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Marital infidelity, Food Insecurity, and Couple Instability: A Web of Challenges for Dyadic Coordination around Antiretroviral Therapy

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Abstract

Rationale: Despite the importance of primary partners for health, little is known about factors that constrain the ability of couples to work collaboratively towards HIV care and treatment (dyadic coordination). This study examined the interplay of marital infidelity, food insecurity, and couple instability on dyadic coordination and adherence to antiretroviral therapy (ART) in Malawi.

Methods: In 2016, we conducted 80 in-depth interviews with 25 couples with at least one partner on ART. Couples were recruited at two HIV clinics in the Zomba district when attending clinic appointments. Participants were asked about their relationship history, relationship dynamics (love, trust, conflict), experiences with HIV care and treatment, and how partners were involved. Using an innovative analysis approach, we analyzed the data at the couple-level by examining patterns within and between couples.

Results: Three patterns emerged. For some couples, ART led to positive changes in their relationships after men terminated their extramarital partnerships in exchange for love and support. For other couples with power imbalances and ongoing conflict, men's infidelity continued after ART and negatively affected dyadic coordination. Finally, some couples agreed to remain "faithful", but could not overcome stressors related to food insecurity, which directly impacted their adherence.

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Conclusions: Couples-based interventions targeting ART adherence should improve relationship quality, while also addressing interpersonal stressors such as marital infidelity and food insecurity. Multi-level interventions that address both dyadic and structural levels may be necessary for couples with severe food insecurity.

Keywords

Couples; Gender Inequality; Antiretroviral Therapy; Adherence; SubSaharan Africa; HIV/AIDS

Introduction

In sub-Saharan Africa (SSA), high levels of engagement in HIV care and treatment are critical for meeting UNAIDS goals calling for 90% of individuals on antiretroviral therapy (ART) to be virally suppressed (2014). Among HIV-positive individuals who initiate ART in sub-Saharan Africa, only 65–89% are retained in care after 12 months (Fox, 2015; Fox & Rosen, 2010) and 73% are adherent to ART (Heestermans, Browne et al., 2016). Family members and primary partners can play a supportive role in helping HIV-positive individuals remain engaged in care, adhere to ART, and achieve viral suppression (Edwin Wouters, 2014; Masquillier, Wouters et al., 2015; Masquillier, Wouters et al., 2016; Wrubel, Stumbo et al., 2008, 2010). In the US, couples-based interventions based on partner support have been shown to improve adherence to ART (Remien, Stirratt et al., 2005) and quantitative research has found that HIV-positive individuals in higher quality relationships (e.g., higher commitment, satisfaction) are more likely to be adherent and virally suppressed than those in lower quality relationships (Johnson, Dilworth et al., 2012).

According to the stress-buffering model, partner support can protect against the negative effects of stressors occurring outside the relationship (Cohen & Wills, 1985). However, interpersonal stressors within the relationship can add to or interact with other stressors, causing strain on the relationship (Robles, Trombello et al., 2014). Couples living in resource-poor settings face a greater number of stressors than their higher socio-economic status counterparts. Singer (1994) brought attention to this issue by introducing the concept of a syndemic, arguing that the poor and underserved often face a complex constellation of social and health conditions that interact to undermine their well-being. To date, theories and frameworks on couples and health have focused on how positive relationship dynamics (intimacy, satisfaction, and commitment) explain how well couples cope with health threats such as HIV (Karney, Hops et al., 2010; Lewis, McBride et al., 2006), without fully considering the role of stressors among couples living in poverty. As a result, there is a substantial dearth of research on couple challenges or stressors in resource-poor settings and how this may impact both relationship (e.g., divorce, separation, conflict) and HIV-related health outcomes.

In SSA, outside sexual partnerships are a key source of stress for couples and may indirectly impact engagement in HIV care and treatment. In Malawi, the study site of this research, the majority of committed partnerships are married or cohabiting unions (National Statistical Office (NSO) [Malawi] and ICF, 2017). Thus, we use the term “marital infidelity” to reflect the predominant union in Malawi and to encompass the couple-level aspect of having

outside sexual partnerships. Marital infidelity is relatively common, but likely underreported, in many settings in SSA. Although both women and men have extramarital relationships in SSA, men report higher rates of marital infidelity; 9–13% of men reported having a recent extramarital partner as compared to 1–3% of women (Clark, 2010; Conroy, 2014b; Mitsunaga, Powell et al., 2005; Voeten, Egesah et al., 2004). Marital infidelity is associated with sexual and physical violence (Conroy, 2014b), which is a major barrier to ART adherence and engagement in HIV care (Hatcher, Smout et al., 2015). Marital infidelity is also considered one of the primary reasons for divorce or separation in Malawi (Kaler, 2001), potentially weakening important forms of social support needed for living with HIV. Finally, studies show that marital infidelity can divert scarce food and resources away from wives and children (Robinson, Mulder et al., 1995; Shelton, 2008). Food insecurity, defined as having limited access to food or ability to acquire food (National Research Council, 2006), is common among HIV-positive individuals (Tsai, Bangsberg et al., 2011), and is strongly associated with ART non-adherence in the Congo and Uganda (Musumari, Wouters et al., 2014; Weiser, Palar et al., 2014).

As access to HIV care increases throughout SSA, it is critical to understand how interpersonal stressors such as marital infidelity impact caregiving around HIV and the ability of couples to effectively engage in HIV care and treatment. Marital infidelity has been shown to be a major barrier to HIV status disclosure and uptake of HIV testing services within couples from Malawi and Uganda (Conroy & Wong, 2015; Larsson, Thorson et al., 2010)—in part, because a positive test result signifies infidelity. Some spouses would prefer not to learn their HIV status, or do so discretely, to avoid conflict and potentially losing the benefits of marriage (Conroy, 2014a). However, more recent research from Malawi suggests that a positive HIV test result does not increase divorce (Fedor, Kohler et al., 2015) and thus, if more couples are staying together after an HIV diagnosis, it would be important to understand how they negotiate marital infidelity going forward. To fully understand these complex issues, there is a need for dyadic data from both partners, which could provide a more comprehensive portrayal of relationship dynamics and ART adherence. We analyzed rich, relationship history data from 25 couples with HIV to understand the interplay of marital infidelity, food insecurity, and couple instability, and how these factors affect ART adherence.

