

Association between participation in HIV stigma reduction program and HIV prevention awareness among men who have sex with men in Mongolia

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Abstract: In 2024, we conducted a study to evaluate the effectiveness of a Mongolian non-governmental organization (NGO) stigma reduction program, "We are Living Under the Same Sky" (LUSS), by assessing the association between the program and two human immunodeficiency virus prevention outcomes, recognition of the Undetectable = Untransmittable (U=U) and the need for pre-exposure prophylaxis (PrEP), in 223 men who have sex with men (MSM). Results showed that the LUSS program was associated with the recognition of U=U and PrEP need by Mongolian MSM. The recognition of U=U was associated with coming-out experience and marital status. LUSS was associated with the PrEP need, which, in turn, was associated with MSM who engaged in active sexual behaviors. The LUSS program has increased the recognition of U=U and PrEP need among MSM, and it can be incorporated into new prevention interventions targeting MSM. LUSS has the potential to effectively raise awareness among MSM and other populations such as youth, educators, and healthcare providers.

Keywords: HIV prevention, Undetectable = Untransmittable (U=U), pre-exposure prophylaxis (PrEP)

1. Introduction

Mongolia reports approximately 20 new cases of human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) annually, contributing to a relatively low national prevalence rate and number of new infections (1). However, men who have sex with men (MSM) account for approximately 60% of all cases, and the prevalence is particularly high among MSM sexual networks in Ulaanbaatar (2,3).

Despite amendments to the Constitution over time to explicitly prohibit discrimination against sexual minorities, prejudice and discrimination toward sexual minorities in Mongolian society remain prevalent (4-6). The pervasive social stigma and discrimination experienced by MSM from their surroundings, family members, law enforcement officers, and healthcare professionals considerably hinder their ability to engage in effective HIV and sexually transmitted infection (STI) prevention practices, access essential health services, and obtain the medical care they need (4,5).

In Ulaanbaatar, the Youth for Health Center NGO (hereafter referred to as the Mongolian NGO) has been conducting sexual health awareness activities, particularly HIV and STI prevention, health education, and human rights advocacy for gay, bisexual men and transgender women since the 2000s (7,8). They have collaborated with health professionals involved in HIV care to provide services such as confidential testing, treatment, and counseling (7,8). They launched the Mongolian version of the awareness program "We are Living Under the Same Sky" (LUSS) in 2011, following their participation in the "Living Together Project", developed by Japanese community-based organizations (9). Both programs have been implemented sharing the same message, which aimed to reduce stigma associated with HIV/AIDS and promote HIV testing in the gay community (9,10).

An evaluation study by Takaku *et al.* (9) showed that participation in the LUSS program was associated with awareness of HIV infection, discussions about HIV testing, and HIV testing behavior among MSM.

The LUSS program was suggested for continuous implementation in conjunction with new prevention interventions (9). In response to these results, the Mongolian NGO started new prevention programs, such as disseminating Undetectable = Untransmittable (U=U) messages and promoting pre-exposure prophylaxis (PrEP). We conducted a study to identify the relationship between the LUSS program and the recognition of U=U and need for PrEP among MSM in Mongolia. These findings are expected to contribute to the development of sustainable activities by Mongolian NGOs aimed at achieving the global goal of ending AIDS (11).

2. Study design

2.1. Survey methods

An internet survey was conducted by setting up an independent survey site on the web using an anonymous, self-administered questionnaire in the Mongolian language from May to August 2024. Using a network of outreach staff members of the Mongolian NGO, recruitment for the questionnaire survey was conducted through social networking sites such as Facebook and gay dating sites. The purpose of the survey and requests for cooperation were posted on the top page of the survey site. Those who read the request and answered "male" or "other" could proceed to the questionnaire page, whereas those who answered "female" could not proceed to the questionnaire page. The survey was administered once per person; therefore, those who responded for the first time were considered to be eligible.

For the survey site, respondents' data communication was encrypted using a Secure Sockets Layer. Access to the collected data was provided to those with administrator ID.

2.2. Participants

Mongolian men aged ≥ 18 years who responded to this survey for the first time and had experienced sexual intercourse with men were included in the analysis. In total, 274 men responded to all questions in the web-based survey; however, those aged < 18 years, who had never had sexual intercourse with a man, or had responded to the questionnaire more than twice were excluded from the study. The final analysis included 223 men.

