



RESEARCH ARTICLE

Increasing Capacity for HIV Testing in Davao, Philippines: An Interdisciplinary Training Approach to Improve Equity in the HIV Care Continuum

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Abstract

Background: Studies suggest that less than 10% of the total population in the Philippines have been tested for human immunodeficiency virus (HIV) and only 2% of women ages 18-45. Improving access to testing is imperative to building the HIV Care Continuum, given the aims of the United Nations' 95-95-95 targets and Sustainable Development Goals (SDGs). International Public Health partnerships between several entities introduced a training program to certify a diverse spectrum of community providers to increase access to HIV counseling and testing in Davao City.

Methods: A community assessment was conducted and stakeholders were identified based on accessibility to services for women and natural integration within operations. Invitations to the training were extended to the groups identified. Participants included representatives from three universities, two nonprofit organizations, local clinics, two social work programs, a midwifery practice, three religious organizations, and local tribal leaders. The comprehensive HIV education, counseling, and testing training conference covered the span of one week with all-day sessions. Participants were required to take a pre-test, attend all sessions, and complete a post-test.

Results: Thirty-one participants in Davao City were trained and certified in HIV counseling and testing. Twenty-four participants met the inclusion criteria for analysis. Exams were composed of three parts designed by the Philippines Department of Health to measure competency for HIV certification. Pre-test scores indicated low levels of HIV knowledge with a mean score of 27.97% and a range of 9.59-54.79%. Post-tests were given one week later and the mean increased markedly to 87.61% with a range of 52.05-97.26%. A Wilcoxon Rank Sum Test showed a high level of statistical significance ($p < 0.001$) between the pre- and post-test scores.

Conclusions: HIV education, counseling, and testing can now be made available from several community-based organizations for unreached populations including women at risk in the Philippines. The COVID-19 pandemic restricted plans for HIV program distribution and systems to provide HIV test kits and referrals. As COVID-19 has slowed, plans have resumed and data will be collected for tracking, linkage to care, and adherence. This vital phase is foundational in the HIV Care Continuum, core SDGs, and 95-95-95 targets for the Philippines.

Keywords

HIV/AIDS, HIV education, Continuum of care, Community health, Philippines

Background

Human immunodeficiency virus (HIV) has negatively impacted the world and has affected over 85.6 million individuals [1]. In 2022 alone, 1.3 million individuals were newly diagnosed with HIV and 630,000 individuals died from HIV-related causes worldwide [1]. By the end of 2022, there were approximately 39 million individuals living with HIV globally [1]. Without proper treatments, HIV can progress to acquire immunodeficiency syndrome (AIDS), which can be life-threatening. Since the start of the HIV/AIDS epidemic, HIV/AIDS has already killed 40.4 million people [1]. However, with early diagnosis and antiretroviral therapy (ART), patients can reduce their viral load to be undetectable, which reduces the spread of disease and increases life expectancy. A prompt diagnosis is imminently needed to decrease the incidence of HIV from spreading and progressing to AIDS. Between 2000 to 2019, HIV saw many clinical advances in HIV prevention, diagnosis, and treatments, which has led to a significant decrease in new HIV cases and mortality rates. Globally, new cases have decreased by 38% and mortality rates have decreased by 51% since 2010 [1].

According to the World Health Organization (WHO), 86% of individuals living with HIV knew they were HIV positive, 76% of individuals diagnosed with HIV were prescribed antiretroviral therapy (ART), and 71% of HIV positive individuals received ART and had suppressed viral loads [1]. The WHO advocates for the HIV treatment course to be integrated with HIV education in an effort to improve HIV testing rates, early ART initiation, and prompt linkage to healthcare which are directly linked to more positive health outcomes [1]. Education and counseling interventions with testing serve as another essential component in the HIV continuum of care. This strategic multi-layered intervention allows for an interdisciplinary approach to the treatment course and corresponds with the 95-95-95 targets from The Joint United Nations Programme on HIV/AIDS (UNAIDS) and the United Nations' Sustainable Development Goal Three [2,3].

