


The Biopsychosocial Impact and Syndemic Effect of COVID-19 on Youth Living with HIV in Kenya

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Abstract

COVID-19's rapid emergence as a biological and psychosocial threat has affected people globally. The purpose of this qualitative study, which was guided by syndemic theory and the biopsychosocial framework, was to examine the impact of COVID-19 on youth living with HIV (YLWH) in Kenya. Seven virtual focus groups and two in-depth interviews were conducted with 15 YLWH aged 18-24, 13 youth affected by HIV aged 18-24, and 12 HIV healthcare providers living in Nakuru and Eldoret, two of Kenya's largest cities. Data were analyzed using qualitative content analysis, which was guided by a descriptive phenomenological approach. Findings provided information about the problems and needs of YLWH as well as potential solutions for mitigating COVID-19's biopsychosocial impact and syndemic effect on YLWH in Kenya. A variety of individual, community, healthcare, and government issues were identified including but not limited to concerns about psychosocial functioning; economic stability; access to medical treatment and medication; the availability of goods and services; patient education; and the dissemination of accurate information. These findings have important implications for addressing the ongoing and long-term impact of the pandemic on YLWH in resource-limited settings through research, policy, and practice.

Keywords

COVID-19, HIV, Kenya, youth, syndemic theory, biopsychosocial framework

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What Do We Already Know About This Topic?

We know that COVID-19 has profoundly affected HIV prevention and treatment around the world and that people living with HIV in resource-limited countries are at increased risk for negative outcomes associated with the pandemic.

How Does Your Research Contribute to the Field?

This research provides information about the unique biopsychosocial problems and needs of youth living with HIV in Kenya during the COVID-19 pandemic as well as potential individual, community, healthcare, and government solutions. This research also contributes to our understanding of syndemic theory, specifically the ways in which HIV and COVID-19 intersect to increase the burden of living with HIV.

What Are the Implications of Your Research Toward Theory, Policy, or Practice?

This research points to the need for both top down - government and healthcare system - and bottom up - individual and community - approaches in HIV healthcare. Findings can be used to guide future research and to develop strategies for minimizing the current and long-term impact of the pandemic on youth living with HIV (YLWH) in resource-limited countries such

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as Kenya as well as preventing negative health outcomes among YLWH during future pandemics.

The Impact of COVID-19 on Young People Living with HIV in Kenya

The COVID-19 pandemic has had a substantial impact on people and communities across the globe. As of April 2022, COVID-19 had infected over 505 million, and killed more than 4.7 million people worldwide.¹ In addition to the deleterious health effects and potential loss of life to those infected with COVID-19, responses to the pandemic have led to job loss, trade and travel restrictions, and increased scarcity of essential goods and services.² These challenges have resulted in far-reaching effects for people and communities worldwide.

Given high rates of poverty and disease in low-to-middle-income countries (LMICs), it should come as no surprise that LMICs have an exceptionally high mortality rate due to COVID-19³ and, more generally, are experiencing particularly negative outcomes related to the pandemic. In a study comparing pre-COVID-19 data with data collected during COVID-19 from 10 855 households in Ethiopia, Malawi, Nigeria, and Uganda, 77% of households reported a loss of income and an increase in food insecurity as a result of the pandemic.⁴ Additionally, school attendance rates during the pandemic reportedly dropped from 96% to 17%.⁴ Given the significant socioeconomic impact of COVID-19 on communities in LMICs, concerns exist about how long the effects of the pandemic will linger.

Like other LMICs, Kenya has been negatively affected by the pandemic. For example, phone surveys conducted with approximately 13 000 Kenyan households revealed a sharp decline in access to education, with only 31% of children being engaged in learning activities in April 2021 compared to approximately 80% prior to the pandemic.⁵ Although access to medicine is slowly increasing and food shortages are decreasing, households reported skipping at least one meal approximately three days per week.⁶ The loss of income and malnourishment experienced by Kenyans in response to COVID-19 is likely to have a long-term impact.

While COVID-19 has had broad implications, its effects are more pronounced in people living with chronic health conditions such as diabetes, asthma, cancer, chronic obstructive pulmonary disease (COPD), and human immunodeficiency virus (HIV) wherein these conditions place them at elevated risk for worse COVID-related outcomes.⁷ The presence of structural and attitudinal barriers heighten their risk of contracting COVID-19,⁸ as inadequate health resources, salience of health inequity, and stigma-related stressors further exacerbate infection rates. A recent survey of 1027 people living with disabilities and chronic conditions revealed that increased anxiety, stress, and despair were associated with negative financial effects of COVID-19, greater concerns about contracting COVID-19, increased loneliness, and decreased feelings of belonging.⁸ Therefore, those describing increased loneliness and/or greater concerns about contracting COVID-19 were

more likely to report increased anxiety, stress, and despair. Indeed, quarantine requirements and social distancing measures make it more probable for people living with chronic health conditions to experience social isolation and, as a result, low social connectedness and negative physical and mental health outcomes.^{9–11}

People living with HIV (PLWH) are considered to be at high risk for the detrimental effects of the pandemic. Early in the pandemic, Chenneville et al¹² expressed concern that social isolation and other factors associated with COVID-19 would increase mental health issues such as anxiety and depression, which are already high among PLWH. As PLWH face social stigma due their disease status, Samal¹³ suggested COVID-19 may exacerbate existing stigmatization and discrimination. Chenneville et al¹² also predicted the pandemic would have a negative economic impact on PLWH and would affect access to HIV treatment, thus increasing existing health disparities for this population. Concerns about the impact of the pandemic on PLWH in Kenya are justified given the high rates of HIV in Sub-Saharan Africa. In 2020, there were 37.7 million PLWH globally, with eastern and southern Africa carrying 55% of the HIV disease burden.¹⁴ Furthermore, YLWH aged 15–24 years accounted for 42% of new HIV infections in eastern and southern Africa.¹⁴ Given that YLWH comprise a significant proportion of the growing African population, it is paramount to explore and discuss the biological and psychosocial challenges the COVID-19 pandemic has had on their physical and mental health.

