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Cross-sectional study measuring the level and relationship of awareness, attitude and willingness to use HIV pre-exposure prophylaxis in Davao City, Philippines

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ABSTRACT

Objectives To improve on the implementation and uses of HIV pre-exposure prophylaxis (PrEP) programmes, factors affecting HIV PrEP willingness must be investigated. This study aims to determine not only the willingness to use HIV PrEP but also to establish whether awareness and attitude affect this.

Design This study used a cross-sectional survey research design to examine the awareness, attitude and willingness to use HIV PrEP in Davao City. The survey was adapted from multiple studies and was validated and pilot tested. Statistical analysis included descriptive and inferential statistics like correlation, linear regression and structural modelling.

Settings This research was conducted in Davao City, Philippines. This is one of the regions in the country with a high HIV incidence. The survey was conducted from March to June 2024.

Participants Participants were at least 18 years of age, currently living in Davao City and a permanent resident of the city.

Results A total of 258 respondents were gathered in this study, of which 53.10% of all respondents were fully aware of HIV PrEP, while 27.13% were partially aware. The study found the mean attitude and willingness to be 4.21±0.686 and 4.08±0.685, respectively. There was a significant difference in the awareness when grouped according to identity category (X^2=24.428; p value=0.002) and highest education attained (X^2=15.919; p value=0.044). Being fully aware positively affected willingness to use HIV PrEP by indirectly contributing positively to attitude towards HIV PrEP (β=0.180; p value=0.012).

Conclusion Generally, the awareness, attitude and willingness to use HIV PrEP is high. However, some respondents are hesitant to use HIV PrEP if it is not a hundred percent effective and unable to adhere to it. The results imply a need for action programmes involving various multidisciplinary stakeholders to ensure that the community possesses full awareness, positive attitudes and increased willingness to use HIV PrEP.

STRENGTHS AND LIMITATIONS OF THE STUDY

⇒ The survey was conducted online through social media posts which provide to potential respondents their voluntary participation, anonymity, privacy and comfort.
⇒ The survey instrument used was adapted from previous studies but has undergone reliability testing to ensure it is appropriate for use.
⇒ Stratified random sampling was used to ensure that the data are representative of the respondents in the city.
⇒ Gender identity and sexual preference were merged, but further studies should be more comprehensive and separate these to provide more insights.
⇒ A limitation of this study is that awareness was measured using two general 'yes/no' questions and cannot measure how much residents know about HIV PrEP.

INTRODUCTION

With the rise of HIV/AIDS in the country, biomedical interventions like HIV pre-exposure prophylaxis (PrEP) have become important in the prevention of HIV contraction and infection. HIV PrEP, with sufficient adherence, has been proven safe and effective in preventing HIV transmission.[1] Despite PrEP launching in 2017,[2] the literature surrounding its uses and its discrepancies in awareness, attitude and willingness to use among the people in Davao City is scant.

To put it into context, the Davao Region has consistently been high in HIV incidence. According to the Epidemiology Bureau of the Department of Health, the Davao Region was one of the top four regions with the highest HIV cases.[3] Additionally, the region was recorded as the fifth with the highest number of HIV incidences based on the HIV/AIDS Registry of the Philippines in May 2023.[4] Lastly, there have been 6736 cases of HIV in the region from 1993 to August 2023.[5]

Because of the increasing rise in HIV, the Davao Region has been assured enough antiretroviral medicines and dynamic treatment facilities.[5] The region has three treatment facilities: two in Davao City and one in Tagum City. The Southern Philippines Medical Center and the City Health Office through the Reproductive Health and Wellness Center are treatment facilities in Davao City, the region's capital city. At the same time, the Davao Regional Medical Center is the treatment hub in Tagum City. There have also been plans to increase the number of treatment facilities, making one in every province.[5]

Despite that, there is not enough research and investigation highlighting the awareness and acceptability of Davaoeños regarding HIV PrEP use and access. At the same time, the related literature in other regions in the Philippines shows some variation. A study in Metro Manila showed that one in two transgender Filipinas was unaware of HIV PrEP but was interested in knowing more about it.[6] Meanwhile, a study conducted in Cebu and the National Capital Region found that HIV PrEP awareness and interest were high in men who have sex with men.[7] A study in the Philippines has also shown that PrEP initiation is low, which leads to suboptimal outcomes of other HIV-related services like online-based HIV self-testing.[8] These findings indicate the importance of the current study in Davao City, and addressing PrEP awareness, attitude and willingness may enhance its use and access.[9]

