

# Characteristics of Socio-demography among Male Sex Worker (MSW) Who Serve Men and Their Knowledge of HIV/AIDS in Pandalungan-Agricultural area of Jember, Indonesia

DICKY ENDRIAN KURNIAWAN, ANISAH ARDIANA

Faculty of Nursing, Universitas Jember, Indonesia

Correspondence to Dicky Endrian Kurniawan, Kalimantan Street No. 37, Jember, East Java, Indonesia, email: dickyendrian@unej.ac.id

## ABSTRACT

**Background :** An increasing trend of Male Sex Male (MSM) who serve men commercially might increase HIV transmission number. Socio-demography background and knowledge about HIV/AIDS can influence their sexual activities. No data described the characteristics of socio-demography background and knowledge about HIV/AIDS, especially in Jember.

**Aim:** To identify characteristics of socio-demography and knowledge of HIV/AIDS among male sex worker (MSW) who serve men in Jember, Indonesia.

**Method:** This study used a descriptive survey method with a cross-sectional approach. A hundred Male Sex Worker (MSW) who serve Men were collected by using purposive sampling following this study. Data were collected by a characteristics of socio-demography and knowledge of HIV/AIDS questionnaire and analyzed with an exploratory descriptive approach.

**Result:** The median age of respondents is 28 (18-45) years old, most of respondents have junior-senior school level education (88%), mostly do not have a permanent job (54%), some are still students (13%), and many are single (65%). Knowledge of HIV / AIDS varies, but most of them have inadequate to enough knowledge (76%).

**Conclusion:** A male sex worker who serves men have arange of social backgrounds. Their Knowledge of HIV/AIDS was inadequate. Multisector programs are needed to fight HIV transmissions, such as the sector of health, economic, and social.

**Keyword:** Male sex worker, socio-demography, knowledge of HIV/AIDS

---

## INTRODUCTION

The worrying phenomenon globally and Indonesia is the increasing number of HIV (Human Immunodeficiency Virus) infection<sup>1</sup>. The number of HIV / AIDS cases in Indonesia was increased every year. One of the populations defined at risk is Men Sex with Men (MSM). In 2018, HIV infection among MSM groups was 11.630 (22%) and ranked the second most<sup>2</sup>.

According to previous studies, about 60% of MSM reported having unprotected anal sex with HIV-negative partners or whose HIV status was unknown (Cloete et al., 2008). Another study showed that 96% of HIV-positive MSM in Jember still have sex with men<sup>3</sup>. This phenomenon will increase, not reduce HIV transmission<sup>4</sup>, especially in the MSM population.

Nowadays, there are MSM serving sex commercially. MSM not only sells sex, but some also buy sex. MSM who sell sex is approximately 49% to both men and women<sup>5</sup>. Information that characterizes commercial practices, places to serve, and their needs are limited<sup>6</sup>. A preliminary study through an interview with a member of a non-governmental organization (NGO) engaged in HIV/AIDS; there were many MSM (both HIV-positive and negative) in Jember selling sex. The problem is, no data describes the characteristics of MSM who become sex workers in Jember, including their knowledge about HIV/AIDS. This phenomenon also can increase HIV transmission to both MSM who serve sex or their customers.

This study was to identify characteristics of socio-demography and knowledge of HIV/AIDS among male sex worker (MSW) who serve men in Jember, Indonesia.

## METHOD

This study used a descriptive-survey method with a cross-sectional approach. The number of respondents in this study was 100 male sex worker who serve men in Jember, Indonesia and were collected by using purposive sampling. Researchers can reach respondents with the help of NGO, LASKAR. The study was conducted in September – October 2020. Data were collected using a socio-demography questionnaire<sup>1,3,7,8,9</sup> and knowledge of HIV/AIDS questionnaire (developed and tested by a previous researcher<sup>10</sup>). The data were analyzed with a descriptive-explorative approach. Ethical clearance was declared by the Komite Etik Penelitian Kesehatan/Health Research Ethics Committee, Faculty of Nursing, Universitas Jember, with registration number 12/UN25.1.14/KEPK/2020.

