

Original Article



Exploring postpartum women's experiences of retention in HIV care through the perspective of the salutogenic model of health

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ABSTRACT

Background: Each year, approximately 300,000 children worldwide become infected with human immunodeficiency virus (HIV), mostly through mother-to-child transmission during pregnancy, childbirth or breastfeeding. More than two-thirds of these new HIV infections in children occur in developing countries, especially sub-Saharan Africa (SSA) and South-East Asia (SEA). However, in SSA and SEA, the majority of women living with HIV stop antiretroviral treatment (ART) after childbirth despite access to no-cost medication. Reasons for stopping ART have largely been discussed in the literature given that retention in HIV care is critical to reducing mother-to-child transmission of HIV. Therefore, our study, using the salutogenic model of health, aimed to explore the resources postpartum women on ART rely on to retain in HIV care.

Methods: Using convenience sampling methodology, we recruited postpartum women living with HIV in Uganda, and saturation was reached with 15 participants. Data were coded and analyzed using thematic network analysis approach. The salutogenic model of health was used to guide the development of codebook and framing.

Results: There were three main themes: stressors, generalized resistance resources (GRRs), and specialized resistance resources (SRRs). Stressor subthemes included psychological stressors, stigma and abuse by relatives and neighbors, side effects of ART, transportation challenges, and food insecurity. Four GRR subthemes were identified: self-determination and hope, support from others on ART, concern about children's health, and adaptation in the use of ART. Finally, participants desired certain SRRs to continue in HIV care, under subthemes of interpersonal relations, support from healthcare workers, and resources within the healthcare facility and community.

Conclusion: Findings contribute to knowledge about positive resources to facilitate retention in HIV care rather than focusing on barriers to care. Postpartum women living with HIV in

Conflict of Interest

The authors declare that they have no competing interests.

Author Contributions

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Uganda can benefit from social and community supportive resources to facilitate retention in HIV care and reduce risk of mother-to-child transmission.

Keywords: Breastfeeding; Uganda; Antiretroviral therapy; Continuity of care; Sense of coherence

INTRODUCTION

The postpartum period is a time of incredible changes that increase the risk of suboptimal adherence to medications and poor retention in care for women living with chronic diseases, including among postpartum women living human immunodeficiency virus (WLHIV). In the human immunodeficiency virus (HIV) care continuum, retaining postpartum WLHIV in treatment and ensuring optimal adherence to antiretroviral treatment (ART) remain an issue of public health concern.^{1,2} Evidence shows that the postpartum period is a time when virological rebound among WLWH occurs. This has been associated with a drop in engagement in care and thus medication adherence as early as three months postpartum.^{3,4} Virologic rebound has multiple negative health outcomes, including an increased risk of vertical transmission of HIV or transmission to an intimate partner(s), HIV-related morbidity and mortality among both mothers and babies, and even viral resistance.⁵ To optimize the health and wellness of postpartum women and their infants it is critical to support postpartum engagement in HIV care.

In many parts of the world, fragile healthcare systems jeopardize healthy childbirths and create challenges for postpartum women who require more support in countries of South-East Asia and sub-Saharan Africa, these challenges are magnified by a number of key social and practical challenges that also result in declining retention rates for HIV care.^{4,6} These include conflicts with balancing family duties (household or employment), challenges in accessing care, dissatisfaction with care, and poor knowledge about HIV or the benefits of ART. In addition, there are challenges related to skepticism about lifelong treatment, ART-related side effects, and coping with anticipated or enacted stigma in the general population. In some countries, women who continue their HIV care attribute their retention to interventions such as individualized community-based follow-up^{7,8} meaningful engagement of their male partners,⁹ community health worker support systems,¹⁰ and promotion of mother-to-mother peer group or mentor-to-mother counselling programs.^{8,9,11}

Despite these interventions suboptimal engagement in care remains a critical public health concern. Therefore, there is a need for in-depth understanding of these challenges and innovative interventions in order to develop and implement targeted strategies to improve medication adherence and achieve the goal of viral suppression in poorly resourced countries.¹² However, most of the studies conducted in HIV-prevalent regions of sub-Saharan Africa have focused on how to reduce the rate of mother-to-child transmission.^{4,8,13-15} There is a need to investigate factors that influence retention in care for postpartum women who are HIV-positive.^{1,16} We aim to understand when, how, why postpartum WLHIV remained in HIV care (or not) and their adherence to ART across the perinatal period by applying the salutogenic model of health. We conducted a qualitative study grounded in the salutogenic model of health to understand and describe the experiences of postpartum WLHIV.

