic. It is also worth noting that, even though school still serves a big role in information sources about reproductive system and puberty, social media are taking over its place after participants had sex for the first time. The results imply that health professionals such as doctors or health organizations should utilize social media platforms to disseminate messages about safe-sex. When people read safe-sex information on social media platforms, liking the post and following the account that posts the information are the two most frequent actions people will engage in. However, people tend not to tip the account or to repost the information. The result indicates that social media users are less likely to promote safe-sex related information after being exposed to such information. However, it is promising that people tend to follow the account to continue receiving health-related information. In terms of disseminating safe-sex messages, the finding reveals that people are not likely to post such information on social media. This may be explained that a lot of social media platforms are still considered as public places where personal

information is accessible. This environment will hinder people from openly discussing this sensitive topic. Social media platforms also serve as main sex education sources in areas of reproductive system and puberty. School education is another main source for these topics. However, the results indicate that social media platforms are taking the place of school becoming the most used sources to gain knowledge about reproductive system and puberty, after the first time people have sex. Moreover, the results have some theoretical implications. First, uses and gratifications theory postulates that people use media and consume media messages to gratify specific needs. When it comes to seeking sensitive information like sex, people prefer social media because they have greater control over what they see, when they look for it, and how to interact with the content in a safer environment.

Past research has examined the role of knowledge level in safer sex practices. However, the results have been inconsistent. Unlike previous studies that measured participants' overall knowledge level, this study specifically measured safer sex knowledge level. The results show that Chinese gay men have a high level of safer sex knowledge but do not show an overall high frequency of practicing all safer sex behaviors, with over 80% Chinese gay men do not use condom when engaging in oral sex. Specifically, this current research reveals that safer sex knowledge level is a significant predictor of condom use during anal sex, which indicates people with higher level of safer sex knowledge are more likely to use condom during anal sex. However, no associations are found between safer sex knowledge level and other safer sex practices such as limiting sexual activity to only one person who has sex only with you. Furthermore, the results reveal that social media use for obtaining safe-sex information is a strong predictor of condom use for both anal and oral sex and limiting sexual activity to only one

partner who is having sex only with you. Specifically, people who use social media for safe-sex information are more likely to use condom but less likely to limit sexual activity to only one partner who is having sex only with them. It is worth noting that traditional channel use is not a predictor of any of the safer sex practices. This results also contribute to the knowledge-attitude-behavior model which posits that knowledge is critical in influencing behavior changes and that individuals can acquire knowledge and skills through learning. The correlations between sexual knowledge level and some of the safe sex practices are confirmed but remain positive at a relatively low level. This also does not guarantee people engage in all safe sex practices consistently. The current research did not examine participants' attitude to safe sex practices or sex in general.

As suggested by CDC (2020), men who have sex with another man should get an HIV test at least once a year, preferably every 3 to 6 months. The current study reveals that nearly half of gay men do not meet the guideline's expectations. Almost 20% of gay men have never had an HIV test before. As for STD tests, more than 20% gay men had a test more than one year ago. More importantly, more than one fourth of gay men have never had an STD test. This indicates that a serious problem that a large group of people are exposed to HIV and STD risks unknowingly. Besides descriptive results, the current study reveals that knowledge level and traditional channel use for safe-sex information are two predictors of getting tested. Specifically, people with higher level of safer sex knowledge and obtain safe-sex knowledge via traditional channels (e.g., school, doctors, print media, etc.) are more likely to get HIV/STD tested. This might be explained that the information on traditional channels tend to be more serious. On the other hand, social media use for safe-sex information is not a predictor of such behavior.

Past research has also emphasized the importance of safe-sex communication with partners. Being aware of partner's previous sexual relationship, HIV and STD history helps people engage in safer sex practices. However, the current research finds that Chinese gay men tend not to exchange information regarding their past sexual relationship, history of HIV/STD tests and the results. Align with testing behavior, the findings indicate that people who use traditional channel for safe-sex information are more likely to having conversations about their sexual, HIV, and STD history. This indicates that health professionals should utilize both social media channels and traditional channels to educate Chinese gay men the importance and benefits of safe-sex communication with their sexual partners. Future research may combine both qualitative and quantitative research methods to explore the reason why Chinese gay men are not having safe-sex communication with their sexual partners. It is likely that the social stigma and self-stigma against homosexuality could hinder people from discussing these topics.

