

A Systematic Review Study on Prevalence, Determinants, and Risk Factors of HIV/AIDS among Pacific Countries

Masoud Mohammadnezhad^{1*}, Falakika Pasikala Fetuu², Tamara Mangum³, Julie Qilabasa Alakalia⁴, Joshua Jeffrey Lucas⁵

¹Discipline of Health Promotion, Department of Public Health & Primary Health Care, Fiji National University, Suva, Fiji

²Department of Nursing, Ministry of Health, Nuku'alofa, Tonga

³Discipline of Emergency Health Management, Department of Public Health & Primary Health Care, Fiji National University, Suva, Fiji

⁴Department of Public Health, Ministry of Health, Honiara, Solomon Islands

⁵Department of Public Health, Ministry of Health, Weno, Federated States of Micronesia

Email: *masoud.m@fnu.ac.fj

How to cite this paper: Mohammadnezhad, M., Fetuu, F.P., Mangum, T., Alakalia, J.Q. and Lucas, J.J. (2016) A Systematic Review Study on Prevalence, Determinants, and Risk Factors of HIV/AIDS among Pacific Countries. *World Journal of AIDS*, 6, 218-237.

<http://dx.doi.org/10.4236/wja.2016.64024>

Received: December 9, 2016

Accepted: December 26, 2016

Published: December 29, 2016

Copyright © 2016 by authors and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Introduction: The Human Immunodeficiency Virus (HIV) is known as the biggest public health challenge in both developed and developing countries. This systematic review study is carried out to assess the prevalence, determinants, and risk factors of HIV/AIDS in Pacific countries. **Methods:** This systematic review study applied Cochrane Library Guideline to search, review, apprise, and analyze the articles related to HIV/AIDS. Both qualitative and quantitative articles were published between 2000 to 2016, in English language and were published in databases such as MEDLINE/PubMed, CINAHL, ISI Web of Science, EBSCO, ProQuest, Springer and PyschInfo. A data extraction sheet was made and a descriptive statistic was applied to analyze the data. **Results:** Fifty-one studies met the study inclusion and exclusion criteria. The United States had the highest frequency of studies on HIV/AIDS (30 studies). The overall prevalence of HIV/AIDS among Pacific islanders was between 1 to 14 percent. The most common determinants of community-based studies were ethnicity and gender, while they were age and ethnicity in the school-based studies and age in the hospital-based studies. The highest risk factors for HIV were substance abuse, number of sexual partners and unprotected sex. **Conclusion:** The results of the study highlighted the main determinants and risk factors, which provide a framework for public health experts and program planners to focus on different aspects of HIV/AIDS. As HIV/AIDS is a culturally sensitive health issue, developing preventive strategies considering the factors determined in this study will be strongly advised.

Keywords

HIV/AIDS, Prevalence, Determinates, Risk Factors, Pacific

1. Introduction

HIV/AIDS is the main cause of the death and disease burden for parts of the world, particularly eastern and southern Africa [1] [2] [3]. Globally, HIV prevalence rate is 0.8% (4 - 6). In 2015, there were about 2.1 million individuals which became newly infected with HIV, bringing the total up to 38.8 million people living with HIV/AIDS [2] [3] [4] the majority of them in low and middle income countries [4] [5]. Young women and adolescent girls between the ages 15 - 24 years old are specifically at high risk of HIV infection compared to men [5] [6]. Eastern and southern Africa regions reported the highest number of HIV cases, about 19 million, followed by western and central Africa with 6.5 million, then Asia and the Pacific region with about 5.1 million in 2015 [2] [4].

In June 2016, 18.2 million people living with HIV received a HIV treatment called antiretroviral therapy (ART), compared to 15.8 million in June 2015 [4] [6]. Despite scientific advances of HIV, most people living with HIV, or at risk for HIV, do not have access to prevention, care and treatment and there is still no cure [5] [7]. The HIV epidemic not only affects the health of individuals, it impacts households, communities and the development and economic growth of nations [6], [8], [9]. Globally, only 3 in 10 adolescent girls and young women aged 15 - 24 years have a comprehensive and accurate knowledge about HIV [6]. Studies have reported that lack of information on prevention and the power to use this information in sexual relationships undermines women's ability to negotiate condom use and engage in safer sex behavior [10] [11].

In the Pacific, Papua New Guinea (PNG) has the highest prevalence with about 34,000 living with HIV in 2009 and the number of newly diagnosed HIV cases in 2010 was 4208 [3] [12]. The rest of the 21 Pacific island countries and territories numbers of newly detected cases increased to 119 in 2012, as compared to 68 in 2010 [13]. Moreover, the HIV/AIDS burden varies by countries. Looking at the gender distribution, in French Polynesia, Guam and New Caledonia most of the reported cases were males, even though more females than males were tested. In contrast to Fiji, it is estimated that half of the HIV diagnosed cases were women [14] [15].

Based on the literature reviews which have been done, there are no systematic reviews on HIV in Pacific islands to comprehend the prevalence, determinants and risk factors of HIV/AIDS. Therefore, this study seeks to understand the prevalence, determinants and risk factors of HIV which exist in the Pacific countries, and help fill the gaps and provide standard information for informed decision making among public health stakeholders that will facilitate reduction of HIV in the future.

2. Methods

A systematic review was conducted based on the Cochrane Library Guideline. The

searches included both qualitative and quantitative studies. Seven online databases were used to find articles including MEDLINE/PubMed, CINAHL, ISI Web of Science, EBSCO, ProQuest, Springer and PyschInfo. They were chosen based on similar studies which have been done in relation to HIIV/AIDS and also accessibility of the databases.

In this study, the inclusion criteria focused on published articles in peer-reviewed journals about Pacific countries between 1st January 2000 and 1st August 2016, written in the English language. Different types of HIV were considered. Studies focused on HIV/AIDS barriers or preventive strategies were excluded. Key words used in the search included: “HIV OR AIDS” AND “factors OR determinant” AND “risk factors” AND “prevalence” AND “incidence” AND “Pacific”.

Two independent reviewers reviewed articles in different stages and they discussed with the other authors if there was any disagreement or differences in the assessment process. To find relevant studies three steps were done. The titles of all found studies were scanned and those not relevant or duplicated were omitted at the first stage. The abstract of the remaining articles were reviewed and some articles were omitted at the second stage. Finally, all full text of the remaining articles was reviewed and their quality was assessed. The bibliography of the remaining articles was also searched to find articles not found in the databases.

A data extraction sheet was made and the information of the articles was transferred there. The data extraction sheet had four parts including the characteristics of the article, participants’ characteristics, the methodology, and results of the studies. Overall, 45 studies met the study inclusion and exclusion criteria. The search process is shown in **Figure 1**.

In addition, we found another 6 articles in the bibliography of the remaining articles.

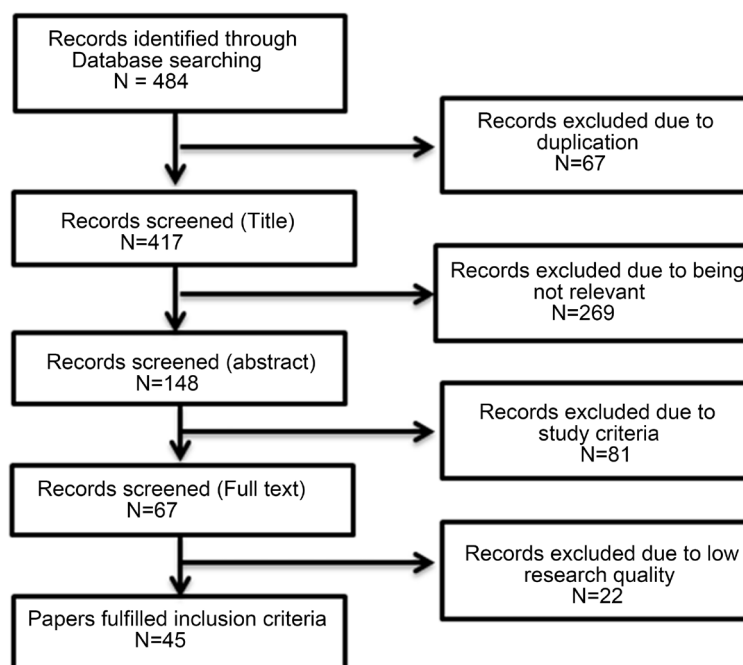


Figure 1. Article selection process.