Clearly, a knowledge gap must be addressed to implement PrEP programmes and other prevention strategies better. This is where the current study positions itself. This study aims to measure the level of awareness, attitude and willingness to use HIV PrEP among the people in Davao City, Philippines. Furthermore, the relationship between these three variables and other factors that could affect these variables shall also be established. Understanding the awareness and attitude of Davaoeños will shed light on PrEP discrepancies, including its use and accessibility. It will allow key stakeholders like policymakers and health agencies to determine the willingness of the community to use HIV PrEP and how awareness and attitude can affect this. Ultimately, this research can be of benefit to health promotion campaigns targeted towards the prevention of HIV/AIDS.

MATERIALS AND METHODS

Research design

The research design used in this study was a quantitative, cross-sectional survey design. A quantitative research design involves generating and using numerical data that answer specific research questions using statistical inference techniques.[10] Additionally, a cross-sectional design was used because data collection was done at a single point in time on a large sample to get a 'screenshot' of the parameters and constructs of interest.[11] Cross-sectional designs are usually used in public health to monitor the prevalence of health outcomes, describe population characteristics and understand health determinants.[12]

Research locale and respondents

The research locale of this study was the capital city of Region XI, Davao City. Davao City had a population of 1 776 949 in 2020.[13] Additionally, the city also has three congressional districts with 11 administrative districts: Poblacion, Talomo, Buhangin, Bunawan, Agdao, Paquibato, Baguio, Calinan, Marilog, Toril and Tugbok.[14]

The general population of Davao City was the respondents of this study. For inclusion, the respondents should be permanent residents and currently living in Davao City during the data collection, aged at least 18 years. Exclusion criteria include those mentally challenged individuals who are physically unable to answer the survey, prepubescent individuals, adults older than 60 years, and individuals who do not live in Davao City during the time of collection.

Because the current study collected data from the general population of the research locale, a representative sample was most appropriate. The sampling method to be used is stratified random sampling. The population of Davao City is based on the 2020 Census of Population and Housing of the Philippine Statistics Authority. The total population was 1776949.[15] A sample size of 385 was calculated using the Raosoft sample size calculator (https://raosoft.com/samplesize.html) with a 95% CI and a 5% margin of error. Then, stratification was done based on the 11 administrative districts of Davao City.

Research instrument

The research instrument used in this study was a structured survey questionnaire. The survey was composed of four sections: demographics, awareness, attitudes and willingness to use HIV PrEP. Before the second section, a brief description of HIV PrEP was included so that regardless of awareness, respondents are introduced to and informed of the nature of HIV PrEP. The survey will take less than 30 min to finish. The questionnaire was prepared in two languages (English and Filipino) to ensure that the potential participants easily understood what was being asked and to increase survey comprehension.

Only selected demographic characteristics were collected to ensure that sensitivity and privacy were upheld. For this reason, only age, gender identity, location (administrative district of residence), highest education obtained and marital status were collected in the survey's first section.

The questions in the succeeding sections were adapted from previous studies in the literature. From an earlier study, awareness of HIV PrEP was established if respondents answered yes to two yes-or-no questions or either of these two.[16] The first question asked respondents if they had heard of HIV PrEP before the study, and the follow-up question asked whether they had heard of a programme for taking antiretroviral drugs to prevent the contraction of HIV. However, the current research categorised respondents as fully aware if they answered yes to both questions, partially aware if either of the two were responded to with yes and not aware if both questions

were answered with no. Furthermore, the respondents were also asked whether they were offered HIV PrEP before. Then, participants were asked from among a set of choices which channel was the source of their awareness.

The researcher adapted questions for attitude from the study of Mueses-Marín *et al* [17] . In assessing willingness to use HIV PrEP, the researcher adapted from the survey conducted by Holt *et al* [18], but an item was removed because it did not fit the context of the current study. There are five statements for attitude and six statements for willingness to use. Additionally, both sections of the questionnaire used a 5-point Likert scale to assess the respondents' agreement with these items.