Theoretical Frameworks and Purpose of Study

Guided by syndemic theory and the biopsychosocial framework, the purpose of this qualitative study was to examine the impact of COVID-19 on YLWH in Kenya. A syndemic refers to a situation where two or more conditions interact synergistically in a way that increases the burden of a disease.¹⁵ Syndemic theory¹⁶ proposes that one's social context (eg, socioeconomic status) can have a multiplicative effect on various diseases, becoming greater than the sum of their parts. Syndemic theory has been used to explain HIV vulnerability,^{15,17–19} including morbidity and mortality, among PLWH in Africa.²⁰ Not only does the interaction between marginalization related to intersecting stigmatized identities (eg, race and sexual orientation or gender identity) and biological, social, and structural factors increase risk for contracting HIV, but the intersection of HIV and other health conditions or risk factors is likely to result in poorer health outcomes.¹⁵ For example, someone living with HIV who also has an intellectual disability, experiences depression, and is living in poverty is at an increased risk for negative outcomes associated with HIV. Similarly, someone living with HIV who also contracts COVID-19 is at an increased risk for negative health outcomes.

While syndemic theory provides an argument for the importance of this study, the biopsychosocial framework was used to explore the syndemic effects of HIV and COVID-19 on

YLWH. The biopsychosocial framework recognizes the effect of interacting biological, psychological, and social factors on health^{21,22} and has been used to better understand HIV^{23,24} as well as COVID-19.²⁵ Further, the biopsychosocial framework has been used to theoretically contextualize the impact of COVID-19 on PLWH.¹² Building on Chenneville et al,¹² this study examined the biopsychosocial impact of the pandemic on HIV research and treatment.

Author Positionality

Four authors are affiliated with a large urban Carnegie classified R1 public university dispersed across multiple campuses in the southeastern United States, one author is affiliated with a large public university dispersed across multiple campuses in Kenya, and one author is affiliated with a children's home in the Rift Valley region of Kenya. Three authors have doctoral degrees in psychology or public health, two have Master's degrees in psychology, and one has a Bachelor's degree. Three authors are faculty members (one full professor, one assistant professor, and one senior lecturer). Their appointments are in the Departments of Psychology or Counseling Psychology. One author is a licensed psychologist. Two authors are research assistants. One author is a teacher in a children's home in Kenya. Two authors reside in the Kenyan cities, Eldoret and Nakuru, respectively, where data was collected for this study. Combined, authors' training and experience include psychology, public health, and education. Research expertise among authors includes HIV prevention and treatment among youth. Three authors have experience providing direct services (psychological, educational) to YLWH. The social identity of authors is diverse, representing different countries of origin, races, gender identities, sexual orientations, and lived experiences as people living with or affected by HIV. The collective identities and experiences of authors influenced the design and implementation of this study as well as the interpretation of results. We acknowledge that our identities (eg, country of origins) and social positions (eg, researcher title, educational level) may have resulted in unintended hierarchies between the participants and researchers. The inclusion of two Kenyan authors, who assisted with recruitment, may have helped reduce response biases associated with positionality.

Methods

Study Design

This study employed a qualitative research design using a descriptive phenomenological approach. Descriptive phenomenology allowed the research team to gather information on the general characteristics of COVID-19 related effects on the lived experiences of YLWH.

Participants and Setting

Participants were 15 YLWH aged 18-24, 13 youth aged 18-24 affected by HIV (eg, lost a family member to AIDS), and 12

HIV healthcare providers including two case managers, two counselors, two social workers, one nurse, one child safeguarding officer, one program manager, one community health worker, one outreach worker, and one youth champion/client expert. All participants were Kenyan and lived in Nakuru or Eldoret, which are two of the four largest cities in Kenya. Only people aged 18 or older who were proficient in English and had access to a device with internet access (eg, mobile phone, iPad, computer) were included in this study.

Procedures

Between mid-January and early April of 2021, seven virtual focus group discussions (FGDs) and two individual in-depth interviews (IDIs) were conducted via Microsoft TEAMS, which is considered a secure platform. FGDs were organized by participant type. There were two FGDs with YLWH aged 18-24, two FGDs with youth affected by HIV aged 18-24, and three FGDs with HIV health care providers. In addition, two IDIs were conducted, one with a youth affected by HIV aged 18-24 and one with an HIV healthcare provider. The IDIs were conducted with participants who originally intended to attend an FGD but were unable to join due to technical difficulties. There were between two and eight participants in each FGD with an average of five participants per FGD. Each FGD included both men and women. See Table 1 for more information about the demographic breakdown of FGDs and IDIs.