In relation to the geographical focus of this study, Southeast Asia and the Pacific have made significant progress in primary interventions relating to the continuum of care for HIV. In 2019, 5.8 million individuals from Southeast Asia were diagnosed with HIV and 3.48 million adults were prescribed ART [4]. While there are advances in the primary interventions in Southeast Asia and the Pacific region, the Philippines continues to be overlooked. The number of new HIV infections in the Philippines increased by 237% from 2010 to 2020 [5]. The number of AIDS-related deaths also increased by 315% during that same period, making the country one of the fastest-growing regions in the world related to the spread of HIV [5]. In the Philippines, there were over 140,000 adults and children estimated to be living

with HIV, 21,000 newly infected children and adults, and 1,200 child and adult deaths due to HIV/AIDS at the end of 2021 [6]. Although the country's total HIV prevalence rate is less than 1%, the Philippines still has the highest rate of new infections in the Pacific and in Asia [5]. Additionally, 79% of the Southeast Asia region has been tested for HIV, yet only 2.3% of the population in the Philippines has received this crucial primary intervention [4,7].

As of 2023, there has been a 411% increase in total HIV cases in the Philippines since 2012 [8]. From January 2022 to January 2023, there was a 64% increase in the average of newly diagnosed HIV cases per day with an average of 28 HIV cases reported per day in January of 2022 and an average of 46 HIV cases reported per day in January of 2023 [9,10]. There was also a 66% increase in the total number of reported HIV cases in the nation with there being 875 total HIV cases reported in January 2022 and 1,454 total reported HIV cases as of January 2023 [9,10]. The number of newly diagnosed cases in females has increased by 102% from January 2022 to January 2023, while the number of newly diagnosed cases in males has increased by 65% [9,10]. Although cases have drastically increased, the number of individuals using ART has only increased by 11% from January 2022 to January 2023 [9,10]. The increase in total cases, even with the low testing rates, is extremely alarming.

Less than 1% of the 113.8 million people who live in the Philippines are reported to have HIV, yet it is classified as one of the top ten burdens of disease [4,11]. Causes and common risk factors of HIV in the Philippines include human trafficking, registered female sex work, long-term migrant work, injection drug use, and multiple sexual partners [4,11]. Furthermore, studies suggest women in the Philippines have a gap in HIV knowledge, risk factors, and where to seek testing [12,13]. The results indicated that 97.7% of participants never received primary interventions for HIV, 35.7% were unaware of where to obtain HIV screening services, 9.6% had no prior knowledge of HIV, and 17.1% had misconceptions relating to the epidemiology of HIV, believing HIV can be transmitted via handshaking [12,13]. It is evident there is a significant discontinuity in the continuum of care in the Philippines, specifically in education and counseling interventions for HIV prevention and treatment. The purpose of this study is to expand the capacity of HIV counseling and testing services in Davao through HIV education and PHDOH certification among diverse community workers. This will further assist the country in meeting the UNAIDS' SDG 95-95-95 targets.

Methods

There were binational ethics approvals through the Philippines and US entities. A community assessment was conducted in the Philippines and stakeholders were

identified based on accessibility to services for women and natural integration within operations. Invitations to the training were extended to the health service groups previously identified. The study design was a single cohort, quasi-experimental with bivariate analysis.

Participants included community health workers who work with unserved populations, from three universities, two nonprofits, local clinics, two social work programs, a local midwifery practice, three local religious organizations, and tribal leaders. Of the original sample size of 31 male and female participants, 24 were retained for analysis based on inclusion and exclusion criteria. Inclusion criteria required participants to be at least 18 years old, reside in Davao, complete the pre- and post-test, and not participate on the research team. The study participants included 25% males and 75% females, 70.83% were 20-44 years old and 29.17% were 45-66-year-olds. This diversity of this population resembled the community of Davao. The range in skill, education, and experience lent to the success of comprehensive HIV education.

The comprehensive HIV education, counseling, and test training program lasted one week and included all-day HIV educational sessions. Participants were trained on the causes of HIV, risk factor assessment, transmission, prevention, counseling techniques, HIV screening, result interpretation, confidentiality, reporting, referral processes, and treatment. After consenting to participate, participants took the pre-test, attended all sessions, and completed a post-test. The training was conducted using the train-the-trainer teaching model. This model was utilized to prepare community health workers with knowledge related to HIV so that they may then extend this knowledge to others and become trainers themselves. This important

public health training method helped to extend the scope and breadth of evidence-based HIV education to fill critical knowledge gaps in Davao communities.

