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Eliza Mabey

**Assessment of Kamap Man Tru Men's Health and Gender Program At Decreasing
Partner To Partner HIV/AIDS Transmission In Papua New Guinea Deriving From
Men's Sexual And Reproductive Cultural Behaviors And Perceptions**

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Acronyms:

PNG: Papua New Guinea

SRH: Sexual Reproductive Health

UNAIDS: The Joint United Nations Programme on HIV/AIDS

NSW: New South Wales

LMIC: Low-middle-income country

GII: Gender Inequality Index

PLHIV: People Living with HIV/AIDS

WHO: World Health Organization

SDG: Sustainable Development Goals

DALYs: Disability-Adjusted Life Years

VMMC: Voluntary Medical Male Circumcision

HRSA: Health Resources and Services Administration

NIAID: National Institute of Allergy and Infectious Diseases

VMMC: Voluntary Male Medical Circumcision

CDPs: Condom Distribution Programs

PPTCT: Parent-to-child transmission

UNDP: United Nations Development Programme

AHF: AIDS Healthcare Foundation

Abstract

Papua New Guinea (PNG) has the highest incidence and prevalence of human immunodeficiency virus (HIV) in the Pacific (UNAIDS, 2020). Numerous research publications have been done on HIV in relation to women, children, and high-risk populations but a population that hasn't been studied as frequently is heterosexual men. Men are more likely to die of AIDS-related illnesses, less likely to get HIV tested, and less likely to access antiretroviral therapy, than women (UNAIDS, 2017). Some reasons for this may be due to the environment's effect on men's sexual and reproductive health (SRH) involvement, fear of stigmatization, gender inequalities, men's impact or access to care, his incorporation or introduction of condoms, his HIV awareness, gender-based violence, the effects of cultural barriers, lack of adequate knowledge, and men's role in relationships. Although there is limited support surrounding men's SRH, programs such as Kamap Man Tru Men's Health and Gender Program help to educate members of PNG communities on sexual health, gender-based violence, and healthy relationships to increase awareness and create a better understanding of an individual's role within a household to support their family and community's health. Compared to other countries in the Western Pacific, what is the burden of disease for HIV in PNG and how is it affected by men's role? What are the key determinants of HIV other than high-risk behaviors and what contributing factors, related to men, affect HIV prevalence? What is involved in the Kamap Man Tru Men's Health and Gender Program to improve men's involvement in SRH? What does available evidence tell us about how effective programs like this help reach distal causes of HIV and how cost-effective Socioculturally appropriate, and sustainable has it been? Research like this is important because HIV poses social and economic consequences. Stigmatization surrounding people living with HIV (PLHIV) affects their social status in their communities and those unable to access care and who are unable to work aren't able to provide for their families and community. In addition, the cost of antiretroviral therapy is expensive therefore further research would be beneficial in developing long-acting drugs that are cost-effective and less toxic. Much of my research was guided by the University of Vermont Professor Jeanne Shea and her Global Health course offered to undergraduates at UVM. The majority of scholarly sources included BioMed Central, Springer Nature, The American Journal of Public Health, The European Society of Contraception and Reproductive Health, and Richard Skolnik's Global Health 101. Some grey literature included Family Planning NSW, UNAIDS, HRSA, CDC, WHO, and World Bank. The findings indicate that preventing HIV before it is transmitted is cost-effective, sustainable, and Socioculturally appropriate. Key determinants of the spread of HIV are clearly associated with gender, violence, and sexuality. As a result of PNG's diverse culture, many cultural barriers affect HIV transmission along with stigmatization, condom use, violence, household roles, and gender inequalities. The research analyzing PNG may also be applied to the United States due to similar gender, violence, and sexuality issues. Based upon the research conducted for this paper, I recommend that public health initiatives be directed toward identifying and implementing key determinants and interventions within communities, and/or countries to provide the best possible outcomes for individuals, their communities, and the world.

RESEARCH QUESTION:

Compared to other countries in the Western Pacific, what is the burden of disease for HIV in PNG and how is it effected by men’s role? What are the key determinants of HIV other than high risk behaviors and what contributing factors, related to men, effect HIV prevalence? What is involved in the Kamap Man Tru Men’s Health and Gender Program to improve men’s involvement in SRH? What does available evidence tell us about how effective programs like this help reach distal causes of HIV and how cost effective, Socioculturally appropriate, and sustainable has it been?

Introduction

Most research has been conducted on HIV in relation to high-risk populations but a population that hasn’t been studied as in depth are heterosexual men. Men are more likely to die of AIDS-related illnesses, less likely to get HIV tested, and less likely to access antiretroviral therapy than women (UNAIDS, 2017). Less than half of men are being treated for HIV whereas, 60% of women, 82% of pregnant women, and 54% of children are being treated (UNAIDS, 2017; “The Global HIV/AIDS Epidemic,” 2019). These statistics may be due to social and cultural factors depending on world regions like PNG, which will be discussed.



Figure 1 (Superyachts, 2017) Part of the Cambri Tribe, the Crocodile Men of PNG, spend sacred time in the Haus Tambaran preparation hut to remove from the aspect of women within the tribe. Many tribes in PNG follow similar traditions which explains some disconnection between the two genders.

in HIV transmission (Skolnik 2021, 366). Men’s inherently superior social status in Papua New Guinean cultures allows them the capability to strongly influence health-related decisions. Some contributing factors related to men that can lead to possible HIV transmission include a non-

PNG, a country rich in culture and traditions is at the heart of the Western Pacific’s epidemic. Research and interventions conducted and collected from this country will not only benefit the lives of Papua New Guinean men and their families but other countries which nurture similar values and beliefs.

PNG has the highest incidence and prevalence of HIV in the Pacific (UNAIDS, 2020). Male-to-female transmission is higher than female-to-male transmission, therefore men play a large role

conducive environment that fosters high-risk behaviors and limits education access, fear around getting tested, gender inequities, access to condoms, and the normalization of sexual violence, bride prices, and polygamy. Kamap Man Tru Men's Health and Gender Program educates women, and mainly men on sexual health, gender-based violence, and healthy relationships to increase awareness and create a better understanding of an individual's role within a household in order to support their family and community's health. Local, culturally aware volunteers conducted the educational sessions which contributed to the program's cost, effectiveness, and cultural appropriateness. Although the program is scheduled to end this year, the lessons learned by individuals should stay influential. Available evidence has communicated that increased contraceptive awareness and gender-based violence awareness has increased men's and women's well-being which will reduce HIV transmission.