Dyadic interdependence theory

We draw from dyadic interdependence theory to understand marital infidelity and its connection with food insecurity and couple instability at the couple-level. The premise of the theory is that the dyad represents a critical level of analysis for health behaviors that involve two people and that each partner's beliefs, characteristics, and actions can influence the other (Kelley & Thibalt, 1978). In this study, we argue that marital infidelity is a dyadic event requiring a partner who engages in the act and a partner who perceives that the act has occurred. Marital infidelity also has dyadic consequences such that one partner's infidelity can affect the other partner's food insecurity and can also lead to couple instability (ongoing arguing, living apart). Two theoretical models based on interdependence theory further inform our inquiry. Karney and colleagues (2010) developed a theoretical framework for examining how dyadic processes and relationships can inform HIV-related health behaviors.

Multiple levels of factors, including relationship-level factors such as closeness and commitment, can affect the ability of the couple to work collaboratively towards a particular health threat such as HIV (Karney et al., 2010)—which we refer to as dyadic coordination (Tan, Campbell et al., 2018). Lewis and colleagues (2006) developed a mechanistic theory to understand couples and health, which centers on a similar concept called "communal coping". This theory posits that positive relationship dynamics foster a shift from a self-centered orientation towards a more relationship-centered orientation which motivates couples to work together to achieve better health (Lewis et al., 2006). Recent research has applied these theories to understand couple-level behaviors around engagement in HIV treatment in SSA and the US (Conroy, Leddy et al., 2017; Montgomery, Watts et al., 2012; Rogers, Achiro et al., 2016; Tan et al., 2018).

Despite the developments in current research, our hope is to expand upon an important element missing from existing theory on couples and health. Given the focus on positive relationship dynamics as the main pathway to dyadic coordination, little attention has been paid to how the socio-cultural environment negatively impacts relationships and health interactions within couples. Although Karney and colleagues' model (2010) briefly acknowledges that structural factors (e.g., gender inequality, economics) affect dyadic coordination, they did little theorizing as to 'how'. We posit that the socio-cultural environment can create experiences of stress—both external and internal to the relationship—which can strain a relationship, leading to poor dyadic coordination and health outcomes in couples. In this analysis, there is a focus on how external and interpersonal stressors important in the Malawi context (e.g., marital infidelity, food insecurity) intersect with relationship quality (e.g., conflict, violence) and dyadic coordination around HIV treatment.

Methods

Study site

Malawi is considered one of the world's poorest countries by development indicators (The World Bank, 2015). Marriage is quasi-universal and occurs around age 19, and women bear an average of four children (MDHS, 2011; National Statistical Office (NSO) [Malawi] and ICF, 2017). The majority of Malawians are engaged in smallholder agriculture, which provides a major source of food. Yet, yearly famines are common, resulting in high levels of malnutrition and food insecurity (Kerr, 2005). The country has distinct northern, central, and southern regions: In contrast to the patrilineal/local north, the south (the site of this research) generally follows the matrilineal/local tradition characterized by men moving to their wives' homes after marriage. Rates of divorce are also higher in the southern region, partially attributed to the matrilineal tradition (Reniers, 2003).

Study procedures

Between August and November of 2016, we conducted 50 in-depth interviews with 25 married couples, interviewing husbands and wives separately. Each couple had at least one HIV-positive partner, labeled as the *index patient*. Couples were eligible if they were: (1) in a relationship for at least six months and together since the index patient started ART; (2) more committed to each other than any other partner; (3) in a non-polygamous union; (4)

age 18 and older; and (5) had an index patient eligible for ART (referred to as Group 1) or currently on ART for at least one year (referred to as Group 2), who had disclosed their HIV status to their partner. Group 1 consisted of fifteen couples who had an index partner starting ART. For each couple, each partner was interviewed twice, once at the start of ART and once three months later, to understand their longitudinal perspectives and experiences with ART as they unfolded over time. To include more experienced patients, we also conducted a single interview with ten index patients on ART for at least one year, and their partners (referred to as Group 2). Our purpose was to include couples with a range of times on ART, but not to contrast Groups 1 and 2. Thus, in total, 80 interviews were conducted. We used a quota table to recruit an even number of index patients by gender, recruitment site, and couple sero-status.

Couples were recruited through two HIV care facilities in the Zomba district of Malawi: (1) Zomba District Hospital, a large public hospital; and (2) Pirimiti, a private rural hospital. We recruited index patients in waiting rooms when attending appointments. Research staff announced the study each day during health information sessions, and interested patients could then approach the staff. We also used passive recruitment strategies invoking the help of clinic staff to inform patients of the study. Since most couples did not come together to clinic appointments, index patients were given information sheets to give to their partners who could then contact study staff if interested. Index patients were screened after being recruited at the clinics. Partners were screened separately when the couple came for their interview appointment. After both partners were determined to be eligible, the couple was enrolled in the study. After enrollment, both partners provided informed consent separately and were each given a small incentive for their time. This research received ethical approval from the National Health Sciences Research Council in Malawi and the Committee on Human Research at the University of California San Francisco.

Data collection

Gender-matched, trained research assistants conducted the interviews in Chichewa. Partners were interviewed separately, but simultaneously, in private areas of the HIV clinics. Two interview guides were used. The index patient guide contained open-ended questions on relationship history (e.g., how they met, the marriage process), relationship dynamics (e.g., love, power, conflict), experiences with HIV testing, care, and treatment (e.g., missed pills and appointments), and how their partner was involved in this process. The partner interview guide contained similar topics, but questions focused on how they supported the index patient with HIV care and treatment.

Data analysis

Interviews were audio-recorded, transcribed verbatim, and translated into English. Both partners' data were linked via a unique couple identifier included in the file names (e.g., CID025_F and CID025_M). To analyze the data at the couple level, the first-author (AAC) and a dyadic qualitative expert (MLC) developed an innovative analysis approach. First, after reading each set of partners' transcripts, the initial author (AAC) and a research assistant created 25 couple summary tables with a row for each topic in the interview guide

(e.g., marital infidelity, couple conflict, adherence, partner support) and two columns for what “she said” and “he said”. We then re-reviewed the couple’s transcripts, and within each cell of the table, wrote a summary of what participants communicated about each topic. For example, in one interview for the topic “couple conflict,” the female partner was summarized as: “In 2009, he impregnated another woman and they argued. After his diagnosis in 2015, he stopped his affairs. Have not quarreled since.” The male partner of this woman’s summary read, “Have not quarreled since they both got diagnosed with HIV. The fighting was mostly because of his other partners and a lack of food.” At the top of each couple summary, we included a brief narrative highlighting perceptions of the couple’s relationship quality, areas of consistency and discrepancy between partners, and major topics discussed.

