



## The Utilization of Voluntary Counseling and Testing by Women of Reproductive Age in West Papua

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### Abstract

Women of reproductive age living with the human immunodeficiency virus (WRAL-HIV) have many complex problems regarding their disease and status. They have to access Voluntary counseling and testing (VCT) as one of the health services where they would receive antiretroviral treatment to optimize their health and improve their quality of life. The study aims to analyze the factors which determine the utilization of VCT for accessing antiretroviral treatment by WRALHIV in West Papua. It was an observational, cross-sectional study. The subject was women of reproductive age (WRA) aged 15-49 years old, receiving antiretroviral treatment at VCT of Hospitals in Manokwari, Sorong, and Fakfak. The total was 140 respondents. Data collection was carried out by interviews using a questionnaire. The data were analyzed statistically using the chi-square and logistic regression tests. Most respondents with high intensity in the utilization of VCT services were aged 15-35 years, graduated from senior high school - university, unemployed, and married. Demographic and predisposing variables were not significantly associated, but there were significant associations between enabling factors (distance) with  $p$  value=0.00 and reinforcing factor (social support) with  $p$  value=0.03 in the utilization of VCT services by WRALHIV in West Papua, in which the distance was more significant than social support in the utilization of VCT services. The easily accessible distance increases their visitation to VCT. In addition, social support had an impact on increasing the utilization of VCT services, and finally, these may improve WRALHIV quality of life.

### Introduction

Human immunodeficiency virus (HIV) is an infectious disease that attacks the immune system. The HIV viruses are found in the body fluids of infected people, especially in the blood (Scott & Wu, 2019), semen, vaginal fluids (S. P. S. Id et al., 2019), and breast milk (Myburgh et al., 2020). Recently, the number of HIV-infected people has been increasing, not only in big cities but also in remote villages. The cumulative number of HIV cases in Indonesia until 2020 was 409,857 people, and 127,823 people had been suffering from Acquired

Immune Deficiency Syndrome (AIDS). 1987, the first time HIV was found in Bali, until December 2020, the HIV and AIDS cases have spread to 484 (90.07%) of 514 regencies and cities from all over provinces in Indonesia. The highest case percentage of AIDS is reported among a group of productive ages 25-49 years old at 69%. Besides, the high HIV risk factors are unsafely heterosexual activities (48.8%), unsterile syringes usage (0.4%), homosexual and transgender activities (26.5%), unknown (17.3%), and others (7.5%) (Kementerian Kesehatan RI, 2020). The Indonesian Ministry

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of Health in 2020, reports 2,286 people suffered from AIDS. Most of them spread in five provinces with the highest number of AIDS. They are Papua, Bali, Central Java, West Java, and South Sumatra. The cumulative number of HIV and AIDS in West Papua is 4,434 and 1,405 people, respectively. So far, based on recorded data as 838 people living with HIV/AIDS (PLWHA) are already passed away (Dinas Kesehatan Provinsi Papua Barat, 2016).

The HIV case reported based on gender are men at 67% and women at 33%, with the ratio of men to women being 2:1. Although the case of men is higher than in women, the infection case in women always increase annually. Especially the cases within the group of housewives are higher than among women sex workers. Some possible reasons might be caused by the viral transmission from their husbands (Fuspita et al., 2019), the lack of awareness of gender equality (Ran Van der Wal et al, 2021), and the socially weak position of women as part of their community (Ndubani et al., 2017).

The women of reproductive age are women in the range of 15-49 years old, married, widowed, and single (B. K. Id et al., 2021). Women within this group have a high risk of HIV transmission due to their sexual activity. In addition, the women would be pregnant during their reproductive age period. Unfortunately, pregnant women suffering from HIV without ARV medication will possibly transmit the virus to their children (Care et al., 2020). HIV transmission from mother to child is still a vital issue in the HIV prevention program.