Definition of Key Terms

The key term, HIV will be defined as “a virus that attacks cells that help the body fight infection” (HIV.gov, 2019). Other terms that will be referred to in this essay that need initial clarification include gender-based violence, contraception/contraceptives, and high-risk behaviors. Clarifying these terms will help make reading the essay easier. Gender-based violence “is any act of violence involving men and women, in which the female is the usual victim, and which is derived from the unequal power relationship between men and women. It includes physical, sexual or psychological harm” (Family Planning Australia Reproductive and Sexual Health, 2016-2020). Contraception/contraceptives is, “any behavior, device, medication, or procedure used to prevent pregnancy. Also known as birth control” (Planned Parenthood, n.d.). The most referred to form of contraceptive will be a condoms but, other forms of contraception may have been used. High-risk behaviors are “behaviors that contribute to unintentional injuries and violence” and/or “sexual behaviors related to unintended pregnancy and sexually transmitted infections, including HIV” (Centers for Disease Control and Prevention, 2018).



Figure 2 (Springer, 2019) London photographer, Zoe Springer traveled by boat through PNG to experience a unique way of life, far from the modern world. On Garove Island in PNG, a young girl who's never seen a camera before, posed for the adventurous photographer (Morris, 2019).

Essential Background

PNG, a country within the Western Pacific, resides on the eastern half of the island New Guinea along with 600 other islands. The country is about 333 miles from its capital, Port Moresby, and Australia's most northern tip, Cape York. PNG is filled with lush forests and steep mountains which foster healthy biodiversity and numerous natural resources. In 2018, the country had 8.6 million people with 87% of them living in rural areas, 850 indigenous languages, and more than 7000 cultural groups (World Bank 2019; Wardlow 2007).

PNG is an LMIC with a gross national income of US\$2,386. The country’s demography consists mainly of a younger population with an annual population growth rate of 2.3%. Papua New Guinean households depend 75% on subsistence agriculture and only 7% of the population has access to the electric grid and a reticulated water system (UNDP, n.d.). About 40% of the population lives on US\$1.25/day compared to less than 10% of Americans that live on less than US\$1.90/day (UNDP, n.d.; Feeney, 2015). Health systems in PNG have struggled due to facility closures, lack of transportation, and lack of skilled professionals (UNDP, n.d.). Between 2000 and 2009, there was a 235% rise in STIs and 2/3 of women experience gender-based violence (UNDP, n.d.).

Lower Middle-Income Countries		
Rank	Cause	
	Deaths	DALYs
1	Ischemic heart disease	Ischemic heart disease
2	Stroke	Lower respiratory infections
3	Diarrheal diseases	Diarrheal diseases
4	COPD	Stroke
5	Lower respiratory infections	Neonatal preterm birth
6	Tuberculosis	COPD
7	Diabetes	Malaria
8	Road injuries	Road injuries
9	Chronic kidney disease	Neonatal encephalopathy
10	HIV/AIDS	Low back and neck pain

Figure 3 (Skolnik, 2021) This table from Skolnik’s Global Health 101 textbook demonstrates the leading causes of deaths and DALYs for LMICs. Ranked number ten is HIV/AIDs among cause of deaths.

Scholarly & Practical Significance

The practical significance of HIV is notable because it has both social and economic consequences (Skolnik 2021, 368). Those who are infected and don’t have access to appropriate care will likely not work as frequently and therefore face reduced income challenges. The individual may require a caregiver who might then also have to miss work as suggested by Skolnik (2021). A reduced or inconsistent income will affect the individual’s health and the well-being of their family. A study referred to in Skolnik’s textbook

explains that “men with AIDS lost an average of 297 days of work over an 18-month period” and “families that suffered from AIDS lost an average of 48 percent of their income.” (Skolnik 2021, 368). According to the Henry J. Kaiser Family, “HIV primarily affects those in their most productive years, and it not only affects the health of individuals, but also impacts households, communities, and the development and economic growth of nations” (Sweileh, 2018).

The costs of HIV drugs like antiretroviral therapy are expensive. Although some countries receive funding from other countries, private and public funders, and HIV/AIDS organizations (refer to Photo 2), the costs are still challenging to overcome in financially unstable areas. For example, the U.S. government is the largest donor to HIV efforts (Sweileh, 2018). “The ‘HIV spending on care and treatment per PLHIV’ across all countries

whose spending was analyzed was \$270 on average, ranging from \$17 in South Sudan to \$2,056 in Mexico” (Granich et al. 2016). According to the National Institute of Allergy and Infectious

February 21, 2023:

Long-acting antiretroviral therapy suppresses HIV among people with unstable housing, mental illnesses, substance use

NIH-supported study demonstrates injectable ART may improve outcomes in underserved patients

Link: <https://nida.nih.gov/news-events/news-releases/2023/02/long-acting-antiretroviral-therapy-suppresses-hiv-among-people-with-unstable-housing-mental-illnesses-substance-use>

Disease (2019), future research should be directed toward developing long-acting drugs which will make it easier for people to keep up with, are more cost-effective, and less toxic.

The scholarly significance is important because many regions that are substantially burdened by HIV need additional international research to meet global targets by 2030 (Sweileh, 2018). Regions like Eastern and Southern Africa and Western and Central Africa which have an adult prevalence rate ranging from 1.5 to 7 percent, are among those most impacted by HIV (The Henry J. Kaiser Family Foundation, 2019).

In a news release from the WHO in 2017, research gaps reside among children and adolescents living with HIV. The WHO and CIPHER developed a research agenda titled *Research for an AIDS-Free Generation: A Global Research Agenda for Adolescents Living with HIV* which will prioritize research questions directed toward that age group (World Health Organization, 2017).

Link to research agenda PDF:

https://www.iasociety.org/sites/default/files/inline-images/CIPHER_policy_brief_ado_EN.pdf

Sources & Methods

Many of my sources and methods were focused around and guided by the University of Vermont Professor Jeanne Shea. Professor Shea is a sociocultural anthropologist who specializes in global health, social gerontology, and medical and psychological anthropology. She has been a faculty member of UVM since 1998 and recently published *Beyond Filial Piety: Rethinking Aging and Caregiving in Contemporary East Asian Societies*.