Finally, 51 studies were reviewed in this study.

A descriptive analysis was applied and the results were shown as percentages in the form of tables or graphs.

3. Results

Table 1 shows the general characteristics of the studies. Many of the studies were conducted after 2010 (52.9%). More than half of the studies were conducted in American Pacific countries. Many studies focused on both males and females as the target group (45.1%).

The results the study showed that the United States had the highest number of studies about HIV/AIDS (30 studies), followed by Vanuatu and Papua New Guinea (7 studies each), and the Philippines (4 studies). The results of this study revealed that many studies were conducted with adults aged 20 - 64 years old (31.4%), while 8 studies (15.7%) and 5 studies (9.8%) were conducted among adolescents (below 19) and older people (over 65), respectively.

The results also showed a total of 924,213 people were engaged in the studies including 9924 people (only male), 9380 people (only female), 902,171 people (both male and female), and 2738 people (not reported gender). The study also showed that most studies focused on Gay/Men who have Sex with Men (MSM) (13 studies) as a target group, followed by HIV patients (11 studies), health care workers (6 studies), and students (5 studies).

The methodological characteristics of the studies are shown in **Table 2**. More than half of the studies applied quantitative methodology (56.8%). Thirty-one studies used questionnaires to collect the data. Purposive sampling (33.4%) was the most common sampling method.

As **Figure 2** shows, most studies were community-based studies (49%), followed by school-based studies (13.7%) and hospital/ health care center-based studies (5.9% each).

Table 1. The general characteristics of studies (N = 51).

Variables	Frequency	Percentage
Year		
2000-2004	7	13.7
2005-2009	17	33.4
2010<	27	52.9
Region		
South Pacific	14	27.5
American Pacific	30	58.8
Asia-Pacific	7	13.7
Targeted gender		
Male	12	23.5
Female	5	9.8
Female and Male	23	45.1
Not reported	11	21.6

Table 2. Methodological characteristics of studies (N = 51).

Variables	Frequency	Percentage
Type of studies		
Quantitative studies	29	56.8
Qualitative studies	20	39.2
Mixed method study	1	2.0
Interventional study	1	2.0
Data collection tools		
Questionnaire	31	60.8
In-depth Interview	4	7.8
Focus group discussion	10	19.6
Questionnaires & Lab test	6	11.7
Sampling method		
Convenience	12	23.5
Snowball	9	17.6
Purposive	17	33.4
Random	12	23.5
Stratified	1	2

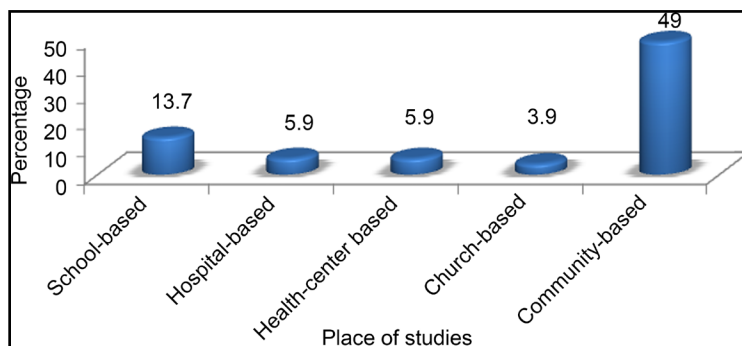


Figure 2. Frequency of studies based on the place where conducted.

3.1. Prevalence of HIV

Out of 51 reviewed articles, 30 were quantitative studies and only four of them mentioned the prevalence of HIV. The overall prevalence among Pacific island people is between 1% - 14%, with the majority being amongst male adolescents and adults. The highest prevalence (14%) is among MSM Asia Pacific Islanders; 12.8% is the second highest amongst MSM, substance abusers and incarcerated persons Asia Pacific Islanders. The lowest prevalence (1%) is among persons diagnosed with HIV infection Asia Pacific Islander.

3.2. Determinants of HIV

Out of 51 reviewed articles, 30 were quantitative studies and 28 mentioned the determinants regarding HIV. Determinants of HIV were categorized into 3 main places: community, school and hospital. The most common determinants of community-based studies are ethnicity and gender (7 studies, 25% respectively), followed by age (6 studies, 21.4%) and social support network and sex (5 studies, 17.8%, respectively). The least common determinants are work environment, knowledge level and individual

lifestyle (1 study, 3.4%, respectively). In the school place, the most common determinants are age, ethnicity and individual lifestyle (2 studies, 7.1%, respectively) with the least common ones being social support network and gender (1 study, 3.4%, respectively). With the hospital place, the biggest determinant is age (2 studies, 7.1%) and the least ones are ethnicity, education and income (1 study, 3.4%, respectively).

Out of 51 reviewed articles, 20 were qualitative studies, all of them mentioning the determinants of HIV based on the participants' perspective. Most study participants believed gender to be the main determinant (8 studies, 40%), followed by ethnicity (6 studies, 30%) and culture (4 studies, 20%). The least common ones are sex, beliefs, work environment, social cultural factors, individual lifestyle and education (1 study, 5%, respectively).

3.3. Risk factors for HIV

Out of 51 reviewed articles, 30 were quantitative studies and 17 reported the risk factors for HIV. The highest risk factors for HIV were substance abuse, number of sexual partners and unprotected sex (5 studies, 29.4%, respectively), followed by heterosexual contact (4 studies, 23.5%), along with low level condom use and having had sex before age 15 (3 studies, 17.6%, respectively).

Out of 51 reviewed articles, 20 were qualitative studies and only 2 mentioned the risk factors for HIV. These are community-based and church-based articles. With the community-based study, psychological and behavioral risks were identified as the highest risk factors and then number of sexual partners, with unprotected sex being the risk identified as the highest in the church-based study.

3.4. Interventional Study

As the results revealed, one interventional study, which was a community-based participatory research, was implemented to prevent adolescent pregnancy and issues related to STIs and HIV among Filipino Americans. The results showed that culturally tailored interventions increased the participants' awareness, facilitated the ability to talk openly about sex, STDs and HIV, and empowered families to solve their problems by themselves in their community ($p < 0.001$).

4. Discussion

HIV prevalence levels can vary considerably between different countries and between different populations within a country. In this study, the results showed the prevalence of HIV among Pacific islanders diagnosed with HIV ranges from 1% to 14%. This prevalence is very low as compared with what is observed among MSM [16] but is considered high as it indicates suboptimum access to health care [17]. However, this is consistent with a study done in Iran (7.14 to 15.95%) in 2010 and South Africa (12.2%) in 2012 [11] [18]. In addition, this study found HIV prevalence was more common among male Pacific islanders than female. This suggests that Pacific island males are more likely to engage more frequently in high risk behaviors [14] [15]. Another study

supported that men are unaware of serostatus, cultural norms and structural factors including poverty and discrimination [19] [20].

HIV/AIDS is a virus that is transmitted in bodily fluids, a blood-borne disease. The mode of transmission for HIV/AIDS is via unprotected sexual intercourse, sharing needles, and from a mother who is HIV positive to her unborn child. The most common modes of HIV transmission identified in the Pacific Islands Countries and Territories (PICTs), excluding Papua New Guinea, are unprotected heterosexual sexual contact and male to MSM contact [21]. This study stated the most common risk factors for HIV/AIDS in the Pacific region were associated with substance abuse, number of sexual partners, and unprotected sex, followed by unprotected heterosexual sexual contact, as stated in 4 studies, and low level condom use and having sexual intercourse before the age of 15 years, as stated in 3 studies. These results show there is a higher chance for Pacific islanders to acquire HIV/AIDS because of substance abuse, having multiple sexual partners and unprotected sex. Substance abuse is defined as excessive substance use, such as drugs and alcohol. Excessive drug and alcohol use can increase the chances of having unprotected sexual intercourse and having multiple sexual partners. As stated in drug and alcohol consumption and sexual risk behavior among young adults, “people who are intoxicated and cannabis users were associated with having more than one sexual partner and unprotected sexual contact.