The salutogenic model of health describes factors that promote health, wellbeing, and quality of life.^{17,18} The model of salutogenesis, developed by Antonovsky,¹⁹ has received extensive attention and expansion in the health promotion literature.^{17,18,20-22} Within the salutogenesis model, health is perceived as a process that moves along an ease-and-dis-ease continuum,^{17,18} and individuals can develop their health by comprehending situations on the continuum and having the capacity to identify and utilize available resources.¹⁸

The core assumption of salutogenesis model is that everyone is exposed to stressful life events that can alter their movement toward health. Having confidence that an event is manageable and having the capacity to leverage resources to cope with these events is critical for promoting health. Having this confidence and capacity is a construct known as sense of coherence in the salutogenic model. Sense of coherence consists of three elements: comprehensibility, manageability, and meaningfulness.^{17,18} Comprehensibility means that the individual has the assurance that stressful life events that pose a threat to health are “structured, predictable, and explicable”.¹⁸ Manageability means that the individual believes resources are available to mitigate the impact of stressful life events.^{17,18} Meaningfulness means that the individual is confident that the demanding investment of resources to promote health is worth the effort.¹⁷

A postpartum WLHIV who is taking ART is experiencing stressful life events that require a sense of coherence to successfully cope.²³ Evidence suggests that adults can effectively cope with a chronic condition and stay well if they have a moderate to high sense of coherence.^{3,24,25} For instance, adults living with HIV may rate their health-related quality of life better if they have a higher sense of coherence compared to adults with a lower sense of coherence.²⁴ A higher sense of coherence was positively associated with adherence to ART and retention in HIV care,³ and a higher sense of coherence was associated with a better quality of life among adults living with other chronic diseases such as cancer.^{26,27}

In the salutogenic model, an individual's sense of coherence can be strengthened by resistance resources, namely general or generalized resistance resources (GRRs) and specific/specialized resistance resources (SRRs).^{17,19} GRRs and SRRs are factors within a supporting environment that enable an individual to leverage a resource for coping with stressful life events in order to move toward optimal health.^{17,18} The distinction between generalized and SRRs has been used in the literature,^{11,27} but Antonovsky defined a GRR on salutogenesis as “any characteristic of the person, the group, or the environment that can facilitate effective tension management”.²⁸ In this study, GRRs include characteristics of participants and their environment that enable postpartum WLHIV to perceive their condition as manageable through adherence to ART.

A SRR, on the other hand, is defined as “service, infrastructure, facility, amenity, structure, activity, etc. ... [from a] ...government, NGO, help agency, charity, development authority, etc. ... [that can be specifically activated to] impact control over, avoid, reinterpret, adapt to, etc. ... a specific stressor and thus prevent tension from being transformed into stress”.²⁹ In this study, SRRs include available services, facilities, and assistances that postpartum WLHIV can access to be retained in care and adhere to ART. In this study, we applied descriptive qualitative design to explore both the generalized and SRRs that strengthen the sense of coherence for adhering to ART and retaining in HIV care in a sample of postpartum WLHIV in Uganda.