The main bibliographic search engines used were Google Scholar, WorldCat, Global Health CABI, PubMed, Family Planning NSW Research Publications, and IPPF. The main search terms I used were PNG, HIV transmission, men, men's programs, men's health, male involvement, gender-based violence, family planning, and family-oriented approaches. The main delimiters used for my searches consist of: include patents and citations, sort by relevance, articles, most recent, within the past year/month, peer-reviewed. Sources that were particularly helpful were, Kura's et al. "Male Involvement in Sexual and Reproductive Health in the Mendi District, Southern Highlands Province of Papua New Guinea: a Descriptive Study" from 2013, The World Health Organization and UNAIDS websites, and Richard Skolnik's "Global Health 101 4th Edition" textbook published in 2019.

My most used scholarly sources included: BMC, Part of Springer Nature which has many different disciplines but most prominently, biomedicine, and the physical sciences. The subject I concentrated on within this scholarly journal was reproductive health. The American Journal of Public Health was another source I used. The disciplines include public health, biology, and medicine. The subject I focused on was sexuality. The European Society of Contraception and Reproductive Health works on disciplines that include contraception and reproductive health. The subject narrowed my search toward sexual education. Taylor & Francis Online has many subjects but my work concentrated on subjects like, health and social care, behavioral sciences, medicine, and law. Skolnik's Global Health 101 covers key disciplines within global health. I focused on the principles and goals of global health, the global burden of disease, human rights concerns, culture and health, women's health, the health of young children, and non-communicable diseases. Wiley Online Library has an abundance of disciplines, but I focused on

social and behavioral sciences, medicine, and healthcare and concentrated on subjects like, prevention programs, health systems, condom promotion, and male response to epidemics. Pacific Journal of Reproductive Health covers a variety of areas within the reproductive health field such as the one I researched on, culture. Lastly, Burnet Institute focuses on healthcare in Australia, but also on international communities. I narrowed my search to sexual and reproductive health.

My leading grey literature global health actors included: Family Planning NSW where I search for articles related to, gender equality, gender-based violence, and male involvement. Within the UNAIDS and HRSA websites, I used literature that covered an overview of HIV in PNG, and HIV prevention. ASHM and Susu Mamas offered SRH topics. I used the Asian Development Bank and the CDC to research condoms. Global health actor WHO and World Bank were used to identify HIV data, and the country profile. Lastly, I used Planned Parenthood for information on gender, contraceptives, and the actor's global perspectives.

Analysis of Global Health Problem and Its Indicators: HIV

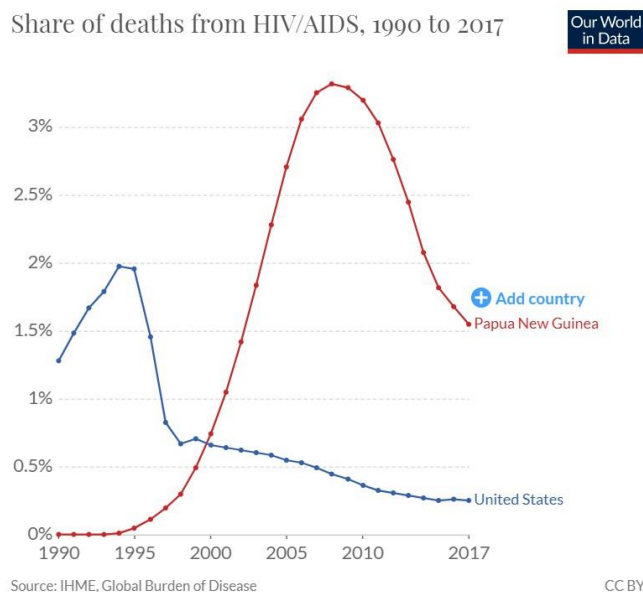


Figure 4 (IHME, and Global Burden of Disease, n.d.) This graph demonstrates the trend in HIV/AIDS deaths from 1990 to 2017. PNG is labeled as red which shows a significant increase in the share of deaths from 2000 to its peak at about 2007. Labeled as blue is the United States. The country begins to see an increase in deaths between 1990 to about 1993 then plateaus for a few years and then has continued to decrease with an exception for 1997 to 2000. Comparing these countries can allow a better understanding of the severity of the HIV problem in PNG.

A study conducted by the Papua New Guinea Institute of Medical Research and The University of New South Wales conveys the struggles faced by men:

A sense of direct responsibility and guilt towards their infected spouse or child added to their distress. Several talked about contemplating suicide. Testing appeared to be a major life event for men. They frequently discussed refocusing on the family and changing previous ‘wayward’ behaviours. In only one instance did the husband report getting angry with his wife and blame her for infecting him (Kelly et al. 2013).

A 28-year-old man who is HIV positive learned about his wife’s HIV status at ANC. “I changed some of my behaviour, which I used to do in the past, since the child was here [was born] and the child might be sick or die if I carry on doing what I used to do. I usually think that I must stay with my wife and my child” (Kelly et al. 2013).

The disease, which attacks cells that help the body fight infection is ranked 14th as the greatest number of deaths by cause in the world in 2017 and has a global prevalence rate of 0.8% (Sweileh, 2018; HIV.gov, 2019). There are no preventative or therapeutic vaccines for HIV and there are still 1.6 million new infections each year (Skolnik 2021, 371). Globally, about 37.9 million people are living with HIV at the end of 2018 and 32 million people have died of HIV

(WHO, 2019). According to the CDC, HIV infection in humans came from a type of chimpanzee in Central Africa, and studies have shown this may have happened as far back as the late 1800s (CDC, 2022).

HIV can come from having vaginal or anal sex, sharing needles/syringes for shooting drugs, piercings, or tattoos, or getting stuck with a needle that has HIV-infected blood on it, or getting HIV-infected blood, semen (cum), or vaginal fluids into open cuts or sores on your body (Planned Parenthood). Newborn babies are also at risk of contracting HIV if the mother is HIV-positive through breastfeeding and vaginal birth. If the child doesn't receive care, it has about one-third risk of dying up to its first year and one-half risk of dying up to its second year of life (Skolnik 2021, 306). HIV is also the 10th leading cause of death in LMICs (Skolnik 2021, 40). HIV is ranked number two as the leading cause of death and DALYs for ages 15 to 49 by World Bank Country in 2016 (Skolnik 2021, 49).