Discrepancies between partners were handled on a case-by-case basis by examining surrounding context of each partner’s interviews and asking questions such as, “what was the level of detail provided?” “which partner could be more prone to socialdesirability bias based on the content?” “is the partner’s information consistent with other aspects of the interview?”

Second, we created a data matrix with a row for each couple to summarize key factors affecting dyadic coordination and adherence, and to identify patterns of factors across couples. Rather than assess interrater reliability, the study authors engaged in regular phone calls and in-person meetings to refine codes until consensus was reached. Included in this matrix was also a column with a brief description of the predominant pathway(s) between relationship factors, and dyadic coordination and adherence (e.g., “husband’s affairs lead to food insecurity and violence, which affected wife’s adherence”), with supporting quotes from both partners. Third, the first author (AAC) and a qualitative expert (SAM) identified similarities and differences between couples using the summaries, data matrices, and raw data, and common themes affecting adherence. After identifying couples who exemplified these themes, we (AAC, SAM) re-examined the raw data for sub-categories of patterns and held additional meetings to discuss emerging findings. Couples were categorized into three patterns of infidelity and dyadic coordination, each of which is explored below. Because of the complex and multi-level nature of each couple’s experiences, we chose to describe and quote couples that exemplify each pattern rather than selecting isolated quotes from several couples. All names were replaced with pseudonyms.

Results

Sample characteristics

The mean age of the sample was 38 years old and the majority of couples (80%) had a primary school education or less. All couples were either married or cohabiting and had been together for an average of 12 years. Nearly two-thirds of couples were sero-discordant (64%); of these couples, the HIV-positive partners were divided evenly by gender. All spouses were designated treatment guardians. Around 84% of participants reported perfect adherence to ART (no missed pills) in the past 30 days. Marital infidelity (17 couples), food insecurity (17 couples), and couple instability or violence (15 couples) emerged inductively during the analysis as major stressors or issues among the 25 couples. Only two of the 25

couples had no challenges. Because we were interested in understanding how multiple stressors intersect to affect dyadic coordination and the complex intervention needs of these couples, we focused on the 17 couples with experiences of marital infidelity and other challenges (see Table 1 for a summary of the couples).

ART motivated partners to stop infidelity, promoting dyadic coordination

Many couples reported positive changes in their relationship that unfolded over the course of receiving an HIV diagnosis, attending counseling together, and starting ART, which facilitated dyadic coordination; eight couples fell into this category. Notably, all of these couples had an HIV-positive male partner (see Table 1). Marital infidelity was often believed to be the cause of the husband's HIV infection, which prompted men's penitence and desire to change in return for a wife's support. For these couples, an HIV diagnosis and a renewed commitment to each other reinforced caregiving processes within the marriage and facilitated dyadic coordination around ART.

Agnes and Samson (couple #12) exemplify this pattern. The couple was serodiscordant and Samson, the husband, started ART at the first interview. This couple struggled with Samson's many extramarital partners and they sought help from their *ankhoswe* (traditional marriage counselors comprised of relatives from both sides). Both partners told similar stories about Samson's affairs. Agnes complained to Samson's extramarital partner that she was taking away resources (e.g., food) from their family. After Samson tested positive for HIV, Agnes pledged to support him but urged him to stop his affairs:

> I accepted his HIV status saying, "my husband, we blessed our marriage, we spent our money at that hall during our wedding ceremony. And that we promised at the pulpit that it is death which will make us part. We will be together during bad times and good times…I will still be your wife, I promise to take care of you even if you suffer from any other kind of disease…My word to you is, if you were connecting with the mother of this child, or any other woman that you are in love with when you are outside your family, stop that behavior. This time, it is better for you to take care of your life."

Agnes described how she helped Samson remember his pills when traveling for work, but also used it as an opportunity to coach him about faithfulness:

> We will be discussing about his journey when he is leaving, you are going for work, and you must really go there to work. Do not go to other sexual partners; if you do, the end result will be health problems to your body…After hearing the number of days that he will be away, I pack his medication in a plastic bag so that he can be taking it when he is away…When it is time to take his medication, I will be calling him [on the phone].

In the follow-up interview, Agnes indicated that her relationship improved since Samson started ART three months ago:

> Actually, there is a difference in terms of the love we had in the past and now; our love has grown because of what we are doing… [Before] he would move out and

> come back in the evening and when I ask where he was, he would say that he was at the cinema. But now he doesn't like going there and he likes chatting at home.

While Agnes saw an improvement in their relationship, Samson viewed their love as constant. According to him, after his diagnosis they were able to sit down and mutually agree upon a plan forward because of the strength of their love:

> Since I started ART, love hasn't changed; it is constant. In the past, we were an exemplary couple in the sense that we used to do things in one accord but somehow, I as a man, missed the track and went in the wrong direction [referring to his affairs]. But my wife would tell me what I was doing was wrong and the end result was that I was diagnosed with HIV and started ART. So we sat down as a couple and my wife reminded me that she used to warn me against this, but I encouraged her that we should accept it. She encouraged me to go to the hospital… Our love hasn't changed… We don't argue because I am positive.

Zione and Charles (couple #24) were a sero-concordant couple, but also struggled with marital infidelity. Charles recounted how he found a girlfriend to marry because he suspected that Zione was sleeping with her ex-husband with whom she has a child (Zione said she never had an extramarital partner). They both told a similar story about how they quarreled about their mutual mistrust and considered divorcing, but were reunited by their *ankhoswe*. After losing two children to suspected HIV infection, the doctors urged them to test. Both of them noted that after Charles tested positive, he apologized for bringing HIV into the family and stopped having affairs. Charles described how they counsel each other on "faithfulness" and adherence:

> I told her to remember that the health workers told us that it is not good for us to go outside marriage and have secret affairs. When we do, it means we are killing ourselves since we might be adding up the virus in our bodies…All the times we encourage each other on the counseling. Things worked out positively [for us] because we remind each other daily about HIV… We have friends who are on ART but they still have multiple sexual partners. Due to that malpractice they face a lot of challenges… They are a living example to us. We really know what [happens] when one does not follow the rules given by the health workers. You are prone to suffer from various infections even though you are on ART.

This belief that "infidelity can inhibit treatment" was held by many couples and is an additional factor that seemed to have spurred dyadic coordination.