Harm reduction is a program for HIV/AIDS prevention by United Nations Program on HIV and AIDS (UNAIDS) (UNAIDS, 2017). One of the harm reduction agendas is to prevent and control HIV through Voluntary counseling and testing (VCT) services (Armstrong-mensah et al., 2022). However, a few PLWHA already accessed the VCT services in Indonesia i.e. group of injecting drugs users (18%), women sex workers (15%), customers of women sex workers (3%), and the man who have sex with a man (15%). Thus, the true knowledge about HIV and AIDS among those vulnerable groups has already increased but still not enough yet. Commonly, the only man who

has sex with a man, women sex workers, the customers of women sex workers, and injecting drugs users who can identify HIV prevention correctly (Herdanindita et al., 2020).

Generally, the care, support, and treatment (CST) activities for PLWHA can be conducted in the hospital, public health centers, and places appointed by the government. So far, West Papua already has 58 counseling and testing for HIV and antiretroviral (ARV) services, 30 sexually transmitted infections services, 48 prevention of transmission from mother to child services, and 23 ARV services (Dinas Kesehatan Provinsi Papua Barat, 2016). The CST implementation will be easily conducted through VCT. VCT services are highly essential for PLWHA to prevent HIV transmission, access the ARV treatments, and also its case management services. Thus, this will lead to zero disease transmission and the enhancement of PLWHA life quality (Direktorat Jenderal Bina Kesehatan Ibu dan Anak Kementerian Kesehatan RI, 2015).

The utilization of health services such as VCT by PLWHA is an example of healthcare-seeking behavior (HSB). The utilization of health services can be affected by some factors, such as predisposing, enabling, and reinforcing factors. The predisposing factors are individual knowledge, attitudes, and stigma. The enabling factor includes the availability of health facilities, infrastructure, accessibility, and the easy way to reach health services in terms of distance, cost, and availability of transportation facilities. While, reinforcing factors such as attitudes and family behavior, health workers, and community leaders (Perdana et al., 2017; Chang et al., 2019; Wellay et al., 2018). Our study aimed to analyze the factors which determine the utilization of VCT by women of reproductive age living with HIV (WRALHIV) in West Papua.

## Method

The study design was cross-sectional through an observational method. The study sites were VCTs at Manokwari hospital, Sele Be Solu Sorong Hospital, and Fak-fak Hospital, in West Papua Province, from May to July 2019. The total subjects were 140 respondents. The inclusion criteria were WRALHIV, aged

15-49 years old, and receiving ARV therapy. The dependent variable was the utilization of VCT. While, the independent variables were demographic factors (age, education, occupation, marital status), predisposing factors (attitude, stigma), enabling factors (distance, transportation), and reinforcing factors (social support, health guarantee).

Data collection was carried out through interviews and observation using a questionnaire which has been assessed for validity and reliability. The data were analyzed univariate to show the frequency and proportion of each variable, and bivariate to identify the association between dependent and independent variables. The data analysis used chi-square and logistic regression statistic tests with a significance of  $\alpha=0.05$ . This study already received ethical clearance from the Ethics Commission of the National Institute of Health Research and Development, Indonesian Ministry of Health through decree No. LB.02.01/2/KE.008/2019.

**Result and Discussion**

The Women of reproductive age living with HIV (WRALHIV) who had higher intensity in the utilization of VCT services

were aged 15-35 years old, graduated from senior high school-university, unemployed, and married. The women of reproductive age (WRA) who already accessed the VCT services without experiencing negative stigma were about 95.7%, while the rest still experienced negative stigma. The proportion of WRA with health guarantees was higher than those without health guarantee, and the number of women of reproductive age who use public transportation to reach the VCT was higher than those who use private transportation (Table 1).

This study found that age was not significantly associated with the utilization of VCT by WRALHIV in West Papua. The utilization of VCT by respondents aged 15-35 years old was almost similar to those aged 36-49 years old. Although statistically, age was not significantly associated with the utilization of VCT, another study found that age affects the utilization of health services (Mirmoghadam et al., 2019). Age determined the increase in disease incidence, the change in morbidity pattern (Wing, 2017; Rod, 2022), and the determinants of health service requirements (Seidu, 2020). Most of the respondents who utilized the VCT services in West Papua were women of reproductive age in the range

**Table 1.** Characterization of Women of Reproductive Age Living with HIV Accessing VCT Services May - July 2019 in West Papua