## RESULT

According to Table 1, the respondents' median age at the time of the study was 27 years old, ranging from 17 to 38 years old. When they first provided same-sex services, the respondents' median age was 18, with the youngest being 11 years old and the oldest 27 years old. The majority of respondents in this study were originally from rural areas (83%). Almost all respondents are Moslem (96%), with most respondents describing themselves as Javanese (72%) and followed by Madurese (21%). Most respondents have a high school education, which most graduates are from senior high school (68%) and junior high school (20%). More than half of respondents were unmarried (65%), but some were married (23%). The respondents'

main occupation (apart from serving same-sex sex) is almost half of them being freelancers (47%), but in the other cases, 13% are still students. Most respondents answer does not have health insurance(74%), either from the government or the private sector.

Table 2 showed that although serving same-sex sex, only a small proportion of respondents defined their sexual orientation as gay (36%) because the majority were bisexual (64%). When serving same-sex, the position of the respondents varied, some being top (45%), bottom (18%), and versatile (37%). This study shows that most respondents serve same-sex gender (71%), although some serve women. Most respondents promote themselves through social media (78%). The places commonly used for gathering to sell sex in a sequence are in their house (63%), hotels (58%), around the campus (19%), massage places/beauty salons (18%), and malls (12%). After getting customers, most of the respondents served sex at the hotel/inn (77%), followed by the respondent's living place (48%), and followed by the customer's house (45%).

Almost half of the respondents' do not always use a condom when they have sex (46%). Meanwhile, 3% of respondents have HIV positive, and 10% not said the HIV test result, but 33% of respondents still untested.

According to Table 3, the level of respondents' knowledge still varies, starting from a small number of respondents having an adequate level of knowledge (score > 76 out of 100) as much as 24%, most of them are sufficient (score 56 to <76) as much as 42%, and the rest are less (score < 56) as much as 34%. If analyzed based on Table 4, the mean score of respondent's knowledge is 21, and the most frequent score is 26, with the lowest score of 12 and the highest of 28 (from the questionnaire value 0-34). This score shows that most respondents value the questionnaire's median score or approach the maximum score. Some parts are still not understood by respondents, such as HIV transmission and the prevention efforts to protect them from HIV infection. The respondent's knowledge of the meaning, causes, symptoms, and people with HIV / AIDS was good enough

Table 1: Knowledge of HIV/AIDS based on Characteristics of Socio-demography among Male Sex Worker (MSW) Who Serve Men (n=100)

Variables	Level of Knowledge			f (%)
	High (%)	Medium (%)	Low (%)	
<b>Current age</b> (years old) Median (min-max) = 28 (18-45)				
<b>First time sells sex</b> (years old) Median (min-max) = 18 (11-27)				
<b>Origin</b>				
Urban area	2 (2)	9 (9)	6 (6)	17 (17)
Rural area	22 (22)	33 (33)	28 (28)	83 (83)
<b>Last formal education</b>				
Undone elementary school	0 (0)	2 (2)	2 (2)	4 (4)
Elementary school	1 (1)	0 (0)	0 (0)	1 (1)
Junior high school	7 (7)	8 (8)	5 (5)	20 (20)
Senior high school	15 (15)	29 (29)	24 (24)	68 (68)
Higher education	1 (1)	3 (3)	3 (3)	7 (7)
<b>Occupation</b> (apart from selling sex)				
Unemployment	0 (0)	4 (4)	3 (3)	7 (7)
Working with fixed salary	2 (2)	3 (3)	4 (4)	9 (9)
Working with unfixed salary	4 (4)	10 (10)	10 (10)	24 (24)
Freelance	18 (18)	15 (15)	14 (14)	47 (47)
Student	0 (0)	10 (10)	3 (3)	13 (13)
<b>Religion</b>				
Moslem	24 (24)	41 (41)	31 (31)	96 (96)
Christian	0 (0)	1 (1)	3 (3)	4 (4)
<b>Ethnic</b>				
Javanese	23 (23)	32 (32)	17 (17)	72 (72)
Madurese	1 (1)	9 (9)	11 (11)	21 (21)
Osing people	0 (0)	1 (1)	5 (5)	6 (6)
Chinese	0 (0)	0 (0)	1 (1)	1 (1)
<b>Marital status</b>				
Married	5 (5)	6 (6)	12 (12)	23 (23)
Single	18 (18)	33 (33)	14 (14)	65 (65)
Divorced	1 (1)	3 (3)	8 (8)	12 (12)
<b>Health insurance</b>				
BPJS/Government	3 (3)	13 (13)	6 (6)	22 (22)
Non-BPJS/Non-Government	0 (0)	1 (1)	3 (3)	4 (4)
No insurance	21 (21)	28 (28)	25 (25)	74 (74)
<b>Knowledge of HIV/AIDS</b>	<b>24 (24)</b>	<b>42 (42)</b>	<b>34 (34)</b>	<b>100 (100)</b>