Ellen and Felix (couple #19) differed from other couples in that they married each other specifically because of their shared HIV status. Still, Felix sought outside partners and Ellen threatened to divorce him. Ellen lamented that they married each other so they could support each other with HIV and his affairs violated their marriage pact. Ellen describes the events that unfolded:

> I found out that he had a certain woman who he was having sex with… In the morning is when he was coming [home]. So I said that 'we better separate, had it been that you are negative, I could have not allowed you to marry me… I accepted you because you are like me so that we can live together and care for one another.

> What you are doing, I better stay alone'. Then he went to the woman from November, December then in January I saw him coming. I asked 'what's wrong?' [He said] 'I beg your pardon, I was wrong and I will not do it again.' I called for his relatives and my relatives and we reasoned together and they said that it being his first time, just forgive him…From that time, he has never done it.

Both partners were generally consistent in their accounts of treatment support, which included bringing each other pills, providing reminders, and picking up each other's pills at the clinic.

None of these couples mentioned ongoing issues with violence or severe challenges with food insecurity, and all were "living peacefully as one body." The first two couples believed that the husbands brought HIV into the household, ignoring their wives' earlier advice about faithfulness. These circumstances may have increased women's power in stopping the affairs in return for providing love and support. However, it also exemplifies men's higher relative power, as marital infidelity created health deficits (i.e., HIV), but men were able to leverage their marriages for care, obligating their wives to take care of them. All three couples provided consistent accounts of good adherence (i.e., no missed pills). Although these relationships had tensions, as in any relationship, the couples were different in terms of their levels of violence and other stressors than the couples below—who were not able to overcome infidelity issues and experienced more relationship challenges (see Table 1).

Infidelity continued after ART and interfered with dyadic coordination

Not all couples were able to work collaboratively to stop extramarital relationships and effectively support each other with HIV care and treatment. As such, these couples did not undergo significant transformations in their relationships after learning their HIV status and starting ART. Five couples fell into this pattern. Four of the five couples had an HIV-positive wife.

Kondwani and Lucy (couple #11) embodied this pattern. Kondwani spent significant time away from the household in search of piecework (i.e., temporary employment such as farming) and his absences increased following Lucy's diagnosis. Lucy thought he had at least two partners and was staying with the women. Earlier in their relationship, Kondwani found another sexual partner and did not financially support Lucy and their infant. Lucy divorced him for neglect. But Kondwani apologized and she agreed to remarry. When Kondwani was away, Lucy struggled to find piecework and frequently went multiple nights in a row without eating. Lucy says that today, they have small fights over poverty and stress from the lack of food: "When I talk to him about his behavior [other partners], he says currently, I am the one that has the problem, so I shouldn't make noise to him because he too will be infected. When he says that, I stop immediately lest he becomes bored [irritated] and beat me." According to Lucy, Kondwani supports her with care and treatment when he is around, but she strongly relies on herself to remember the pills and to find money for food.

> Interviewer: Do you always take your pills at 7:30?

> Lucy: I don't because sometimes I wouldn't be exact on the time since sometimes the sun doesn't set in good time. I don't have a phone unlike in the past when my husband had a phone.
>
> Interviewer: How does your husband help you take your pills?
>
> Lucy: I would say that he doesn't help me because he is mostly away so I basically help myself.
>
> Interviewer: Between the two of you, who mostly makes sure there is food in the house?
>
> Lucy: Because he is mostly away from home, I would say that I do. If there is a chance that I may do piecework, I do the piecework and get the help but if there is no opening for piecework, I get worried. Because I haven't sourced the food.

Lucy's HIV status seems to constrain her power to stop Kondwani's affairs, which means he was frequently away from the household and cannot support her with treatment. Complicating these dynamics are limited employment opportunities in the region, which required Kondwani to be mobile. Kondwani confirmed Lucy's account of how he supports her (e.g., reminders) when he can. Additionally, he described how his support comes through his decision to stay married to her: "Had it been that we were not in good terms with each other I could have divorced her already, [since] she is HIV positive, but I just accepted her as my wife. I could have opted to leave her and look for the girl who is also HIV negative".

Joseph and Grace (couple #17) were also a discordant couple and Grace was on ART. Joseph's extramarital affairs directly contributed to Grace's food insecurity and caused significant turmoil in their relationship. Joseph's extra-marital partner became pregnant when his wife Grace was pregnant. Joseph terminated the extramarital relationship after Grace directly confronted his partner, but she believes he still has other partners. She tried to divorce him, but he would not leave. Joseph admitted to having other relationships because she was refusing sex. There was also violence in the beginning of their relationship, which had ceased. Grace indicates that today their quarreling centers on his failure to manage the finances and his other lovers (Joseph denies having another partner and says that they do not quarrel anymore).

> I do not want to tell lies, I want to tell you the truth, I am not the creator of the sun, which is shining, it is God… If I am willing, I do carry the water for him to bathe but I have stopped washing his clothes, I said, "should I be washing the clothes and he puts them on and look smart he proposes other women, his clothes become dirty while he is with other women. You will be washing these clothes alone."

Grace pleaded with him to stop the affairs after her diagnosis, making the case for her children and risk for sexually transmitted diseases. She described their marriage as "a cross she was meant to carry," which even their *ankhoswe* could not fix. Grace admitted that she could not leave Joseph now because of her HIV status and she was tired of arguing with him, so remains silent. She indicated that Joseph is not her main source of support when it comes to ART. Instead, she relies on herself and her family. Joseph indicated that he does support

her with taking the pills, but also says that “they do not talk much about HIV”. Like Kondwani above, he also expressed pride in his decision to stay married to her.

Compared to couples who stopped their affairs, these couples had more conflict and violence in their relationships (see Table 1) and expressed less commitment and love. ART did not transform their relationships as in the other couples, perhaps due to these challenges and the weakening of women’s power due to HIV. However, both husbands were proud that they agreed to stay with their wives despite being HIVnegative and provided instrumental support to keep the household functioning with food and basic necessities. Both wives seemed to have found ways to augment their partners’ limited support and reported good adherence (both partners indicated the wives never missed any pills). However, it is questionable whether their adherence could be sustained in the long term because of marital instability. A divorce, for example, could increase women’s food insecurity—a known determinant of non-adherence.