After obtaining verbal consent, ground rules for the FGD or IDI were established by the researcher. FGD and IDI guides were used with key questions designed to gather information about the biological, psychological, and social impact of COVID-19 on YLWH, consistent with the biopsychosocial framework. Questions also were included to gather information about facilitators and barriers to minimizing the long-term impact of COVID-19 on YLWH from a biopsychosocial perspective. Following the FGD or IDI, which was recorded, an anonymous questionnaire was administered via Qualtrics survey software to collect demographic data and additional information about the impact of COVID-19 on people living with or affected by HIV. Participants received the equivalent of \$25USD via M-Pesa, which is a mobile cash application commonly used in Kenya. FGD and IDI recordings were transcribed, verified, and then deleted. Member checking was conducted via two FGDs (N=9) composed of YLWH, youth affected by HIV, and HIV health care providers. See Table 1 for more information about the demographic breakdown of the member checking groups.

Data Analysis

Using ATLAS.ti 9 software, we applied qualitative content analysis guided by a descriptive phenomenological approach. Our goal was not to interpret the experiences and insights of our participants through our own lens but rather to capture a picture of how they described the phenomenon as the

Table 1. Participant Demographics.

	Women	Men	Not reported	Total
Gender	19 (47.5%)	19 (47.5%)	2 (5%)	40
Age	M = 29.1	M = 26.7	M = 23.5	M = 27.65
18-24 years	12 (48%)	11 (44%)	2 (8%)	25
25-29 years	1 (25%)	3 (75%)	0 (0%)	4
30-39 years	2 (33.3%)	4 (66.7%)	0 (0%)	6
40-49 years	1 (50%)	1 (50%)	0 (0%)	2
50-59 years	3 (100%)	0 (0%)	0 (0%)	3
60+ years	0 (0%)	0 (0%)	0 (0%)	0
HIV Status				
HIV Positive	11 (55%)	7 (35%)	2 (10%)	20
HIV Negative	8 (40%)	12 (60%)	0 (0%)	20
COVID-19 Status				
Had COVID-19	2 (100%)	0 (%)	0 (0%)	2
Never had COVID-19	17 (44.7%)	19 (50%)	2 (5.3%)	38
Focus Groups				
Youth Living with HIV	8 (57.1%)	5 (42.9%)	2 (0%)	15
Youth Affected by HIV	5 (33.3%)	7 (66.7%)	0 (0%)	12
HIV Health Care Providers	5 (20%)	6 (80%)	0 (0%)	11
Individual Interviews				
Youth Living with HIV	0 (0%)	0 (0%)	0 (0%)	0
Youth Affected by HIV	1 (100%)	0 (0%)	0 (0%)	1
HIV Health Care Providers	0 (0%)	1 (100%)	0 (0%)	1
Member Checking				
Youth Living with HIV	2 (100%)	0 (0%)	0 (0%)	2
Youth Affected by HIV	1 (33.3%)	2 (66.7%)	0 (0%)	3
HIV Health Care Providers	1 (25%)	3 (75%)	0 (0%)	4

knower. We recognized that we were not physically present in the setting and, therefore, were less likely to interpret findings based on what we observed but, rather, leaned heavily on what participants described. We completed member checking to ensure the way we described their insights accurately reflected their perspectives. Authors BB and ZW reviewed the transcripts of focus groups sessions that were conducted by author TC. Authors read intentionally, looking for descriptions of a phenomena. Here, they identified meaningful units that would serve as the material for data analysis. In line with descriptive phenomenology, these units captured the lived experiences and insights of participants in response to the interview prompts. Second, two authors developed a preliminary coding frame. To do this, each reviewed transcripts separately, developed preliminary codes, and then compared and contrasted their emerging coding frames. Using an inductive approach, codes, themes, and broader categories (superordinate

themes) emerged. Themes were used to describe the main topics and patterns of ideas. Each theme was unidimensional – covering a single concept, however, the coding frame was multidimensional. We aimed to develop a comprehensive coding frame that fully captured the data in the hopes of capturing a more holistic and thorough description of the phenomenon.

The preliminary coding frame was then revised and shared with the rest of the research team. Next, authors TC, KG, BB, and ZW engaged in an iterative process to revise and finalize the working coding frame over several weeks. This included adding sub-themes as needed, collapsing themes when appropriate, including residual themes sparingly to capture aberrant data, and defining the final themes. All themes were developed using data-driven approaches, meaning they emerged from the data and were not established a priori. Data was analyzed in an ongoing process. As we organized data, we were interested in capturing the what and how of the phenomenon as well as recommendations for addressing these concerns.

ATLAS.ti 9 software was used to organize the qualitative data and capture how themes were related. It was also helpful in verifying the working coding frame established by the research team. Finally, the research team engaged in a process of member checking also known as respondent validation or informant feedback to finalize all categories.²⁶ We specifically engaged in two member checking FGDs wherein we shared analyzed data, including categories and definitions, with FGD participants. Authors TC and KG facilitated the member checking sessions, and author BB served as notetaker during sessions. A PowerPoint presentation with each category and the overarching relationships among categories were shared with participants. Feedback was gathered on the accuracy of the descriptions made by the research team. As a result, a few themes and sub-themes were revised to capture participant experiences more accurately. We explicitly advised participants that some of the data may reflect the experiences of others and not their own experiences but to report back if this was in line with what was discussed during their focus group sessions and if our category names and definitions best captured the data. Although some new data emerged, this data was not included in our analysis as the member checking sessions occurred approximately three months after the initial data collection, owing to the time needed to analyze data, and changes related to COVID-19 were rapidly occurring. However, this was not a common occurrence. Following member checking, the final coding frame was determined which was used to complete our descriptive analyses of participants' experiences.