Table 2: Knowledge of HIV/AIDS based on Sexual Aspects and HIV Status among Male Sex Worker (MSW) Who Serve Men (n=100)

Variables	Level of Knowledge			f (%)
	High (%)	Medium (%)	Low (%)	
<b>Sex orientation</b>				
Homosexual	14 (14)	17 (17)	5 (5)	36 (36)
Bisexual	10 (10)	25 (25)	29 (29)	64 (64)
<b>Role during sexual activities</b>				
Top	11 (11)	20 (20)	14 (14)	45 (45)
Bottom	7 (7)	6 (6)	5 (5)	18 (18)
Versatile	6 (6)	16 (16)	15 (15)	37 (37)
<b>Client</b>				
Only men	14 (14)	31 (31)	26 (26)	71 (71)
More men than women	3 (3)	4 (4)	5 (5)	12 (12)
More women than men	7 (7)	7 (7)	3 (3)	17 (17)
<b>Promotion method</b>				
Blog/website	1 (1)	0 (0)	0 (0)	1 (1)
Social media	9 (9)	35 (35)	34 (34)	78 (78)
Fellow other sex seller	14 (14)	6 (6)	0 (0)	20 (20)
Other	0 (0)	1 (1)	0 (0)	1 (1)
<b>Gathering place to sell sex (more than one answer allowed)</b>				
Mall/minimarket	-	-	-	12 (12)
Bar/diskotik/café/restaurant/movie				3 (3)
Massage/beauty care/sport center				18 (18)
House/living place				63 (63)
Hotel/guest house				58 (58)
Train station				1 (1)
Campus area				19 (19)
<b>Place to serve sex (more than one answer allowed)</b>				
Road side/garden/outdoor	-	-	-	6 (6)
Massage/beauty care/sport center				12 (12)
Customer house				45 (45)
Living place				48 (48)
Hotel/guest house				77 (77)
Internet center				1 (1)
<b>Condom use when serving sex</b>				
Always	19 (19)	21 (21)	14 (14)	54 (54)
Often	0 (0)	14 (14)	12 (12)	26 (26)
Rarely	5 (5)	5 (5)	8 (8)	18 (18)
Never	0 (0)	2 (2)	0 (0)	2 (2)
<b>HIV status</b>				
Positive	1 (1)	1 (1)	1 (1)	3 (3)
Negative	20 (20)	21 (21)	13 (13)	54 (54)
Choose no answer	3 (3)	2 (2)	5 (5)	10 (10)
Untested	0 (0)	18 (18)	15 (15)	33 (33)
<b>Knowledge of HIV/AIDS</b>	<b>24 (24)</b>	<b>42 (42)</b>	<b>34 (34)</b>	<b>100 (100)</b>

Table 3: Knowledge of HIV/AIDS among Male Sex Worker (MSW) Who Serve Men based on Question Indicators (n=100)

Indicators	Median	Min-Max	Mode	Q1	Q3
Definition of HIV/AIDS	2	1-2	2	2	2
Cause of HIV/AIDS	2	0-3	2	2	3
Transmission of HIV	11	6-17	13	9	13
Sign/symptom HIV/AIDS	3	0-5	4	2	4
Prevention of HIV/AIDS	2	0-4	1; 2	1	3
Knowledge about PLHIV	1	0-3	2	1	2
<b>Cummulative score</b>	<b>21</b>	<b>12-28</b>	<b>26</b>	<b>19</b>	<b>25</b>

**DISCUSSION**

This study was to identify characteristics of socio-demography among male sex worker (MSW) who serve men and their knowledge of HIV/AIDS in Pandalungan area of Jember, Indonesia. Jember is an area mostly plantations/agriculture with various ethnic groups and cultures (the Pandalungan community). There are at least

two ethnicities in Jember, such as Javanese and Madurese. Even so, the cultural identity of the Pandalungan can be said to be mixed; it is neither genuinely Javanese nor truly Madurese<sup>11</sup>.

Jember could be divided into two region, central/urban area (city area) and rural area (village area). Urban areas are characterized as residential/central governmental sectors, while rural areas are characterized as

agricultural<sup>12</sup>. The majority of respondents in this study originally from rural areas, comparing to urban area. From this study, most respondents describing themselves as Javanese and followed by Madurese. The results were evidence that most ethnicities in the Pentalungan area of Jember are Javanese and Madurese.