Under SDG 3, target 3.3 is, to end AIDS as a public health threat by 2030 and target 3.8 is to “achieve universal health coverage, access to quality health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.” Other SDGs that are also related to HIV include, 4: quality education, 5: gender equality, 10: reduced inequalities, and 16: peace, justice, and strong institutions (Avert, 2019). According to the WHO, “between 2000 and 2018, new HIV infections fell by 37% and HIV-related deaths fell by 45%, with 13.6 million lives saved due to ART. This achievement was the result of great efforts by national HIV programs supported by civil society and international development partners” (2019). In 2018, key populations such as men who have sex with men, people who inject drugs, people in prisons and other closed settings, sex workers and their clients, transgender people, adolescent girls and young women in southern and eastern Africa, and indigenous peoples in some communities, account for more than half of new HIV infections globally (World Health Organization, 2019 & 2017).

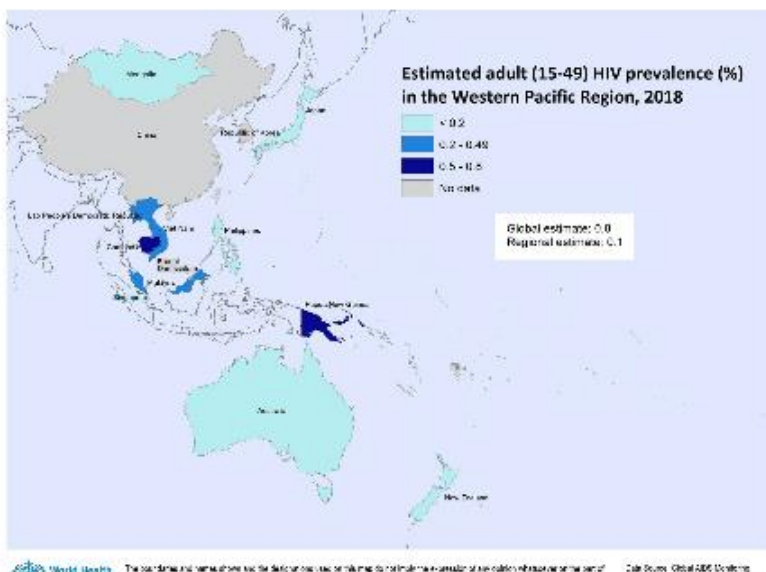


Figure 5 (Global AIDS Monitoring. Geneva: UNAIDS, WHO, UNICEF 2019). This map shows the estimated adult HIV prevalence in the Western Pacific region in 2018. PNG, the country northeast of Australia, is within the 0.5 to 0.8 percent category. The only other country that is within this highest category is Cambodia

In the Western Pacific, about 1.9 million people were living with HIV in 2018 and about 45,000 of those are from PNG. The country is one of the five countries which are at the heart of the epidemic, according to UNAIDS. Many interventions have taken place around the world to support PNG, one being the Kamap Man Tru Men's Health and Gender Program which is run by Family Planning NSW. The program aims to support men's involvement in healthy reproductive and sexual health practices through

individualized and community-based behavioral change sessions. Programs like these have positively impacted the health and well-being of all genders and have addressed gender inequality (Smith et al. 2019). Challenges related to HIV in this region include stigmatization and discrimination, ensuring access to prevention and treatment services, and a special focus on key populations. China, Vietnam, the Philippines, Malaysia, and Papua New Guinea make up the majority of the regional HIV burden. The prevalence rate in the Western Pacific is 0.1% but the value doesn't highlight the fact that key populations have high rates of HIV (World Health Organization, 2020).

The HIV epidemic in Papua New Guinea was classified as a generalized epidemic until 2004 after HIV prevalence decreased from 1.3% in 2000 to below 1%. An estimated 46 000 people were living with HIV in 2016 (UNAIDS, and World Health Organization, n.d.). HIV prevalence and incidence rates are the highest in Papua New Guinea compared to all Western Pacific countries (UNAIDS, 2020). The country of 8.4 million people represents 95 percent of the reported HIV cases in the region. Of the 45 000 people living with HIV in the country, 65 percent are on antiretroviral therapy. The data may have some inaccuracies according to Albert Arija, a monitoring and evaluation specialist of USAID. He describes that an inadequate number of staff that has limited time to fill out all entries, along with incorrect data entries or times and, patients who aren't giving out their HIV status in fear of stigma and discrimination, may also skew the results (UNAIDS, 2020). "Since 2010 new infections decreased by 32% and UNAIDS communicated that there has been a significant improvement in treatment services. The country's health system is struggling though which affects people's treatment, especially those in rural areas" (UNAIDS, 2020).

Some individuals are more vulnerable than others to getting HIV. Differences in cultural and social factors may increase or decrease the chance of exposure as well as will affect the quality of care someone receives. Some key determinants and contributing factors associated with HIV include customs or traditions specific to a region that contribute to the ways people make healthy choices or seek out healthcare. High-risk sexual behavior also increases the chances of being exposed to HIV such as unprotected sex. Unprotected sex such as not using condoms or other forms of contraceptives is usually the way HIV transmission occurs.

Factors associated with HIV exposure can be especially acute in rural settings. 91% of HIV-1 infected people are from low- to middle-income countries in 2009 (Shao, and Williamson, 2019). "Low-income countries will have to deal with communicable and noncommunicable diseases simultaneously, as well as with injuries" (Shea, 2020). Individuals and families that live in rural settings have limited access to education and a limited awareness of current health problems and health prevention. Individuals may not use condoms or other contraceptives because they don't know the benefits or don't have access. This is the same for high-risk behaviors; people may not know the risks behind them. LMICs often lack access to education which makes it more challenging to understand and promote healthy behaviors to prevent the transmission of HIV. Transportation can be particularly difficult in rural countries due to a lack of resources which can affect the likelihood of individuals going to doctor's appointments or getting tested.