Ethical Approval and Informed Consent

The University of South Florida Institutional Review Board (IRB) reviewed this study (#001302) and determined it exempt given its use of anonymous data. Verbal consent was obtained from all participants following a verbal consent script, which included information about the study's purpose, incentives to participate, and how data would be collected,

stored, and used, including information about using data in publications or presentations. Because no identifying information was collected in this study and consistent with the IRB protocol submitted for review, verbal consent was not documented to protect the privacy of participants.

Results

Participant Demographics

There were 40 participants including 15 PLWH, 13 people affected by HIV, and 12 healthcare workers. All participants were Kenyan. Among the sample, 21 were from Nakuru and 19 were from Eldoret. The average age of participants was 27.65 (SD=9.05), but most participants fell in the 18-24 year old age range, which was the target age range of interest in this study. There were equal numbers of men and women among those who reported gender and equal numbers of people who identified as HIV positive and HIV negative. Two participants had COVID-19 prior to data collection. See Table 1 for more detailed information about participant demographics.

Categories and Themes

Qualitative analysis of the data revealed four distinct categories related to the impact of COVID-19 on YLWH: individual, community, healthcare, and government. Three themes emerged within each category: problems, needs, and solutions. *Problems* focused on issues resulting from the COVID-19 pandemic, which were affecting the lives of YLWH. *Needs* focused on the expressed wants and desires of participants related to improving conditions such that YLWH could more easily manage the impact of the COVID-19 pandemic. *Solutions* focused on specific and practical recommendations for addressing the problems facing, and meeting the needs of, YLWH. Solutions at the level of the individual and community may be considered bottom up approaches for addressing the problems facing, and meeting the needs of, YLWH whereas solutions at the healthcare and government levels may be considered top down approaches for addressing the problems facing, and meeting the needs of, YLWH. See Figure 1. Categories, themes, sub-themes, and codes are detailed more fully in the sections to follow.

Individual Impact. When describing the individual impact of COVID-19 on YLWH, participants described the problems facing, and needs of, YLWH as individuals, as well as solutions they or others might enact at the individual level. See Table 2.

Problems. Participants described multiple problems facing YLWH at the individual level as a result of the COVID-19 pandemic including difficulties accessing treatment, information deficits, financial issues, syndemic effects, psychosocial effects, and stigma. Difficulties accessing treatment included barriers to accessing medical services, avoiding hospitals out of fear of contracting COVID-19, transportation difficulties, and inadequate medication supplies (antiretroviral, or ART,

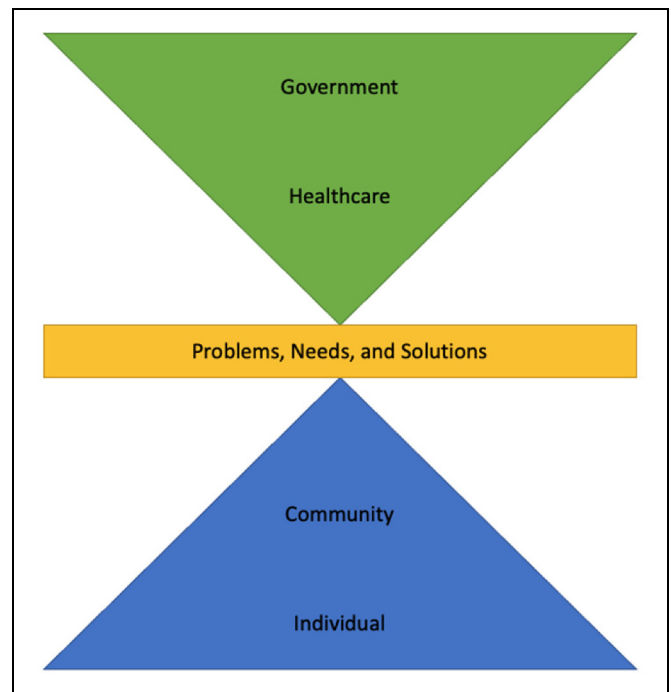


Figure 1. Categories and themes.

and other medications commonly prescribed to PLWH). For example, one youth affected by HIV said, "We actually lost one of our friends who was afraid to go and pick up his drugs."

Information deficits included inadequate information about the impact of COVID-19 on PLWH and inadequate information about how PLWH can prevent contracting COVID-19. For example, one youth affected by HIV said, "[People with] HIV/AIDs have no proper information and they have been affected in such a way, they lack the information they need [about] COVID-19."

Financial issues included unemployment, low income, medication costs, and nutrition costs. For example, one YLWH said, "Yeah, because at times, you know, there are no jobs, so you can't get food, you need to take your drugs ... and you can't take them while on an empty stomach."

Syndemic effects included COVID-19 and HIV comorbidity; HIV and comorbidity with other (non-COVID) illnesses/diseases; and HIV, COVID-19, and mental health issues. For example, one YLWH said, "It's kind of a challenge now to plan on how to live with ... HIV and Coronavirus."

Psychosocial effects included social isolation, mental health issues, fear, and relationship issues. For example, one YLWH said, "The pandemic has had a profound effect on people living with HIV in many ways. Since [their] lives [have] been disrupted, their access to drugs has been interrupted, and thus many slumped into emotional distress."

