

ORIGINAL ARTICLE

Googling “Twitter Alter” and “HIV/AIDS” in the Philippines: An infodemiological study from 2011 to 2021

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ABSTRACT

Introduction: Online “Twitter Alter” accounts have emerged in the Philippines, particularly among its men who have sex with men (MSM) community, including gay and bisexual men. It enabled them to mask their identities, avoiding discrimination based on their sexual preferences, orientations, and behaviors. Given these and the rising use of the internet, Google Trends can be used as a surrogate measure to determine changes in public interest concerning HIV and Twitter Alter. **Methods:** This study aimed to elucidate search pattern changes and related interest of the online public regarding “Twitter Alter” and “HIV/AIDS” over ten years from July 2011 to June 2021. An analysis of Google Trends for keywords “Twitter Alter” and “HIV/AIDS (Illness)” from July 2011 to June 2021 was done as a surrogate measure of public interest and awareness. Search volumes, related queries, and topics were described and compared. **Results:** It was found that the search volume for “Twitter Alter” has increased by about 10000% while the “HIV/AIDS (Illness)” search volume decreased to 67%. **Conclusion:** Online public interest, as an alternative measure to public awareness, has increased for “Twitter Alter” while decreasing for HIV. Given these, “Twitter Alter” may put its users, mostly young MSM, at a more conducive venue for high-risk sexual behaviors due to the higher behavioral control while avoiding public stigma. Nonetheless, the online “Twitter Alter” community may also be mustered in information campaigns for HIV prevention.

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INTRODUCTION

Between 2012 and 2023, a 411% increase in the daily incidence rate of HIV cases was noted in the Philippines. (1, 2) This rate was among the fastest-growing HIV growth rate in the western Pacific region. Based on the official Philippine data as of January 2023, HIV infections primarily affect men who have sex with men (MSM), accounting for about 70% of all new infections, while men who have sex with both men and women accounted for 17% (1, 2). Moreover, a substantial portion of HIV infections was noted among the youth, who accounted for about 31% of all new infections during the same period. Despite these, treatment and testing are hindered by stigma, service accessibility, and treatment difficulties, such as the concentration of HIV treatment hubs in urban centers and limited accessibility of HIV pre-exposure prophylaxis (PrEP) (1). This HIV crisis worsened during the COVID-19 pandemic. In

2020, HIV testing decreased by 61%, only 61% of Filipinos living with HIV were on antiretroviral therapy, and HIV treatment initiation decreased by 28% (3). These challenges can also be complicated by the lower online interest in HIV noted in the Philippines compared to other countries with high HIV burden during the COVID-19 pandemic (4). Therefore, it is necessary to understand the changes in interest in HIV among Filipinos, especially the young, before and during the pandemic.

Previous studies across the globe found that unprotected sexual intercourse (e.g., condomless anal intercourse) and a high number of sexual partners were associated with MSM’s higher risk for HIV (5-9). A study in Brazil found that these behaviors were more pronounced among the youth. (8) These behaviors have also been observed among Filipinos despite the high HIV awareness among MSM (10, 11). This is exemplified by a Filipino MSM living with HIV, “I was already aware of [the HIV service NGO] and my friends in Malate” (12). Nonetheless, these behaviors seemed to be hidden from the Philippine public due to the stigma attached to these behaviors (10, 12, 13). Given these, some Filipino MSM

retreats to social media platforms to find sex partners while hiding their identities. As one HIV coordinator noted, "They use Grindr, Facebook, or Twitter to meet other guys for these risky behaviors" (14).