Infidelity stopped after ART, but other stressors affect dyadic coordination

Not all couples could be categorized into the two patterns above. Even if infidelity stopped after ART, other stressors such as food insecurity could negatively impact adherence. Four couples fell into this category such as Ivy and Madalitso (couple #14). Although Madalitso agreed to terminate his other sexual relationships when starting ART, the couple continued to struggle with other challenges that hindered their ability to work collaboratively. Ivy tested positive first and her husband refused to test, but he became sick and was diagnosed with HIV. Years back, when Ivy was on pre-ART medications and Madalitso had not been diagnosed, the couple fought frequently over his affairs, which had impacted Ivy’s food security. Ivy described these overlapping challenges, stating:

> I can’t manage to explain all the problems that I have experienced. He was leaving me and looking for other wives and this was ill-treating me. He was not buying maize grains for food. And if there was no food, we were staying without eating… He was beating me because I was advising him to stop his bad behavior of having many sexual partners. I told him this, “it is not right for you to have many sexual partners we will have problems at our household, you will want to please the new wife so you will be taking money to spend with her… So it is better to leave me and marry that other woman because I am now ugly /no longer attractive to you.” Then he started beating me…He was beating me as if he was whipping a cow, not a person.

Madalitso mentioned a similar set of conflicts and admitted that these quarrels likely affected his wife’s adherence to pre-ART medications.

> Interviewer: Was she on ART treatment when you had this conflict in your relationship?
>
> Madalitso: She was taking her Bactrim [an antibiotic] not ART, she was not yet initiated on them. I should say that she was being disturbed. I am saying this because when you are disturbed in the mind it is very likely that you can miss doing something in your life.

> Interviewer: Did you see her defaulting on the medication?
>
> Madalitso: During that time, I did not see her defaulting on the medication and I did not follow up everything concerning her medication. I just think that our disagreements disturbed her because I was away [from home] that time.

After Madalitso was diagnosed and started ART, the affairs and violence subsided, and there was more unity between them. This shift, in turn, enabled them to support each other with care and treatment. Ivy advised her husband, saying:

> "My husband, you must not doubt the medication…We will be advising each other that we must follow the doctor's advice. Take our medication properly and stop having sexual partners." He confessed that if he was having other sexual partners he will end the relationships, he will do his best to follow the medication procedures so that he can be taking his medication properly.

Ivy also noted how their shared experience of taking ART and his renewed commitment brought them closer together, stating: "I am so proud, we are like one blood, and our viral load will be low. In the past, he was having other sexual partners and our blood was contaminated with other viruses."

However, Ivy indicated that they still have misunderstandings, not about infidelity, but over issues related to money. Recently, Madalitso packed his bags and left the household. He has difficulties finding a job and has been too tired for farm work. Thus, food insecurity is still a problem that they cannot manage. As a result, they both missed pills due to a lack of food:

> Ivy: It was last month, July, I missed my medication because I spent the whole day without eating anything… medication is supposed to be taken after eating after your stomach is full. You experience dizziness if you take the medication without eating, I am also breastfeeding. Thus, it's why I failed to take my medication. My husband was worried [when she missed the pills] but there was nothing that he could have done, he didn't have anything to give me to eat.
>
> Madalitso: Every month, I miss for almost 7 days or 5 days because of lack of food. Because I had an experience some day when I didn't eat… and I almost died. I was seeing darkness and it was as if I am not the same person that I used to be. She [his wife] says that when the situation is like this, then we are not supposed to be taking the pills until when we find food. So my wife and I try our best to find the food when we do some piecework and find our daily food.

This couple serves as a reminder that Malawian couples living with HIV struggle with multiple intersecting stressors—some of which manifest within the relationship despite their occurrence outside of it. While some aspects of the relationship improved after ART others, particularly related to food insecurity, could not be overcome and continued to pose threats to adherence.

Discussion

In this study of couples living with HIV in Malawi, marital infidelity, food insecurity, and violence were challenges that often occurred together, but their intersection differed between

couples, and thus, the ways in which these factors affected dyadic coordination and ART adherence varied. Some couples were able to work collaboratively to terminate extramarital affairs after ART, which enhanced their stability and facilitated dyadic coordination regarding care and treatment. These couples typically had less conflict and other stressors, and expressed positive sentiments about their marriage. For other couples, the infidelity continued and negatively impacted dyadic coordination due to breaks in trust, feelings of betrayal, and an overall sense of disunity. Finally, some couples stopped the infidelity and supported each other, but still could not overcome challenges related to poverty and food insecurity. The impact of socio-economic factors on marital strain must come to the forefront when examining HIV-related health behaviors among couples living in resource-poor settings in SSA.

Gender and power dynamics may play into the patterns observed. Some women paired with an HIV-positive husband described leveraging their power to terminate men's infidelity and improve their relationships, which ultimately enabled the couple to better support each other. Yet, other women described how their power and influence were constrained and they had to cope with limited support from partners. Although we cannot generalize our findings to all women, this exchange is consistent with the unequal social status of men and women in Malawi and elsewhere, in which women generally have lower power in the household, less access to wealth and opportunities, and marital infidelity is normative for men (Campbell & Mannell, 2016). Other quantitative research from South Africa found that women with lower power report lower relationship quality in terms of trust and constructive communication (Conroy, McGrath et al., 2016). Dyadic theories also have considered unequal power dynamics as a factor that can constrain how partners interact around HIV (Karney et al., 2010). The meaning of social support for HIV and types of support provided may also differ by gender. While these wives expressed a lack of social support from their partners when it came to treatment, their spouses viewed themselves as committed husbands who supported their wives by accepting their wives' HIV status and financially supporting the household. Gendered meanings and norms around social support for HIV, and how couples manage differences in expectations, is an area for future studies.

While gender and power dynamics may be important for dyadic coordination around HIV, a couple's underlying relationship quality may play an additional role. Couples who underwent a transformation (i.e., stopped the affairs and supported each other with HIV) expressed different levels of conflict and violence, love/unity, and commitment than those who did not. This is consistent with the dyadic model of communal coping such that couples with higher relationship quality (e.g., commitment, unity) may be better equipped to work collaboratively to minimize the threat, which improves their ability to cope with health threats, than couples in lower quality relationships (Lewis et al., 2006). But existing dyadic theory has difficulty explaining how relationship dynamics such as unity and violence affect communal coping and health behaviors for couples living in poverty. Our findings suggest the need for a new model that builds on dyadic interdependence theory to include how socio-economic factors at the structural level create household and interpersonal sources of stress for couples, making it more difficult for couples to engage in communal coping.