The final survey was validated and tested for reliability and consistency. The researcher requested content validation from three experts. These experts are from the College of Pharmacy and Chemistry: one is an expert in research, one in pharmacy practice and one in statistics. Then, the questionnaire was pilot-tested on 12 participants to obtain reliability data. The pilot test revealed good reliability (α=0.854) for attitude and acceptable reliability (α=0.734) for willingness to use. A copy of the survey is attached as supplementary material (online supplemental 1).

Data gathering procedures

Before actual data collection, the researcher sought approval from relevant stakeholders. Specifically, the researcher sought permission from the city mayor's office of Davao City since the target respondents are the city's general population. Furthermore, the study underwent a research ethics review from the University of the Immaculate Conception Research Ethics Committee. After obtaining permission and ethical clearance, the actual data collection commenced.

Data collection was done online. Google Forms was used as the survey platform. Multiple social media posts were done on Facebook, Instagram, LinkedIn and X (formerly Twitter) to invite potential respondents. The link to access the Google Forms survey was already included in these posts. To ensure that Davaoeños were targeted, the researcher used targeted audience services of these social media platforms. Google Forms can limit to one response per email so that multiple participation is mitigated. An informed consent form precedes the survey and must have been approved by the respondents before allowing access to the questionnaire.

Furthermore, names were not collected throughout the survey to ensure anonymity and privacy and to mitigate social desirability bias among potential respondents. Those who did not agree to participate could not access the survey. The survey period ran for 3 months (March to June 2024) to ensure the target sample was obtained.

Data analysis

After data collection, the researcher conducted data cleanup. Once this was done, the researcher proceeded to statistical analysis and inference. In this study, a multitude of descriptive and inferential statistical tests and tools were used. The researcher used JASP V.0.18.3, an open-access and capable statistical software, to conduct these tests. Mean, median, SD, frequencies and percentages were used to describe data. Then, an initial assessment of the relationship between awareness, attitude and willingness to use was determined through Pearson's correlation, Spearman's rank correlation and linear regression. Then, mediation analysis through the JASP Process (beta) module was used to identify causal relationships between the constructs. Additionally, ANOVA and χ^2 test were used to determine demographic variability among the constructs of interest.

Patient and public involvement

The researcher has taken into consideration the public involvement of this research. Because the Davaoeños were target respondents, the researcher has requested approval from the city government and an authorisation letter was issued. Throughout the conduct of this research, the author has worked with a government-owned HIV-dedicated treatment hub in Davao City, the Reproductive Health and Wellness Center (RHWC). Furthermore, the results were also shared with RHWC.

RESULTS

Table 1 below shows the demographic characteristics of the sample. Of the 385 targeted respondents, only 258 (67.01%) participants responded. Half of the respondents were 18–24 years, and a huge chunk of these respondents identify as straight (45.74%). Furthermore, many of the respondents were located in Poblacion (34.50%), Buhangin (22.87%) and Talomo (19.38%), which are shown in online supplemental table 4.

In terms of respondents' awareness, 137 respondents (53.10%) were fully aware of HIV PrEP, while only 27.13% were partially aware. The three sources of information (online supplemental table 1) with the highest percent frequencies were social media (36.82%), peer discussion (23.26%) and government clinics (15.89%). Furthermore, only 78 respondents (30.23%) reported being offered PrEP before the survey, as shown in online supplemental table 1.

Elaborating deeper on the respondents' awareness, significant differences have been noticed when grouped according to demographics, as shown in table 2. Through the χ^2 test, only gender identity (X^2=24.428; p value=0.002) and highest educational attainment (X^2=15.919; p value=0.044) were significant. When taking the proportion of respondents that are aware and grouped according to gender identity, 94.12% of the respondents who were homosexuals were aware, while bisexual and heterosexual respondents were only 85.14% and 71.19% aware, respectively. When taking a closer look at those who are aware compared with the total population of their respective gender identity, homosexuals still had a higher percent proportion of being fully aware (76.47%) compared with