METHODS

Study design

We used qualitative descriptive (QD) study design³⁰ to explore the experiences of new mothers living with HIV regarding their adherence to ART and retention in HIV care while breastfeeding their infant. Further, given the flexibility of the QD design, the interpretation and presentation of our findings are structured using the salutogenic model of health. The QD design allows for the use of semi-structured data collection protocols and the use of purposeful sampling techniques in recruiting participants.³⁰

Participants

Participants were recruited from an ongoing longitudinal study (n = 167) about facilitators and barriers to retention in HIV care. For this study, the recruited participants were eligible if they returned regularly to the health facility for their medical appointments and regularly obtained their ART drug refills. The original 167 participants were recruited through gatekeepers in six healthcare facilities in Uganda by midwives/nurses who were directly involved in providing care to pregnant and postpartum women.³¹ The original participants were eligible if they were HIV-positive, in their third trimester of pregnancy, and enrolled in an ART or prevention of mother-to-child transmission program. After verbal consent those women who were eligible were referred to study staff who comprehensively explained the study and obtained a signed consent form. The first phase of recruitment occurred between June and August 2020. Three months after recruitment, the research assistants used consented participants' contact information to schedule a follow up appointment to administer questionnaires about sociodemographic details and their commitment to returning to the facility for a check-up and their commitment to taking ART. The second phase of data collection was conducted between October and December 2020. In consultation with the nurses/midwives and a review of the responses to questions about commitment to ART, 15 participants were identified, recruited and consented for this QD component of the original study. These 15 participants are described in this study as postpartum WLHIV who were successfully retained in care and adhering to ART.

Data collection

Between October and December 2020, we conducted fifteen semi-structured in-depth interviews lasting between 60 and 90 minutes each. The interview guide (see **Supplementary Data 1**, Interview Guide) was used to conduct in-depth interviews at a confidential quiet location (the home of the participant or the clinic) that the participant identified as comfortable. Two female research assistants with minimum qualification of a bachelor's degree and were fluent in Rukiga and English conducted the interviews, which were audio-recorded, transcribed, and translated into English.

Data management and analysis

All files were numbered to protect participants identity. Transcription of the audio data went through three phases. First, the 2 research assistants repeatedly listened to each audio file in the Rukiga language, paying attention to each response from the participant. Second, the research assistants translated the transcripts into English. Third, four of the audio files and the transcripts were given to a Rukiga language expert to verify whether the translation and transcription were accurate. Any discrepancies were discussed among the research team and resolved.

The transcribed data were uploaded and analyzed in NVivo-12.³² The third author thoroughly read and coded each transcript a priori based on the model. The first, second, and third authors evaluated the codes; any disagreement was resolved. The codebook was generated a priori using concepts in the salutogenic model of health and grouped under: stressor exposure, GRRs, and SRRs. Clear quotes were selected to support the summarized description of the themes in the results section. Using the salutogenic model as a guide, the research team worked collaboratively to describe the range of experiences within context of the model. Specifically, we aimed to understand when, how, why postpartum WLHIV remained in HIV care (or not) and their adherence to ART across.

Ethical consideration

The protocol for this study was approved by the University of California San Francisco Institutional Review Board, with approval number 20-30261, and Mbarara University of Science and Technology Research Ethics Committee with approval number MUREC 1/7. Participants consented before enrollment using informed consent forms approved by both institutions.

RESULTS

The findings presented postpartum WLHIV adherence to ART and retention in HIV care through the perspective of the salutogenic model of health. We found stressful life events for this population include being a new mother, living with HIV, ART side effects, and experiences of stigma and abuse from close friends, family and neighbors. The women were committed to taking ART because they understand (comprehensibility) that although HIV is a devastating diagnosis, their condition can improve (manageability), and taking ART is an effective activity that allows these women to live to their full potential (meaningfulness). The key elements of the salutogenic model that emerged from the data are represented in **Fig. 1**. The model depicts mothers living with HIV who are breastfeeding, moving toward optimal health/quality of life, given their general sense of coherence (SOC) and ability to identify and leverage GRRs and SRRs to overcome their stressors (**Fig. 1**).

Being postpartum woman living with HIV and on ART is a stressful life event

Four stressor-specific subthemes emerged from the interview data: psychological stressors, abuse by relatives and neighbors, side effects of ART, and food insecurity. Participants were “worried,” “troubled,” and suffered with fear of death because of their HIV diagnosis. Living with HIV, the thought of possible transmission of the virus to their newborn, the stigma and insults arising from their HIV status, and the continual dependence on ART with its associated side effects are some of the stressors participants described. Other stressors they reported having to cope with included distance to the health facility, lack of food, and abusive partners. **Table 1** includes selected quotes to support each of these 4 subthemes.