The Philippines Department of Health designed the pre and post-tests, which were identical and consisted of three parts to measure competency for HIV certification. The tests were administered in English- the Davao educational system language- and were utilized to measure knowledge for a dual certification for HIV counseling and HIV testing.

Statistical analyses were conducted using the Statistical Package for the Social Sciences version 26 (SPSS). To assess the differences with pre and post-tests, nonparametric bivariate analysis was performed using the Wilcoxon Rank Sum Test. A family-wise error rate of $p < 0.05$ was set to determine the significance of the intervention.

Results

Univariate analysis

Pre-test scores indicated low levels of HIV knowledge with a mean score of 27.97% and range of 9.59-54.79% as seen in [figure 1](#). These results emphasize the need for HIV education, counseling, and test training of community health workers in the Philippines. [Figure 2](#) highlights post-test scores, using the same instrument, which were given one week later. The mean drastically increased to 87.61% along with the range of 52.05-97.26%. The effectiveness of the training sessions to improve HIV knowledge, counseling, and testing skills was confirmed in the results.

Bivariate analysis

Univariate analyses were not normally distributed, and the Wilcoxon Rank Sum Test was used to analyze

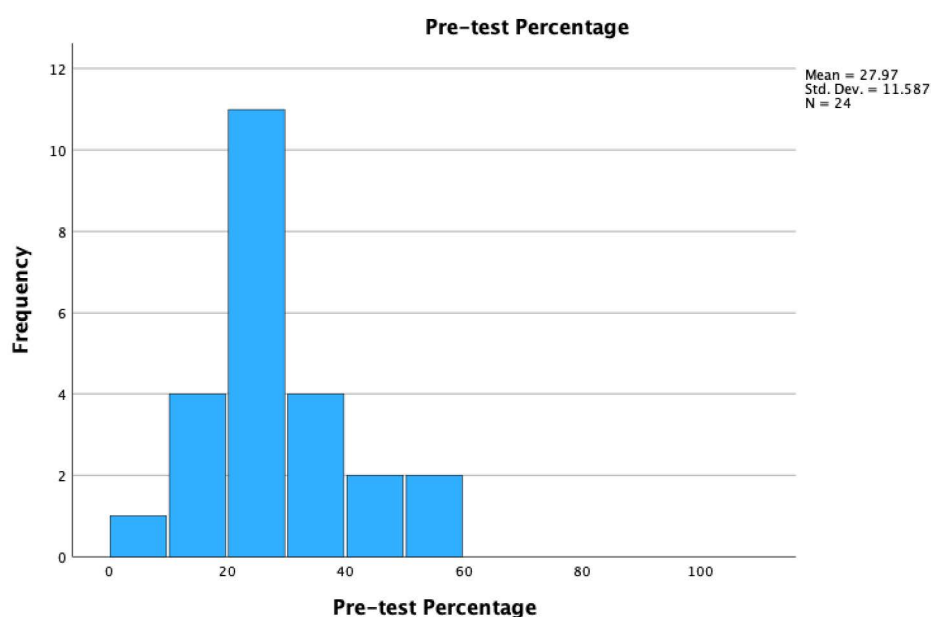


Figure 1: Scores of participants' HIV knowledge before the training sessions were initiated.