Table 1 Demographic profile of the respondents and significant differences

Demographic profile	Frequency (%)	Attitude		Willingness	
		Mean	F	Mean	F
Age			0.135		0.923
18–24 years	131 (50.78)	4.23		4.06	
25–34 years	106 (41.09)	4.19		4.10	
35–44 years	17 (6.58)	4.24		4.19	
>45 years	4 (1.55)	4.05		3.58	
Sexual orientation and gender identity			1.800		1.767
Homosexuals	51 (19.77)	4.43		4.18	
Bisexuals	74 (28.68)	4.22		4.18	
Heterosexuals	118 (45.74)	4.12		3.97	
Transgenders	5 (1.94)	4.2		3.83	
Others	10 (3.88)	4.14		4.25	
Highest education			2.040		1.530
Elementary	1 (0.39)	4.60		4.83	
High school	62 (24.03)	4.27		4.16	
Vocational	9 (3.49)	3.64		3.95	
College	169 (65.50)	4.20		4.02	
Graduate education	17 (6.59)	4.39		4.35	
Awareness to HIV pre-exposure prophylaxis					
Fully aware	137 (53.10)				
Partially aware	70 (27.13)				
Not aware	51 (19.77)				

*Significant differences at p values <0.05 in attitude and willingness to use HIV PrEP when grouped according to demographics are denoted by an asterisk (*).

bisexuals (54.05%) and heterosexuals (41.53%). Furthermore, individuals who were found to have attained graduate education remain to have the highest percentage of being fully aware (88.24%) followed by vocational (55.56%) and college level (52.07%) respective of their group population.

The level of attitude and willingness to use HIV PrEP among the respondents was found to be very high (mean=4.21±0.868; median=4.20) and high (4.08±0.685; median=4.17), respectively (shown in table 3). When examining the attitude statements, we see that statement 2 had the highest mean (mean=4.47; SD=0.804), while statement 4 had the lowest mean (mean=3.81; SD=0.988). Among the statements assessing willingness to use, statements 1 and 2 were the highest (mean=4.44), while statement 6 was the lowest (mean=3.52; SD=1.251). The response distribution for attitude and willingness to use HIV PrEP has also been included in the supplementary materials (online supplemental figures 1 and 2).

The results of inferential statistics that establish the relationship the variables have with each other have also been reported. The relationship between the variables was initially assessed before mediation analysis. Awareness and attitude towards HIV PrEP were found to be not only significantly correlated with willingness to use PrEP but were also significant predictors of it (online supplemental tables 2 and 3).

When investigating, the direct and mediating effects of the results are presented in table 4. The total effect of being partially aware on willingness was insignificant (estimate=0.059; p value=0.634), but the total effect of being fully aware on willingness was significant (estimate=0.310; p value=0.005). The mediating effects of attitude on willingness were found to be significant for both being partially aware (estimate=0.195; p value=0.016) and fully aware (estimate=0.180; p value=0.016). Lastly, direct effects of awareness to willingness to use HIV PrEP were not found to be significant, indicating a complete mediation relationship. Figure 1 shows the paths of the variables.

DISCUSSIONS

The current study provides information on the awareness, attitude and willingness to use HIV PrEP among residents of Davao City. While many studies have investigated HIV

Table 2 Significant difference in awareness when grouped according to demographic profile (Pearson χ^2 test)

Demographic profile	Awareness			X^2	P value
	NA	PA	FA		
Age				11.273	0.080
18–24 years	32	42	57		
25–34 years	14	24	68		
35–44 years	4	3	10		
>45 years	1	1	2		
Sexual orientation and gender identity				24.428	0.002*
Homosexuals	3	9	39		
Bisexuals	11	23	40		
Heterosexuals	34	35	49		
Transgenders	2	0	3		
Others	1	3	6		
Highest education				15.919	0.044*
Elementary	1	0	0		
High school	17	16	29		
Vocational	2	2	5		
College	30	51	88		
Graduate education	1	1	15		

*Statistically significant differences (p-values <0.05) are denoted by an asterisk (*).
FA, fully aware; NA, not aware; PA, partially aware.

PrEP awareness, attitude and willingness to use among high-risk individuals, this study focused more on the general population in Davao City. Surprisingly enough, many of the respondents identify as heterosexuals. This may indicate that there is interest in HIV PrEP among straight individuals in the city.