Limitations

Although the findings of the current study have a number of practical implications, it is important to keep in mind that the findings could be influenced by the representative yet non-random sample of participants. Because gay men are still regarded as hard-to-reach population in China, the current sample does not represent the overall Chinese gay community. In fact, participants from the Beijing LGBT and Chinese Rainbow Network are possibly already more open to the discussion of safe-sex due to their support for LGBT rights and engagement in these two organizations. Further studies could combine qualitative and quantitative methods to shed more light on why people use social media to obtain safe-sex information. Additionally, the

current study relied on data from a self-reporting survey. Under a sensitive topic like sex, respondents may not feel comfortable selecting answers that present themselves in an unfavorable manner. Despite these limitations, the current study provides valuable information regarding sources of sex knowledge and safer sex practices among Chinese gay men.

APPENDIX A: IRB APPROVAL

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

January 28, 2021

Dear Hang Zheng:

On 1/28/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Initial Study
Title:	Social Media Use and Safe Sex Practices Among Gay Men in China
Investigator:	Hang Zheng
IRB ID:	STUDY00002639
Funding:	None
Grant ID:	None
Documents Reviewed:	• HRP-251- FORM - Faculty Advisor Scientific-Scholarly Review fillable form_signed.pdf, Category: Faculty Research Approval; • Consent Form Translation.pdf, Category: Consent Form; • HRP-254-FORM Explanation of Research.pdf, Category: Consent Form; • HRP-255-FORM - Request for Exemption.docx, Category: IRB Protocol; • HRP-256 - FORM - Translation Verification.docx, Category: Translation Verification; • Recruitment Messages.docx, Category: Recruitment Materials; • Survey in Chinese, Category: Survey / Questionnaire; • Survey.docx, Category: Survey / Questionnaire; • WeChat messages in CN, Category: Other

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Katie Kilgore
Designated Reviewer

APPENDIX B: SURVEY QUESTIONS

Q1 What is biological sex at birth?

- Male
- Female
- Prefer not to say

Q2 Thank you for your participation. This survey is intended to study the member of gay community only. We appreciate your time.

Page Break

Q3 How do you describe your sexual orientation or identity?

- ○ Gay
- ○ Pansexual
- ○ Asexual
- ○ Bisexual
- ○ My sexuality is not listed, please specify.
  _____
- ○ Prefer not to answer

Q4 At what age did you begin to think of yourself as gay?

- ○ Before 16
- ○ Between 16-18
- ○ Between 19-23
- ○ Between 24-30
- ○ Between 31-40
- ○ Between 41-50
- ○ Between 51-60
- ○ After 60
- ○ I don’t remember

Q5 After you realized you were gay, I have had _____ sexual partners.

- only male
- only female
- both male and female
- no sexual partners after I realized I was gay.
- I prefer not to say.

Q6 In your personal network, who knows your sexual orientation? Select all that apply.

- Close friends
- Casual friends
- Colleagues
- Family members
- Neighbors
- Everyone
- No one knows
- Prefer not to answer

Q7 Please select “Red & Yellow” from the options below.

- Blue & Black
- Red & Yellow

End of Block: Screening Question

Start of Block: Knowledge of HIV/STD/Safe-sex

Q8 Please answer the following questions based on your understanding of the issues related to HIV, STD, and safer sex practices. Safer sex practices include but are not limited to: 1) Use condoms every time you have sex. 2) Limit your sexual activity to only one partner who is having sex only with you.

Q9 Sharing devices for injection of drugs creates high risk for getting HIV.

- Yes
- No
- I am not sure.

Q10 Cleaning injection needles with water is enough to kill HIV.