Although high-risk sexual behaviors are associated strongly with HIV, my paper focuses on heterosexual men and how they specifically contribute toward HIV transmission. One reason for directing the research less toward high-risk behaviors is because, "unlike countries where the

injection of drugs with shared needles is a major cause of HIV/AIDS, in Papua New Guinea infection is transmitted overwhelmingly through sex (Asian Development Bank, 2017).

The importance of culture to health is significant. PNG is rich in culture and home to many tribes and beliefs. According to Shea (2020), culture affects the environments in which people live and work, people's beliefs about health and priorities therein, the nature, availability, and usage of healing practices, and the availability and acceptability of health services. Culture also influences the health behaviors of individuals and groups and perceptions of health and illness. It's important to note the significance of culture and health because it strongly determines how people act and respond to the topics that will be discussed and the intervention presented.

Assessment of Kamap Man Tru Men's Health and Gender Program

Some highly effective HIV interventions include condoms, antiretroviral medicines, VMMC, behavior change programs, and treatment of PLHIV (UNAIDS, 2020). Although, there are challenges associated with implementing interventions in areas that lack political commitment. There is also a reluctance to address sensitive topics associated with sexual and reproductive needs and rights according to UNAIDS (2020). It can be particularly difficult to implement interventions in rural areas where resources are scarce. According to UNAIDS, "it is a very challenging environment in which to operate, especially to implement and scale-up HIV interventions in rural and remote regions" (2020). According to an article from the Western Pacific Surveillance and Response Journal, challenges in relation to scaling up the response to HIV in PNG fall among human resource issues, problems in meeting costs, filling staff positions, inadequately trained staff, and limited services and lack of understanding associated with PPTCT. The intervention presented in this paper may help alleviate stress and responsibilities taken on by limited health professionals in PNG.

Kamap Man Tru Men's Health and Gender Program works with men and women in communities to support gender equality, reproductive and sexual health including behaviors, and challenge gender violence norms. According to the Family Planning NSW website, Kamap Man Tru Men's Health and Gender Program began in 2009 and has 12,604 direct beneficiaries. The program is run by Family Planning NSW a leading provider of reproductive and sexual health services. The organization provides clinical services and health information for people in the Pacific. Some highlights of the work they do include training local health workers, clinicians, and local organizations about family planning services, increasing access to contraceptive supplies, educating communities about sexual health including gender-based violence and healthy relationships, promoting healthy sexuality, and supporting the delivery of cervical cancer screening and treatment. Family Planning NSW has partnered with Susu Mamas Inc, Population Services International, and Papua New Guinea Family Health Association. The program is currently working in the Eastern and Western Highlands of the Morobe Province, but the program also works in East Sepik, and West New Britain.

Summarizing the website's progress, in 2009 the program's aim was to help men understand their role in the family while also supporting their community health. In 2012, volunteer peer educators conducted community education and one-on-one sessions with men to discuss sexual health, domestic violence, family dynamics, planned parenthood, and conflict resolution. A manual called, "Kamap Man Tru: Men's health and gender awareness training manual" was made available as an additional training tool. During 2015 and 2017, a program in areas of Morobe Province was conducted to evaluate a peer education model using an evidence-

based approach. After, a second phase began in the Timini LLG of Mumeng. The program along with Susu Mamas, used a community engagement model which worked with both men and women. In 2018 and 2019 a Community Health Committee was made in the Timini community which reviews and assesses the health needs of the community.

The environment's effect on men's SRH involvement and HIV prevention can foster negative high-risk behaviors or limited education. In a descriptive study called, *Male Involvement in Sexual and Reproductive Health in the Mendi District, Southern Highlands Province of Papua New Guinea*, the study found that although men were willing to participate in SRH activities the environment was not conducive to their involvement." (Kura et al. 2013). Issues in relation to space were a barrier for men in being involved with SRH. A doctor from an outpatient clinic brought attention to men being asked to attend appointments and yet space wasn't provided for them in the treatment or waiting room; some often came as a family, with many children (Tynan et al. 2017). PNG's ruralness, diverse culture, and limited education limit men from being involved in safe motherhood programs and or men's health programs. Most healthcare workers are uncomfortable working with men, and female healthcare workers who distribute condoms are a barrier for men (Kura et al. 2013). An article from *The International Journal of Health Planning and Management* emphasizes that "limited resources and poor health system performance are likely to have significant impact of changing the focus of PPTCT service to include men" (Tynan et al. 2017). Kamap Man Tru Men's Health and Gender Program trains local health workers, clinicians, and local organizations about family planning services. "Engaging men and boys can also help to achieve gender equality, challenge gender stereotypes and support development of positive attitudes and behaviours based on equality and respect for human rights." The program also increases access to contraceptive supplies and supports the delivery of cervical cancer screening and treatment. The program doesn't directly work within healthcare, so their efforts won't improve the healthcare system substantially. The intervention addresses this problem very cost-effectively, culturally appropriately, and effectively through volunteer efforts, and with close attention and consideration of cultural implications.

Stigmatization toward HIV-positive individuals may foster fear in men of getting tested, treated, or other forms of care related to HIV. According to UNAIDS key populations face HIV stigma, discrimination, and violence from police and community members which results in fear of getting tested or seeking out medical assistance (UNAIDS, 2020).

In a study, "many indicated that if they contracted HIV, they would not inform their wives or relatives for fear of embarrassment and stigmatization. Most respondents who had previously suffered from STI did not disclose their illness to their wives for fear of argument, retaliation and denial of sex" (Kura et al. 2013). A significant other that is not aware of another's HIV status is extremely vulnerable to contracting HIV, especially if they are not using proper precautions.

A tale communicated by Sister Bernard in Banz Western Highlands explains the ignorance and prejudice around HIV in PNG:

The young woman with HIV/AIDS quietly asked a favor of the American nun. Would Sister Rose Bernard accompany her home and explain to her family how difficult it is to transmit the virus to another person except through sexual contact? Since she had been tested positive, the woman explained, her family had relegated her to sleep in the piggery,

avoided touching her, and forbade her to wash in the same river as others (Asian Development Bank, 2017).

Similar struggles like that experienced by the young woman with HIV is common in PNG. The article explains that HIV stigmatization is a serious problem in the process of fighting the HIV epidemic (Asian Development Bank). The men's program helps to build awareness and comfort around sexual health like HIV. Through community sessions, men and women will learn to communicate about topics that aren't comfortably talked about in Papua New Guinean culture. The only drawback about the program is that it is ending in April will no signs yet of starting up again. Programs like this should continue in order to really make a difference.