Currently, HIV PrEP in Davao City is emphasised more for queer and at-risk individuals, including men who have sex with men, people who inject drugs, transgender individuals and other vulnerable groups.[19] Furthermore, PrEP is offered only through a government-owned primary HIV/AIDS facility. Those at-risk individuals may avail themselves of PrEP free of charge, but those otherwise would have to buy it out of pocket since it is not covered by healthcare insurance.[19]

This study also shows the awareness of Davaoeños regarding HIV PrEP. The findings show that more than half of the respondents were fully aware of HIV PrEP. This finding corroborates a similar study in Cebu and Manila indicating consistency among these major locations in the Philippines.[7] Furthermore, the main sources of information among those who are aware include social media, peer discussion and government clinics. Social media has also been found to be the primary source of information in another study.[20] The three main sources of information found in this study can be optimised even more to ensure a broader reach to those partially aware or even unaware of HIV PrEP and to deliver information in the community efficiently.

When analysing if respondents who are fully or partially aware are affected or equally distributed by demographics, we see a significant difference in respondents' awareness based on gender identity and highest educational attainment. Findings indicate that gay people have more awareness than the rest, owing to a higher proportion of being fully aware relative to their group population. The high awareness noted in this study may be a result of homosexuals having more perceived risk of contraction because of riskier behaviours and seeking more sexual sensations, among other factors like personal beliefs, emotional history, relationships and social roles.[21–23] The findings also indicate that straight people have the least awareness relative to their group population. This finding resonates

Table 3 Attitude and willingness to use HIV pre-exposure prophylaxis among the respondents

Statement	Mean±SD	Median
I believe pre-exposure prophylaxis (PrEP) is effective in preventing HIV.	4.30±0.829	4.00
I think that people who take HIV PrEP are responsible.	4.47±0.804	5.00
I believe taking HIV PrEP is safe for use.	4.21±0.861	4.00
It would be no trouble for me to take HIV PrEP every day.	3.81±0.998	4.00
I believe the government makes certain that drugs like HIV PrEP are safe for use.	4.28±0.872	4.00
Mean attitude score	4.21±0.686	4.20
I am willing to take PrEP to prevent getting HIV.	4.44±0.808	5.00
I am willing to take pills before and after sex if it would prevent me from getting HIV.	4.44±0.827	5.00
I am willing to take a pill every day if it would prevent me from getting HIV.	4.30±0.966	5.00
I would never need to take PrEP (reverse coded).	3.88±1.25	4.00
I would be willing to pay for laboratory tests needed while taking PrEP.	3.88±1.094	4.00
I would take PrEP even if it was not 100% effective.	3.52±1.251	4.00
Mean willingness score	4.08±0.685	4.17

Table 4 Direct and mediation effects of awareness and attitude on willingness to use HIV pre-exposure prophylaxis

Effect	Path	β	P value
Total	Partially aware → willingness	0.059	0.634
Total	Fully aware → willingness	0.310	0.005*
Direct	Partially aware → willingness	−0.136	0.154
Direct	Fully aware → willingness	0.130	0.126
Indirect	Partially aware → attitude → willingness	0.195	0.016*
Indirect	Fully aware → attitude → willingness	0.180	0.012*

R^2=0.438
*Significant causal effects are denoted by an asterisk.

with previous literature indicating low awareness among heterosexual individuals.[24–27]

Furthermore, a higher frequency of awareness was observed from individuals with higher educational attainment. This finding resonates with studies showing that PrEP awareness is associated with higher education.[28–30] The findings would indicate that heterosexual individuals have more interest in HIV PrEP because they have a lower level of awareness and that the use of social media, efforts by government clinics, and discussion among peers may be beneficial in increasing their awareness.