Based on the 30 quantitative studies conducted in the Asia Pacific region, 13 stated that sex and gender are common determinants for HIV. Both genders can acquire HIV/AIDS if they do not practice safe sex, and gender roles are in every area, which increases or reduces chances of HIV infection [11]. The findings show that HIV is more prevalent among men than women. According to the report of the United Nations program on HIV/AIDS (UNAIDS) about the Asia Pacific region, it states that men who have sex with men are the ones with the greater risk for acquiring HIV/AIDS [22]. Also, Van Griensven, F., *et al.* (2010) support that men are sexually active with the combination of strong sexual desire, sexual opportunities and HIV risk factors and behaviors likely fuel their chance of getting infected [23]. Another study conducted in the Pacific state that French Polynesia, Guam, and New Caledonia’s highest mode of HIV transmission is through heterosexual contact and MSM [24]. On the other hand, globally, women are more vulnerable to the infection because of their reproduction role and their low socioeconomic position in society [25].

This study’s results showed that most of the participants are adults. It is consistent with the CDC report for the United States; they found the highest age group diagnosed with HIV (37%) were aged 20 - 29, 24% were aged 30 - 39, 17% were aged 40 - 49 [26]. This may occur due to adults are more likely to be unaware of their infection status which increases the chances of infecting others through unprotected sex [6].

A social support network has been mentioned in many situations in this study; it has a negative impact on HIV, which is consistent with our results because of the discrimination and stigmatization against people living with HIV [25]. Many studies mention various causes contributing to social stigma [27]. HIV is associated with already stig-

matized groups, such as sex workers and gay or lesbian persons. HIV is often viewed as divine punishment for misbehavior. Therefore, other studies supported that many people are afraid of infection due to ignorance about the mechanisms of HIV transmission in Nigeria and many other countries [27]. Ethnicity is another determinant for HIV/AIDS in the Pacific, which is associated with population distribution, socioeconomic status, and mechanism of HIV transmission [28].

Furthermore, individual lifestyle is another determinant for HIV/AIDS in the Pacific. Sexual behavior associated with HIV infection among Pacific islanders is due to poverty [29]. In contrast, another study conducted by Collection on Adverse Events of Anti-HIV drugs study group found that there is no association between lifestyle factors, including lifetime use of alcohol, smoking, marijuana and HIV disease [30]. Similarly, another study involving only HIV-positive women, found that lifestyle factors did not affect risk of HIV progression [31].

Overall, our results showed that MSM and unprotected heterosexual contact among Pacific islanders are the main causes of acquiring HIV/AIDS in the Pacific region. The studies showed that HIV prevalence is higher in Pacific men than women due to the risk factors such as substance abuse, having multiple sexual partners, unprotected sexual behavior, and inconsistent condom use. To prevent HIV/AIDS in the Pacific, policy makers and health professionals are encouraged to provide culturally acceptable and appropriate preventive practices and better services that will decrease the HIV prevalence and mode of HIV transmission in the Pacific region.

This study had some limitations. Only English-language articles were searched so that the presence of publication bias in this review study is a possibility. Certain key words may have been missed in the search literature; however, the comprehensive search term list was used to minimize this limitation.

References

- [1] Murray, C.J., et al. (2014) Global, Regional, and National Incidence and Mortality for HIV, Tuberculosis, and Malaria during 1990-2013: A Systematic Analysis for the Global Burden of Disease Study 2013. *The Lancet*, **384**, 1005-1070. [https://doi.org/10.1016/S0140-6736\(14\)60844-8](https://doi.org/10.1016/S0140-6736(14)60844-8)
- [2] Steel, N. (2016) Estimates of Global, Regional, and National Incidence, Prevalence, and Mortality of HIV, 1980-2015: The Global Burden of Disease Study 2015. *Lancet HIV*, **3**, e361-e387. [https://doi.org/10.1016/S2352-3018\(16\)30087-X](https://doi.org/10.1016/S2352-3018(16)30087-X)
- [3] UNAIDS (1996) Global AIDS Response Progress Reporting 2015. UNAIDS and World Health Organization, Geneva. http://www.unaids.org/sites/default/files/media_asset/JC2702_GARPR2015guidelines_en.pdf
- [4] World Health Organization (2013) Global Tuberculosis Report 2013.
- [5] UNAIDS (2010) Global Report: UNAIDS Report on the Global AIDS Epidemic 2010.
- [6] Centers for Disease Control and Prevention, HIV/AIDS Basic Statistics. <http://www.cdc.gov/hiv/basics/statistics.html>
- [7] Moyer, V.A. (2013) Screening for HIV: US Preventive Services Task Force Recommendation Statement. *Annals of Internal Medicine*, **159**, 51-60.

- <https://doi.org/10.7326/0003-4819-159-1-201307020-00645>
- [8] UNAIDS (2010) AIDS Scorecards: Overview: UNAIDS Report on the Global AIDS Epidemic 2010.
- [9] Moore, R.D. (2011) Epidemiology of HIV Infection in the United States: Implications for Linkage to Care. *Clinical Infectious Diseases*, **52**, S208-S213. <https://doi.org/10.1093/cid/ciq044>
- [10] Millett, G.A., *et al.* (2012) Comparisons of Disparities and Risks of HIV Infection in Black and Other Men Who Have Sex with Men in Canada, UK, and USA: A Meta-Analysis. *The Lancet*, **380**, 341-348. [https://doi.org/10.1016/S0140-6736\(12\)60899-X](https://doi.org/10.1016/S0140-6736(12)60899-X)
- [11] Haghdoost, A.A., *et al.* (2011) Modelling of HIV/AIDS in Iran Up to 2014. *Journal of AIDS and HIV Research*, **3**, 231-239. <https://doi.org/10.5897/JAHR11.030>
- [12] WHO (2013) Global Update on HIV Treatment 2013: Results, Impact and Opportunities.
- [13] Coghlan, B., *et al.* (2011) The HIV Epidemic in Papua New Guinea. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, **58**, e48-e51. <https://doi.org/10.1097/qai.0b013e3182293417>
- [14] Mathers, B.M., *et al.* (2010) HIV Prevention, Treatment, and Care Services for People Who Inject Drugs: A Systematic Review of Global, Regional, and National Coverage. *The Lancet*, **375**, 1014-1028. [https://doi.org/10.1016/S0140-6736\(10\)60232-2](https://doi.org/10.1016/S0140-6736(10)60232-2)
- [15] WHO (2010) World Health Statistics 2010.
- [16] Heiligenberg, M., *et al.* (2012) High Prevalence of Sexually Transmitted Infections in HIV-Infected Men during Routine Outpatient Visits in the Netherlands. *Sexually Transmitted Diseases*, **39**, 8-15. <https://doi.org/10.1097/OLQ.0b013e3182354e81>
- [17] Millett, G.A., *et al.* (2010) A Way Forward: The National HIV/AIDS Strategy and Reducing HIV Incidence in the United States. *Journal of Acquired Immune Deficiency Syndromes*, **55**, S144-S147. <https://doi.org/10.1097/qai.0b013e3181fbc04>
- [18] Setswe, G. and Zuma, K. (2012) HIV, AIDS and Tuberculosis Epidemics in South Africa: Overview and Responses. In: Nyamnjoh, F., Pillay, U., Hagg, G. and Jansen, J., Eds., *State of the Nation: South Africa: 2012-2013*, HSRC Press, Cape Town, 485-516.
- [19] Beyrer, C., *et al.* (2012) Global Epidemiology of HIV Infection in Men Who Have Sex with Men. *The Lancet*, **380**, 367-377. [https://doi.org/10.1016/S0140-6736\(12\)60821-6](https://doi.org/10.1016/S0140-6736(12)60821-6)
- [20] Finlayson, T.J., *et al.* (2011) HIV Risk, Prevention, and Testing Behaviors among Men Who Have Sex with Men-National HIV Behavioral Surveillance System, 21 US Cities, United States, 2008. *MMWR Surveillance Summaries*, **60**, 1-34.
- [21] Wanyeki, L.M. (2012) The International Criminal Court's Cases in Kenya: Origin and Impact. Institute for Security Studies Papers, No. 237, 28 p.
- [22] UNAIDS (2016) Global AIDS Update 2016. Joint United Nations Programme on HIV/AIDS, 2016. http://www.unaids.org/sites/default/files/media_asset/global-AIDS-update-2016_en.pdf
- [23] Van Griensven, F., *et al.* (2010) Trends in HIV Prevalence, Estimated HIV Incidence, and Risk Behavior among Men Who Have Sex with Men in Bangkok, Thailand, 2003-2007. *Journal of Acquired Immune Deficiency Syndromes*, **53**, 234-239. <https://doi.org/10.1097/QAI.0b013e3181c2fc86>
- [24] UNAIDS (2011) Global Plan towards the Elimination of New HIV Infections among Children By 2015.
- [25] Awolaye, O.J. and Thron, C. (2015) Determinants of Human Immunodeficiency Virus (HIV) Infection in Nigeria: A Synthesis of the Literature. *Journal of AIDS and HIV Re-*