Gender inequalities have reinforced traditional household roles that can prevent women from accessing SRH care. In PNG, men are viewed as the superior, or decision maker. "Traditionally men have been and still are the principal decision makers in social, economic and political aspects of family and village life. In most societies gender determines the roles and responsibilities of men and women and these cultural factors were found to significantly influence men's sexual and reproductive behaviour and attitudes in this study" (Kura et al. 2013). Men in PNG are inherently the decision makers therefore, they will decide the protection used during sexual interactions and determine the level of health care his significant other will receive. Statistics from the UNDP show that PNG's GII is 0.740 compared to the U.S. which is 0.182 and Australia of 0.103. The GII demonstrates the inequalities in achievement between women and men within the dimensions of reproductive health, empowerment, and labor market. Correlation between regions showing significant gender inequalities within the household and community and HIV prevalence (Wardlow, 2007; Human Development Reports, n.d.). "The centrality of gender equality for sustainable human development is well recognised and reflected in the Sustainable Development Goals (SDGs)" (Smith et al. 2019). The program's actor specifically works with the Pacific Island communities, so they're immersed and involved in their cultural practices and beliefs. Family Planning NSW highlights that, "Our mission is to enhance the reproductive and sexual health and rights of Pacific Island communities by supporting all people to have control over and decide freely on all matters related to their reproductive and sexual health throughout their life. Annually we reach over 14,000 people across ten countries, supporting contraception, sexual and reproductive health, cervical cancer, disability and gender projects" (Rradmin, 2019). Kamap Man Tru Men's Health and Gender Program works with men and women to support gender equality and reproductive and sexual health including behaviors through individualized sessions with volunteer peer educators or group education sessions. In many countries in the Pacific however, women and girls have low social status and men are the primary decision makers. Women are often subjected to discrimination, violence and not provided with the same opportunities as men" (Jun.buenafior, 2019).



Figure 6 (Love Condoms, n.d.) This photo was taken at a past AHF event. AHF is the largest global AIDS organization that provides care to 43 countries. The program has distributed 87, 421, 890 condoms in 2019. Although it doesn't provide care to PNG, it is a good model to demonstrate action taken to build awareness around condom use. To access more information about AHF, a specific source will be listed among the additional sources section.

Men who have limited access to contraceptives or who limit his wife's access to contraceptives will experience a greater chance of contracting HIV. As previously stated, there is no single prevention method or approach to stop HIV, but several methods and interventions have been proven highly effective in reducing the risk of, and protecting against HIV infection, including male and female condoms (UNAIDs, 2020).

According to the

Gogodala ethnic group in response to the AIDS epidemic and condom promotion in rural PNG, “condom availability in this rural area continues to be restricted to a family planning program that promotes Christian values and excludes unmarried men” (Wilde, 2007). Cultural is very influential in terms of accessing condoms, better education, and awareness around sexual health. A publication from the American Journal of Public Health explained that most men “relied on what might be called an underground informal condom economy, in which some men stocked up on condoms from health centers and pharmacies in larger towns and then sold them surreptitiously in Tari” (Wardlow, 2007). This conveys that men want to participate in positive sexual health practices but the environment and cultural barriers around them are true obstacles.

Although some men want to have access to contraceptives, a few limit their wife's access to contraceptives. This is mainly a result of cultural values and beliefs. An example would be, “wives cannot decline sexual intercourse with their husbands nor can they insist that their partners use condoms” (Kura et al. 2013). The healthcare system in PNG doesn't help diminish this obstacle for women though. “Although individuals in PNG have the right to access contraceptives without their partner's consent, such access remains a contentious issue, should a woman request it, health staff may provide a consent form for their husbands to sign. Some of the few who knew about the policy thought it inappropriate for married couples. Participants from a focus group thought such policies are likely to create avenues for increased extramarital relationships” (Kura et al. 2013). Condom distribution programs are an effective way to develop awareness around condom use and proper sexual health practices. Although the program is not a specific condom distribution program, it distributes condoms and helps facilitate conversations around sexual health among both men and women. This intervention is cost-effective and culturally appropriate and provides communities with the resources needed to prevent the spread of HIV.

Men's limited use of condoms or control over the use of condoms has continued to encourage high-risk behaviors. Many beliefs about condoms in PNG have exacerbated HIV transmission. Some common beliefs that are a barrier for people include the notion that condoms communicate promiscuity and if used improperly, may introduce diseases (Kura et al. 2013). Another is, "many people object to condom promotion and describe condoms as a technology that enables people to evade God's will that they either embrace moral sexual practice (marital sexual relations only) or be punished with disease for failure to do so" (Wardlow, 2007).

Sometimes not using condoms is a decision made both by the wife and husband. "Factors such as wanting more children and fear of religious condemnation and of partners having extramarital relationships hindered couples from accessing contraceptives" (Kura, 2013). This is why it's important to also include women in conversations around sexual health and family planning. Even though men strongly influence the decisions made in the house, women do sway the decisions some and it also depends on individual households.

Extramarital relationships also demonstrate variability around condom use. The "illicit sexual transactions occurred outdoors and entailed ducking off into roadside underbrush without being seen and quickly completing the act before being caught" and "many of the men said the anxiety about being caught and the consequent need to finish quickly also deterred them from using condoms" (Wardlow, 2007). Programs that promote healthy relationship education will help navigate safe ways to participate in extramarital relationships and polygamous relationships. Further information about untraditional relationships will be described later in the paper.

Although the program doesn't specifically address condoms as one of its main topics, training clinicians and volunteers about increasing access to contraceptives is incorporated into the program. Overall, the program will encourage men to allow their spouses to choose contraceptives and when to use them.