Variables	Category	Frequency (f)	Percentage (%)
Age	15-35 years old	71	50,7
	36-49 years old	69	49,3
Education	Elementary-Junior school	37	26,4
	Senior high school-University	103	73,6
Profession status	Unemployment	72	51,4
	Working	68	48,6
Marital Status	Single	69	49,3
	Married	71	50,7
Negative Stigma	Without negative stigma	126	90,0
	With negative stigma	14	10,0
Distance	Near	107	76,4
	Far	33	23,6
Health Guarantee	Yes, have	118	84,3
	No, have not	22	15,7
Transportation	Private transportation	63	45,0
	Public transportation	77	55,0
Social Support	No, have not	41	29,3
	Yes, have	99	70,7
Attitude	Positive	134	95,7
	Negative	6	4,3

Source: Primary Data, 2019

The variables of age, education, profession, and marital status (demographic factors) were not significantly associated with the utilization of VCT by women of reproductive age in West Papua. Statistically, the result showed all of its  $p$ -value  $> 0.05$  (Table 2). The education of WRALHIV was not significantly associated with the utilization of VCT services. In this study, the utilization of VCT was higher among WRALHIV who graduated from senior high school - university than those who graduated from a low level of senior high school-university education. Generally, a person whose high education would tend to utilize health services as well as possible (Saracino et al., 2018). Education level was a significant factor in visiting health services continuously among PLHIV in China (Jin et al., 2021). A study in Africa found higher education levels increased the accessibility to following ARV therapy (Erena et al., 2019). AIDS education goals are to prevent new infections by giving people information about HIV and teaching them to act on it practically, to improve the PLHIVs quality of life, and also to reduce stigma and discrimination (Factlv.org, 2021).

The job status was not significantly associated with the utilization of VCT by WRALHIV in this study. Both the worker and unemployment WRALHIV already had utilized the VCT services in West Papua, although the count number of unemployment WRALHIV was slightly higher than the worker. Employment status among PLHIV is associated with not being late to test for HIV and medication adherence (Maulsby et al., 2020). There was inadequate antiretroviral therapy coverage among PLHIV in Africa, which affected productivity and working ability. Also, HIV-negative males or females living with an HIV-positive person lost the opportunities for paid jobs compared with those who have no family members with HIV (Cattaneo, 2019). A study in Toronto revealed that PLHIVs experienced many common barriers during their attempt to attain or maintain employment, including stigma in workplaces (Perri et al., 2021). Other studies found many PLWHA had to keep covering their HIV status to prevent losing jobs. Thus they still have income and can fulfill their financial needs and healthcare cost (Factlv.org, 2021).

**Table 2.** Association of Demographic Variables with VCT Utilization by Women of Reproductive Age Living with HIV Accessing VCT Services from May to July 2019 in West Papua

Variables	Category	Utilization of VCT services		<i>p</i> -value
		Low	High	
Age	15-35 years old	17	54	0,540
	36-49 years old	17	52	
Education	Elementary-Junior school	9	28	0,579
	Senior high school-University	25	78	
Profession status	Unemployment	17	55	0,502
	Working	17	51	
Marital Status	Single	16	53	0,845
	Married	18	53	

Significance Level  $p < 0,05$

Source: Primary Data, 2019

In this study, marital status was not significantly associated with the utilization of VCT by WRALHIV. Both married and single had utilized the VCT services well. It was different from a study in Africa that reported the association between marital status, health services accessibility and adherence to ARV

therapy. Married people suffering from HIV tend to have positive attitudes that could affect the accessibility, and adherence to ARV therapy (Heestermans et al., 2016). Thus marital status might affect a person's attitude during healthcare seeking. Generally, unmarried women or widows were less to seek healthcare

than married women. These could be affected by some factors, such as keeping secret their disease status, and economic factors, like having no income since being a widow or jobless (Shrestha et al., 2017). Although the PLWHA could access ARV drugs freely at VCT, they still require money to access another healthcare service.

The predisposing factors were not significantly associated with the utilization of VCT. However, the variable of distance (enabling factor) and social support (reinforcing factor) were significantly associated with the utilization of VCT (p-value <0.05). The tendency to utilize the VCT services was high among women of reproductive age whose residences were near VCT services and had social support (Table 3).