Mainly, the "Twitter Alter" culture has recently emerged among Filipino MSM, especially young adults (15, 16). A "Twitter Alter" is an online Twitter account enabling individuals to hide their identities and flirt (17). Users can conceal their identities by using pseudonyms for their "Twitter Alter" account, which is a separate account from the Twitter account known to their friends, colleagues, and relatives (15-17). These "Twitter Alter" accounts can be further anonymized by blurring their images and videos in their tweets. By doing these measures, users can conceal their identities in their public posts and profiles (15-17). Thus, it offers an individual an escape from a society that can be judgmental of their sexual preferences, orientations, and behaviors. This platform enables Filipinos, especially MSM, to avoid societal discrimination and abuse while they practice and uphold their sexual preferences and behaviors (18). Given these, online searches for sex partners, amateur porn, sex work, and orgies between individuals have emerged in the "Twitter Alter" community without the societal repercussion and identification (15-19). Hence, "Twitter Alter" may be a medium for Filipinos to mask their identities and masquerade their sexual behaviors in their private and convenient time. Nonetheless, these emerging phenomena can be a conduit for behaviors that may put them at higher risk for HIV.

Both engagement in "Twitter Alter" and high-risk sexual behaviors can be understood as planned behaviors. As planned behaviors, these can stem from behavioral intentions determined by one's attitude, subjective norms, and perceived behavioral control (20, 21). Attitude may refer to beliefs regarding the behavior's likely consequences (20, 21). Subjective norms are the perceived social pressure to engage in certain behaviors that stem from normative beliefs, whether significant others approve, disapprove, or perform certain behaviors (20, 21). Perceived behavioral control is assumed to be based on accessible control beliefs, which are factors that can facilitate or impede the behavior. These may include skills and abilities, availability of resources, and assistance from other people (20, 21).

With sexual behaviors, the attitude of individuals towards high-risk sexual behaviors may be fueled by its pleasure despite the knowledge of consequences, including HIV (12, 14). Contrastingly, these behaviors are subject to the disapproval by their significant others, usually as an extension of the stigma of high-risk sexual behaviors and HIV (13, 22). However, if done in secret, the perceived control may be higher (12, 13). Thus, engaging in high-risk sexual behaviors may be done in secret to avoid public disapproval (12).

Given these, engaging in "Twitter Alter" may provide the medium for anonymity, furthering the controllability of disapproving social norms to engage in these high-risk sexual behaviors. Attitudes towards "Twitter Alter" may be perceived as safer since this can be done while remaining hidden from public identification and social consequences (15, 16). Since the internet is more available in recent years and online searches can be privately done, its perceived controllability may be higher. Thus, "Twitter Alter" may act as a readily available medium for sexual interaction, orientation, and preferences (15-17). In this regard, the emergence of "Twitter Alter" and the fall in public interest in HIV may need to be examined, explored, and compared.

With over 73 million regular internet users and a 96% market share of Google in the search engine market in the Philippines (23, 24), patterns of web-based searches on Google can be analyzed as an alternative to traditional survey methods using Google Trends, a publicly available repository (24-27). Google Trends has been used to compare behaviors and awareness towards other communicable and non-communicable diseases, such as mental disorders. It has also been a rising resource for infodemiological studies in recent years since it may reflect public interest or awareness on specific topics, such as HIV, and behaviors, including social media use. This has been mainly attributed to the rising use of the internet to inform oneself about various topics, including health, politics, and other contemporary phenomena (25-29). Thus it has been increasingly used as a tool in monitoring changing public interest towards these various phenomena of interest (26-28).

Google Trends may also be advantageous for analyzing online preferences on highly stigmatized topics, such as sexual preferences since it offers anonymized aggregated data in a specific geographic location (12, 26). Moreover, it may also be a cost-efficient alternative approach to traditional assessment, such as nationwide surveys, which may be advantageous to resource-scarce localities and developing countries, including the Philippines. Given these possible advantages, Google Trends may be a useful alternative in analyzing the changes in public awareness and interest in HIV and "Twitter Alter".

This study aimed to elucidate search pattern changes and related interest of the online public regarding "Twitter Alter" and "HIV/AIDS" over 10 years from July 2011 to June 2021. As an alternative measure to public awareness and interest, its findings may be used to guide the further development of HIV awareness and promotion in the online environment, especially on Twitter. In particular, by delving into the online engagement patterns of "Twitter Alter" users, we can gain deeper insights into the appropriateness of utilizing Twitter for HIV awareness and promotional campaigns.