- search*, **7**, 117-129. <https://doi.org/10.5897/JAHR2015.0338>
- [26] Centers for Disease Control and Prevention (2014) HIV in the United States: At a Glance. 2013.
- [27] Odimegwu, C., Adedini, S.A. and Ononokpono, D.N. (2013) HIV/AIDS Stigma and Utilization of Voluntary Counseling and Testing in Nigeria. *BMC Public Health*, **13**, 465. <https://doi.org/10.1186/1471-2458-13-465>
- [28] Stutterheim, S.E., Bos, A.E.R., Pryor, J.B., Brands, R., Liebrechts, M. and Schaalma, H.P. (2011) Psychological and Social Correlates of HIV Status Disclosure: The Significance of Stigma Visibility. *AIDS Education and Prevention*, **23**, 382. <https://doi.org/10.1521/aeap.2011.23.4.382>
- [29] Viner, R.M., *et al.* (2012) Adolescence and the Social Determinants of Health. *The Lancet*, **379**, 1641-1652. [https://doi.org/10.1016/S0140-6736\(12\)60149-4](https://doi.org/10.1016/S0140-6736(12)60149-4)
- [30] Data Collection on Adverse Events of Anti-HIV drugs (D:A:D) Study Group, *et al.* (2010) Factors Associated with Specific Causes of Death amongst HIV-Positive Individuals in the D: A: D Study. *AIDS*, **24**, 1537-1548.
- [31] Nakagawa, F., *et al.* (2012) Projected Life Expectancy of People with HIV According to Timing of Diagnosis. *AIDS*, **26**, 335-343. <https://doi.org/10.1097/QAD.0b013e32834dcec9>
- [32] Chen, W.-T., *et al.* (2014) Acculturation and Perceived Stress in HIV+ Immigrants: Depression Symptomatology in Asian and Pacific Islanders. *AIDS Care*, **26**, 1581-1585. <https://doi.org/10.1080/09540121.2014.936816>
- [33] Wortley, P.M., Metler, R.P., Hu, D.J. and Fleming, P.L. (2000) AIDS among Asians and Pacific Islanders in the United States. *American Journal of Preventive Medicine*, **18**, 208-214. [https://doi.org/10.1016/S0749-3797\(99\)00159-2](https://doi.org/10.1016/S0749-3797(99)00159-2)
- [34] Kang, E., Rapkin, B.D. and DeAlmeida, C. (2006) Are Psychological Consequences of Stigma Enduring or Transitory? A Longitudinal Study of HIV Stigma and Distress among Asians and Pacific Islanders Living with HIV Illness. *AIDS Patient Care & STDs*, **20**, 712-723. <https://doi.org/10.1089/apc.2006.20.712>
- [35] Lee, S.J. and Rotheram-Borus, M.J. (2009) Beyond the "Model Minority" Stereotype: Trends in Health Risk Behaviors among Asian/Pacific Islander High School Students. *Journal of School Health*, **79**, 347-354. <https://doi.org/10.1111/j.1746-1561.2009.00420.x>
- [36] Van Gemert, C., *et al.* (2014) Chlamydia Prevalence and Associated Behaviours among Female Sex Workers in Vanuatu: Results from an Integrated Bio-Behavioural Survey, 2011. *AIDS and Behavior*, **18**, 2040-2049. <https://doi.org/10.1007/s10461-014-0791-2>
- [37] Adih, W.K., Campsmith, M., Williams, C.L., Hardnett, F.P. and Hughes, D. (2011) Epidemiology of HIV among Asians and Pacific Islanders in the United States, 2001-2008. *Journal of the International Association of Physicians in AIDS Care (JIAPAC)*, **10**, 150-159. <https://doi.org/10.1177/1545109711399805>
- [38] Zaidi, I.F., *et al.* (2005) Epidemiology of HIV/AIDS among Asians and Pacific Islanders in the United States. *AIDS Education and Prevention*, **17**, 405. <https://doi.org/10.1521/aeap.2005.17.5.405>
- [39] Sasaki, P.Y. and Kameoka, V.A. (2009) Ethnic Variations in Prevalence of High-Risk Sexual Behaviors among Asian and Pacific Islander Adolescents in Hawaii. *American Journal of Public Health*, **99**, 1886-1892. <https://doi.org/10.2105/AJPH.2008.133785>
- [40] Choi, K.-H., Paul, J., Ayala, G., Boylan, R. and Gregorich, S.E. (2013) Experiences of Discrimination and Their Impact on the Mental Health among African American, Asian and Pacific Islander, and Latino Men Who Have Sex with Men. *American Journal of Public Health*, **103**, 868-874. <https://doi.org/10.2105/AJPH.2012.301052>

- [41] Salud, M.C., Marshak, H.H., Natto, Z.S. and Montgomery, S. (2014) Exploring HIV-Testing Intentions in Young Asian/Pacific Islander (API) Women as It Relates to Acculturation, Theory of Gender and Power (TGP), and the AIDS Risk Reduction Model (ARRM). *AIDS Care*, **26**, 642-647. <https://doi.org/10.1080/09540121.2013.841836>
- [42] Lachowsky, N.J., Saxton, P.J.W., Dickson, N.P., Hughes, A.J., Summerlee, A.J.S. and Dewey, C.E. (2014) Factors Associated with Recent HIV Testing among Younger Gay and Bisexual Men in New Zealand, 2006-2011. *BMC Public Health*, **14**, 294. <https://doi.org/10.1186/1471-2458-14-294>
- [43] Cruz, A.R., Castrillón, M.A., Minotta, A.Y., Rubiano, L.C., Castaño, M.C. and Salazar, J.C. (2013) Gestational and Congenital Syphilis Epidemic in the Colombian Pacific Coast. *Sexually Transmitted Diseases*, **40**, 813-818. <https://doi.org/10.1097/OLQ.0000000000000020>
- [44] Han, N., *et al.* (2015) HIV and Aging: Insights from the Asia Pacific HIV Observational Database (APHOD). *HIV Medicine*, **16**, 152-160. <https://doi.org/10.1111/hiv.12188>
- [45] Takahashi, L.M., Magalong, M.G., DeBell, P. and Fasudhani, A. (2006) HIV and AIDS in Suburban Asian and Pacific Islander Communities: Factors Influencing Self-Efficacy in HIV Risk Reduction. *AIDS Education & Prevention*, **18**, 529-545. <https://doi.org/10.1521/aeap.2006.18.6.529>
- [46] Kahle, E.M., Freedman, M.S. and Buskin, S.E. (2005) HIV Risks and Testing Behavior among Asians and Pacific Islanders: Results of the HIV Testing Survey, 2002-2003. *Journal of the National Medical Association*, **97**, 13S.
- [47] Hahm, H.C., Song, I.H., Ozonoff, A. and Sassani, J.C. (2009) HIV Testing among Sexually Experienced Asian and Pacific Islander Young Women: Association with Routine Gynecologic Care. *Women's Health Issues*, **19**, 279-288. <https://doi.org/10.1016/j.whi.2009.05.001>
- [48] Wong, F.Y., Campsmith, M.L., Nakamura, G.V., Crepez, N. and Begley, E. (2004) HIV Testing and Awareness of Care-Related Services among a Group of HIV-Positive Asian Americans and Pacific Islanders in the United States: Findings from a Supplemental HIV/AIDS Surveillance Project. *AIDS Education and Prevention*, **16**, 440. <https://doi.org/10.1521/aeap.16.5.440.48736>
- [49] Wong, F.Y., *et al.* (2012) HIV Testing and Management: Findings from a National Sample of Asian/Pacific Islander Men Who Have Sex with Men. *Public Health Reports*, **127**, 186-194.
- [50] Do, T.D., Hudes, E.S., Proctor, K. Han, C.-S. and Choi, K.-H. (2006) HIV Testing Trends and Correlates among Young Asian and Pacific Islander Men Who Have Sex with Men in Two US Cities. *AIDS Education and Prevention*, **18**, 44. <https://doi.org/10.1521/aeap.2006.18.1.44>
- [51] Muller, S. and Sami, V.N. (2012) HIV-TB the Deadly Duo, the Biggest Health Challenge in Fiji. *BMC Infectious Diseases*, **12**, O22. <https://doi.org/10.1186/1471-2334-12-S1-O22>
- [52] Hahm, H., Lee, J., Zerden, L., Ozonoff, A., Amodeo, M. and Adkins, C. (2008) Longitudinal Effects of Perceived Maternal Approval on Sexual Behaviors of Asian and Pacific Islander (API) Young Adults. *Journal of Youth and Adolescence*, **37**, 74-84. <https://doi.org/10.1007/s10964-007-9234-y>
- [53] Kang, E., Rapkin, B.D., Remien, R.H., Mellins, C.A. and Oh, A. (2005) Multiple Dimensions of HIV Stigma and Psychological Distress among Asians and Pacific Islanders Living with HIV Illness. *AIDS and Behavior*, **9**, 145-154. <https://doi.org/10.1007/s10461-005-3896-9>
- [54] Hahm, H.C., Lee, J., Ozonoff, A. and Amodeo, M. (2007) Predictors of STDs among Asian and Pacific Islander Young Adults. *Perspectives on Sexual and Reproductive Health*, **39**, 231-239. <https://doi.org/10.1363/3923107>