2.3. Variables

Questions on basic demographics, coming-out experience, LUSS participation, and five HIV prevention outcomes, including condom use during anal sex with men in the past 6 months, the number of male sex partners in the past 6 months, HIV testing

behavior in the past year, recognition of U=U, and need for PrEP, were used for the survey (11-13). Recognition of U=U message and need for PrEP were selected as the Mongolian NGO activity outcomes in this study. The basic demographics included age, place of residence, sexual orientation, education, employment, and marital status.

Regarding the experience of participating in the LUSS program, those who had either participated in a reading event or watched a LUSS film were considered to have participated in the program, whereas those who had neither were considered to have not participated.

2.4. Statistical analyses

Two outcomes for the Mongolian NGO activities were used to examine their effectiveness, and each of which was used as the objective variable for the chi-square test and multiple logistic regression analysis. The LUSS participation experience, coming-out experience, five combination prevention outcomes, and basic demographics were used as independent variables. The significance level was set at 10%, and independent variables that were found to be significantly different according to the chi-square test were included in the multiple logistic regression analysis. Three respondents who reported an HIV-positive status were excluded from the need for PrEP analysis. SPSS Statistics for Windows version 22.0 (IBM Corp., Armonk, NY, USA) was used for the statistical analysis.

2.5. Ethical considerations

The methodology and questions for this survey were developed in consultation with the staff of the Mongolian NGO. The questionnaire was anonymous and did not include information that could lead to identification of research participants. An explanatory statement clearly stating the purpose of the study, strict adherence to privacy, handling of research data, and voluntary participation and responses was placed on the top page of the website. Only those who read and agreed to these conditions were allowed to answer the questions. Finally, each individual was considered to have participated in the study after submitting all responses. This study was approved by the Research Ethics Committee of the Nagoya City University Graduate School of Nursing (approval number: 23049) and conformed to the provisions of the Declaration of Helsinki (revised in 2013).

3. Key findings of this survey

3.1. Basic demographics of the research participants

Among the 223 respondents in the analysis, 201 (90.1%) reported living in Ulaanbaatar (Table 1). The most

common age group was 18–29 years ($n = 141$, 63.2%). The sexual orientations were gay (64.6%), bisexual (29.6%), and other, including transgender women (5.8%). In total, 159 (71.3%) had a vocational school degree or higher, and 192 (86.1%) were employed. Most respondents were single (94.2%). Sixty-three (28.3%) participated in LUSS, and 160 (71.7%) did not.

3.2. Multiple logistic regression for outcomes of the

Table 1. Basic demographics of the research participants ($n = 223$)

Variables	n (%)
Residence	
Ulaanbaatar	201 (90.1)
Other than Ulaanbaatar	22 (9.9)
Age group	
< 29 years	141 (63.2)
30–39 years	67 (30.0)
> 40 years	15 (6.7)
Employment	
Employed	192 (86.1)
Unemployed	31 (13.9)
Marital status	
No	210 (94.2)
Yes	13 (5.8)
Final education	
Junior high school	37 (16.6)
Senior high school	27 (12.1)
Diploma/trade/vocational certificate	19 (8.5)
Undergraduate degree	120 (53.8)
Postgraduate degree	20 (9.0)
Sexual orientation or gender identity	
Gay	144 (64.6)
Bisexual	66 (29.6)
Other	13 (5.8)
Have you been to a "We are Living Under the Same Sky" event?	
Yes	63 (28.3)
No	160 (71.7)

Mongolian NGO activities and LUSS participation

The tendency to recognize U=U was stronger among those who had participated in LUSS than among those who had not, with an adjusted odds ratio (AOR) of 3.32 (95% confidence interval [CI]: 1.69–6.54) (Table 2). Those who had a coming-out experience were more likely to recognize U=U than those who did not (AOR = 2.90, 95% CI: 1.16–7.25). In terms of marital status, those who were married were more likely to recognize U=U (AOR = 6.87, 95% CI: 1.99–23.78) than those who were single.

Regarding PrEP, those who participated in LUSS had a greater awareness of the need for PrEP than those who did not participate in LUSS (AOR = 2.00, 95% CI: 1.04–3.85). Those who had sex with 10 or more men in the past 6 months had a greater awareness of the need for PrEP than those who had sex with fewer than 10 men (AOR = 3.03, 95% CI: 1.10–8.33).