Additionally, this analysis allows us to grasp the diverse interests exhibited by users, particularly those related to sexual behaviors that potentially elevate the risk of HIV transmission. Moreover, the findings can be used as a ground for further studies of the emerging “Twitter Alter” phenomenon.

MATERIALS AND METHODS

This descriptive infodemiological study utilized and analyzed data acquired from Google Trends. The data gathered from the Google Trends system were expressed in search volume indices (SVI) and top and rising search-related queries. Ethical approval was not necessary as this study did not involve any human participants and the data analyzed were readily available from the public domain.

Data and measures

SVI is a relative number representing the frequency or volume that has been normalized against the highest volume of searches derived within the specified period and geographic location (26). The Google Trends algorithm automatically anonymizes and aggregates this for the keyword of interest. Given these, SVI is not an absolute but a relative value presented as a score on a 0 to 100 scale, where “0” reflects the lowest possible search volume while “100” represents the maximum search volume (26). For this study, monthly SVIs were noted for the keyword for HIV and Twitter alter to denote the level of changes in their search interest over the period of study.

The data returned from the Google Trends system can also identify rising and top search-related topics and queries. These refer to the terms online users also searched for concerning the keyword of interest (26). For this study, these were used to determine the changes in other related interests for HIV and Twitter over the period of study.

Data collection and analysis

Web-based searches for keywords “Twitter Alter” and “HIV/AIDS(Illness)” from all categories from July 2011 to June 2021 were analyzed and compared using Google Trends. The chosen timeframe serves the purpose of contrasting data from a contemporary standpoint, encompassing both the pre-COVID-19 era and the pandemic period. This selection also enables the assembly of monthly datasets similar to other studies which utilized Google Trends (20, 24, 27). This duration of investigation, spanning at least five years, was essential to secure a substantial corpus of monthly data for the analysis (30).

Initially, “Worldwide” was selected as a region to compare the Philippines relative to other countries. Afterward, the Region filter was set to “Philippines” to restrict the data collected to Philippine-based Google

searches. Afterward, monthly SVIs for the period of study were recorded and analyzed. Initially, the changes in search volume were noted using the monthly SVI. Then, the patterns of search interest over time were noted through the descriptive analysis and comparison of top related queries and topics for both keywords.

Changes in search-related queries were also examined to compare the relationship in the monthly SVIs for the two keywords. Both keywords were put as topics using the Compare feature of Google Trends. These search-related queries are the terms that online users of the Google search engine also looked for in relation to the keywords of interest, “Twitter Alter” and “HIV/AIDS(Illness)”.

RESULTS

Comparison between the Philippine SVIs and Worldwide SVIs for “Twitter Alter” and “HIV/AIDS” from July 2011 to June 2021

It was found that the Philippines ranked first out of 10 countries with available data for the keyword “Twitter Alter”. It should be noted that Indonesia, United Arab Emirates, Germany, and Austria were ranked second to fifth with SVIs of 6, 5, 4, and 3, respectively. Notably, the 3 top and rising related queries with “Twitter Alter” were “twitter alter pinoy”, “alter pinoy” and “gay alter twitter” with SVIs 100, 62, and 42, respectively. It should be noted that these related searches have increased by >5000% and can indicate a large concentration of related searches for Filipinos, gay men, and videos.

For the keyword “HIV/AIDS (Illness)”, the Philippines ranked 20 out of 86 countries with an SVI of 17. The top related queries for these keywords were “hiv”, “aids”, “sida”, and “vih”. The highest rising queries were related to Charlie Sheen, an actor who disclosed his seropositive status in 2015. (28) These top queries may indicate that searches are concentrated mainly in French-speaking countries, including African Countries, since “sida” and “vih” are the French acronyms for HIV and AIDS. Likewise, the rising queries may indicate the “Charlie Sheen Effect”, where a vast increase in online searches is observed upon the actor’s disclosure (31).