- [55] Lowry, R., Eaton, D.K., Brener, N.D. and Kann, L. (2011) Prevalence of Health-Risk Behaviors among Asian American and Pacific Islander High School Students in the US, 2001-2007. *Public Health Reports*, **126**, 39-49.
- [56] Foliaki, S., *et al.* (2014) Prevalence of HPV Infection and Other Risk Factors in a Fijian Population. *Infectious Agents and Cancer*, **9**, 14. <https://doi.org/10.1186/1750-9378-9-14>
- [57] Huang, Z.J., Wong, F.Y., de Leon, J.M. and Park, R.J. (2008) Self-Reported HIV Testing Behaviors among a Sample of Southeast Asians in an Urban Setting in the United States. *AIDS Education and Prevention*, **20**, 65. <https://doi.org/10.1521/aeap.2008.20.1.65>
- [58] Saewyc, E., Skay, C., Richens, K., Reis, E., Poon, C. and Murphy, A. (2006) Sexual Orientation, Sexual Abuse, and HIV-Risk Behaviors among Adolescents in the Pacific Northwest. *American Journal of Public Health*, **96**, 1104-1110. <https://doi.org/10.2105/AJPH.2005.065870>
- [59] Choi, K.H., Ayala, G., Paul, J., Boylan, R. and Gregorich, S.E. (2013) Social Network Characteristics and HIV Risk among African American, Asian/Pacific Islander, and Latino Men Who Have Sex with Men. *Journal of Acquired Immune Deficiency Syndromes*, **64**, 496-501. <https://doi.org/10.1097/qai.0b013e3182a7ee52>
- [60] Han, C.-S., Ayala, G., Paul, J.P., Boylan, R., Gregorich, S.E. and Choi, K.-H. (2015) Stress and Coping with Racism and Their Role in Sexual Risk for HIV among African American, Asian/Pacific Islander, and Latino Men Who Have Sex with Men. *Archives of Sexual Behavior*, **44**, 411-420. <https://doi.org/10.1007/s10508-014-0331-1>
- [61] Nemoto, T., Iwamoto, M., Kamitani, E., Morris, A. and Sakata, M. (2011) Targeted Expansion Project for Outreach and Treatment for Substance Abuse and HIV Risk Behaviors in Asian and Pacific Islander Communities. *AIDS Education and Prevention*, **23**, 175. <https://doi.org/10.1521/aeap.2011.23.2.175>
- [62] Zayeri, F., Ghane, E.T. and Borumandnia, N. (2016) Assessing the Trend of HIV/AIDS Mortality Rate in Asia and North Africa: An Application of Latent Growth Models. *Epidemiology and Infection*, **144**, 548-555. <https://doi.org/10.1017/S0950268815001351>
- [63] Kennedy, E.C., Bulu, S., Harris, J., Humphreys, D., Malverus, J. and Gray N.J. (2013) "Be Kind to Young People so They Feel at Home": A Qualitative Study of Adolescents' and Service Providers' Perceptions of Youth-Friendly Sexual and Reproductive Health Services in Vanuatu. *BMC Health Services Research*, **13**, 455. <https://doi.org/10.1186/1472-6963-13-455>
- [64] Han, C.-S. (2009) Chopsticks Don't Make It Culturally Competent: Addressing Larger Issues for HIV Prevention among Gay, Bisexual, and Queer Asian Pacific Islander Men. *Health & Social Work*, **34**, 273-281. <https://doi.org/10.1093/hsw/34.4.273>
- [65] DiStefano, A.S., *et al.* (2012) Contextualization of HIV and HPV Risk and Prevention among Pacific Islander Young Adults in Southern California. *Social Science & Medicine*, **75**, 699-708. <https://doi.org/10.1016/j.socscimed.2012.04.011>
- [66] Linh, N.N., Huong, N.T. and Thuy, H.T. (2015) Evolving Trade Policy and the Trans-Pacific Partnership Agreement: Does It Threaten Vietnam's Access to Medicine and Its Progress towards Scaling up HIV Prevention, Treatment and Care? *Global Public Health*, **10**, S149-S160. <https://doi.org/10.1080/17441692.2014.981829>
- [67] Wilson, P.A. and Yoshikawa, H. (2004) Experiences of and Responses to Social Discrimination among Asian and Pacific Islander Gay Men: Their Relationship to HIV Risk. *AIDS Education and Prevention*, **16**, 68. <https://doi.org/10.1521/aeap.16.1.68.27724>
- [68] Smith, G., Kippax, S., Aggleton, P. and Tyrer, P. (2003) HIV/AIDS School-Based Education in Selected Asia-Pacific Countries. *Sex Education: Sexuality, Society and Learning*, **3**, 3-21. <https://doi.org/10.1080/1468181032000052126>