- Yes
- No
- I am not sure.

Q11 You can usually judge from a person’s appearance if he or she is HIV-positive.

- Yes
- No
- I am not sure.

Q12 A person can have negative test for HIV and still transmit it to others

- Yes
- No
- I am not sure.

Q13 Use of public restrooms increases risk of acquiring STDs/HIV.

- Yes
- No
- I am not sure.

Q14 If a person had an STD in the past, he or she will not acquire this STD again.

- ○ Yes
- ○ No
- ○ I am not sure.

Q15 Sometimes STDs have no symptoms.

- ○ Yes
- ○ No
- ○ I am not sure.

Q16 Careful washing of the genitals after sex can completely protect you from STDs/HIV.

- ○ Yes
- ○ No
- ○ I am not sure.

Q17 When putting a condom on, one should leave some space in the tip of the condom.

- Yes
- No
- I am not sure.

Q18 It is okay to start sex without a condom, and put it on before ejaculation.

- Yes
- No
- I am not sure.

Q19 Oils and vaseline are suitable lubricants for condoms.

- Yes
- No
- I am not sure.

Q20 A person can acquire STDs/HIV only if he or she has a high number of sex partners.

- Yes
- No
- I am not sure.

Q21 If a person tells you that he or she does not have any HIV infection, you do not need to worry about safe-sex.

- Yes
- No
- I am not sure.

Q22 Condoms do not provide 100% protection against STDs/HIV.

- Yes
- No
- I am not sure.

End of Block: Knowledge of HIV/STD/Safe-sex

Start of Block: Social Media Use

Q23 How often do you use the following channels to obtain information related to safer sex practices? (e.g. use condoms every time you have sex, and have periodic tests for STDs.)

	Never	Rarely	Occasionally	Often	Very Often
Weibo	○	○	○	○	○
WeChat	○	○	○	○	○
QZone	○	○	○	○	○
Chinese Search Engines	○	○	○	○	○
Foreign Search Engines	○	○	○	○	○
Baidu Tieba	○	○	○	○	○
Short video platforms like Tiktok	○	○	○	○	○
Zhihu	○	○	○	○	○
Tianya	○	○	○	○	○
Douban	○	○	○	○	○
Gay dating App like Blued	○	○	○	○	○
My partner(s)	○	○	○	○	○
Parents	○	○	○	○	○
Relatives	○	○	○	○	○
Friends	○	○	○	○	○

Classmates	○	○	○	○	○
Physicians	○	○	○	○	○
Print media	○	○	○	○	○
TV/broadcasting	○	○	○	○	○
News Apps	○	○	○	○	○
School Education	○	○	○	○	○
Other sources, please listed them below	○	○	○	○	○

Q24 Please select “2021” from the options below.

- ○ 1900
- ○ 2021

Q25 How often do you communicate with others regarding safer sex practices via the following channels?

	Never	Rarely	Occasionally	Often	Very Often
via social media	○	○	○	○	○
via face-to-face conversations	○	○	○	○	○
via phone calls	○	○	○	○	○
via text messages	○	○	○	○	○
via other channels, please specify:	○	○	○	○	○

Q26 When you encountered messages related to safer sex practices on social media, how often do you engage in the following behaviors?

	Never	Rarely	Occasionally	Often	Very Often
like the posts	○	○	○	○	○
comment on the posts	○	○	○	○	○
repost the posts	○	○	○	○	○
forward the posts to other platforms	○	○	○	○	○
follow the accounts	○	○	○	○	○
tip the accounts	○	○	○	○	○

Q27 Please select “Beijing” from the options below.

- ○ Beijing
- ○ London

Q28 How often do you use the following channels to obtain information related to safer sex practices? (e.g. use condoms every time you have sex, and have periodic tests for STDs.)