Philippine SVIs for “HIV/AIDS” from July 2011 to June 2021

Figure 1 showed that the keyword for “HIV/AIDS (Illness)” for the study period had a starting SVI of 42 and a closing SVI of 28. A pattern of rising SVIs was also noted every December, which coincides with the World AIDS Day celebration. The highest SVI was noted in December 2018 with a steep increase starting October 2018. This coincided with the filing and subsequent approval of the Philippine HIV and AIDS Policy Act of 2018 and World Aids Day.(32) The lowest SVI, 21, was noted in July and August 2020 with a steep decrease starting from February 2020. These months coincided with the WHO’s announcement that the COVID-19

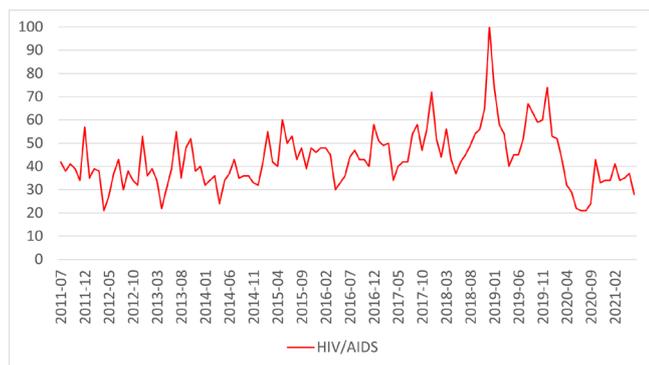


Figure 1: Graph depicting the trend of Google search volume for the keyword “HIV/AIDS (Illness)” from July 2011 to June 2021.

had reached pandemic status and the beginnings of the Philippine lockdown.

Table 1 showed that the top related queries related to “HIV/AIDS (Illness)” centered on understanding HIV concepts such as “hiv and aids” and “what is hiv” “hiv positive”, its manifestations such as “symptoms of hiv”

and “symptoms of aids”, its tests such as “hiv positive” and “hiv testing”, its treatment such as “hiv cure”, its context in the Philippines such as “hiv in Philippines”, and other sexually transmitted illness such as “std”. All the rising related queries increased by >5000% in the study period. These revolved around HIV tests such as “hiv test kit”, its transmission such as “how to get hiv”, concepts such as “hiv definition”, policies such as “hiv law”, manifestations such as “skin rash hiv”, its treatment such as “how to cure hiv”, local service providers such as “love yourself hiv”, and the popular individuals it has possibly affected such as “freddie mercury”.

The top related topics were also analyzed. It showed that there was also heightened online interest in understanding “HIV”, its “Symptom”, and the way it is diagnosed, such as “Diagnosis of HIV/AIDS”, its “Transmission”, and its treatment, including “Cure”. Likewise, it was also related to topics such as other “Sexually transmitted infection” and “Preventive healthcare” including “Pre-exposure prophylaxis”. The rising related topics seemed similar to the top searches for the study period, with almost half

Table 1: Related topics and queries returned for the keyword “HIV/AIDS (Illness)”.