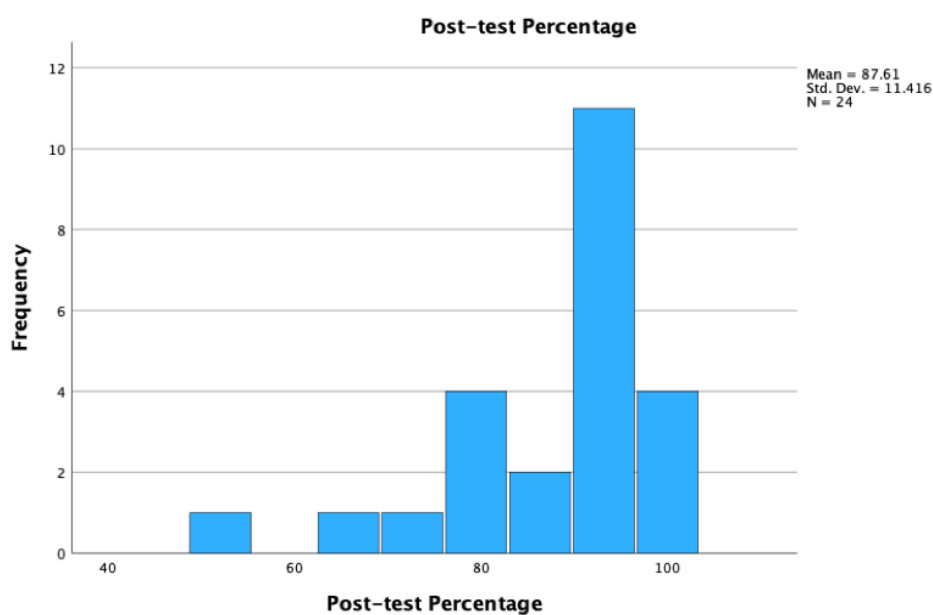


Figure 2: Participants' results after the week-long training on HIV education, counseling, and testing.1

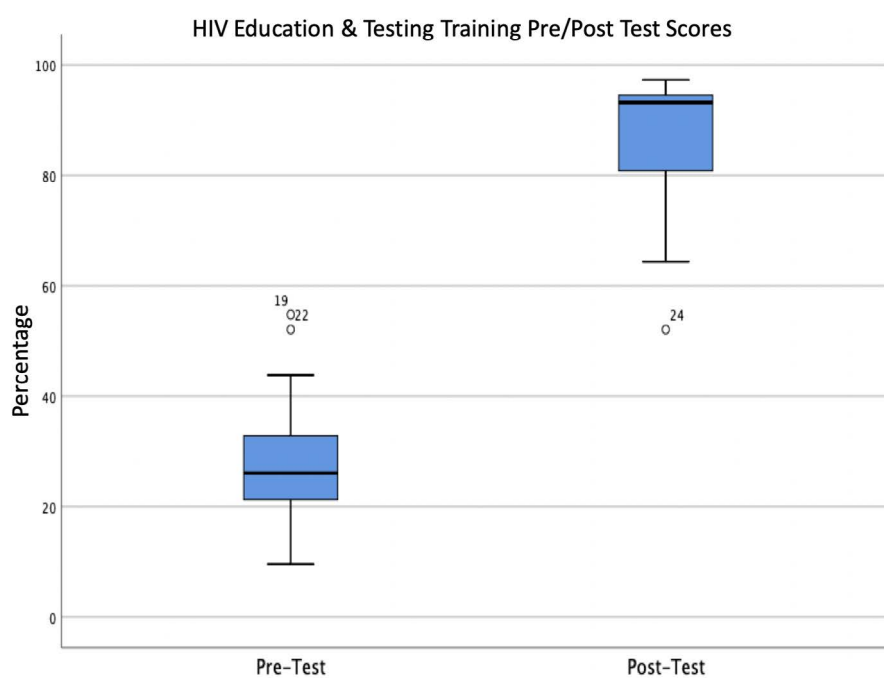


Figure 3: Wilcoxon Rank Sum Test results highlight the significant increase in HIV knowledge among participants ($p \leq 0.001$).

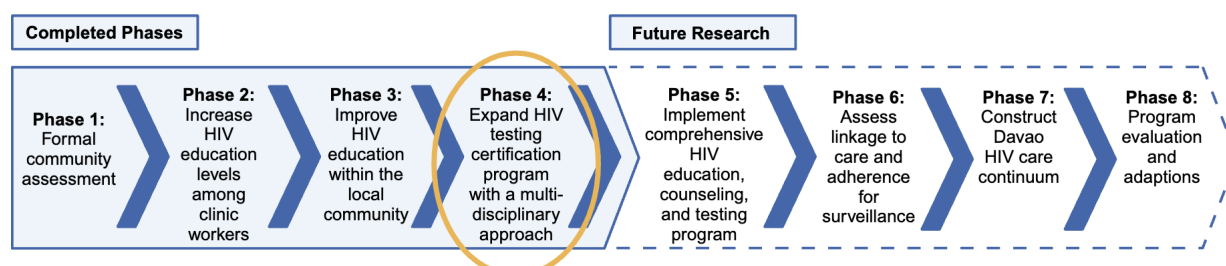


Figure 4: This study represents the progress in phase four within the collaborative research, program planning, and capacity building in Davao City, Philippines.