Stigma included HIV-related stigma, COVID-related stigma, and comorbid HIV and COVID-related stigma. For example, one YLWH said, "We are very discriminated against and people are seeing us as if we can cause COVID-19 because we are HIV positive."

Table 2. Individual Level.

Themes and Sub-Themes	Codes	Quotes
Problems Difficulties Accessing Treatment	Barriers to accessing medical services	<i>When you go to the hospital as a patient it becomes a problem to access their services</i>
	Avoiding hospitals out of fear of contracting COVID-19	<i>People who are living with HIV had so many challenges that they had to cope with and [I] lost [my] own uncle who was positive, but because of bad influence, he refused to go to hospital because he feared that he will contract COVID-19, and in the end he ended up dying.</i>
	Transportation difficulties	<i>The transport fare has been raised so most of them cannot manage the fare to come to the clinic</i>
	Inadequate medication supplies (ART and other)	<i>There is reduced [access to] drugs; especially Septrin</i>
Information Deficits	Inadequate information about COVID-19's impact on people living with HIV	<i>[People with] HIV/AIDS have no proper information and they have been affected in such a way, they lack the information they need [about] COVID-19</i>
	Inadequate information about preventing COVID-19	<i>Because of lack of information on... prevention factors that are given by the government for their safety and because of the fear of going to the hospital</i>
Financial Issues	Unemployment	<i>My father was lacking [a] job because of the pandemic</i>
	Low income	<i>Some people, they don't have strength or money for [the] COVID-19 pandemic</i>
	Medication costs	<i>Septrin was given for free, but now you have to struggle to get it</i>
	Nutrition costs	<i>We have so many children so imagine if the shillings is increased. So if you are getting one bag or one kilogram of flour at 100 shillings it is now 140, so it is raised.</i>
Syndemic Effects	COVID-19 and HIV comorbidity	<i>I have a friend who is affected with HIV, and during this pandemic, he was deeply troubled. Like he was worried when he was being told that the COVID-19 will affect him and affect those who have HIV and these are communicable diseases. So it really took him time to adjust and also to accept his condition.</i>
	HIV and comorbidity with other illnesses/ diseases	<i>The ones who were positive were again infected by other diseases, accompanying diseases during that period, because of that, they are staying together</i>
	HIV, COVID-19, and mental health issues	<i>[My] cousin who was diagnosed to be having HIV, she is a mother, she has other kids, and I think that during this time of COVID-19 she is really pressing through a lot</i>
Psychosocial Effects	Social isolation	<i>Social distance, it's really affected me when it comes to COVID and mental health. That's one thing that is really need to be addressed</i>
	Mental health issues	<i>You have lost your job, and now you have to move somewhere else to look for greener pastures, and this will really affect someone mentally because you are now thinking 'what next what will happen to me next'</i>
	Fear	<i>The fear we have in our minds are [that] the moment that I get COVID-19, I will die</i>
	Relationship issues	<i>It affected me because I've been a very close friend to her apart from being her cousin and I really share some of my personal problems with her. So, since that time we are not in terms, sometimes approaching her is very difficult... and that has really affected me because I feel I have lost a friend.</i>
Stigma	HIV-related stigma	<i>[People living with HIV] were in public with other people, and since it's a shame. They feel like it's shame to take those drugs in front of people since they they're taking that time looking for places to take their drugs so that other people cannot see them, and these will just affect their health</i>
	COVID-related stigma	<i>People have not been having that natural mentality. That whoever come from [the city] must have COVID, whether positive or negative. They don't have Corona but they have that mentality</i>
	Comorbid HIV and COVID-related stigma	<i>Society [is] viewing [people living with HIV] in a weird way and not wanting to be with a lot of other people</i>
Needs	Acceptance	<i>I want them to accept us the way we are [People living with HIV] want to be loved by others</i>
	Support groups	<i>He was talking about empowering the support groups because I heard something about contribution among themselves, I think they could plan for</i>

(continued)

Table 2. (continued).

Themes and Sub-Themes	Codes	Quotes
		<i>having a meeting in the support groups whereby they can contribute something and help them maybe help them in projects that will help improve their lives</i>
	Gainful employment	<i>From the government I need a job</i>
	Safe and healthy environment	<i>I was going to search for jobs in streets that can help us</i> <i>I think what we would need basically is good environment, health-wise, and food... yeah the basic needs only</i> <i>Somewhere you just have your needs ... a place where there is good air and water</i>
Solutions	Provide social support	<i>Just the way we are a team here, it is important going forward to work as a group, to encourage each other</i>
	Promote HIV medication adherence	<i>We make sure we remind her of taking the drugs</i>
	Reduce stigma	<i>They should accept and love those people with HIV by not discriminating them</i>
	Maintain optimism	<i>As we are coping with it, we are trying to encourage yourself that this is the life we are living and everything will go on and we're going to have a bright future</i>
	Rely on faith/spirituality	<i>Let us pray that we make it this long</i> <i>Praying to God and all shall be well</i>

Needs. Participants described what YLWH need at the individual level to address the problems they face as a result of the pandemic. Specifically, participants reported that YLWH need acceptance, support groups, gainful employment, and safe and healthy environments. For example, one YLWH said, “[We need] support groups to support the people living with HIV.”