According to the study, the respondents' age at the time of the study was young adults, ranging from 17 to 38 years old. This age group is a productive group<sup>13</sup> with a long future. They need to be noticed, especially on HIV transmission. The problem was found is the most respondents' time first provided same-sex services at teenagers age, with the youngest being 11 years old and the oldest 27 years old. It may relate to the low educational background and information about HIV/AIDS. Most respondents have a high school education, which most graduates are from middle school level.

The respondents' main occupation (apart from serving same-sex sex) is almost half of them being freelancers (47%), but in the other cases, 13% are still students. A sex worker is a job where a person uses or exploits his body to get money because of economic factors<sup>14</sup>. From the previous study, the economic condition in the rural area of Jember still poor; even developmental is ongoing and has an opportunity to increase<sup>12,15</sup>. Freelancers or they do not have an occupation may relate to their decision to sell sex to fulfill their daily needs. This analysis was strengthened with more than half of respondents were unmarried (65%), but some were married (23%). Marital status also influences someone's decision to feel free to do anything because they do not have a wife/life partner as the guardian.

The result showed that although serving same-sex gender, only a small proportion of respondents defined their sexual orientation as gay because the majority were bisexual. In Indonesia, male sex workers are referred to as "Gigolo". There are two categories of "Gigolo", namely transvestites and garcons. Transvestite has characteristics such as female or gay serving fellow men. Meanwhile, garcons have masculine characteristics and less known sexual orientation. However, this cannot be generalized<sup>16</sup>. When serving same-sex, the position of the respondents varied, some being top, bottom, and versatile. This variety of roles can also impact HIV transmission. Versatile is at greater risk of contracting HIV because of his dual role as a man or woman during intercourse through anal. Men who have a receptive role (bottom) will have a higher risk of experiencing HIV/AIDS infection than men who have an insertive role (top). The insertive role will cause injury or inflammation of the anal to satisfy a partner. From the wound, HIV will quickly enter through the wound and infect. Several findings increase HIV transmission and transmission potential among male sex workers, including biological, behavioral, and structural determinants<sup>6</sup>. Sexual roles among MSM who serve sex need to be considered to reduce the risk of HIV transmission.

This study shows that most respondents serve same-sex gender (71%), although some serve women. MSM can sell sex to both men and women. MSM not only sells sex, but some buy sex. In previous study, about 49% of MSM who do sell sex are both men and women<sup>6</sup>. It may relate to their sexual orientation. Selling sex to both men and

women can increase HIV transmission compared to focusing only on men. The potential for transmission is more risked when selling to men and women.

The places commonly used for gathering to sell sex in a sequence are in their house (63%), hotels (58%), around the campus (19%), massage places/beauty salons (18%), and malls (12%). After getting customers, most of the respondents served sex at the hotel/inn (77%), followed by the respondent's living place (48%), and followed by the customer's house (45%). A previous study showed that many sex workers served their customers in hotel<sup>16</sup>. The hotel is a safe place to serve sex because the hotel's rule may not become strict.

Most respondents promote themselves through social media (78%). According to this study, the most social media they used is WhatsApp, Hornet, FaceBook, and MiChat, but not limited to Twitter, Instagram, WeChat, Grindr, Tantan, and Blued. Social media can connect one person to another. Most of the respondents' social media is social media to find partners, especially in the MSM group<sup>17</sup>. The use of social media makes it easier for them to promote themselves and find customers.

Almost half of the respondents' do not always use a condom when they have sex (46%). Meanwhile, 3% of respondents have HIV positive, and 10% not said the HIV test result, but 33% of respondents still untested. Male sex workers, regardless of their sexual orientation, mostly offer sex to men and rarely identify as sex workers. This group is defined as the population not served by current HIV prevention, treatment, and care services. Special efforts are needed to make these services available for public health and human rights. Evidence-based and human rights advocacy services dedicated explicitly to male sex workers are needed to improve men's health outcomes and those in their sexual networks<sup>6</sup>. Even less than half of them untested; they are did not know their status about HIV. The unknown status of HIV may influence their awareness to use a condom as preventive action.