- [69] Reidpath, D. and Chan, K. (2005) HIV Discrimination: Integrating the Results from a Six-Country Situational Analysis in the Asia Pacific. *AIDS Care*, **17**, 195-204. <https://doi.org/10.1080/09540120500120278>
- [70] Nemoto, T., Operario, D., Soma, T., Bao, D., Vajrabukka, A. and Crisostomo, V. (2003) HIV Risk and Prevention among Asian/Pacific Islander Men Who Have Sex with Men: Listen to Our Stories. *AIDS Education and Prevention*, **15**, 7. <https://doi.org/10.1521/aeap.15.1.5.7.23616>
- [71] Han, C.-S., Operario, D. and Choi, K.-H. (2011) If I Was Infected with HIV, I Would Be Letting My Family Down: Family Influences on Risk and Protective Factors for Unsafe Sex among Gay Asian Pacific Islander Men. *Health, Risk & Society*, **13**, 373-388. <https://doi.org/10.1080/13698575.2011.575932>
- [72] MacLaren, D., *et al.* (2013) Foreskin Cutting Beliefs and Practices and the Acceptability of Male Circumcision for HIV Prevention in Papua New Guinea. *BMC Public Health*, **13**, 818. <https://doi.org/10.1186/1471-2458-13-818>
- [73] Rupali, P., Condon, R., Roberts, S., Wilkinson, L., Voss, L. and Thomas, M.G. (2007) Prevention of Mother to Child Transmission of HIV Infection in Pacific Countries. *Internal Medicine Journal*, **37**, 216-223. <https://doi.org/10.1111/j.1445-5994.2007.01309.x>
- [74] King, R., *et al.* (2011) Satisfaction with Sex and Erection Hardness: Results of the Asia-Pacific Sexual Health and Overall Wellness Survey. *International Journal of Impotence Research*, **23**, 135-141. <https://doi.org/10.1038/ijir.2011.17>
- [75] Phongsavan, P., *et al.* (2005) Sexual Health Behaviours among Pacific Island Youth in Vanuatu, Tonga and the Federated States of Micronesia. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals*, **16**, 144.
- [76] Meldrum, R.M., Liamputtong, P. and Wollersheim, D. (2015) Sexual Health Knowledge and Needs Young Muslim Women in Melbourne, Australia. *International Journal of Health Services*, **46**, 124-140.
- [77] Zenner, D. and Russell, S. (2005) Sexually Transmitted Diseases and HIV/AIDS in Vanuatu: A Cause for Concern and Action. *The New Zealand Medical Journal*, **118**, U1610.
- [78] Tynan, A., *et al.* (2013) Sociocultural and Individual Determinants for Motivation of Sexual and Reproductive Health Workers in Papua New Guinea and Their Implications for Male Circumcision as an HIV Prevention Strategy. *Human Resources for Health*, **11**, 7. <https://doi.org/10.1186/1478-4491-11-7>
- [79] Kennedy, E.C., Bulu, S., Harris, J., Humphreys, D., Malverus, J. and Gray, N.J. (2014) "These Issues Aren't Talked about at Home": A Qualitative Study of the Sexual and Reproductive Health Information Preferences of Adolescents in Vanuatu. *BMC Public Health*, **14**, 770. <https://doi.org/10.1186/1471-2458-14-770>
- [80] Yoshikawa, H., Wilson, P.A., Hsueh, J., Rosman, E.A., Chin, J. and Kim, J.H. (2003) What Front-Line CBO Staff Can Tell Us about Culturally Anchored Theories of Behavior Change in HIV Prevention for Asian/Pacific Islanders. *American Journal of Community Psychology*, **32**, 143-158. <https://doi.org/10.1023/A:1025611327030>
- [81] Valley, A., *et al.* (2012) Intravaginal Practices and Microbicide Acceptability in Papua New Guinea: Implications for HIV Prevention in a Moderate-Prevalence Setting. *BMC Research Notes*, **5**, 613. <https://doi.org/10.1186/1756-0500-5-613>
- [82] Javier, J.R., *et al.* (2010) Lessons Learned from a Community-Academic Partnership Addressing Adolescent Pregnancy Prevention in Filipino American Families. *Progress in Community Health Partnerships: Research, Education, and Action*, **4**, 305-313.

Data Extraction Sheet 1: Quantitative Studies

No.	Study/Article	Participants	Methodology	Results
1	Chen <i>et al.</i> [32] Year: 2014 Country: United States Type of study: Cross-sectional Quantitative Study	Participants: HIV+ immigrants Number: 50 Male: 50 Mean age: 48.86 years SD: 9.35	Data collection tools: Questionnaires Sampling methods: Convenience sampling Place: Community-based	Determinants • Social support network Prevalence • 12.8% Determinants • Sex and gender Risk factors • Heterosexual contact • Injection drug use • Men sex men
2	Wortley <i>et al.</i> [33] Year: 2000 Country: United States Type of study: Cross-sectional Study	Participants: HIV persons Number: 4928 adults, 46 children Male: 4386 Female: 588 Age: 13 to 45+	Data collection tools: Questionnaire Sampling methods: Stratified sampling Place: Community-based	Determinants • Social support network
3	Kang <i>et al.</i> [34] Year: 2006 Country: United States Type of study: Cross-sectional Study	Participants: HIV + patients Number: 44 Male: 38 Age: 31 - 60 years Mean Age: 44, SD: 7.94 Female: 5 Age: 36 - 67 years Mean age: 45, SD: 12.82 Transgender: 1 Age: 47 years	Data Collection Tools: Semi structured Interview Sampling methods: Non-random Convenience sample Place: Community-based	Determinants • Social support network
4	Lee and Rotheram-Borus, [35] Year: 2009 Country: United States Type of study: Cohort study	Participants: High school students Number: 13,233 Male: Not reported Female: Not reported Age: Below 14 to 18 or older	Data collection tools: Questionnaires, observation Sampling methods: Simple random sampling and cluster sampling Place: School-based	Risk factors • Lifetime substance abuse Determinants (risk behaviour) • Social support network (parents communication)
5	Van Gemert <i>et al.</i> [36] Year: 2014 Country: Vanuatu Type of study: Cross-sectional study	Participant: Female sex workers Number: About 250 Female: About 250 Age: ≥18 years	Data collection tools: Laboratory test, Questionnaire Sampling methods: Snowball sampling Place: Community-based	Determinants • Sex and gender • Work environment • Age Risk factors • Number of sexual partners • Group sex Prevalence • 1%
6	Adih <i>et al.</i> [37] Year: 2011 Country: United States Type of study: Retrospective study	Participants: Adolescents and adults diagnosed with HIV Number: 2870 Female: 617 Male: 2253 Age: 13 years and older	Data collection: Questionnaire Sampling methods: Purposive sampling Place: Community-based	Determinants • Sex and gender • Ethnicity • Age Risk factors • Male sex male • Heterosexual contact
7	Zaidi <i>et al.</i> [38] Year: 2005 Country: United States Type of study: Descriptive study	Participants: adults, adolescents and children with HIV/AIDS Number: Not reported Female: Not reported Male: Not reported Age: <13 and 65+ years	Data collection: Questionnaire Sampling methods: Random sampling Place: Community-based	Determinants • Sex and gender • Ethnicity Risk factors • Same sex sexual activity • Heterosexual contact

Continued

8	Sasaki and Kameoka, [39] Year: 2009 Country: Hawaii Type of Study: Case-control study	Participants: Adolescents students Number: 4953 Female: 2491 Male: 2462 Age: ≤12 to ≥18years old	Data collection: Questionnaires Sampling methods: Purposive sampling Place: School-based	Determinants (risk behaviour) • Age • Ethnicity Risk factors • Lifetime sexual intercourse • Had sex before age 15
9	Choi <i>et al.</i> [40] Year: 2013 Country: United States Type of study: Descriptive study	Participants: Adult MSM Number: 1196 Male: 1196 Age: 18 - 83 years	Data collection: Focus group discussion, in-depth interview Sampling methods: Snowball sampling Place: Community-based	Determinant • Ethnicity • Sex and Gender
10	Salud <i>et al.</i> [41] Year: 2014 Country: United States Type of study: Descriptive cross-sectional study	Participants: Young women Number: 299 Female: 299 Age: 18 - 24 years Mean age: 20 years, SD: 1.77	Data collection: Questionnaires Sampling method: Purposive sample Place: Community-based	Determinants • Knowledge level • Sex and Gender Risk factors • Number of sexual partners • Sexually active
11	Lachowsky <i>et al.</i> [42] Year: 2014 Country: New Zealand Type of study: Cross-sectionals study	Participants: Younger MSM Number: 3352 Male: 3352 Age: 16 - 29 years Mean age: 23.2, SD: 3.5	Data collection: Questionnaire Sampling method: Purposive sample Place: Community-based	Determinants (services) • Gender • Age • Ethnicity
12	Cruz <i>et al.</i> [43] Year: 2013 Country: Columbia Type of study: Retrospective study	Participants: Infants and pregnant women Number: 181 Infants: 89 Age: Preterm & term Female: 92 Age: 14 - 38; Mean: 23.6	Data collection: Questionnaire Sampling methods: Simple Random sampling Place: Hospital-based	Determinants • Income • Age Risk factors • contracted STI
13	Han <i>et al.</i> [44] Year: 2014 Country: Australia Type of study: Cohort study	Participants: Younger and older HIV + patients Number: 7142 Male: 4278 Female: 2864 Age: <30 years to ≥60 years	Data collection: Questionnaire, observation Sampling methods: Purposive sampling Place: Hospital-based	Determinants • Age
14	Takahashi <i>et al.</i> [45] Year: 2006 Country: United States Type of study: Descriptive study	Participants: Women and youth Number: 313 Female: 313 Age: 15 to 24 years Mean age: 26 years	Data collection: Questionnaire Sampling methods: Convenience sample Place: Community-based	Determinants • Sex and gender • Age
15	Kahle <i>et al.</i> [46] Year: 2005 Country: United States Type of study: Cohort study	Participants: MSM, higher-risk heterosexuals and injection drug users young adults Number: 435 Male: 435 Age: 18 - 30+ years	Data collection: Questionnaire Sampling method: Purposive sample Place: Community-based	Determinants • Perceptions Risk factors • Low level condom use • Injection drug use
16	Hahm <i>et al.</i> [47] Year: 2009 Country: United States Type of study: Prospective cohort study	Participants: Young female adults Number: 7576 Female: 7576 Age: 18 - 27 years	Data collection: Questionnaire Sampling method: Clustered sample Place: Community-based	Determinants (services) • Sex and Gender • Ethnicity