Solutions. Participants offered several solutions for addressing the problems facing, and needs of, YLWH. Individual-level solutions included providing social support, promoting HIV medication adherence, reducing stigma, maintaining optimism, and relying on faith/spirituality. For example, one YLWH said, “As we are coping with it, we are trying to encourage [ourselves] that this is the life we are living and everything will go on and we’re going to have a bright future.”

Community Impact. The community impact of COVID-19 on YLWH focused on problems, needs, and solutions within the communities where YLWH reside and work and/or go to school. More detailed information about this category, including themes, sub-themes, and codes, is provided below. See Table 3.

Problems. Community problems affecting the lives of YLWH focused on difficulties accessing treatment, goods, and services. Specifically, transportation difficulties, barriers to accessing adequate treatment, and the fact that fewer PLWH were visiting clinics were identified. For example, one YLWH said, “Those who are mostly affected, you can see that in hospitals, there are only [a] few [who] could go get their drugs.”

Needs. Participants described sharing and utilization of information about HIV and COVID-19, wanting socialization, and having HIV support groups as needs within the community for YLWH. For example, one YLWH said, “We need to come together and share experiences the way we are doing, like we are doing now.”

Solutions. Participants offered a host of community-level solutions to help counteract the negative effects of COVID-19 on YLWH. Solutions included offering culturally sensitive HIV education within the community, promoting awareness of the ongoing HIV epidemic within the context of the COVID-19 pandemic, providing community-level training on HIV care and compassion, promoting COVID-19 prevention (or harm reduction) strategies within the community, offering table banking to boost finances, offering support groups in the community, and reducing community-level stigma. For example, one HIV healthcare provider said, “We have to go back to enlighten the community. We have to go back to the community and tell them, it is not only people who are HIV positive [who] are highly vulnerable to getting COVID-19.”

Healthcare Impact. This category focused on problems, needs, and solutions within the healthcare system related to the impact of COVID-19 on YLWH. More detailed information about this category, including themes, sub-themes and codes, is provided below. See Table 4.

Problems. Healthcare problems included mistrust between healthcare professionals and YLWH, HIV medication adherence issues, inadequate medication supply chain, inadequate nutrition, and inadequate ancillary services. For example, one HIV healthcare worker said, “[The] first problem that we encountered is that [there] was no Septrin around, which [PLWH] use so much.”

Needs. Healthcare needs focused on the need for HIV medication supply and preventive patient education. For example, one HIV healthcare provider said, “... how we can manage HIV infection and prevention ... we have to do again HIV awareness into our community.”

Solutions. Healthcare solutions focused on forming small support groups to accommodate COVID-19 restrictions,

Table 3. Community Level.

Themes and sub-themes	Codes	Quotes
Problems Difficulties accessing treatment, goods, & services	Transportation difficulties	- The transport fare has been raised so most of them cannot manage the fare to come to the clinic.
	Barriers to accessing treatment	- When people [got COVID-19], they check in to hospital there is some delays for taking drugs.
	Fewer people living with HIV visiting clinics	- Many people did not attend to their clinics as they are supposed to. So it has really been hard because most people have gone back to falling sick due to not taking their drugs and not adhering to their clinic dates.
Needs	Sharing/utilization of information about COVID-19 & HIV	- We have empowered [the community] with information, but now the challenge is how they could utilize this information.
	Socialization	- [People living with HIV] want to be loved by others.
	HIV support groups	- The community or government should [create] support groups...to help the infected people or talk to them. - There are teams that are created to speak about the HIV and AIDS but they are not enough.
Solutions	Offer culturally sensitive HIV education within the community	- Community members should be sensitized and should know more about AIDS and should know that people with HIV/AIDS are just people like us.
	Promote awareness of ongoing HIV epidemic within the context of the COVID-19 pandemic	- HIV/AIDS is affecting...more societies than the pandemic, at least in our country...I think we are getting our priorities wrong.
	Provide training on HIV care and compassion	- Those in leadership in the community level should at least train some people on how to handle those with HIV; show them love, show them concern, make the environment of the community bearable and hospitable for those people. - Those in leadership in the community level should at least train some people on how to handle those with HIV; show them love, show them concern, make the environment of the community bearable and hospitable for those people.
	Promote COVID-19 prevention strategies within the community	- If we can follow these [precautions] in the right manner...it is going to remove some fears inside us. - People infected with HIV and AIDs were actually afraid of the coronavirus so some people used to wear two masks that is because they are afraid of getting the coronavirus or suspected to be HIV positive.
	Offer table banking	- Groups will be coming...every Monday, and then two groups on Tuesday... we meet their table banking and other problems that cannot be done in the community.
	Offer support groups in the community	- When they see the support groups, they will know there is people who also love them and also when they go [to] their support groups.
	Reduce community-level stigma	- On a community level, we should reduce the stigmatization of [people living with HIV].

increasing the uptake of personal protective equipment (PPE) and safety precautions, and empowering YLWH to continue taking their HIV medication. For example, one HIV healthcare worker said, “The main support group, which was meeting around 300 to 500 people, at this point due to COVID cannot be attained, so we started forming support groups in the communities.”

Government Impact. This category focused on governmental problems, needs, and solutions related to the impact of COVID-19 on YLWH. More detailed information about this

category, including themes, sub-themes, and codes, is provided below. See Table 5.