In this study, the level of respondents' knowledge still varies, starting from a small number of respondents having an adequate level of knowledge (score > 76 out of 100) as much as 24%, most of them are sufficient (score 56 to <76) as much as 42%, and the rest are less (score < 56) as much as 34%. The score shows that most respondents value the questionnaire's median score or approach the maximum score. Some parts are still not understood by respondents, such as HIV transmission and the prevention efforts to protect them from HIV infection. The respondent's knowledge of the meaning, causes, symptoms, and people with HIV / AIDS was good enough. According to the previous study, the respondents' lack of understanding of HIV transmission can affect their preventive behavior through safe sexual activity<sup>18</sup>.

According to respondents' sex orientation, it is found that the bisexual group has inadequate knowledge, comparing to the gay group. Most of the respondents with the top and versatile roles did not have adequate knowledge. From respondents' origin, both respondents in urban and rural areas have inadequate to sufficient knowledge level. From educational background, most of their knowledge is still insufficient to an adequate level. In the student group, there was still inadequate knowledge of

HIV/AIDS. When viewed from the ethnicity, the respondents who described themselves as Javanese had sufficient to adequate understanding. Most of the single status, they have enough to inadequate knowledge. Similar to respondents who do not have health insurance, most of them have sufficient to inadequate knowledge. This phenomenon can have an impact on the use of condoms as an effort to prevent HIV transmission. It is evident that those who have inadequate knowledge still do not comply with using condoms. As a problem, many respondents have not tested for HIV, and according to their knowledge, they are still inadequate. It could potentially increase HIV transmission in the male sex worker group who serve men.

In contrast, although most respondents' knowledge is not sufficient enough, most respondents have always tried to use condoms while serving sex. These efforts could prevent further increases in the HIV rate, especially in the male sex worker population. Prevention of HIV transmission can be done through the efforts of "ABCDE" (Abstinence, Be Faithful, Condom, No Drug, and Education)<sup>7</sup>. Using condom when have a sex can reduce more than 90% risk of HIV transmission<sup>19,20</sup>. Consistent use of condoms during anal sex among MSM is highly recommended<sup>21</sup>. This result is useful information on HIV transmission prevention behavior in male sex workers who serves men.

The good information that can be found is that most of the respondents who carry out promotions through fellow sex sellers have sufficient and adequate knowledge. Health providers can use this phenomenon to promote the prevention of HIV transmission through associations of fellow sex sellers.

## CONCLUSION

Male Sex Worker (MSW) Who Serve Men have varied social backgrounds, such as, most of them have middle level education, do not have permanent jobs, some are still students, and many are not married. There are still many MSW who have not tested for HIV. Knowledge of HIV / AIDS among Male Sex Workers (MSW) Who Serve Men also varies, but most of them have inadequate knowledge. However, most of them have tried to use condoms when serving their customers.

Some efforts are needed to fight HIV transmission among male sex workers who serve men through adequate information dissemination, such as health education/promotion. As health providers, we must improve their condom use awareness through counseling or assisting, so they are committed to always using condoms when serving sex. Multisector programs are also needed to fight HIV transmission among male sex workers who serve men, such as the sector of health, economic sector, and social.

**Acknowledgement:** This research was supported by LP2M (Lembaga Penelitian dan Pengabdian kepada Masyarakat) Universitas Jember, Indonesia, in the Research Grant Program (Penelitian Dosen Pemula) in 2020. Many thanks to all respondents, Yayasan LASKAR and others who involved in this research.