GRRs

As seen in **Table 2**, 4 GRR subthemes were identified: self-determination and hope, support from others on ART, concern about children's health, and adaptation in the use of ART drugs. Regardless of the stressful life events and their accompanying debilitating conditions, the participants were in control of their lives by being committed to taking their ART regularly. Insights from the interview data reinforced certain characteristics of the participants and their environments that strengthened their commitment to regularly take ART. The participants were motivated to be healthy, many as evidenced by the use of phone to set daily

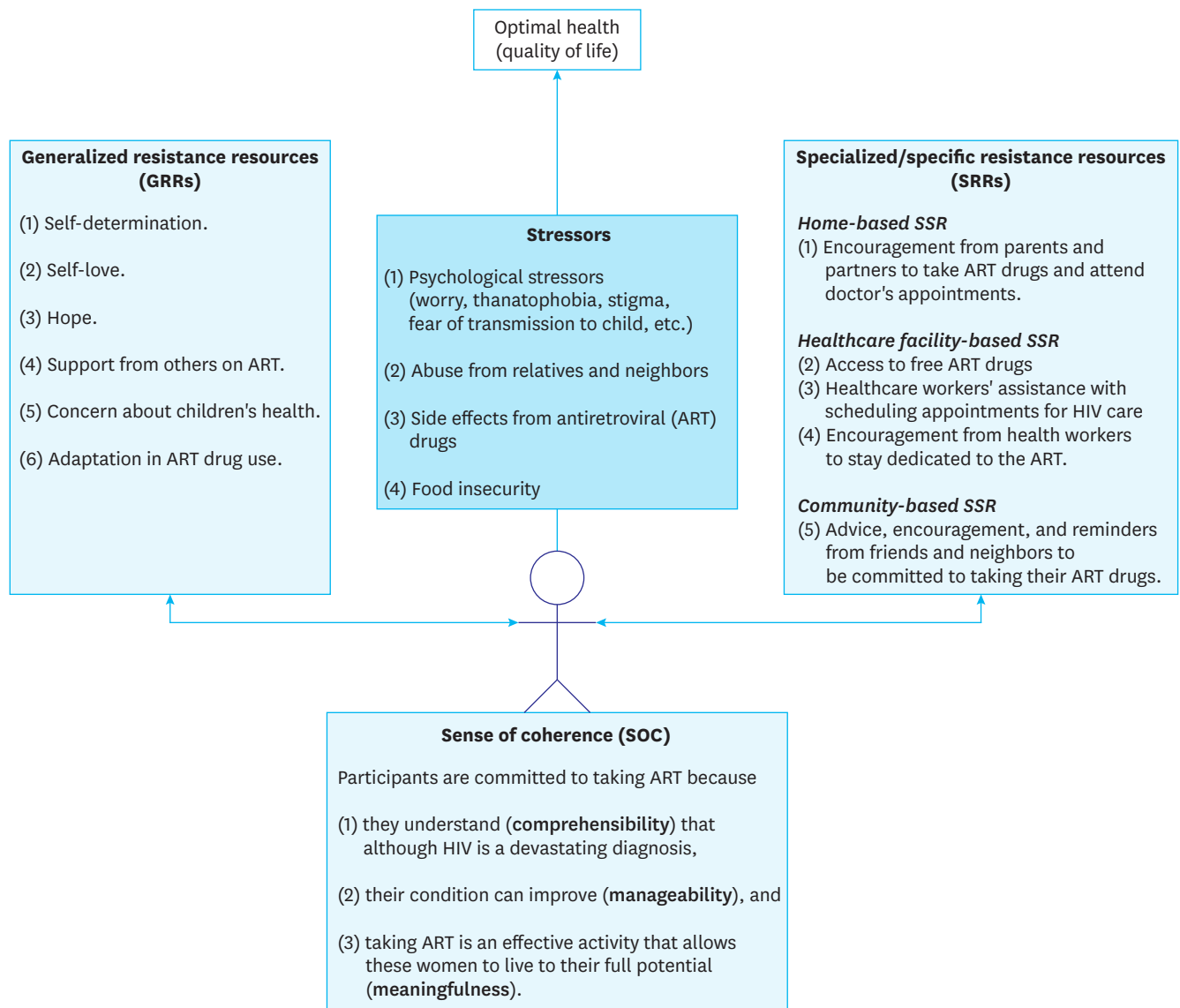


Fig. 1. The salutogenic model depicting stressors and resources of postpartum mothers living with HIV.
HIV = human immunodeficiency virus.