**Table 3.** Association of Predisposing, Enabling and Reinforcing Factor Variables with VCT Utilization by Women of Reproductive Age Accessing VCT Services from May to July 2019 in West Papua

Variables	Category	Utilization of VCT services		p-value
		Low	High	
<i>Predisposing factor</i>				
Attitude	Negative	28	5	0,549
	Positive	6	101	
Negative stigma	Without negative stigma	28	95	0,545
	With negative stigma	6	11	
<i>Enabling factor</i>				
Distance	Near	6	100	0,000*
	Far	28	6	
Transportation	Private transportation	12	51	0,236
	Public transportation	22	55	
<i>Reinforcing factor</i>				
Social support	No, have not	5	36	0,033*
	Yes, have	29	70	
Health guarantee	Yes, have	29	89	0,547
	No, have not	5	17	

\*Significance Level p<0,05

Source: Primary Data, 2019

The attitudes and stigma were not significantly associated with VCT utilization by WRALHIV in this study. Most of them never experienced negative stigma during accessing VCT. The negative stigma existing inside the health services could destruct the PLWHA's trust in health facilities where they access the treatments. A study in Ethiopia reported that stigma reduces PLWHA's participation in the VCT program (Erena et al., 2019). The negative stigma potentially made the PLWHA be an objection to open about their HIV status, especially to their family and medical workers related to medication. Thus, the negative stigma must be eliminated. Stigma elimination could be carried out through health education

programs, such as education in school (Jacobi et al., 2020), advocacy campaigns, and government policies (Youssef et al., 2021). The negative stigma toward PLWHA during access to health services could obstruct the utilization of those services, affect the PLWHA's trust and their knowledge about HIV and AIDS, and might degrade their confidence (Raghupathi & Raghupathi, 2020; Rueda et al., 2016).

The logistic regression model showed the utilization of VCT services as a dependent variable associated with distance and social support as the independent variable. The association between the utilization of VCT services with distance was higher significant compared to social support.

**Table 4.** Factors Associated with Utilization of VCT Services Resulting from Logistic Regression Analysis

Variables	B	SE	wald	df	sig	Exp (B)
Distance	-8,096	1.429	32.095	1	0.000	0.000
Social Support	-.559	1.706	0.107	1	0.743	0,572

Source: Primary Data, 2019

The distance variable (enabling factor) was significantly associated with the utilization of VCT by WRALHIV, with a p-value <0.05. The house distance, which was near to VCT service, was very essential for WRALHIV in West Papua. This study took place in VCTs inside the capital of the regency or urban area. Therefore, the respondent's proportion whose residences were near VCT was about 71% of them. A study in Indonesia indicated that an adult who lived in an urban area has a probability to access health services 1.1% higher than those who lived in a rural area (Laksono et al., 2019). The health services, drug supplies, and drug distributions in urban areas were faster and more adequate than in rural areas.

Moreover, the regencies as sites in this study had enough smooth transportation. Besides, the VCTs locations were easy to reach using public transportation. In addition, the VCT's service waiting time was not too long. Thus, women of reproductive age always come to VCT for accessing ARV drugs at least once a month, even though they have to pay the extra cost for long-distance transport. A study in Malawi stated that VCT services were less utilized by the group of PLWHA who sexually active due to accessibility issues. Though the highest prevalence of HIV/AIDS was among the group aged 15-24 years old, they could not access the services. However, the inadequate infrastructure was still a problem (World Health Organization, 2019).

Based on a study in Romania, the high concentration of infrastructure and specialized medical personnel in particular regions or large cities limits the access of a large part of the population to reach quality health services because of longer travel times and distances. The rest of them could not access health services because of the geographical factor (Dumitrache et al., 2020).