	Never	Rarely	Occasionally	Often	Very Often
Weibo	○	○	○	○	○
WeChat	○	○	○	○	○
QZone	○	○	○	○	○
Baidu Tieba	○	○	○	○	○
Short video platforms like Tiktok	○	○	○	○	○
Zhihu	○	○	○	○	○
Tianya	○	○	○	○	○
Douban	○	○	○	○	○
Gay dating App like Blued	○	○	○	○	○
Other: please specify	○	○	○	○	○

End of Block: Social Media Use

Start of Block: Sources of Safe-sex Knowledge

Q29 How often do you practice the following safer sex practices?

	Never	Rarely	Occasionally	Often	Very Often
Use condom during anal sex	○	○	○	○	○
Use condom during oral sex	○	○	○	○	○
Avoid using alcohol or drugs before or during sex	○	○	○	○	○
Limit sexual activity to only one partner who is having sex only with you	○	○	○	○	○

Q30 Please identify up to three major sources for you to obtain the knowledge in each area before the first time you engaged in a sexual relationship?

	Friends	School Education	Parents	Relatives	Doctors	Social Media	Print media	Broadcasting	Foreign Porn Sites	No sources
Reproductive System	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Puberty	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sexual Intercourse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
STD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
HIV	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Safe-Sex Protection Behaviors	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q31 Please identify up to three major sources for you to obtain the knowledge in each area after the first time you engaged in a sexual relationship?

	Friends	School Education	Parents	Relatives	Doctors	Social Media	Print media	Broadcasting	Foreign Porn Sites	No Sources
Reproductive System	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Puberty	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sexual Intercourse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
STD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
HIV	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Safe-Sex Protection Behaviors	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q32 Please select “Good” from the options below.

- ○ Good
- ○ Bad

End of Block: Sources of Safe-sex Knowledge

Start of Block: Relationship Status

Q33 What is your current marital status?

- Never married
- Married
- Divorced
- Widowed

Q34 What is your current relationship status?

- Single
- In a committed relationship
- In a casual relationship, friends with benefits
- Prefer not to answer

Q35 How many same sex partners have you had sex within the past year? If none, please enter 0.

- 0
- 1
- 2-5
- 6-10
- More than 10

Q36 How many opposite sex partners have you had sex within the past year? If none, please enter 0.

- 0
- 1
- 2-5
- 6-10
- More than 10

Q37 Please select “Spring Festival” from the options below.

- Spring Festival
- Christmas

End of Block: Relationship Status

Start of Block: Safe-sex Communication

Q38 In the past few years, how often do you communicate with a new sexual partner regarding the following issues:

	Never	Sometimes	Always
History of previous relationships	○	○	○
STD testing and results	○	○	○
HIV testing and results	○	○	○

End of Block: Safe-sex Communication

Start of Block: Testing Behavior

Q39 When was the last time you had an HIV test?

- ○ Within a month
- ○ One month to six months ago
- ○ Six months to one year ago
- ○ One year to two years ago
- ○ More than two years ago
- ○ I have never had a test
- ○ I do not remember
- ○ Prefer not to answer

Q40 When was the last time you had a test for STDs?

- Within a month
- One month to six months ago
- Six months to one year ago
- One year to two years ago
- More than two years ago
- I have never had a test
- I do not remember
- Prefer not to answer

Q41 Please select “Sun” from the options below.

- Sun
- Moon

End of Block: Testing Behavior

Start of Block: Demographics

Q42 What is your age?

_____

Q43 What is the highest degree or level of education you have completed?

- ○ Less than high school
- ○ High school graduate
- ○ Some college credit, no degree
- ○ Associate’s degree
- ○ Bachelor’s degree
- ○ Master’s degree
- ○ Professional degree
- ○ Doctorate degree
- ○ Prefer not to answer

Q44 What is your personal annual income before taxex in 2019?

- ○ Less than ¥50,000
- ○ ￥50,001 - ￥99,999
- ○ ￥100,000 - ￥199,999
- ○ ￥200,000 - ￥299,999
- ○ ￥300,000 - ￥399,999
- ○ More than ￥400,000
- ○ Prefer not to answer

Q45 What is your current province you live in?

_____

End of Block: Demographics

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