reminders to take the antiretroviral drugs, and some participants described their faith in God as their healer. Other resources categorized as generalized resistance as described by the women included: 1) having the ability to cope with stigma and insults, 2) knowing that their status was not unique to them, 3) understanding that adherence to ART and retention in care are a person's best chance to be healthy and live longer, 4) desire to prevent mother-to-child transmission, and 5) knowing of others in their environment who remain strong and healthy because of their commitment to taking ART drugs regardless of side effects.

Because ART drugs need to be taken daily at the same time, many participants in this study set reminder alarms on their phones. Some participants without a phone or means of knowing time of day navigated this situation by getting a neighbor or family member to set reminder alarms on their phones. The participants indicated that they were advised

Table 1. Stressors (organizing theme)

Subtheme	Selected quotes
Psychological stressors	"Whenever I am breastfeeding [my baby], I start to think of the possibility of infecting my baby...also...anytime I have severe headache, I live in the fear that I will die soon, and this thinking usually affect my mood negatively..." (P.11) "At first, I got scared...I first feared, got scared and started thinking [about] how people will perceive it and I was worried about who to talk to about my status..." (P.9) "Sometimes you feel that you are going to die very soon but when you have [a] friend who also takes the [ART] drugs and you share [your worries with her/him] you get relieved...[but] the people around me do say that I am a prostitute..." (P.3)
Abuse from relatives and neighbors	"The people [my grandmother and aunty] around me always talk ill of me because of my status. They sometimes, anytime they are drunk, tell me that I will die before them because I am HIV patient...my partner beat me...nearly killed me after discovering that I tested positive for HIV." (P.2). "The father of this child [pointing to her baby], he abuses me, [and tell me] that I am going to die soon [and] that there is no future with me." (P.3) "My neighbors usually abuse and insult me...they say things like—you are useless, you are a living-dead person, and you have no future—... these things, anytime I heard them, I become irritated." (P.14).
Side effects from antiretroviral (ART) drugs	"Before pregnancy, I take my drug without a problem...during pregnancy, too, I continued taking my drugs very well...after delivery...my medication was changed—at this point, I failed to sleep, my heartbeat [became] unusual and I would get nightmares, bad dreams." (P.14) "Sometimes when I take them [the antiretroviral drugs], I feel dizzy especially when I don't eat well, and it takes long before the dizziness diminishes." (P.5) "Before pregnancy, I did not get any challenge when I take the drugs, but when I got pregnant, boils would hit my body parts such as legs, face, but they do heal...after I delivered, nothing much changed." (P.15)
Food insecurity	"Food is also a problem to me, and it affects my taking of drugs. I cannot take my drugs when I have not eaten [...another] problem is transport, as the clinics are very far from our homes. [Without food, too]... I find it hard...to travel that long-distance with an empty stomach...With this COVID-19, too, it's very hard to get food because those who used to give me work to do to make money no longer do so." (P.2) "The problem I find is that, if I don't have food, I may take the drugs and find myself dizzy" (P.1)