Top related queries	SVI	Rising related queries	% increase	Top related topics	SVI	Rising related topics	% increase
hiv	100	hiv test kit	>5000%	HIV	100	Skin rash	>5000%
aids	40	how to get hiv	>5000%	Symptom	32	Bacteria	>5000%
hiv symptoms	21	hiv definition	>5000%	Diagnosis of HIV/AIDS	7	Tongue	>5000%
hiv aids	13	hiv law	>5000%	Signs and symptoms	7	Freddie Mercury	>5000%
symptoms of hiv	9	skin rash hiv	>5000%	Cause	6	Acronym	>5000%
hiv philippines	7	freddie mercury	>5000%	Disease	5	Vaginal yeast infection	>5000%
aids symptoms	6	what is the meaning of aids	>5000%	Transmission	5	Pre-exposure prophylaxis	>5000%
what is hiv	6	what are the symptoms of hiv	>5000%	Sexually transmitted infection	5	Yeast	>5000%
hiv test	5	symptoms of aids in men	>5000%	Cure	5	Skin condition	>5000%
hiv meaning	5	how to cure hiv	>5000%	Therapy	4	Patient	300%
hiv in philippines	4	freddie mercury aids	>5000%	Skin rash	4	Management of HIV/AIDS	300%
what is aids	4	symptoms of pregnancy	>5000%	Virus	3	HIV	250%
hiv signs	4	night sweats	>5000%	Preventive healthcare	3	Signs and symptoms	250%
hiv and aids	4	what is the meaning of hiv	>5000%	Infection	3	Cure	250%
hiv positive	3	hiv slogan	>5000%	Patient	2	Virus	250%
aids meaning	3	skin rashes hiv	>5000%	Management of HIV/AIDS	2	Diagnosis of HIV/AIDS	200%
hiv/aids	3	hiv stages	>5000%	Bacteria	<1	Transmission	180%
signs of hiv	3	how to know if you have hiv	>5000%	Tongue	<1	Symptom	170%
symptoms of aids	3	pepsi	>5000%	Freddie Mercury	<1	Cause	170%
hiv in the philippines	3	aids acronym	>5000%	Acronym	<1	Preventive healthcare	140%
std	3	maria ozawa dijangkiti hiv	>5000%	Vaginal yeast infection	<1	Disease	120%
hiv cure	3	hiv test kit philippines	>5000%	Pre-exposure prophylaxis	<1	Sexually transmitted infection	120%
hiv cause	2	difference between hiv and aids	>5000%	Yeast	<1	Therapy	110%
hiv aids symptoms	2	ano ang sintomas ng hiv	>5000%	Skin condition	<1		
hiv testing	2	love yourself hiv	>5000%				
		hiv test kit	>5000%				

increasing by >5000%.

Philippine SVIs for “Twitter Alter” from July 2011 to June 2021

Figure 2 shows that the “Twitter Alter” keyword for the study period had a starting SVI of 0 and a closing SVI of 98, representing an almost 10,000% increase in search volumes. A gradual rise was observed in March 2017 and a steep increase in March 2020, when WHO announced COVID-19 as a pandemic and the Philippine lockdown started. (33)

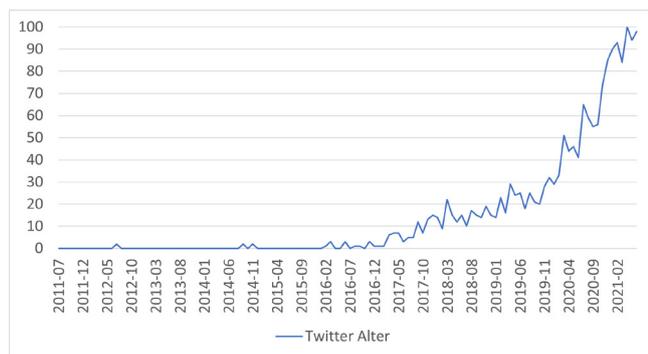


Figure 2: Graph depicting the trend of Google search volume for the keyword “HIV/AIDS (Illness)” from July 2011 to June 2021.