Problems. Governmental problems focused on the economic impact of COVID-19, disruptions in the medication supply chain, and inadequate government support. For example, one HIV healthcare worker said, “When the government does not provide what it is supposed to provide, and healthcare being among them ... even the UN shut us; the United Nations shut off human rights.”

Needs. Governmental needs focused on the availability of emergency funds, new protocols and government preparedness for future pandemics, and wanting more government support.

Table 4. Healthcare Level.

Themes	Codes	Quotes
Problems	Mistrust between healthcare professionals and YLWH	<ul style="list-style-type: none"> - Even lack of trust for such people as Elder workers...you find that those first times I would go to someone's place, and they would say 'You know what, for now we don't want [treatment]. - The lack of trust because they thought they would contract COVID and because how we released information about COVID was not really as effective as we are managing it right now.
	HIV medication adherence issues	<ul style="list-style-type: none"> - 95% [of patients] did not adapt to their medication regimens, it was a big failure and it really affected [healthcare staff] and you see once you have someone with this disease and then here comes a pandemic that really disrupts everything... - The few who come to for consultation and for medicine...their health has really deteriorated, meaning the regimen which they were taking the medicine has not been followed. - We realized most of our patients...had defaulted, and because of defaulting they happened to be vulnerable to opportunistic diseases.
	Inadequate medication supply chain	<ul style="list-style-type: none"> - [People living with HIV] were getting three bottles, that is for three months, but during the pandemic there was no Septrin.
	Inadequate nutrition	<ul style="list-style-type: none"> - Their health has been affected since there is a lack of enough food. - They are not getting food to supplement; because once they use the drugs they need good food.
	Inadequate ancillary services	<ul style="list-style-type: none"> - Before the COVID-19 pandemic we'd meet up with our peers, there was a support group, and we would share a lot. - We used to have a lot of support groups and they really used to help. But since COVID came the number of support groups they have been really limited.
Needs	HIV medication supply	<ul style="list-style-type: none"> - We need ... medicine like Septrin, Septrin is something that I'm craving for it ... is a pain killer that used to protect us against these small diseases ... Septrin is the first thing that I'm craving for it.
	Preventive patient education	<ul style="list-style-type: none"> - [We] may want to look at the element of prevention as a department and the element of care and treatment separately. - We [healthcare workers] need to find out how do they, the Community, understands so much on the issue of prevention and what are the modes of prevention and how can they access prevention missions.
Solutions	Form small support groups to accommodate to COVID restrictions	<ul style="list-style-type: none"> - We have decided to ... form community support groups, whereby we can meet in smaller groups in their own area where they live. - Every day we had a group where we are going to the community to just kind of talk again about HIV, positive living, and all these things affecting PLWH, because we find that without the support groups, many people find it hard even to cope with simple problems.
	Uptake of PPE and Safety precautions	<ul style="list-style-type: none"> - What we need is just put on our masks. - Wash your hands, wear a mask. - The only thing we could provide is [the] opportunity for them to wash hands when they visit our center.
	Empower YLWH to continue taking their HIV medication	<ul style="list-style-type: none"> - We make sure we remind her of taking the drugs on time and how to cope with the life, as in we make sure we remind her of taking the drugs and eating healthy foods.

For example, one HIV healthcare worker said, "Healthcare should be provided by the government for the people for free."

Solutions. Governmental solutions focused on establishing local government support; implementing an online savings model for YLWH; distribution of PPE; and providing education, awareness, and funding for HIV stigma reduction. For example, one YLWH said, "I think the government can work with local communities to find local solutions that can help reduce stigma and discrimination."

Discussion

Responding to a call for action for research on the impact of COVID-19 on PLWH,¹² the purpose of this study, which was

guided by syndemic theory^{15,16} and the biopsychosocial framework,^{21,22} was to examine the impact of the pandemic on YLWH in Kenya. Kenya served as an important setting for this study for several reasons. Not only is HIV incidence and prevalence high in Kenya and other parts of sub-Saharan Africa, which carries nearly 70% of the HIV disease burden,¹⁴ but the negative impact of COVID-19 on LMICs such as Kenya is disproportionate to high income countries given the high rates of disease and poverty that already exist in LMICs. As one example, the mortality rate due to COVID-19 is exceptionally high in LMICs.⁴

Qualitative data gathered from FGDs and IDIs conducted with youth aged 18-24 living with or affected by HIV, along with HIV healthcare providers who treat YLWH, provided

Table 5. Government Level.

Themes	Codes	Quotes
Problems	Economic impact of COVID-19	- Because of the pandemic most families that live in poor areas or in very little places could not easily find a way to get food. - Economic-wise the pandemic has really affected mostly those who you could feel like they're infected and [that] they really don't belong to a high class.
	Disruptions to the medication supply chain	- We import all of our medicines ... so this pandemic the supply chain system came to a halt. - The supply chain was really affected and then we cannot access the medicine and the patients could not access the medicine.
	Inadequate government support	- The government has failed to provide [affordable healthcare] for us ... the government has abandoned them, so there is an issue of abandonment, once the government has abandoned them, then this is where the talks come in. - People with HIV/AIDS and [the government] gives them very minimal accommodations.
Needs	Emergency funds	- As much as it is an emergency, there should be funds for an emergency.
	New protocols and government preparedness for future pandemics	- If ever at all we have another pandemic, [we need to know] how to deal with it. This one caught us off guard.
	Government support	- ...Our country is a low-income country and [these medications are] expensive for a lot of people to manage them unless the government can see it and provide subsidence we cannot manage.
Solutions	Local government support	- I think the government should establish an environment that will provide timely, appropriate, and humane care to people with HIV.
	Online savings model for YLWH	- They still want us to save so they used the online saving through their groups, and so this helped them to ... have the trust; they understand there's a future so they could actually bank on these groups for ... their hopes and even their families.
	PPE Distribution	- We can help these people access to getting masks and hand sanitizers. - Everyone was focusing on the pandemic and they grabbed the masks ... and that's what the government put its focus [on].
	Education, awareness, and funding HIV stigma reduction	- I think the government can work with local communities to find local solutions that can help reduce stigma and discrimination.