HIV knowledge improvement. Mean test scores increased from 27.97% to 87.61% after the training sessions were completed. The Wilcoxon Rank Sum Test confirmed these increases and showed a very high level of statistical significance ($p < 0.001$) between the pre and post-test measurements. Overall, the training equipped diverse community leaders with certification to provide HIV counseling and testing.

Discussion

Implications

The purpose of this study was to improve HIV counseling and testing services among community workers in Davao, Philippines. Given the substantial increase of HIV infections, significant risk factors, and lack of timely access to HIV testing, Philippine citizens are at risk for contracting and furthering the spread of HIV. Also, when HIV infections are not treated in a timely manner with ART, illness can progress to AIDS, and possibly death. Therefore, the infusion of evidence-based HIV counseling is critical to reduce the health disparities surrounding HIV in untested communities such as Davao.

The findings from this study suggest that the implementation of HIV train-the-trainer educational programs, including dual certification in HIV counseling and testing among community health workers, can provide an evidence-based knowledge foundation that can be extended to other community health workers. The statistically significant uptake in HIV knowledge noted in this study, following the participation in the educational program, offers a practical solution to increase health knowledge in communities where gaps and health disparities are prevalent.

This study makes several important contributions to improving access to accurate HIV knowledge and the outcomes of those affected by HIV. Firstly, HIV education, counseling, and testing can now be made available from several community-based organizations for untested populations including women, in the Philippines. Secondly, the train-the-trainer model is an effective way to equip community leaders to replicate the HIV educational components across communities beyond the scope of this study. As communities are empowered and equipped with high-quality HIV education, members will be able to assess their own risk for disease and obtain knowledge on where to get tested. Additionally, persons living with HIV can have better outcomes in terms of identifying the infection and connecting with an ART treatment regimen that will reduce preventable, negative sequelae of HIV. Lastly, as HIV infections are more readily identified and treated appropriately, the spread of HIV can be reduced. These important contributions align with the United Nations' 95-95-95 initiatives.

Clinicians should engage in partnerships with local community health workers who offer extended support in identifying and educating HIV-positive individuals. This collaborative approach can help link those identified with HIV infection to clinicians who can provide ongoing care, proper ART dosing, and monitoring. Similarly, clinicians can refer patients to community health workers who can provide ongoing HIV counseling, which has been previously identified as an effective strategy to support better HIV care outcomes [1,14].

Limitations

There may be limitations to the generalizability of the findings of this study due to the convenience sample. Another limitation is the small sample size due to the capacity of the PHDOH training session. Though the cohort was intentionally selected, there was no evidence of type 2 errors in the results. In fact, the increase in HIV knowledge was even more statistically significant than originally anticipated. Typically language is a barrier, however all of the participants had at least a high school education in English, but many were college-educated. PHDOH uses English exams for all participants to be certified in HIV counseling and testing, so the methodology was aligned with current government certification procedures.

Future Research

This study is phase four of eight in the collaborative research plan to build the continuum of care in Davao as seen in [figure 4](#). Future phases include expanding access to testing, linking patients to care, monitoring adherence to ART, and evaluating community viral loads.

The need for HIV mitigation in the Philippines outpaces the current resources available. A community-based approach is needed to strengthen healthcare systems to more effectively identify and treat persons affected by HIV. Additional research should be conducted with widespread HIV testing to more accurately understand precise HIV prevalence rates in the Philippines. Reports suggest that less than 1% of the Philippines population has been diagnosed with HIV [4,11]. However, only 2.3% of the entire population has been tested [4, 7]. A lack of testing contributes to a potential dilution of the number of actual HIV cases. Continued expansion in counseling and testing is imperative to understand the HIV burden of disease in the Philippines and link those infected to care.

Contribution Statement

All listed authors contributed to this study including aspects such as program design, implementation, analysis, and drafting the results.

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