Regarding attitude, the mean score can be described as a very high level. This means that the respondents show a very good attitude towards HIV PrEP. Among the statements that assessed attitude, statement 2 (*I think that people who take HIV PrEP are responsible*) was found to have the highest mean and median. This would indicate that the respondents possess low stigma towards people taking

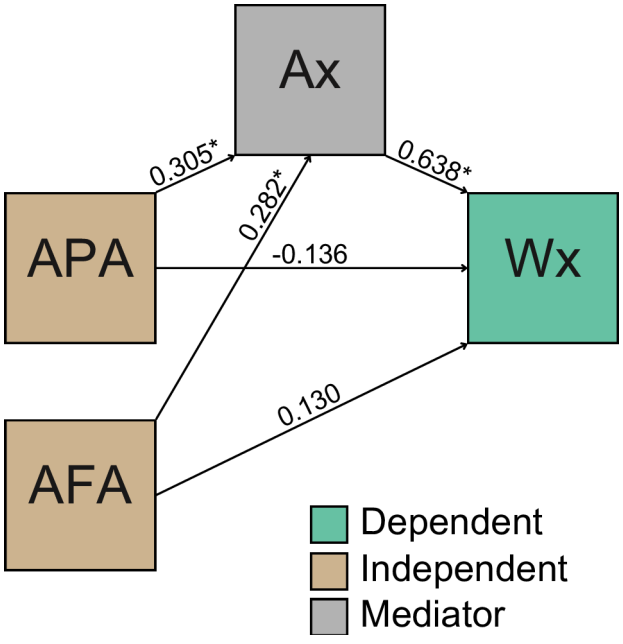

Figure 1 Path diagram of the direct and indirect effects of the predictor variables note. APA=awareness—partially aware; AFA=awareness—fully aware; Ax=attitude; Wx=willingness to use; significant path relations are distinguished by an asterisk (*).

HIV PrEP and see such individuals as responsible for their health. This finding contradicts studies that showed stigmatising attitudes towards PrEP use because of being stereotyped into promiscuity and other conspiracy beliefs, being rejected for such stereotyping and additional HIV stigma that may have transferred to PrEP use.[31 32] However, it can be pointed out that these studies have been done outside of the Philippines. As one of the most LGBTQ-friendly countries in Southeast Asia, it can be postulated from the findings that the situation is different in Davao City and the country. Still, more investigation and research are needed to substantiate this claim.

In relation to attitude, statement 4 (*It would be no trouble for me to take HIV PrEP every day*) was found to have the lowest mean score among the statements under attitude. Although this score can still be interpreted as high, this result would mean that some respondents may perceive problems in adherence and persistence when initiating and sustaining PrEP. This finding is similar to that of Shamu *et al*[16], but the current study does not show whether this adherence challenge differed by sex in the same way observed in that study.

Willingness to use HIV PrEP among the residents of Davao City can be described as high level. This means that Davaoeños are willing to seek and use HIV PrEP given the opportunity and with enough access. This finding corroborates a previous study indicating that respondents were interested in taking PrEP.[7] However, statement 6 (*I would take PrEP even if it wasn't 100% effective*) was found to have the lowest mean score among the statements assessing willingness. This would indicate hesitance among the respondents in using PrEP if it is not a hundred percent effective. Evidence suggests that the effectiveness of HIV PrEP is lower compared with estimates from clinical studies.[33] However, educational campaigns should still highlight the importance of PrEP and its contribution to reducing HIV incidence.

The current study also establishes the relationship between awareness, attitude and willingness to use HIV PrEP and has been included in online supplemental file 2. Initial analyses have shown that respondents who have higher attitudes strongly tend to have a higher level of willingness to use HIV PrEP. The

same is true for awareness and willingness, although of weak correlation. Through linear regression, it can be inferred that awareness of HIV PrEP and increased positive attitudes towards it positively predict one's willingness to use it. Correlation and linear regression were important considerations in proceeding with mediation analysis as this would allow the researcher to establish significant relationships before elaborating further.

Mediation analysis provides a more comprehensive path relation between the constructs. It provides a basis for hypothesising whether willingness to use HIV PrEP is directly affected by awareness alone or is mediated by attitude. Table 4 shows that awareness of HIV PrEP has an insignificant direct effect on willingness to use HIV PrEP. This means that awareness alone does not affect the willingness of respondents to use HIV PrEP. However, being fully aware has a significant indirect effect on willingness to use HIV PrEP and is mediated by attitude towards HIV PrEP (β=0.180; p=0.012). The findings mean that there is a full mediation effect between being fully aware and willingness to use HIV PrEP that is found to be statistically significant—those who are fully aware show a more positive attitude. Because of this increased positive attitude, there is more willingness to use HIV PrEP. The full mediation pathway observed in this study resonates with another study, indicating no direct path between PrEP-related information and motivation to willingness to use PrEP.[34] Furthermore, this finding resonates with studies showing direct associations and indirect effects of awareness and attitude to willingness to use HIV PrEP.[16 35]