Men's awareness of what HIV is and how its transmitted will contribute toward HIV cases and encourage effective treatment. "Men's understanding of HIV infection and their attitudes towards prevention are key factors in containing the disease and in preventing infection of their wives and children" (Kura et al. 2013). In an article on men's involvement in sexual and reproductive health in the Mendi District, part of the Southern Highlands Province of PNG, the study says men "thought there was no risk of contracting HIV/AIDS if they only had sex with their multiple wives; they claimed to be fortunate to have multiple wives, so they don't have to go outside of their polygamous relationships looking for sex" (Kura et al. 2013). Education will increase awareness around sexual health and healthy relationships and will encourage healthy behaviors which will reduce the number of people infected by HIV. "The understanding that HIV/AIDS is a deadly disease for which there is no cure had apparently prompted some men to change their sexual behaviour. They wanted to be faithful to their wives" (Kura et al. 2013). The men's health program works to create awareness around HIV and is run by volunteers, so it is cost-effective.

High-risk behaviors often associated with men like violence against women have contributed to PNG's high HIV rates. An article from the American Journal of Public Health explains a correlation between regions having gender-based violence and higher rates of HIV (Wardlow, 2007). Sexual abuse was also associated with HIV-positive status as well according to an article from the Journal of Family (Lewis et al. 2008).

The men's program works to empower women and teach individuals about gender-based violence and healthy relationships. According to a series of briefings from the WHO's Promoting Gender Equality to Prevent Violence Against Women overview, community "interventions can promote gender equality and prevent violence against women by challenging stereotypes that give men power over women" (World Health Organization, 47).

In PNG, women often normalize sexual violence because of cultural customs like bride prices and polygamy (Lewis et al. 2008). A gender analysis in 1998 published by World Bank, brought attention to the extent to which violence against women became: "in some areas of the Highlands violence against women during the tribal fighting in 1995-96 reached such a level that pack rape of women was considered to be a 'normal' feature of intervillage conflict" (World Bank, 1998). According to a study with 415 women who had access to counseling services in PNG, sexual abuse and HIV-positive individuals were shown as a strong association. The study highlights that programs should include interventions that empower women through access to education and employment. Bride price or "the transferring of material or monetary goods from the groom's kin to the bride's kin upon marriage," represents the ownership of a woman not only by her husband but by the clan (Shih et al. 2017). This custom fosters forms of domestic violence. Kamap Man Tru Men's Health and Gender Program educates communities in PNG about gender-based violence and healthy relationships. Although the program was originally intended for men, the second phase of the program began to incorporate women through the Susu Mamas community engagement model. Family Planning Australia highlights how "evidence suggests that rates of gender-based violence are high in societies where social norms support gender inequality, where violence has become normalised, and where communities fail to punish men who use physical or sexual violence against women" (Family Planning Australia Reproductive and Sexual Health, 2016-2020). Incorporating interventions now will encourage younger boys to follow their fathers and dismantle socially accepted norms. Unfortunately, the program will end in April 2020. Consistent programs should be continuously enforced to see full effects.

Different areas in which men lack knowledge can exacerbate HIV transmission among themselves and their wives. Men's literacy was strongly associated with "SRH issues, discussion with their wives, and with their wives' utilization of SRH services" (Kura et al. 2013). Men who are educated on sexual health issues and family planning will be more supportive of the services offered by healthcare facilities and organizations. They will also be more apt to use preventive measures associated with particular diseases. In a descriptive study, men who were educated about antenatal services supported their wives and more wives attended their appointments (Kura et al. 2013). Skolnik says that, "prenatal care can assist in diagnosing HIV infection in a pregnant woman and referring her for antiretroviral therapy for her own health and to avoid mother-to-child transmission" (2021, 321). Having men educated about these topics is crucial to preventing and treating HIV. Any form of program that promotes education on sexual health like Kamap Man Tru will also help tackle other diseases like STIs and maternal mortality.

Men who are more involved and supportive of SRH services including women's SRH services, are more likely to see better outcomes in HIV transmission, especially through mother-to-child transmission. "Although viewed as an important service, the use of ANC is not fully supported by husbands." "Lack of male involvement and support for utilization of safe motherhood services is seen by women as a barrier to accessing services" (Kura et al. 2013). With the program, more men will understand the importance of ANC.

Men's role in fostering effective communication and monogamous relationships in PNG results in the least likelihood of exposure of HIV transmission. "Married women in rural Papua New Guinea are at risk for HIV primarily because of their husbands' extramarital relationships" (Wardlow, 2007). Labor migrations in PNG exacerbate extramarital relationships. "Economic decline and men's long-term absences from home have resulted in a growing number of Huli women who have sexual relations in exchange for money. These women are often described as "safe" extramarital partners because sexual relations with them are unlikely to result in retaliation from absent husbands" (Wardlow, 2007). Sometimes extramarital relationships are associated with male friendships with other males. "Moreover, many men do not view sexual fidelity as necessary for achieving a happy marriage, but they view drinking and "looking for women" as important for male friendships" (Wardlow, 2007). The program's effects on healthy relationship awareness will improve these situations and make the probability of getting HIV less likely because men will be having relations with fewer women.

Conclusion

About 91% of HIV-1 infections stem from LMICs. LMICs like PNG manage not only injuries but also substantial communicable and non-communicable diseases. In the Western Pacific, about 1.9 million people were living with HIV (2018) and about 45,000 of those are from PNG. Key determinants of the spread of HIV stemming from heterosexual men include a non-conducive environment that fosters high-risk behaviors and limited education access, fear of getting tested, gender inequities, access to condoms, and the normalization of sexual violence, bride prices, and polygamy. Many of these determinants are associated with PNG's rich customs, traditions, beliefs, and tribes which affect the way they view health and society. These factors affect health prioritization, acceptability toward health services, and ultimately the understanding and perceptions associated with health and illness.

Kamap Man Tru Men's Health and Gender Program educates and works with women, and mainly men to conduct conversations, individually and communally to generate awareness around gender-based violence, healthy relationships, and sexual health. This program has increased men's and women's well-being while formulating a healthier community. Preventing HIV before it is transmitted is cost-effective and sustainable.

Based on my research, I recommend that public health plans be directed toward identifying key determinants of HIV based on social and cultural differences while also formulating and seeing-through-with interventions that provide the best possible outcomes for individuals, their communities, and the world.

Although this paper focuses on Papua New Guinean society, similar gender, violence, and sexuality issues mirror issues in other countries. Research like this can be applied (given consideration) to other countries struggling with HIV.