Table 2. GRRs

Subtheme	Selected quotes
Self-determination, self-love and hope	"I remind myself [to take the drugs on time] and no other person supports me, I have my book...I can read in my book and I remember that this is the day I am supposed to go to the health facility. Because if they write for me in the book, and the nurse tells me I won't forget..." (P.1) "What helps me is the alarm I put in my phone. When it clocks 8 pm like this I take my drug." (P.9) "I always check the time on my phone to be able to take my drugs on time." (P.11) "What encourages me to continue taking my drugs is the will to have a long life and develop a love for myself." (P.12) "What motivates me to continue taking antiretroviral is [my] wanting to have good health so that I can live longer." (P.3) "No one [reminds me to take the antiretroviral drugs] but my self-trust in God and [I] put all my hopes in him through prayer and I know if I take my medicine well, I can live long on this earth... I am hopeful that God can heal every sickness so I know that by taking the antiretroviral drugs He can heal me." (P.8)
Support from others on ART	"...my husband and a friend of mine called [name removed]...you know also take antiretroviral drugs... my friend has been taking the drug a long time now...when I found out that I was sick, and I disclosed to her and she told me she has been on the drugs for fifteen years, she encouraged me that if I take my medication very well and consistently, my health will always be good." (P.13) "What encourages me to take my drugs is that when I see the time I have spent in life taking my drugs looking and feel healthy as I see other HIV patients who died because they refused to take the drugs...I get more encouraged to keep taking my drugs." (P.7) "It encourages and makes me happy to know that my husband also takes the antiretroviral drugs. He is even the one who tells me that it's time for drugs." (P.1)
Concern about children's health	"Having a child has helped me because I know I am positive and because I do not want to transfer [HIV] to my child, I am encouraged to take the medicine." (P.8) "I love my children the way I love my self, so it has made it easy for me to take the drugs. I think that if I don't take my drugs, I will transmit the virus to my child, so I have to take it regularly." (P.9) "Having a child has helped me because I know that when I take the antiretroviral drugs, my baby cannot fall sick." (P.15) "I have to take them daily so that I may stay strong...and...work to care for my children and their future. Knowing that I have a young baby, and if I stop taking my antiretroviral drugs, I may infect my child, I decided to take them regularly..." (P.10)
Adaptation in ART drugs use	"When I take the antiretroviral drugs before meals, I become dizzy. Since I cannot fail to take it, I decided to take my drugs after meals..." (P.1) "Because I am not drinking well, getting enough drinks or getting enough food most of the time, I feel so dizzy, so I decided to take my drugs at night so that I can go to sleep immediately after taking it." (P.10) "First, I felt dizzy. Whenever I take it I feel dizzy. I was told to drink a lot [of water] and my situation became normal." (P.9)

GRR = generalized resistance resource; ART = antiretroviral treatment.

to take the medications before meals and many of them reported feeling extremely weak by following this advice. Rather than being discouraged from taking the medication, they established an alternate plan for taking their medication, often immediately after meals.

Table 3. SRRs

Subtheme	Selected quotes
Interpersonal relations SRRs	"I think I would have failed if he [husband] is not there for me. If he was not supporting me, I think I would have even left the drug. He even gives me encouraging words which stops me from doing something bad like throwing myself in a river." (P.1) "My husband supports me. Yes, because he is the only one, I stay with at home...whenever I am sick, he usually rushes me to the hospital... when I am weak to work for myself, he is always the one to provide, whenever I need anything, he is always my only hope." (P.13) "My mother...and some of my best friends [are very supportive]. My best friend normally reminds me to go for my drugs...my best friend visits and reminds me of my clinic appointment days. I like what they do because they help me to continue taking my drugs..." (P.5) "When I am not happy or in problem, I talk with my mother, and she always strengthens me...There is also another woman at the hotel I used to work; I disclosed my status to her, and she was very supportive. This co-worker reminds me that I am not the first person to be HIV positive and that I can live a healthy and long life when I take my medication very well." (P.10)
Healthcare workers and healthcare facility SRRs	"What motivates me to be committed to taking my drugs is knowing that when I go to the hospital, I can still get my antiretroviral drugs...if the HIV drugs were bought with money, it would be a challenge for me but the fact that they are free and available, I know that when I take them properly, I will keep healthy." (P.13) "The health workers kept on educating us and sensitizing us, then I started gaining my weight slowly...I knew I had nothing to do apart from taking my antiretroviral drugs. The major thing is that when one takes these drugs the person's health is always improving... the nurses always call me on phone and remind me, especially when I miss my appointments...then I get reminded that it is my day to go to the clinic." (P.14) "It's the order of nurses that I should take it every day without forgetting. They told me to have it at 9 am, I know that when it is 9 am, I have to take my medication...I just continue looking at the phone for the time." (P.1) "Sometimes having a phone is a great help because the health workers usually send me messages to remind me of my appointment days and to take the drugs." (P.13)
Community SRRs	"I am part of a women's group here [community] and we support ourselves with money...so when you become part of them, they help you to live positively with hope." (P.1) "My religion has been helpful because they offer prayers on my behalf...and I belong to groups in the church and the community that help me in most of the time when I require financial support." (P.2) "Religion has helped me a lot. As I am a protestant when I go for prayer and conferences, I become stronger...also, I am in some groups and these groups help so much." (P.3)
Desired SRRs	"Having transport all the time could ease everything since I walk for a long distance. Having a nearby service center in our area also could help me...[Besides,] as they have supported us in giving us these drugs, I think they should also go ahead to support the HIV positive mothers with basic needs. Many mothers are suffering without any help, so such people can be supported financially for them to live a better life." (P.10) "Having transport would make it easier for me because I come from far." (P.11) "If I had a small business such as selling charcoal to get transport so that I can pay for my transport to go to the clinic with ease." (P.12) "I request that when one misses her drugs, there should not be many questions...there should be measures in place to allow one to get her drugs in any other clinic closer to that person." (P.2) "Those of us who have babies who are 4 months old, the government should be providing us with soya and other nutrients for babies to help us." (P.8)