Statistically, the social support (reinforcing factor) was significantly associated with the utilization of VCT by women of reproductive age in this study. Most women of

reproductive age in West Papua receive social support, both from medical workers and the peer community. Social support from the peer community could upgrade the knowledge about HIV/AIDS among the community members. The peer community provided the possible place to communicate and learn updated information on HIV/AIDS among the members through discussion activities involving the health workers and seminar activities. The openness and comfort conditions made the information transfer easier among them (Wang et al., 2019). Another study found women suffering from HIV/AIDS receiving support from people around them had good self-conception and tend to utilize the health services well (Roberts et al., 2021).

The social support made PLWHA realize they are not alone, still be loved, have good knowledge and sharing information about HIV/AIDS, and comply with ARV therapy. Finally, these empower themselves and improve their quality of life (Li et al., 2018; Bhatta et al., 2017). The limitation of our study is all these study sites were located in the capital city of the regencies. Therefore the factors which determined the utilization of VCT services in the rural area are still not represented yet.

## Conclusion

The distance accessibility and social support were significantly associated with increasing the utilization of VCT by women of reproductive age living with HIV in West Papua. The easily accessible distance increases their visitation to VCT. Also, the social support given to them affects increasing VCT utilization. Finally, these will improve their quality of life. We recommend the government of West Papua Province assists health services providers and patients using a proactive, comprehensive, and socio-cultural approach to increase coverage of utilization of VCT services and health promotion about the purpose and benefit of accessing VCT services.

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## References

- Armstrong-mensah, E.A., Tetteh, A.K., & Ofori, E., 2022. Voluntary Counseling and Testing, Antiretroviral Therapy Access, and HIV-Related Stigma : Global Progress and Challenges. *International Journal of Environmental Research and Public Health*, 19(6597), pp.1–15.
- Bhatta, D.N., Liabsuetrakul, T., & McNeil, E.B., 2017. Social and Behavioral Interventions for Improving Quality of Life of HIV Infected People Receiving Antiretroviral Therapy: A Systematic Review and Meta-Analysis. *Health and Quality of Life Outcomes*, 15(1), pp.1–14.
- Care, P., Nguyen, R.N., Ton, Q.C., Tran, Q.H., Kieu, T., & Nguyen, L., 2020. Mother-to-Child Transmission of HIV and Its Predictors Among HIV-Exposed Infants at an Outpatient Clinic for HIV/AIDS in Vietnam. *HIV/AIDS Research and Palliative Care*, 12, pp.253–261.
- Cattaneo, U., 2019. *The Impact of HIV on Care Work and the Care Workforce*.
- Chang, A.Y., Skirbekk, V.F., Tyrovolas, S., Kassebaum, N.J., & Dieleman, J.L., 2019. Measuring Population Aging: an Analysis of the Global Burden of Disease Study 2017. *The Lancet Public Health*, 4(3), pp.e159–e167.