Continued

17	Wong <i>et al.</i> [48] Year: 2004 Country: United States Type of study: Descriptive study	Participants: HIV + patients Number: 114 Male: Not reported Female: Not reported Age: 18+ years Mean age: 38.7 years, SD: 9.3	Data collection: Questionnaire Sampling method: Purposive sample Place: Health centre-based	Determinant <ul style="list-style-type: none"> Ethnicity Education
18	Wong <i>et al.</i> [49] Year: 2012 Country: United States Type of study: Cross-sectional study	Participants: men sex men Number: 445 Male: 445 Age: ≥18 years Mean: 30.7; SD: 10.3	Data collection: Screening test, questionnaire, Sampling method: Purposive and convenience sample Place: Community-based	Determinants (services) <ul style="list-style-type: none"> Age Sex and Gender Perceptions Healthcare services Determinants (services) <ul style="list-style-type: none"> Sex and Gender Ethnicity Education Healthcare services Risk factors <ul style="list-style-type: none"> Transactional sex Unprotected sex
19	Do <i>et al.</i> [50] Year: 2006 Country: United States Type of study: Cross-sectional study	Participants: Young MSM Number: 908 Male: 908 Age: 15 - 25 years	Data collection: Questionnaire Sampling method: Simple random sample Place: Community-based	Risk factors <ul style="list-style-type: none"> Transactional sex Unprotected sex
20	Muller and Sami, [51] Year: 2012 Country: Fiji Type of study: Retrospective descriptive study	Participants: HIV-TB patients Number: 393 HIV Male: Not reported Female: Not reported Age: Not reported	Data collection: Questionnaire, lab test Sampling method: Purposive sample Place: Hospital-based	Risk factors <ul style="list-style-type: none"> Tuberculosis
21	Hahm <i>et al.</i> [52] Year: 2008 Country: United States Type of study: Prospective study	Participants: Adolescents to young adulthood Number: 1195 Male: Not reported Female: Not reported Age: 22 - 24 years Mean age: 22 years old	Data collection: Questionnaires Sampling method: Clustered sample Place: Community-based	Determinants (risk behaviour) <ul style="list-style-type: none"> Social support network Perceptions Risk factors <ul style="list-style-type: none"> Engage sex before age of 15 Contracted STDs Number of sexual partners Traded sex for material
22	Kang <i>et al.</i> [53] Year: 2005 Country: United States Type of study: Cross-sectional study	Participants: HIV+ patients Number: 54 Male: 45 Age: 24 - 58 years; Mean: 42 years Female: 8 Age: 20 - 65 years; Mean: 42 years Transgender: 1 Age: 45 years	Data collection: Semi-structured questionnaire Sampling method: Convenience sampling Place: Community-based	Determinants <ul style="list-style-type: none"> Environment Social support network
23	Hahm <i>et al.</i> [54] Year: 2007 Country: United States Type of study: Descriptive study	Participants: Young adults Number: 1183 Male: 578 Female: 605 Age: 18 - 27 years old	Data collection: Questionnaire Sampling method: Clustered sample Place: Community-based	Determinants <ul style="list-style-type: none"> Gender Ethnicity Risk factors <ul style="list-style-type: none"> Traded sex for material Had sex before age 15 Number of sexual partners

Continued

24	Lowry <i>et al.</i> [55] Year: 2011 Country: United States Type of study: Cross-sectional study	Participants: High school students Number: 56,773 Male: Not reported Female: Not reported Age: Not reported Mean age range: 15.9 - 16.1 years	Data collection: Questionnaires Sampling method: Cluster sampling Place: School-based	Risk factors • Substance abuse • Inconsistent condom use Determinants (risk behaviours) • Ethnicity • Individual lifestyle (sexually active)
25	Foliaki <i>et al.</i> [56] Year: 2014 Country: Fiji Type of study: Cross-sectional study	Participants: Women Number: 1244 Female: 1244 Age: 25 - 64 years	Data collection: Questionnaires, Lab test Sampling method: Convenience sample Place: Health centre-based	Risk factors • Contracted STI
26	Huang <i>et al.</i> [57] Year: 2008 Country: United States Type of study: Descriptive study	Participants: Non MSM adults Number: 604 Male: Not reported Female: Not reported Age: 18 - 45 years old	Data collection: Questionnaires Sampling method: Snowball sample Place: Community-based	Determinants • Education (knowledge, perceptions)
27	Saewyc <i>et al.</i> [58] Year: 2006 Country: United States, British Columbia Type of study: Cohort study	Participants: Bisexual, gay/lesbian, heterosexual adolescents Number: 800,750 Male: Not reported Female: Not reported Age: <12 - >19 years	Data collection: Questionnaires Sampling method: Clustered stratified random sampling Place: School-based	Determinants (risk behaviour) • Individual lifestyle • Sex and Gender • Age
28	Choi <i>et al.</i> [59] Year: 2013 Country: United States Type of study: Descriptive study	Participants: MSM Number: 1196 Male: 1196 Age: 18 - 83 years	Data collection: Questionnaire Sampling method: Snowball sample Place: Community-based	Prevalence • 14% Determinants (risk behaviour) • Social support network • Social environment (Sex peer norms)
29	Han <i>et al.</i> [60] Year: 2015 Country: United States Type of study: Descriptive study	Participants: MSM Number: 1196 Male: 1196 Age: 18 - 83 years	Data collection: Questionnaire, Sampling method: Snowball sample Place: Community-based	Determinants • Social support network Risk factors • Unprotected sex
30	Nemoto <i>et al.</i> [61] Year: 2011 Country: United States Type of study: Descriptive study	Participants: MSM, substance abusers, incarcerated persons Number: 1349 Male: Not reported Female: Not reported Age: 18 - 84 years Mean age: 28 years, S.D: 8.6	Data collection: Questionnaire Sampling method: Convenience sample Place: Community-based	Prevalence • 6% Determinants • Sex and Gender • Individual lifestyle Risk factors • Inconsistent condom use • Substance users

Data Extraction Sheet 2: Qualitative Studies

No.	Study/Article	Participants	Methodology	Results
1	Zayeri <i>et al.</i> [62] Year: 2016 Country: Asian and North Africa Type of study: Retrospective study	Participants: HIV/AIDS patients. Number: 6 areas (East Asia, South Asia, Central Asia, Asia Pacific, Middle East, South East Asia)	Data collection: Framework questionnaires Sampling methods: Cluster sample Place: Population-based	Determinants • Gender