Recently, scholars have acknowledged that HIV is a social and ecological experience requiring a multi-level approach beyond the examination of individual-level factors (King & Winchester, 2018). Significant progress has been made in the development of new ecological models for understanding HIV prevention and treatment, which recognize that resources are key for sustaining change in health behaviors (Kaufman, Cornish et al., 2014). One such model is the network-individual-resource (NIR) model, which considers how exchanges of resources among individuals and their networks (including intimate dyads) impact healthy behaviors related to HIV (Johnson, Redding et al., 2010). In a high HIV prevalence setting in South Africa, the NIR model has been applied to understand how tangible (e.g., income) and mental resources (e.g., depression) related to food insecurity among pregnant women (Pellowski, Barnett et al., 2017). Our findings are also consistent with the NIR model by demonstrating how dyadic-level mental resources (e.g., unity, trust, and social support) and tangible resources (e.g., household income and food) can ultimately constrain or enhance whether individuals adhere to ART—particularly for HIV-positive women who have lower access to tangible resources such as income.

The study also found support for couple interdependence, or the idea that one partner's behaviors affect the other partner's outcomes. Multiple women made the connection between men's marital infidelity and a diversion of family resources that affected their own food security. In couples who terminated their infidelity, the women described how food insecurity and relationship quality improved and how the couple engaged in dyadic coordination around HIV treatment. These findings may identify potential pathways that could be difficult to test quantitatively if the associations are bidirectional. Other couples described how even after the affairs subsided, food insecurity and conflict still persisted. It is plausible that the more stressors couples experience, the more difficult it is to effectively engage in dyadic coordination and remain adherent. This is consistent with research on a syndemic perspective demonstrating that co-occurring psychosocial challenges have an additive effect on adherence (Blashill, Bedoya et al., 2015).

The findings also provide a starting point for conceptualizing intervention options for couples living with HIV in sub-Saharan Africa. First, relationship-based interventions targeting retention in care and ART adherence might consider including approaches that mitigate marital strain (e.g., food insecurity, infidelity) within couples in order to promote love, unity, and dyadic coordination. For some couples, multi-level interventions may be required to address both relationship factors and structural factors pertaining to food to interrupt cycles of poverty and promote dyadic coordination. Second, we would like to highlight the positive impacts of an HIV diagnosis and initiation of ART on couples' relationship quality by triggering a transformation process. While we were not able to evaluate the long-term effects of ART on relationship outcomes, some couples' lives improved in the short-term. However, future interventions should consider the unique needs of sero-discordant couples, particularly with an HIV-positive female partner who may have limited power to improve their relationships and garner support from their male partner. Irrespective of power, lessons could be learned from research on integrated delivery of pre-exposure prophylaxis (PrEP) and ART for sero-discordant couples, whose shared experience of taking medication created a sense of solidarity and helped partners adhere to treatment (Nakku-Joloba, Muwonge et al., 2016). There may be salient lessons about the active

engagement of both partners in the healthcare system that are important for dyadic coordination.

Finally, healthcare messages emphasizing the negative consequences of infidelity on treatment outcomes were frequently mentioned, and partners leveraged these messages to address fidelity. These provided a way for participants to shift responsibility to providers, making it easier to have difficult conversations. Respondents took messages from providers seriously and these beliefs may underlie why some men stopped their affairs. Because partners attended treatment counseling together and were each other's treatment guardians, they were privy to counseling messages. Thus, efforts to intervene with couples should continue and/or increase both partners' exposure to counseling advice. Interventions that shift attention to home-based care and decrease clinical interactions should recognize the importance of in-person interactions and the positive influence of providers.

Limitations

Because this was a qualitative study aimed at understanding dyadic experiences with HIV care and treatment, it was not appropriate to capture viral load information from respondents. Thus, we relied on participants' self-reports of adherence to ART, which are likely to be overestimated. This bias is somewhat mitigated by having both partners' accounts. Finally, we may have captured higher functioning couples with better adherence. Both partners were required to participate in the study and thus, these couples may have been more stable than others. We also required partners to have disclosed their HIV status. Other studies have found that mutual disclosure enhances adherence (Waddell & Messeri, 2006).

Conclusions

Incorporating both partners' perspectives provides a more comprehensive picture of relationship dynamics and dyadic coordination around ART in couples. This is crucial when trying to address the complicated lives of couples with multiple ongoing challenges. Our findings also extend other qualitative work and build on existing couple theory by considered the intersection of multiple stressors together and the complex webs that affect dyadic coordination, which has not been adequately examined in couples' research on HIV care engagement. Future interventions should consider internal and external sources of marital strain for couples in order to build effective and sustainable dyadic coordination around HIV care and treatment.

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References

Blashill AJ, Bedoya CA, Mayer KH, O'Cleirigh C, Pinkston MM, Remmert JE, Mimiaga MJ, & Safren SA (2015). Psychosocial syndemics are additively associated with worse ART adherence in HIV-infected individuals. AIDS and Behavior, 19(6), 981–986. [PubMed: 25331267]

Campbell C, & Mannell J (2016). Conceptualising the agency of highly marginalised women: Intimate partner violence in extreme settings. Global public health, 11(12), 1–16. [PubMed: 26669895]

Clark S (2010). Extra-marital sexual partnerships and male friendships in rural Malawi. Demographic research, 22, 1. [PubMed: 20531977]

Cohen S, & Wills TA (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98(2), 310. [PubMed: 3901065]

Conroy A, Leddy A, Johnson M, Ngubane T, van Rooyen H, & Darbes L (2017). 'I told her this is your life': relationship dynamics, partner support and adherence to antiretroviral therapy among South African couples. Culture, health & sexuality, 19(11), 1239–1253.

Conroy AA (2014a). 'It means there is doubt in the house': Perceptions and experiences of HIV testing in rural Malawi. Culture Health & Sexuality, 16(4), 397–411.

Conroy AA (2014b). Marital Infidelity and Intimate Partner Violence in Rural Malawi: A Dyadic Investigation. Archives of Sexual Behavior, 43(7), 1303–1314. [PubMed: 24789050]

Conroy AA, McGrath N, Van Rooyen H, Hosegood V, Johnson MO, Fritz K, Marr A, Ngubane T, & Darbes LA (2016). Power and the Association with Relationship Quality in South African Couples: Implications for HIV/AIDS Interventions. Social Science and Medicine, 153(1–11).