- Dinas Kesehatan Provinsi Papua Barat., 2016. *Jumlah kasus HIV AIDS Papua Barat..*
- Direktorat Jenderal Bina Kesehatan Ibu dan Anak Kementerian Kesehatan RI., 2015. *Pedoman Manajemen Program Pencegahan Penularan HIV dan Sifilis dari Ibu ke Anak*. Kementerian Kesehatan RI.
- Dumitrache, L., Nae, M., Simion, G., & Taloş, A.M., 2020. Modeling Potential Geographical Access of the Population to Public Hospitals and Quality Health Care in Romania. *International Journal of Environmental Research and Public Health*, 17(22), pp.1–18.
- Erena, A.N., Shen, G., & Lei, P., 2019. Factors Affecting HIV Counseling and Testing Among Ethiopian Women Aged 15-49. *BMC Infectious Diseases*, 19(1), pp.1–12.
- Factlv.org., 2021. *HIV / AIDS Education*.
- Fuspita, Y., Yona, S., & Waluyo, A., 2019. HIV Testing of Housewives with HIV in Lampung, Indonesia: A Qualitative Study. *S. Enferm Clin.*, 29(S2), pp.879–884.
- Heestermaans, T., Browne, J.L., Aitken, S.C., Vervoort, S.C., & Klipstein-Grobusch, K., 2016. Determinants of Adherence to Antiretroviral Therapy Among HIV-positive Adults in Sub-Saharan Africa: A Systematic Review. *BMJ Global Health*, 1(4), pp.1–13.
- Herdanindita, E., Prabamurti, P.N., & Widjanarko, B., 2020. Gambaran Perilaku Pemanfaatan VCT (Voluntary Counseling and Testing) PADA LSL DI LSM SGC (Semarang Gaya Community) Kota Semarang. *Jurnal Kesehatan Masyarakat (e-Journal)*, 8(2), pp.284–292.
- Id, B.K., Adane, B., Damtie, Y., & Arefaynie, M., 2021. Unmet Need for Family Planning Among Reproductive-Age Women Living with HIV in Ethiopia : A Systematic Review and Meta-analysis. *PLoS ONE*, 2021, pp.1–12.
- Id, S.P.S., Nyabadza, F., & Hove-musekwa, S.D., 2019. On the Efficiency of HIV Transmission: Insights Through Discrete Time HIV Models. *PLoS ONE*, 2019, pp.6–8.
- Jacobi, C.A., Atanga, P.N., Bin, L.K., Jean, A., Fru, C., Eppel, G., Mbome, V.N., Etongo, H., Etonde, M., Bogner, J.R., & Malfertheiner, P., 2020. “ My Friend with HIV Remains a Friend ”: HIV / AIDS Stigma Reduction through Education in Secondary Schools-A Pilot Project in Buea, Cameroon. *Journal of the International Association of Providers of AIDS Care*, 19, pp.1–7.
- Jin, Y., Assanangkornchai, S., Fang, M., Guan, W., Tian, B., Yu, M., & Du, Y., 2021. Measuring the Uptake of Continuous Care Among People Living with HIV Receiving Antiretroviral Therapy and Social Determinants of the Uptake of Continuous Care in the Southwest of China: a Cross-sectional Study. *BMC Infectious Diseases*, 21(943), pp.1–15.
- Kementerian Kesehatan RI., 2020. *Laporan Perkembangan HIV AIDS & Penyakit Infeksi Menular Seksual (PIMS) Triwulan III Tahun 2020*.
- Laksono, A.D., Wulandari, R.D., & Soedirham, O., 2019. Urban and Rural Disparities in Hospital Utilization Among Indonesian Adults. *Iranian Journal of Public Health*, 48(2), pp.247–255.
- Li, X.M., Yuan, X.Q., Rasooly, A., Bussell, S., Wang, J.J., & Zhang, W.Y., 2018. An Evaluation of Impact of Social Support and Care-Giving on Medication Adherence of People Living with