SRR = specialized/specific resistance resource.

SRRs

SRR subthemes that emerged from the interview data are in **Table 3** along with selected quotes to support these themes. The four subthemes are: interpersonal relations, healthcare workers and healthcare facility, community, and desired SRRs. The participants had access to specialized resources that they leveraged or used to cope with their stressful life experiences in healthcare centers, at home, and in their community. At healthcare centers, participants had access to free ART drugs, healthcare workers assisted them to scheduling appointments for HIV care, and health workers encouraged them to stay dedicated to taking ART. At home, parents and partners encouraged and regularly reminded participants to regularly take their ART drugs and attend doctor's appointments. Specialized resources in the community included friends and neighbors who offered advice and encouragement, and reminded participants to be committed to taking their ART drugs.

The participants expressed their desire for certain SRRs to keep them committed to taking ART. They mentioned four key desires: 1) the government's provision of soya milk for their infants, 2) making it easy to request a transfer from one ART healthcare center to another, 3) help with establishing themselves in micro-business enterprises in order to be financially independent, and 4) providing financial support for transport or bringing an ART healthcare center nearer to their community.

DISCUSSION

We explored postpartum WLHIV in Uganda and their adherence to ART and retention in HIV care using the salutogenic model of health. This sample of mothers relied on certain resistance resources (GRR and SRR) to persevere with their retention in HIV care and adherence to ART. From the salutogenic model perspective, stressors are unavoidable, and they only become a risk to living a healthy life when individuals have a weak sense of coherence. Individuals who have a strong sense of coherence understand the stressor(s) and have confidence that the health-threatening stressors are predictable and manageable, and that investing time and resources to limit their imposing threats is meaningful.^{17,18} Motherhood and a diagnosis of HIV are themselves stressors that influence health and quality of life. Each stressor has accompanying challenges that, when not addressed in a health-promoting way, can threaten a person's physical and psychological health. Furthermore, these stressors—psychological stressors, abuse by relatives and neighbors, ART side effects, transportation challenges and food insecurity—have been reported in the literature as potential factors that interrupt the continuity of care for women living with HIV; interruptions preventing them from attending HIV care appointments or obtaining ART drugs in a timely manner.³³⁻³⁶ Instead of delineating only the difficulties confronting new mothers living with HIV, our salutogenic approach guided us in identifying the positive characteristics and resources associated with retention in care and ART adherence despite the difficulties associated with their HIV diagnosis and new motherhood status.