The findings of this study indicate various implications for improving HIV PrEP programmes in Davao City and the Philippines. While there have been studies in the country, understanding that the context in Davao City may improve existing HIV PrEP programmes and contribute to replicating successful strategies in similar urban centres across the country. The findings in awareness show an ongoing challenge in public health education as there remains a portion of the sample that is partially aware and even unaware of HIV PrEP. On top of that, many of those unaware sampled in the city were found to be heterosexual individuals. The findings show that there is a need to start targeting educational campaigns among straight individuals while simultaneously sustaining efforts for queer and at-risk people. It is possible that, as a majority in the population, straights can influence social norms and cultural beliefs, contributing to reduced stigma and increased attitudes.

One key finding in this study is that even just awareness can positively impact attitude and, in turn, willingness to use HIV PrEP. As such, efforts for educational campaigns should be sustained, and more innovations to deliver accurate information through social media should be considered. This study has also shown positive attitudes toward PrEP, particularly in the respondents' perception of responsibility among users, indicating potential for destigmatising its use. Increased efforts and initiation to incorporate lessons aimed at increasing positive attitudes in academic institutions, as part of sex education or in other health-related subjects at both secondary and tertiary levels, may be beneficial. Increasing positive attitudes through health promotion campaigns will contribute to the willingness to use based on its mediating relationship.

Additionally, there still remain misconceptions about HIV PrEP. Specifically, the findings show that there are still concerns about the efficacy of HIV PrEP and hesitance to initiate. Educational campaigns and counselling sessions must also target these misconceptions emphasising real-world benefits and providing adherence support.

Limitations

Despite the results and findings of this study, a couple of limitations should be pointed out. Generalisability is only limited to residents of Davao City, and future research may investigate whether the same findings hold true in other cities and regions in the Philippines. Furthermore, the response rate is low compared with the target, indicating a nonresponse bias that could limit generalisability. Future research may address this by implementing other data collection forms.

Knowing the awareness, attitude and willingness to use HIV PrEP among Davaoeños based on gender identity and sexual orientation is limited in the current study. This is because gender identity and sexual preference have been merged into one subsection. Additionally, the respondents' sexes were not collected. Future studies need to differentiate between sex, gender and sexual preference for a more nuanced analysis of their effects towards awareness, attitude and willingness to use.

Additionally, this study is limited to the inferences that can be made regarding how much the respondents actually know about PrEP. The current study only measured awareness using yes/no questions to the respondents to mitigate survey burden among them. Future research may investigate specific knowledge about HIV and HIV prevention.

CONCLUSION

This study has shown that Davaoeños are aware of HIV PrEP and possess a very high level of attitude and a high level of willingness to use it. Furthermore, willingness to use HIV PrEP was found to be affected by being fully aware of it through the mediation of one's attitude towards HIV PrEP. Although there are individuals who hesitate towards HIV PrEP because of misconceptions like its perceived effectiveness and perceived challenges in adherence, this calls for the need for targeted educational campaigns and health promotion activities. The findings provide valuable insights as a basis for health promotion campaigns, policy development and other action programmes intended for the management and

prevention of HIV/AIDS, particularly for the improvement of HIV PrEP programmes. Future research may also investigate socioeconomic, cultural and behavioural factors that can influence attitude and willingness to use HIV PrEP.

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Competing interests None declared.

Patient and public involvement The researcher has taken into consideration the public involvement of this research. Because the Davaoeños were target respondents, the researcher has requested approval from the city government and an authorizationauthorisation letter was issued. Throughout the conduct of this research, the author has worked with a government-owned HIV-dedicated treatment hub in Davao City -, the Reproductive Health and Wellness CenterCentre er (RHWC). Furthermore, the results were also shared towith RHWC.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval This study involves human participants and was approved by Research Ethics Committee of the University of the Immaculate Conception with protocol code EX-40-02-24. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Data are available and will be shared on reasonable request to the corresponding author.

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