- HIV/AIDS A Nonrandomized Community Intervention Study. *Medicine (United States)*, 97(28), pp.1–6.
- Maulsby, C.H., Ratnayake, A., Hesson, D., Mugavero, M.J., Latkin, A., & Library, M., 2020. A Scoping Review of Employment and HIV. *AIDS Behav*, 24(10), pp.2942–2955.
- Mirmoghadam, Z., Karami, M., Mohammadi, Y., & Mirzaei, M., 2019. The Profile of Health Care Utilization among HIV/AIDS Patients in Iran from 1987 to 2016: A Nationwide Study. *Clinical Epidemiology and Global Health*, 7(3), pp.429–434.
- Myburgh, D., Rabie, H., Slogrove, A.L., Edson, C., Cotton, M.F., & Dramowski, A., 2020. Infectious Diseases Horizontal HIV Transmission to Children of HIV-Uninfected Mothers: A Case Series and Review of the Global Literature. *International Journal of Infectious Diseases*, 98, pp.315–320.
- Ndubani, R., Bond, V., Seeley, J., Reynolds, L., & Hoddinott, G., 2017. Community Narratives about Women and HIV Risk in 21 High-burden Communities in Zambia and South Africa. *International Journal of Women's Health*, 2017, pp.861–870.
- Perdana, M.V., Demartoto, A., & Indarto, D., 2017. Effects of Predisposing, Enabling, and Reinforcing Factors on the Uptake of Voluntary Counselling and Testing among Female Sex Workers in Grobogan, Central Java. *Journal of Health Promotion and Behavior*, 2(3), pp.242–256.
- Perri, M., Craig-neil, A., Gaspar, M., Hunter, C., Kendall, C., & Alexander, O., 2021. A Qualitative Study of Barriers to Employment Experienced by People Living with HIV in Toronto and Ottawa. *International Journal for Equity in Health*, 20(36), pp.1–7.
- Raghupathi, V., & Raghupathi, W., 2020. The Influence of Education on Health: An Empirical Assessment of OECD Countries for the Period 1995-2015. *Archives of Public Health*, 78(1), pp.1–18.
- Ran-Van-der-Wal., 2021. HIV-Sensitive Social Protection for Vulnerable Young Women in East and Southern Africa: a Systematic Review. *Journal of the International AIDS Society*, 24, pp.1–26.
- Roberts, S.T., Edwards, P., Financing, H.C., Program, P., Mulenga, D., Council, P., Chelwa, N., Council, P., Nyblade, L., Division, G.H., Brander, C., Council, P., Musheke, M., Council, P., Mbizvo, M., Council, P., Subramanian, S., & Health, P., 2021. Family Support for Adolescent Girls and Young Women Living with HIV in Zambia: Benefits, Challenge, and Recommendations for Interventions Development. *J Assoc Nurses AIDS Care*, 32(2), pp.160–173.
- Rod, B., 2022. Review Ageing with HIV: Challenges and Biomarkers. *EBioMedicine*, 77.
- Rueda, S., Mitra, S., Chen, S., Gogolishvili, D., Gliberman, J., Chambers, L., Wilson, M., Logie, C.H., Shi, Q., Morassaei, S., & Rourke, S.B., 2016. Examining the Associations between HIV-related Stigma and Health Outcomes in People Living with HIV/AIDS: A Series of Meta-analyses. *BMJ Open*, 6(7), pp.e011453.
- Saracino, A., Zaccarelli, M., Lorenzini, P., Bandera, A., Marchetti, G., Castelli, F., Gori, A., Girardi, E., Mussini, C., Bonfanti, P., Ammassari, A., & D'Arminio-Monforte, A., 2018. Impact of Social Determinants on Antiretroviral Therapy Access and Outcomes Entering the Era of Universal Treatment for People Living with HIV in Italy. *BMC Public Health*, 18(1), pp.1–12.
- Scott, S.R., & Wu, Z., 2019. Biosafety and Health Risks and Challenges of HIV Infection Transmitted via Blood Transfusion. *Biosafety and Health*, 1(3), pp.124–128.
- Seidu, A., 2020. Using Anderson 's Model of Health Service Utilization to Assess the Use of HIV Testing Services by Sexually Active Men in Ghana. *Frontiers in Public Health*, 8, pp.1–10.
- Shrestha, R., Philip, S., Shewade, H.D., Rawal, B., & Deuba, K., 2017. Why don't Key Populations Access HIV Testing and Counselling Centres in Nepal? Findings Based on National Surveillance Survey. *BMJ Open*, 2017, pp.1–8.
- UNAIDS., 2017. UNAIDS data 2017. *Programme on HIV/AIDS*.
- Wang, W., Chen, R., Ma, Y., Sun, X., Qin, X., & Hu, Z., 2019. The Impact of Social Organizations on HIV / AIDS Prevention Knowledge among Migrants in Hefei, China. *Globalization and Health*, 14(41), pp.1–9.
- Welay, T., Gebreslassie, M., Mesele, M., Gebretinsae, H., Ayele, B., Tewelde, A., & Zewedie, Y., 2018. Demand for Health Care Service and Associated Factors among Patients in the Community of Tsegedie District, Northern Ethiopia. *BMC Health Services Research*, 18(1), pp.697.
- Wing, E.J., 2017. The Aging Population with HIV Infection. *Trans Am Clin Climatol Assoc.*, 128(2).
- World Health Organization., 2019. Adolescent-friendly Health Services for Adolescents



*Living with HIV: From Theory to Practice.*  
Youssef, L., Id, S.H., Id, H.S., & Salameh, P., 2021.  
Knowledge, Attitudes and Practices Towards

People Living with HIV/AIDS in Lebanon.  
*PLoS ONE*, 2021, pp.1–15.