As shown in Table II, an analysis of the top and rising topics showed that “twitter” increased by >5000% and had the highest SVIs related to “Twitter Alter”. Whereas, the analysis of the rising and top related queries to the search keyword “Twitter Alter” revolved around looking for Filipino alter accounts such as “twitter pinoy alter”, accounts with videos such as “twitter alter videos”, possibly specific account creator preferences such as “alter bagets twitter” (“bagets” means young) and “alter plumber twitter”, and alter account creator locations such as “twitter alter world” and “alter cebu twitter”

Comparison of Philippine SVIs for “Twitter Alter” and “HIV/AIDS” from July 2011 to June 2021

Figure 3 shows a graph depicting the trend of Google search volume for both keywords, “Twitter Alter” and “HIV/AIDS (Illness)”, relative to their highest search volume during the study period was also analyzed. It would be noticeable in this graph that the search volume for “HIV/AIDS (Illness)” seemed to decrease while the search volume for “Twitter Alter” increased. These changes in search volumes for both keywords were more noticeable in April 2020, a month after the initial Philippine lockdown announcement. Likewise, the SVI for the keyword “HIV/AIDS (Illness)” closed at 28 from a start point of 42, while the keyword “Twitter Alter” closed at an SVI of 9 from a start point of 0.

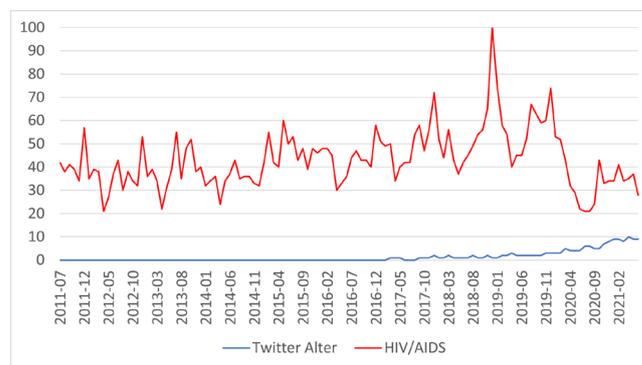


Figure 3: Graph depicting the trend of Google search volume for the keywords “Twitter Alter” and “HIV/AIDS (Illness)” relative to the highest number of search volume for both keywords from July 2011 to June 2021.

DISCUSSION

This study found that the Philippines ranked first for search volume for “Twitter Alter”, with emerging search volumes from nine other countries, including Indonesia,

Table II: Related topics and queries returned for the keyword “Twitter Alter”

Top related queries	SVI	Rising related queries	% increase	Top related topics	SVI	Rising related topics	% increase
twitter pinoy alter	100	twitter pinoy alter	>5000%	Twitter	100	Twitter	>5000%
gay alter twitter	54	gay alter twitter	>5000%	Twitter	98	Twitter	>5000%
twitter alter videos	33	twitter alter videos	>5000%	Bagets	3	Bagets	>5000%
alter in twitter	26	alter in twitter	>5000%	Plumber	3	Plumber	>5000%
alter meaning	19	alter meaning	>5000%	Indie film	<1	Indie film	>5000%
twitter alter account	17	twitter alter account	>5000%				
alter bagets twitter	17	alter bagets twitter	>5000%				
twitter alter world	15	twitter alter world	>5000%				
alter plumber twitter	14	alter plumber twitter	>5000%				
twitter alter ph	12	twitter alter ph	>5000%				
alter cebu twitter	10	alter cebu twitter	>5000%				
alter twitter philippines	7	alter twitter philippines	>5000%				
twitter alter dad	5	twitter alter dad	>5000%				

United Arab Emirates, Germany, and Austria. These findings are consistent with the notions that the “Twitter Alter” culture might be predominant in the Philippines and appears to be emerging in other countries, as it is already reportedly emerging in Indonesia (15, 17). This is further supported by the steep rise related queries increased by >5000% over the study period. Nonetheless, further studies are necessary to explore the “Twitter Alter” culture in countries with emerging search volumes, such as United Arab Emirates, Germany, and Austria, since they utilize other languages besides English.

On the other hand, public interest in HIV increased with the announcement of popular celebrities like Charlie Sheen (31). In terms of search volume, it seemed that online public interest in HIV seemed to be higher in the Philippines compared to other countries since it ranked in the upper quartile. Notably, a global dip in online interest was noted during the half of 2020, probably due to the reportedly greater concerns and fear of COVID-19 (33).