Guided by the salutogenic model to extend beyond identification of the stressors, we brought to light the characteristics of individuals and their environment as well as the resources they rely on for continuity and retention of HIV care. The characteristics of postpartum WLHIV that fostered their adherence to ART included their determination and hope to live, the knowledge of ART efficacy from witnessing positive changes in other persons taking ART, commitment to preventing mother-to-child transmission, and ability to adapt to taking ART despite its side effects. The GRRs identified in this study were similar to resources identified in a study conducted in Ghana where facilitators to adherence for women included patients' desire for good health, longevity, prevention of infection in unborn children, and avoidance of untimely death.³³ Others have also mentioned some of these GRRs identified in our study as enabling factors of adherence to ART: awareness of when to take the ART drugs and memory aids such as alarms.^{35,37-39}

The GRRs identified in this study are important to consider in designing low-cost interventions to assist childbearing women living with HIV to be adherent to ART. For instance, other mothers living with HIV who are healthy because of their retention in care and adherence to ART should be invited to workshops and other informal discussion settings to encourage retention and adherence in new mothers living with HIV infection. Other important GRRs of ART adherence in this study included the use of mobile phone alarms and asking trusted family members or friends for reminders of the time of day to take their ART. These factors were also identified as enablers of ART adherence among persons living with HIV in Vietnam⁴⁰ and other parts of sub-Saharan Africa.³⁷

In addition to the GRRs, the mothers in our sample relied on SRRs for their retention in care. These resources include support from partners, family members, and friends. Substantial support was provided by healthcare workers, community groups, and religious associations to the mothers living with HIV who were adherent to ART. Participants also suggested SRRs

that could be provided by Uganda government agencies, such as soy milk for their children, or facilitating their start-up of a micro or small-scale enterprise to enable their retention in care and ART adherence.

Our findings confirm previous reports that established the important role of social support in promoting ART adherence.⁴¹⁻⁴⁵ For instance, in a study of southern Uganda adolescents living with HIV, family cohesion and social support from caregivers/family were associated with self-reported adherence to ART.⁴⁶ Facilitating economic activity among childbearing women living with HIV can assist and encourage ART adherence and retention in HIV care protocols. Evidence for a positive association between economic strengthening and ART adherence and retention in care has been reported elsewhere, suggesting that conditional cash transfers and transportation assistance improved care-seeking and medication dispensing.⁴⁷ Rather than supplying conditional cash assistance, a more sustainable approach to encourage resource-poor childbearing women living with HIV to continue HIV care and be adherent to ART would be helping them establish an income-generating activity of their choice.

A qualitative study approach provided the opportunity to explore adherence to ART and retention in HIV care among new mothers living with HIV using the salutogenic model of health in greater depth than would be possible in a quantitative study design. The sample of participants was obtained directly from women who were receiving ART at six different healthcare facilities in Uganda. Although generalizability to all women who are HIV-positive mothers is not possible, qualitative descriptive studies are more likely to provide direction on what to explore or consider in a subsequent quantitative approach. Findings from the study involved women's own perspectives of events, and the consistency in their responses was a convincing source of study credibility. The purpose of our study was not to examine facilitators and barriers, or dissect the individual components of ART adherence or retention in HIV care, but rather to gain perspective on the types of resources that could be used to promote ART adherence and retention in care.

Although participants were assured of confidentiality, some might have been more cautious in their responses, which may have led to suppression of some vital information that would have enriched the findings. However, interviews lasted between 60–90 minutes, and the interviewers were trained to use open-ended questions and additional probes to elicit more detailed information if a participant provided only brief responses.

In conclusion, this study explored the experiences of postpartum WLHIV who were receiving ART in Uganda. Findings suggest that psychological stressors, stigma and abuse by relatives and neighbors, side effects of ART drugs, and food insecurity are some of the common challenges experienced by these women. The main facilitators of retention in HIV care and ART adherence among these women included self-determination and hope, support from other women also taking ART, concern about children's health, and adapting the protocol for taking ART. Thus, social and community support for new mothers living with HIV is crucial for them to continue with HIV care and stay adherent to their life-long ART protocol. We found the salutogenic model of health very useful in studying the experience of postpartum WLHIV. The model provide a different perspective of studying the experiences of this population in regards to adherence to ART and retention in HIV care.

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SUPPLEMENTARY MATERIAL

Supplementary Data 1

Interview guide

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