Conroy AA, & Wong LH (2015). How reliable are self-reports of HIV status disclosure? Evidence from couples in Malawi. Social Science and Medicine, 144, 28–37. [PubMed: 26379084]

Edwin Wouters CM, Koen Ponnet, Roux Booyse Frederik le. (2014). A peer adherence support intervention to improve the antiretroviral treatment outcomes of HIV patients in South Africa: The moderating role of family dynamics. Social Science and Medicine, 113, 145–153. [PubMed: 24872119]

Fedor TM, Kohler H-P, & Behrman JR (2015). The impact of married individuals learning HIV status in Malawi: divorce, number of sexual partners, and condom use with spouses. Demography, 52(1), 259–280. [PubMed: 25582891]

Fox MP (2015). Retention of adult patients on antiretroviral therapy in low-and middle-income countries: systematic review and meta-analysis 2008–2013. Journal of acquired immune deficiency syndromes (1999), 69(1), 98. [PubMed: 25942461]

Fox MP, & Rosen S (2010). Patient retention in antiretroviral therapy programs up to three years on treatment in sub-Saharan Africa. Tropical Medicine and International Health, 15(Suppl. 1), 1–15.

Hatcher AM, Smout EM, Turan JM, Christofides N, & Stocki H (2015). Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. AIDS, 29(16), 2183–2194. [PubMed: 26353027]

Heestermans T, Browne JL, Aitken SC, Vervoort SC, & Klipstein-Grobusch K (2016). Determinants of adherence to antiretroviral therapy among HIV-positive adults in sub-Saharan Africa: a systematic review. BMJ Global Health, 1(4), e000125.

Johnson BT, Redding CA, DiClemente RJ, Mustanski BS, Dodge B, Sheeran P, Warren MR, Zimmerman RS, Fisher WA, & Conner MT (2010). A network-individual-resource model for HIV prevention. AIDS and Behavior, 14(2), 204–221. [PubMed: 20862606]

Johnson MO, Dilworth SE, Taylor JM, Darbes LA, Comfort ML, & Neilands TB (2012). Primary relationships, HIV treatment adherence, and virologic control. AIDS and Behavior, 16(6), 1511–1521. [PubMed: 21811842]

Kaler A (2001). "Many Divorces and Many Spinsters": Marriage as an Invented Tradition in Southern Malawi, 1946–1999. Journal of Family History, 26, 529. [PubMed: 19317026]

Karney BR, Hops H, Redding CA, Reis HT, Rothman AJ, & Simpson JA (2010). A Framework for Incorporating Dyads in Models of HIV-Prevention. AIDS and Behavior, 14(2), 189–203.

Kaufman MR, Cornish F, Zimmerman RS, & Johnson BT (2014). Health behavior change models for HIV prevention and AIDS care: practical recommendations for a multi-level approach. Journal of acquired immune deficiency syndromes (1999), 66(Suppl 3), S250. [PubMed: 25007194]

Kelley HH, & Thibalt JW (1978). Interpersonal relations: A theory of interdependence New York: Wiley.

Kerr RB (2005). Food security in northern Malawi: gender, kinship relations and entitlements in historical context. Journal of Southern African Studies, 31(1), 5374.

King B, & Winchester MS (2018). HIV as social and ecological experience. Social Science and Medicine, 208, 64–71. [PubMed: 29763788]

Larsson EC, Thorson A, Nsabagasani X, Namusoko S, Popenoe R, & Ekström AM (2010). Mistrust in marriage-Reasons why men do not accept couple HIV testing during antenatal care-a qualitative study in eastern Uganda. BMC Public Health, 10(769).

Lewis MA, McBride CM, Pollak KI, Puleo E, Butterfield RM, & Emmons KM (2006). Understanding health behavior change among couples: An interdependence and communal coping approach. Social Science and Medicine, 62, 1369–1380. [PubMed: 16146666]

Masquillier C, Wouters E, Mortelmans D, & van Wyk B (2015). On the road to HIV/AIDS competence in the household: building a health-enabling environment for people living with HIV/AIDS. International Journal of Environmental Research and Public Health, 12(3), 3264–3292. [PubMed: 25794189]

Masquillier C, Wouters E, Mortelmans D, van Wyk B, Hausler H, & Van Damme W (2016). HIV/AIDS competent households: interaction between a healthenabling environment and community-based treatment adherence support for people living with HIV/AIDS in South Africa. PloS One, 11(3), e0151379. [PubMed: 26963257]

MDHS. (2011). Malawi demographic and health survey 2010 Maryland: NSO and ORC Macro.

Mitsunaga TM, Powell AM, Heard NJ, & Larsen UM (2005). Extramarital sex among Nigerian men: polygyny and other risk factors. JAIDS Journal of Acquired Immune Deficiency Syndromes, 39(4), 478–488. [PubMed: 16010173]

Montgomery CM, Watts C, & Pool R (2012). HIV and Dyadic Intervention: An Interdependence and Communal Coping Analysis. PLoS Medicine, 7(7), e40661.

Musumari PM, Wouters E, Kayembe PK, Nzita MK, Mbikayi SM, Suguimoto SP, Techasrivichien T, Lukhele BW, El-Saaidi C, & Piot P (2014). Food insecurity is associated with increased risk of non-adherence to antiretroviral therapy among HIV-infected adults in the Democratic Republic of Congo: a cross-sectional study. PloS One, 9(1), e85327. [PubMed: 24454841]

Nakku-Joloba E, Muwonge T, Katabira E, Tam M, Ware N, Wyatt M, & Pisarski E(2016) "I am happy to take PrEP so that she does not feel alone": Integrated delivery of PrEP and ART faciliates ART initiation and adherencePaper presented at the 11th International Conference on HIV Treatment and Prevention Adherence, Ft. Lauderdale, FL

National Research Council. (2006). Food insecurity and hunger in the United States: An assessment of the measure: National Academies Press.

National Statistical Office (NSO) [Malawi] and ICF. (2017). Malawi Demographic and Health Survey 2015–16 Zomba, Malawi, and Rockville, Maryland, USA: NSO and ICF.

Pellowski JA, Barnett W, Kuo CC, Koen N, Zar HJ, & Stein DJ (2017). Investigating tangible and mental resources as predictors of perceived household food insecurity during pregnancy among women in a South African birth cohort study. Social Science and Medicine, 187, 76–84. [PubMed: 28666232]

Remien RH, Stirratt MJ, Dolezal C, Dognin JS, Wagner GJ, CarballoDieguez A, El-Bassel N, & Jung TM (2005). Couple-focused support to improve HIV medication adherence: a randomized controlled trial. AIDS, 19, 807814.