Additional sources have been provided below to clarify some of the statistics above. Photo 1 is from the WHO for Western Pacific statistics. The United Nations Development Programme of Human Development Reports is listed as Source 1. This source provides statistics that are based on topics like health, education, inequality, gender, human security, mobility and communication, and socio-economic sustainability. Photo 2 demonstrates where funds have come from for HIV for LMICs. The majority of resources available by funding source come from domestic funds and then the United States.

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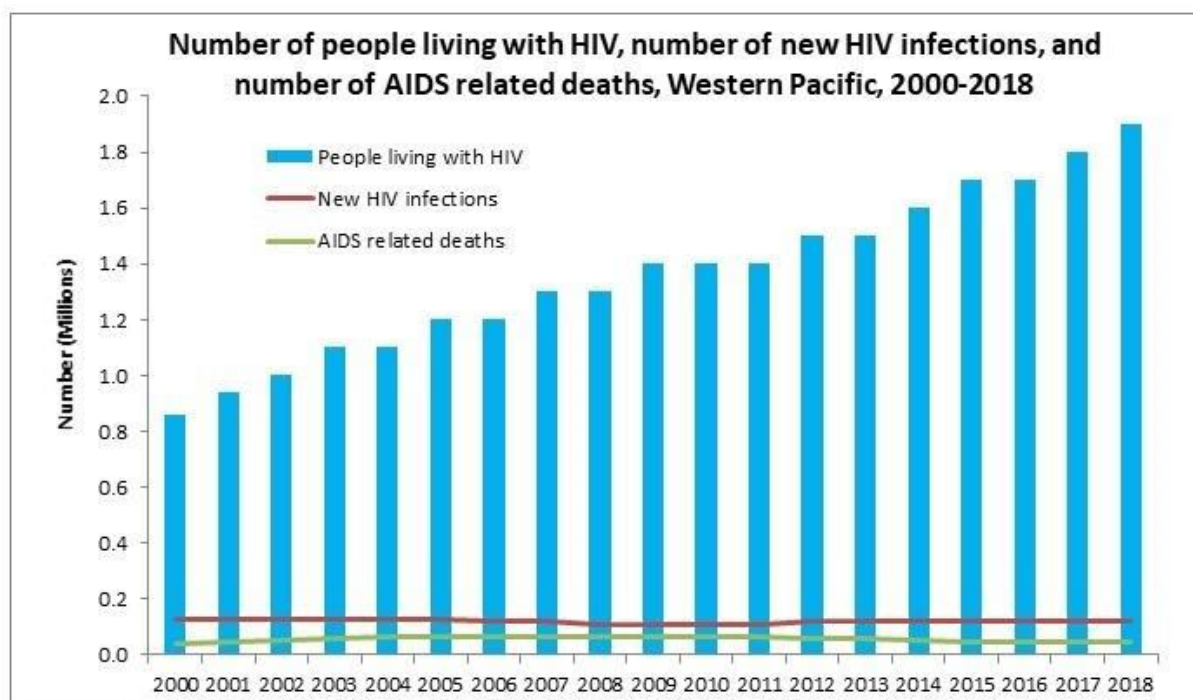
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Source 1: <http://hdr.undp.org/en/countries/profiles/PNG>

Photo 2: <https://www.avert.org/professionals/hiv-around-world/global-response/funding>

Source 2: <https://lovecondoms.org/> : Within this source individuals can read more about what International Condom Day is and view their YouTube Channel.

Photo 1:



(Source: Global AIDS Monitoring. Geneva: UNAIDS, WHO, UNICEF 2019)

Figure 7 This graph shows the number of people living with HIV, number of new HIV infections, and number of AIDS related deaths in the Western Pacific between 2000 to 2018.

Photo 2:

HIV resource availability* in low- and middle-income countries by source of funding, 2010–2017 and 2020 target

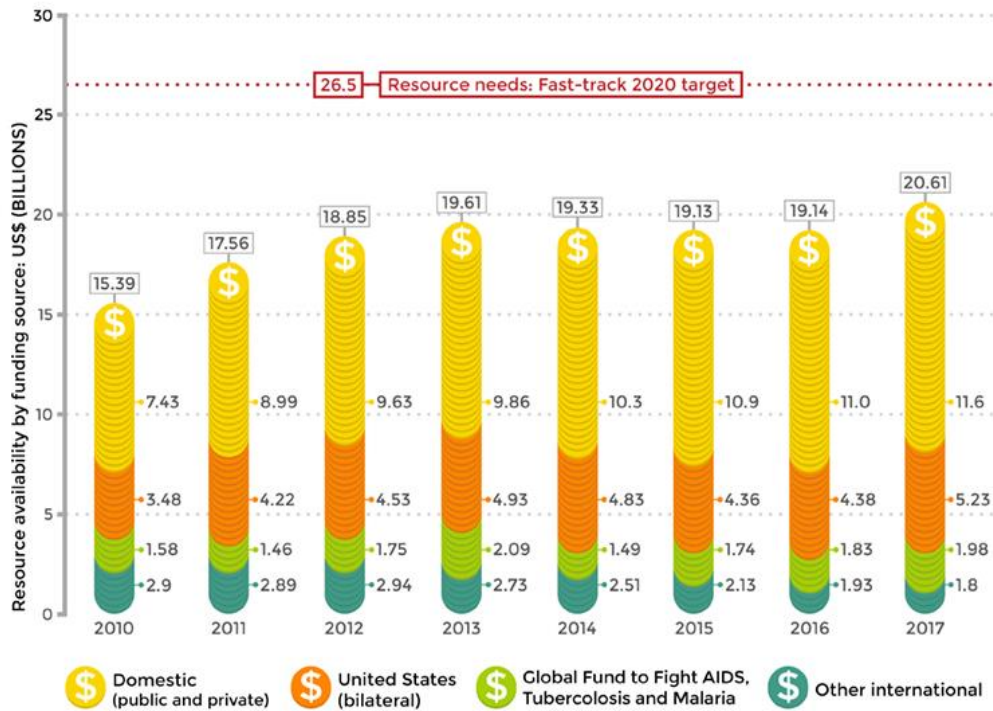


Photo 1: Photo 1 is from the WHO for Western Pacific statistics. The graph shows the number of people living with HIV, number of new HIV infections, and number of AIDS related deaths from 2000 to 2018. This graph shows that the number of people living with HIV has steadily increased over the time period. AIDS related deaths have stayed the same but new HIV infections have slightly increase since 2011.

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