## REFERENCES

1. Kurniawan DE, Sulistyorini L. Self-Disclosure of HIV Status among HIV Positive-MSM (Men who Have Sex with Men) to Their Male Sexual Partnerin Pandalungan area of Jember, Indonesia. *Pakistan J Med Heal Sci*. 2019;13(3):974–7.
2. Ministry of Health of Indonesia. *Situasi Umum HIV/AIDS dan Tes HIV*. Jakarta; 2018.
3. Kurniawan DE. Keterbukaan Diri dan Perilaku Pencegahan Penularan HIV/AIDS pada ODHA-LSL di Wilayah Perkebunan/Pertanian Pandalungan di Jember. *Jember*; 2019.
4. O'Byrne P, Phillips JC, Kitson C, Bryan A. HIV status and sexual behaviour among gay men in Ottawa: considerations for public health. *BMJ Open*. 2014;4.
5. Sidjabat FN, Setyawan H, Hadisaputro S. Lelaki Seks Lelaki: Aktivitas Seksual dan Bagaimana Mereka Memulainya? *J IKESMA*. 2016;12(1):65–76.
6. Baral SD, Friedman MR, Geibel S, Rebe K, Bozhinov B, Diouf D, et al. Series HIV and sex workers 5 Male sex workers : practices , contexts , and vulnerabilities for HIV acquisition and transmission. 2015;385.
7. KEMENKES. Program Pengendalian HIV AIDS dan PIMS di Fasilitas Kesehatan Tingkat Pertama: Petunjuk Teknis [Internet]. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit. Jakarta; 2016. 1-48 p. Available from: [http://siha.depkes.go.id/portal/files/\\_upload/4/{\\_}{\\_}Pedoman{\\_{\\_}Fasyankes{\\_{\\_}Primer{\\_{\\_}ok.pdf](http://siha.depkes.go.id/portal/files/_upload/4/{_}{_}Pedoman{_{_}Fasyankes{_{_}Primer{_{_}ok.pdf)
8. KEMENKES. *Indonesia health profile at 2018*. Jakarta; 2019. 1-207 p.
9. Petrik S. Questionnaire for sex workers [Internet]. 2020 [cited 2020 Mar 10]. Available from: [https://www.surveio.com/survey/d/sexworkers?fbclid=IwAR1alz4VCIIHjplLdaDT57JU9xVIA0uLHskdW\\_HeZ6PEXILB9PVO0BVBsXo](https://www.surveio.com/survey/d/sexworkers?fbclid=IwAR1alz4VCIIHjplLdaDT57JU9xVIA0uLHskdW_HeZ6PEXILB9PVO0BVBsXo)
10. Mukti GA. Pengaruh Peer Education Terhadap Pengetahuan dan Sikap Remaja Tentang HIV/AIDS di SMAN 1 Kretek Bantul Tahun 2018. *Politeknik Kesehatan Kementerian Kesehatan Yogyakarta*; 2018.
11. Zoebazary MI. *Orang Pandalungan: Penganyam kebudayaan di Tapal Kuda* [Internet]. Jember: Paguyuban Pandhalungan Jember; 2017. Available from: <https://repository.unej.ac.id/handle/123456789/84097>
12. Diartho HC, Lestari EK, Yunitasari D, Luthfi A, Muslihatinningsih F. Potential Developmet Based On Rural Area In Southern Region Of East Java Province (Study In Jember Regency). *Int J Sci Technol Reasearch*. 2020;9(1):3373–7.
13. Pradnyani PE, Wibowo A, Mahmudah. The Effects of Socio-demographic Characteristics on Indonesian Women's Knowledge of HIV / AIDS: A Cross-sectional Study. *J Prev Med Public Heal*. 2019;52:109–14.
14. Ramadhan S, Riswanda, Indriyany IA. Redefinisi Relasi Kekuasaan: Fenomena Industri Seks Komersial di Kota Serang. In: *Prosiding Seminar Nasional Prodi Ilmu Pemerintahan*. 2018. p. 200–14.
15. Rondhi M, Pravitasari AP, Handini VT, Sunartomo AF. Data on agricultural and nonagricultural land use in peri-urban and rural area. *Data Br* [Internet]. 2019;23:103804. Available from: <https://doi.org/10.1016/j.dib.2019.103804>
16. Sarmini S, Lutfaidah A, Prastuti AE. Space and Culture of Exclusive Gigolo Experience in Surabaya. *Society*. 2020;8(1):64–82.
17. Young SD, Szekeres G, Coates T. The Relationship between Online Social Networking and Sexual Risk The Relationship between Online Social Networking and Sexual Risk Behaviors among Men Who Have Sex with Men (MSM). *PLoS One*. 2013;8(5):e62271.
18. Bruce E, Bauai L, Sapuri M, Kaldor JM, Fairley CK, Keogh LA. HIV knowledge, risk perception, and safer sex practices among female sex workers in Port Moresby, Papua New

- Guinea. *Int J Women's Heal.* 2011;3:53–61.
19. Marfatia YS, Pandya I, Mehta K. Condoms: Past, present, and future. *Indian J Sex Transm Dis AIDS* [Internet]. 2015;36(2):133–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4660551/>
20. Remis RS, Alary M, Liu J, Kaul R, Palmer RWH. HIV Transmission among Men Who Have Sex with Men due to Condom Failure. *PLoS One.* 2014;9(9):e107540.
21. WHO. Prevention and treatment of hiv and other sexually transmitted infections among men who have sex with men and transgender people. Switzerland: World Health Organization; 2011