Reniers G (2003). Divorce and remarriage in rural Malawi. Demographic research, SI(Article 6), 173–206. doi: 10.4054/DemRes.2003.S1.6

Robinson NJ, Mulder DW, Auvert B, & Hayes RJ (1995). Modelling the impact of alternative HIV intervention strategies in rural Uganda. AIDS, 9(11).

Robles TF, Trombello JM, Slatcher RB, & McGinn MM (2014). Marital Quality and Health: A Meta-Analytic Review. Psychological Bulletin, 140(1), 140–187. [PubMed: 23527470]

Rogers AJ, Achiro L, Bukusi EA, Hatcher AM, Kwena Z, Musoke PL, Turan JM, Weke E, & Darbes LA (2016). Couple interdependence impacts HIVrelated health behaviours among pregnant

couples in southwestern Kenya: a qualitative analysis. Journal of the International AIDS Society, 19(1).

Shelton J (2008). Counseling and testing for HIV prevention. The lancet, 372(9635), 273–275.

Singer M (1994). AIDS and the health crisis of the U.S. urban poor: the perspective of critical medical anthropology. Social Science and Medicine, 39(7), 931–948. [PubMed: 7992126]

Tan JY, Campbell CK, Tabrisky AP, Siedle-Khan R, & Conroy AA (2018). A Conceptual Model of Dyadic Coordination in HIV Care Engagement among Couples of Black Men Who Have Sex with Men: A Qualitative Dyadic Analysis. AIDS and Behavior, In Press

The World Bank. (2015). World Development Indicators Retrieved from: http://data.worldbank.org.ucsf.idm.oclc.org/country/malawi

Tsai AC, Bangsberg DR, Emenyonu N, Senkungu JK, Martin JN, & Weiser SD (2011). The social context of food insecurity among persons living with HIV/AIDS in rural Uganda. Social Science and Medicine, 73(12), 1717–1724. [PubMed: 22019367]

UNAIDS. (2014). 90–90-90: An ambitious treatment target to help end the AIDS epidemic Geneva, Switzerland: UNAIDS.

Voeten HA, Egesah OB, & Habbema JDF (2004). Sexual behavior is more risky in rural than in urban areas among young women in Nyanza province, Kenya. Sexually Transmitted Diseases, 31(8), 481–487. [PubMed: 15273581]

Waddell EN, & Messeri PA (2006). Social suppor, disclosure, and use of antiretroviral therapy. AIDS and Behavior, 10, 263–272. [PubMed: 16496089]

Weiser SD, Palar K, Frongillo EA, Tsai AC, Kumbakumba E, dePee S, Hunt PW, Ragland K, Martin J, & Bangsberg DR (2014). Longitudinal assessment of associations between food insecurity, antiretroviral adherence and HIV treatment outcomes in rural Uganda. AIDS, 28, 115–120. [PubMed: 23939234]

Wrubel J, Stumbo S, & Johnson MO (2008). Antiretroviral medication support practices among partners of men who have sex with men: A qualitative study. AIDS Patient Care and STDS, 22(11), 851–858. [PubMed: 19025479]

Wrubel J, Stumbo S, & Johnson MO (2010). Male same-sex couple dynamics and received social support for HIV medication adherence. Journal of Social and Personal Relationships, 27(4), 553–572. [PubMed: 20651943]

Research Highlights

- Marital infidelity inhibits dyadic coordination around antiretroviral therapy
- Food insecurity, couple conflict, and power dynamics play into this relationship
- Dyadic theory must consider marital stressors among couples living in poverty

Table 1.

Key characteristics of couples experiencing marital infidelity (*N*=17)

Couple ID	Couple sero-status	Thematic pattern	Stressors and relationship factors
1	Sero-discordant (wife is HIV+)	Infidelity stopped after ART, but other stressors impact dyadic coordination (*#3*)	IPV, arguing, instability (previously lived apart), food insecurity
2	Sero-discordant (husband is HIV+)	Infidelity continued after ART, interfering with dyadic coordination (*#2*)	IPV, arguing, instability (currently living apart), food insecurity
4	Sero-discordant (husband is HIV+)	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	None
5	Sero-concordant positive	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	Food insecurity
6	Sero-concordant positive	Infidelity continued after ART, interfering with dyadic coordination (*#2*)	IPV, arguing, instability (currently living apart), food insecurity
10	Sero-discordant (husband is HIV+)	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	IPV(prior)
11	Sero-discordant (wife is HIV+)	Infidelity continued after ART and interfered with dyadic coordination (*#2*)	IPV
12	Sero-discordant (husband is HIV+)	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	Food insecurity
13	Sero-concordant positive	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	Food insecurity
14	Sero-concordant positive	Infidelity stopped after ART, but other stressors impact dyadic coordination (*#3*)	IPV, arguing, instability (previously lived apart), food insecurity
16	Serodiscordant (husband is HIV+)	Infidelity stopped after ART, but other stressors impact dyadic coordination (*#3*)	Arguing over money, instability (he stays elsewhere when they argue)
17	Serodiscordant (wife is HIV+)	Infidelity continued after ART, interfering with dyadic coordination (*#2*)	IPV, arguing, instability (currently living apart), food insecurity
19	Sero-concordant positive	Infidelity stopped after ART, promoting dyadic coordination (*#1*)	Instability (husband moved out, but the couple later resolved their differences), food insecurity
20	Sero-concordant positive	Infidelity continued after ART, interfering with dyadic coordination (*#2*)	IPV, arguing, instability (recently he took another wife because of their marital issues), food insecurity
23	Sero-concordant positive	Infidelity stopped after ART, other stressors impact dyadic coordination (*#3*)	IPV (prior), food insecurity
24	Sero-concordant positive	Infidelity stopped after ART, promoting dyadic coordination	Instability (wife told him to pack his bags and go at one point), food

Couple ID	Couple sero-status	Thematic pattern	Stressors and relationship factors
		(#1)	insecurity
25	Sero-concordant positive	Infidelity stopped after ART, promoting dyadic coordination (#1)	None

Thematic patterns:

#1: Infidelity stopped after ART, promoting dyadic coordination

#2: Infidelity continued after ART, interfering with dyadic coordination

#3: Infidelity stopped after ART, but other stressors impact dyadic coordination