insight into the individual, community, healthcare system, and governmental impact of COVID-19 on YLWH in Kenya. In addition to revealing information about the problems and needs of YLWH in a LMIC during the time of a pandemic, findings provided information about possible solutions for addressing the problems, and fulfilling the needs, of this population. While individual and community level categories provided support for bottom up strategies to minimize the long-term impact of COVID-19 on YLWH in Kenya, healthcare and government categories provided support for top down strategies. The importance of both top down and bottom up strategies in healthcare has been established; for example, the existing literature includes descriptions of the benefits of top down and bottom up approaches for social mobilization in health communication,²⁷ developing psychological interventions,²⁸ and improving healthcare quality.²⁹

Early in the pandemic, Chenneville et al¹² predicted the biological impact of COVID-19 on PLWH would include negative effects associated with disruptions in HIV treatment, increased risk for COVID-19, and poorer prognosis for PLWH whose immune systems are compromised due to limited access to HIV medication and care. Consistent with this prediction, current findings revealed that YLWH had difficulty accessing treatment and HIV medications, which negatively affected their HIV care. However, only two YLWH reported having contracted COVID-19 prior to data collection, which is inconsistent with Chenneville et al,¹² prediction that PLWH

would be at increased risk for COVID-19. Indeed, data gathered since Chenneville et al's¹² predictions were made suggest that HIV status, in and of itself, may not be a significant risk factor for contracting COVID-19, based on studies conducted in the United States and Eurpouse.³⁰ Rather, HIV comorbidities and health disparities may pose more significant risks for contracting COVID-19.³⁰ However, death due to COVID-19 may be higher among PLWH.³⁰ Chenneville et al¹² predicted the psychological impact of COVID-19 on PLWH would include increased stress and, consequently, poorer mental health. Consistent with this prediction, current findings revealed significant mental health issues among YLWH during the pandemic. Factors affecting mental health included fear of COVID-19 and the negative impact of HIV-related stigma, which was compounded by COVID-19. Finally, Chenneville et al¹² predicted the social impact of COVID-19 on PLWH would include negative effects related to social isolation. Indeed, current findings provide support for this prediction. Participants described social isolation and relationship difficulties stemming from the pandemic.

Current findings also demonstrate the syndemic effects of HIV and COVID-19 among YLWH. Although, as described above, few of the YLWH in this study reported having contracted COVID-19 prior to data collection, the fear of contracting COVID-19 and the impact of COVID-19 on the mental health of YLWH certainly provides evidences of a syndemic effect. Further, findings revealed syndemic effects related to

HIV and comorbidities with other illnesses as a result of disrupted HIV treatment.

Strengths and Limitations

Using a phenomenological approach, authors were able to provide insight into the perceptions and lived experiences of YLWH in Kenya, particularly with regard to the syndemic effects of HIV and COVID-19 comorbidity as well as the biopsychosocial impact of the pandemic on youth already considered vulnerable. Authors were able to conduct this study virtually during the height of the COVID-19 pandemic, at which time face-to-face data collection was extremely challenging, at best, and impossible, at worst. The cross cultural collaboration that made this study possible and the diversity of authors also is a strength in that these factors contributed to a multifaceted approach to interpreting data. Despite these strengths, there were some limitations. Although virtual technology made this study possible, technical difficulties posed challenges to data collection. For example, some participants were unable to join due to internet difficulties while others were able to join but had intermittent audio difficulties that may have hindered their full engagement in discussions. Also, data collection began before a COVID-19 vaccine was available and, therefore, we were unable to gather information on unique issues related to vaccine uptake. Finally, although the goal of qualitative research is not to generalize, we acknowledge that our sample's experiences may not fully capture the lived experiences of YLWH in Kenya during the COVID-19 pandemic.

Conclusions and Future Directions

Findings from this study demonstrate the syndemic effects of HIV and COVID-19 among YLWH in Kenya and can be contextualized within the biopsychosocial framework, thus filling an important gap in the literature. Not only do findings shed light on the problems facing, and needs of, YLWH in Kenya, but they also provide some insight into potential solutions at the individual, community, healthcare, and government levels, which demonstrate the importance of top down and bottom up approaches in healthcare. We hope findings will be useful for minimizing the current and long-term impact of the pandemic on YLWH in resource-limited countries such as Kenya by providing data from which future research can be conducted to guide HIV treatment planning in the midst of COVID-19. Results also may be useful for developing strategies to prevent negative health outcomes among PLWH during future pandemics.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.



Ethical Statement

The University of South Florida Institutional Review Board reviewed this study (#01302) and determined it exempt given its use of anonymous data. Participants provided verbal consent to participate in this study following a verbal consent script, which was read by researchers. The verbal consent script indicated that anonymous data may be published or presented.

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