Online public interest in “HIV/AIDS (Illness)” decreased by 67% from 42 to 28 between July 2011 and June 2021. Nonetheless, global HIV awareness campaigns, such as World Aids Day, may effectively spur the Filipino public’s interest in HIV, as manifested by the regular rise during December. New legislation may also enhance these awareness campaigns, as seen in December 2018. However, with the announcement of the COVID-19 pandemic and lockdowns, online interest in HIV decreased, probably due to the Filipino public’s more significant concerns about the pandemic resulting in a decrease in interest in HIV (33). This decreased online interest may contribute to decreased HIV testing, HIV antiretroviral therapy continuation, and initiation in 2020 during the pandemic (22). However, further research may be necessary to determine relationships and causality between online interest in HIV, HIV testing, antiretroviral therapy continuation, and initiation.

Nonetheless, online public interest increased by >5000% for related queries and topics for HIV concepts, diagnostic tests, transmission, prevention, policies, manifestations, treatment, and service providers. This may signify that Filipinos utilized the internet to inform themselves of concepts related to HIV. Thus, this may present an opportunity for concerned agencies and organizations to upscale and use online modalities for HIV awareness and promotion to address the decreased interest in HIV in recent years.

It was also observed that this can be a starting point for online health promotion activities for other sexually transmitted illnesses (STIs) and their prevention, as manifested by their rising queries of >5000%. Likewise, it was also observed that social modeling from a “Charlie Sheen Effect” may also be evident in Philippine society

as HIV status disclosure of popular celebrities spurred online public interest, such as the case of the >5000% increase in “Freddie Mercury” related queries (31).

Generally, the findings showed that online public interest in HIV in the Philippines has decreased during the pandemic and lockdown announcements. This may be due to the shift in concern from HIV to COVID-19, resulting in a lower public interest in HIV and its related consequences. Nonetheless, the increase in related queries suggests that interest may be renewed through health promotion strategies, and this may be extended in future activities to other sexually transmitted illnesses. Moreover, social modeling, as seen in the “Charlie Sheen Effect”, can also be harnessed in the pursuit of better HIV awareness and promotion (31). This can be done by supporting celebrities who can muster the courage and strength to share their experiences regarding HIV.

It was also observed that online public interest in “Twitter Alter” has increased by about 10,000% from July 2011 to June 2021 in the Philippines. The switch to online economic and academic activities during the pandemic may have further advanced this interest (33). Given these and the higher internet accessibility in recent years (23, 24), online users may have an increased perceived behavioral control in creating and engaging in the “Twitter Alter” community during the pandemic. This increased interest in “Twitter Alter” continues to grow predominantly among Filipinos “Twitter Alter” as manifested by the >5000% increase in related queries, including specific searches for Filipino alter accounts.

Specific account creator preferences and locations were also noted. These may signify specific partner preferences and intent for meetups. Thus, sexual orientation and preferences related behaviors may have extended in the online “Twitter Alter” community. Therefore, this study supported the findings of previous reports that “Twitter Alter” accounts may be used for meetups and finding partners. These might be because the users remained masked from societal identification and its repercussions, such as stigmatization and discrimination based on sexual minority identities (15-17, 19, 34).

Among the specific preferences that surface among the related queries, the present study found that users were interested in “bagets” or young people. While this term may encompass various young populations, this finding may extend to very young people, such as children and adolescents. Therefore, it is necessary to institute additional protection and safety measures for children and adolescents using “Twitter Alter” accounts. These measures may include embedding available hotlines for child protection agencies in Twitter, collaborating with “Twitter Alter” communities of users in safeguarding the young, and highlighting and mainstreaming existing state policies and programs against the sexual exploitation of children on the internet, such as the Anti-

Child Pornography Act of 2009, among Twitter users.