4. LUSS program and its impact on U=U recognition and PrEP awareness

This study's findings demonstrated that the LUSS program was associated with recognition of the U=U message and PrEP need among MSM in Mongolia. Multivariate analysis indicated that recognition of the U=U message was associated with having participated in the LUSS program, having a coming-out experience, and being married. A positive correlation was observed between U=U recognition and LUSS participation.

In Mongolia, 39% of PLHIV do not know their HIV-positive status, and the antiretroviral (ARV) treatment access rate is 83%, with 93% remaining below the viral load detection limit (14). Despite progress made, access rate for ARV treatment remains

Table 2. Multiple logistic regression for outcomes of the Mongolian NGO activities

Variables	I know U=U very much		I want to use PrEP before sex	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Marital status				
No	1	1	–	–
Yes	3.83 (1.23–11.94)**	6.87 (1.99–23.78)***	–	–
Have you disclosed your sexual orientation to anyone?				
No	1	1	1	1
Yes	2.82 (1.19–6.67)**	2.90 (1.16–7.25)**	1.77 (0.95–3.29)*	1.61 (0.85–3.03)
Have you been to a "We are Living Under the Same Sky" event?				
No	1	1	1	1
Yes	3.05 (1.61–5.77)***	3.32 (1.69–6.54)****	2.11 (1.11–3.99)**	2.00 (1.04–3.85)**
How many men did you have sex in the past 6 months?				
< 10	–	–	1	1
> 10	–	–	3.13 (1.11–8.33)**	3.03 (1.10–8.33)**

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$. Employment status, final education, HIV testing experience in the past year, and consistent condom use during anal sex showed no association. Abbreviations: NGO, non-governmental organization; HIV, human immunodeficiency; U=U, Undetectable=Untransmittable; PrEP, pre-exposure prophylaxis; OR, odds ratio; AOR, adjusted odds ratio; CI, confidence interval.

stagnant compared with that of developed countries (14). The inconsistent supply of ARV drugs makes it challenging for healthcare providers to communicate U=U messages publicly. Under these circumstances, the Mongolian NGO emphasized U=U as essential information for MSM in the LUSS program. The U=U message is likely to have spread among the MSM community because of its affinity with the objectives of the LUSS program. Recognition of U=U was also associated with coming-out experiences and marital status of respondents. This association may be related to prejudice against HIV and sexual minorities in the country (15).

In the present study, 60% of respondents showed a willingness to use PrEP. The need for PrEP was associated with participation in the LUSS program. Prior to obtaining approval from the Mongolian Ministry of Health, the Mongolian NGO promoted PrEP as a tool for HIV prevention and disseminated information about PrEP in LUSS while considering the stigma surrounding HIV. The findings also indicated an association between PrEP need and MSM who had engaged in active sexual behaviors. The results suggest that the PrEP need is high among MSM, especially in those who are sexually active, and that PrEP may be an effective prevention choice in combination with prevention behavior.

5. Context and role of the LUSS program in Mongolian society

The LUSS program was developed by members of the MSM community, who faced stigma in society. They continue to empower their community by promoting HIV knowledge and encouraging adoption of preventive behaviors.

The results showed that LUSS can also be incorporated into new prevention interventions targeting MSM. LUSS, predicated on the notion of reducing stigma toward sexual minorities and HIV, has the potential to effectively raise awareness among MSM, as well as other populations such as youth, educators, and healthcare providers. Expansion of the target population of LUSS has potential to reduce stigma in Mongolian society and improve access to HIV testing and healthcare for MSM.

6. Study limitations and future directions

This study had some limitations. First, this was a cross-sectional survey that captured the phenomenon in the target population at one point in time. Second, this study used a self-administered questionnaire. Sexual behavior and HIV testing are privacy issues, and it has been pointed out that participants tend to provide more socially desirable responses (16). Therefore, actual infection risk behaviors may be higher than that reported

in this study. Third, there is a lack of representativeness of participants. Participants were recruited from a network of Mongolian NGO outreach workers through personal referrals and social networking services. Therefore, it is possible that the participants were more likely to be close to network members of Mongolian NGO. Future evaluations should use research designs that overcome these limitations.

The LUSS program has demonstrated an impact on increasing recognition of the U=U message and PrEP need among MSM. The study's findings indicate that LUSS has potential application in new prevention interventions and may be feasible to implement in a wider target population. However, because of the limited number of study subjects in this study, a larger-scale and more representative study should be conducted in the future to assess HIV prevention intervention activities of Mongolian NGO.

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