Continued

2	Kennedy <i>et al.</i> [63] Year: 2013 Country: Vanuatu Type of study: Descriptive qualitative Study	Participants: adolescents, policy makers and service providers) Number: 341 Male: 169 Female: 172 Age: 15 - 19 years	Data collection tools: Focus group discussion, semi-structured interview Sampling methods: Purposive sample Place: Community-based	Determinants • Age
3	Han, [64] Year: 2009 Country: United States Type of study: Descriptive study	Participants: Gay, bisexual and queer Asian Pacific Islander men Number: 15 Male: 15 Age: 18 to 50+ years	Data collection tools: Focus group discussion, in-depth interview Sampling methods: Convenience sampling Place: Community-based	Determinants • Gender • Ethnicity
4	DiStefano <i>et al.</i> [65] Year: 2012 Country: United States Type of study: Descriptive qualitative study	Participants: Young adults, children, community leaders, health providers Number: 95 Female: Unknown Male: Unknown Age: 11 - 29 years	Data collection: Focus group discussion, interviews Sampling methods: Purposive sampling Place: Community-based	Determinants • Age
5	Linh <i>et al.</i> [66] Year: 2015 Country: Vietnam Type of study: Case study design	Participants: Government, academia, hospitals and civil society Number: 20 Female: Unknown Male: Unknown Age: Unknown	Data collection: In-depth interview Sampling methods: Snowball sampling Place: Population-based	Determinants • Ethnicity
6	Wilson and Yoshikawa, [67] Year: 2004 Country: United States Type of study: Descriptive study	Participants: Asian and Pacific Islander gay men Number: 23 Male: 23 Age: 23 - 46 years Mean age: 32 years	Data collection: In-depth interview, observation Sampling method: Purposive sampling Place: Community-based	Determinants • Gender (experiences & responses discrimination)
7	Smith <i>et al.</i> [68] Year: 2003 Country: Brunei, Cambodia, China, Indonesia, Malaysia, Mongolia, Myanmar, PNG, Philippines, Thailand, Vietnam Type of study: Descriptive study	Participants: Adult population with HIV Number: 150 Male: Unknown Female: Unknown Age: Unknown	Data collection: Questionnaires, interview Sampling method: Snowball sample Place: Population-based	Determinants (services) • Ethnicity • Sexual practices • Education
8	Reidpath and Chan, [69] Year: 2005 Country: China, India, Indonesia, Philippines, Thailand, Vietnam Type of study: Descriptive study	Participants: 6 countries Number: Unknown Male: Unknown Female: Unknown Age: Unknown	Data collection: Interview, focus group discussion Sampling method: Convenience sample Place: Population-based	Determinants • Culture (interpersonal interaction (practice)
9	Nemoto <i>et al.</i> [70] Year: 2003 Country: United States Type of study: Descriptive study	Participants: Young adults MSM Number: 38 Male: 38 Age: 18 - 50 [average age—39.4 years]	Data collection: Focus group discussion Sampling method: Convenience sample Place: Community-based	Determinants (risk behaviour) • Gender • Psychological • Social • Cultural Risk factors • Psychosocial risk • Behavioural risk

Continued

10	Han <i>et al.</i> [71] Year: 2011 Country: United States Type of study: Descriptive study	Participants: Young gay men Number: 25 Male: 25 Age: 18 to 39 years [mean—28]	Data collection: Semi-structured interview Sampling method: Snowball sample Place: Community-based	Determinants (family influence on HIV risk behaviours) • Gender • Social environment • Ethnicity
11	MacLaren <i>et al.</i> [72] Year: 2013 Country: Papua New Guinea Type of study: Multi-method qualitative study	Participants: Unmarried youths, key stakeholders, community members Number: 482 Male: 272 Female: 210 Age: <25 years	Data collection: In-depth interview, focus group discussion Sampling method: Purposive sampling Place: Community-based	Determinants (prevention services) • Social support network • Culture Prevalence of known HIV infection • PNG: >150 per 100,000 persons • French Polynesia, Guam, New Caledonia: 100 per 100,000 persons • Tuvalu and other 14 countries: <50 per 100,000 persons
12	Rupali <i>et al.</i> [73] Year: 2007 Country: 22 Pacific island countries territories Type of study: Descriptive study	Participants: Health care providers Number: Unknown Male: Unknown Female: Unknown Age: Unknown	Data collection: Questionnaires Sampling method: Purpose sample Place: Population-based	Determinants • Ethnicity
13	King <i>et al.</i> [74] Year: 2011 Country: 13 Asia Pacific countries Type of study: Descriptive study	Participants: Men and women who had sexual intercourse at least once in the past 12 months with opposite sex Number: 3957 Male: 2016 Female: 1941 Age: 25 - 74 years	Data collection: Questionnaires Sampling method: Convenience sample Place: Population-based	Determinants • Sex
14	Phongsavan <i>et al.</i> [75] Year: 2005 Country: Vanuatu, Tonga, Federated States of Micronesia Type of study: Descriptive study	Participants: Youths dropped out of school Number: 1416 Male: 917 Female: 499 Age: 15 - 19 years	Data collection: Questionnaires Sampling method: Convenience sample Place: Church-based	Determinants (risk behaviour) • Gender • Ethnicity Risk factors for HIV • Multiple sexual partners • Substance abuse • Unprotected sex
15	Meldrum <i>et al.</i> [76] Year: 2015 Country: Australia Type of study: Descriptive study	Participants: Young Muslim women Number: 11 Female: 11 Age: 18 - 25 years	Data collection: Semi-structured questionnaire Sampling method: Snowball sample Place: Community-based	Determinants • Gender • Culture
16	Zenner and Russell, [77] Year: 2005 Country: Vanuatu Type of study: Descriptive study	Participants: Government officials, NGO workers Number: 14 Male: Unknown Female: Unknown Age: Unknown	Data collection: Semi-structured questionnaires Sampling method: Purposive sampling Place: Health centre-based	Determinants of HIV/AIDS • Gender • Environment

Continued

17	Tynan <i>et al.</i> [78] Year: 2013 Country: Papua New Guinea Type of study: Descriptive study	Participants: Medical officers, nursing officers, health extension officers, CHWs, and support staff Number: 29 Male: 17 Female: 12 Age:	Data collection: In-depth interview, focus group discussion Sampling method: Purposive sample Place: Health centre-based	Determinants of access to HIV prevention services <ul style="list-style-type: none"> • Sociocultural factors • Individual factors
18	Kennedy <i>et al.</i> [79] Year: 2014 Country: Vanuatu Type of study: Descriptive study	Participants: Adolescent substance users, jailed Number: 341 Male: Unknown Female: Unknown Age: 15 - 19 years	Data collection: Questionnaires, focus group discussion Sampling method: Purposive sample Place: Community-based	Determinants <ul style="list-style-type: none"> • Social support network
19	Yoshikawa <i>et al.</i> [80] Year: 2003 Country: United States Type of study: Descriptive studies	Participants: Peer educators Number: 35 Male: 13 Female: 22 Age: 18 - 56 years old [Mean: 34 yrs.]	Data collection: Focus group discussion Sampling method: Purposive sample Place: Community-based	Determinants <ul style="list-style-type: none"> • Culture • Work environment
20	Valley <i>et al.</i> [81] Year: 2012 Country: Papua New Guinea Type of Study: Cross-sectional study	Participants: University students Number: 1380 Male: 861 Female: 519 Age: 10 - 25+ years old Mean age: 17, SD-4.77	Data collection: Questionnaires Sampling methods: Systematic sample Place: School-based and community-based	Determinants (services) <ul style="list-style-type: none"> • Beliefs • Practices

Data Extraction Sheet 3: Interventional Studies

No.	Study/Article	Participants	Intervention	Results
1	Javier <i>et al.</i> [82] Year: 2010 Country: United States Type of study: Descriptive study	Participants: Filipino teens and parents Sample: Convenience sample Number: 60 Intervention group: 35 adolescents, 25 parents Age: Adolescent mean age: 16.8 yrs. Parent mean age: 43.5 yrs. Place: Community based (San Jose, CA)	Package: Parent-teen conference Who ran: Filipino Youth Coalition (FYC), [FYC staff members, pastor, community members, Filipino paediatrician, medical student, Filipina paediatrics] How long: 6 weeks	Conference was well received— Both parents and youth report conference was helpful [mean score of 4.5 and 4.7 respectively]



Submit or recommend next manuscript to SCIRP and we will provide best service for you:

Accepting pre-submission inquiries through Email, Facebook, LinkedIn, Twitter, etc.

A wide selection of journals (inclusive of 9 subjects, more than 200 journals)

Providing 24-hour high-quality service

User-friendly online submission system

Fair and swift peer-review system

Efficient typesetting and proofreading procedure

Display of the result of downloads and visits, as well as the number of cited articles

Maximum dissemination of your research work

Submit your manuscript at: <http://papersubmission.scirp.org/>

Or contact wja@scirp.org