Nonetheless, the high and rising interest in “Twitter Alter” can also present an opportunity to further expand online health promotion strategies to individuals at risk for HIV infection. Thus, the “Twitter Alter” platform can be mustered to promote safe sexual behaviors and HIV awareness. This may be done through collaborations of HIV advocacy groups and government agencies with account creators, influencers, and groups in light while adhering to the Data Privacy law to protect their confidentiality and identity.

While this study presented unique findings regarding HIV and the “Twitter Alter” community in the Philippines, several limitations are worth mentioning. First, Google Trends’ search volume only reflects online interest and Google search behavior. Therefore, online interest remains to be an alternative to public awareness surveys. As such, the findings of the present study are limited to individuals with access to the internet and Google search engine. Hence, further studies may employ traditional approaches, including assessing health behaviors through surveys, for a more comprehensive and inclusive assessment, especially among those with limited internet access.

Second, the keyword entered for this study into the Google Trends engine for HIV was “HIV/AIDS (Illness)”. This was done to limit the searches to medical illness instead of the virus, which has the keyword “HIV (Virus)”. Moreover, other countries might have a different term for the “Twitter Alter” phenomenon. Therefore, the relationship between the different terms for the “Twitter Alter” phenomena, as well as other keywords related to HIV, such as “HIV (Virus)”, can be explored in future studies.

Third, the present study was limited to a single setting, which is the Philippines. Since “Twitter Alter” might be an emerging phenomenon, it is imperative to explore its emergence in the online environment of other countries, such as Indonesia (15-17). Similar to this study, it can be explored through infodemiological methods and Google Trends analysis.

Fourth, Google Trends collects a representative sample of all Google search engine queries. Nonetheless, the specific intricacies of Google Trends’ sampling methodology remain somewhat obscure, potentially raising concerns regarding its transparency (27). Furthermore, it’s worth noting that this sampling approach is subject to modification and adaptation over time, underscoring the need for further analysis and investigation in the event of any alterations to the sampling methodology.

Finally, the data returned by Google Trends are relative to the highest SVI due to its normalization features. Thus, analyzing absolute SVI figures can provide

clearer and more precise metrics for future comparison. Nonetheless, this study also elucidated the use of search volume trends analysis as a complement or alternative to traditional surveys in understanding health-related behaviors and concerns, especially in developing countries with low resources, such as the Philippines. Moreover, Google Trends exhibits the potential for correlation with well-established surveillance datasets, including those sourced from authoritative bodies like the United States Centers for Disease Control (27). This presents an opportunity for further analysis of its correlation strength with robust surveillance surveys focused on HIV. Notably, datasets like the Integrated HIV Behavioral & Serologic Surveillance (IHBS) could be pivotal for such analyses. By undertaking this endeavor, a more comprehensive understanding of Google Trends’ viability as a surrogate metric for gauging HIV awareness and behavioral patterns can be explored. This exploration becomes particularly impactful in resource-limited regions where traditional surveillance methods may face limitations.

CONCLUSION

Overall, this study found that online public interest in “Twitter Alter” increased while interest in HIV decreased in the Philippines between July 2011 and June 2021. These changes in search volume patterns were more pronounced during the COVID-19 pandemic, probably due to the heightened concerns for COVID-19 and the increase in online technology utilization. (33) These may contribute to decreased interest in HIV and increased use of “Twitter Alter”. This increase in “Twitter Alter” can increase the perceived behavioral control to engage in high-risk sexual behaviors while avoiding disapproving social norms of the Filipino public. Given this increase in “Twitter Alter” accounts and decreased interest in HIV, Filipinos, especially MSM, may be vulnerable due to increased opportunities for high-risk sexual behaviors and decreased exposure to online HIV information. Nonetheless, the recent rise in the popularity of “Twitter Alter” can be harnessed to supplement HIV awareness and health promotion activities. For instance, content creators of the “Twitter Alter” community may be involved in information dissemination campaigns for safe sex practices, regular HIV testing, and HIV information campaigns.

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