

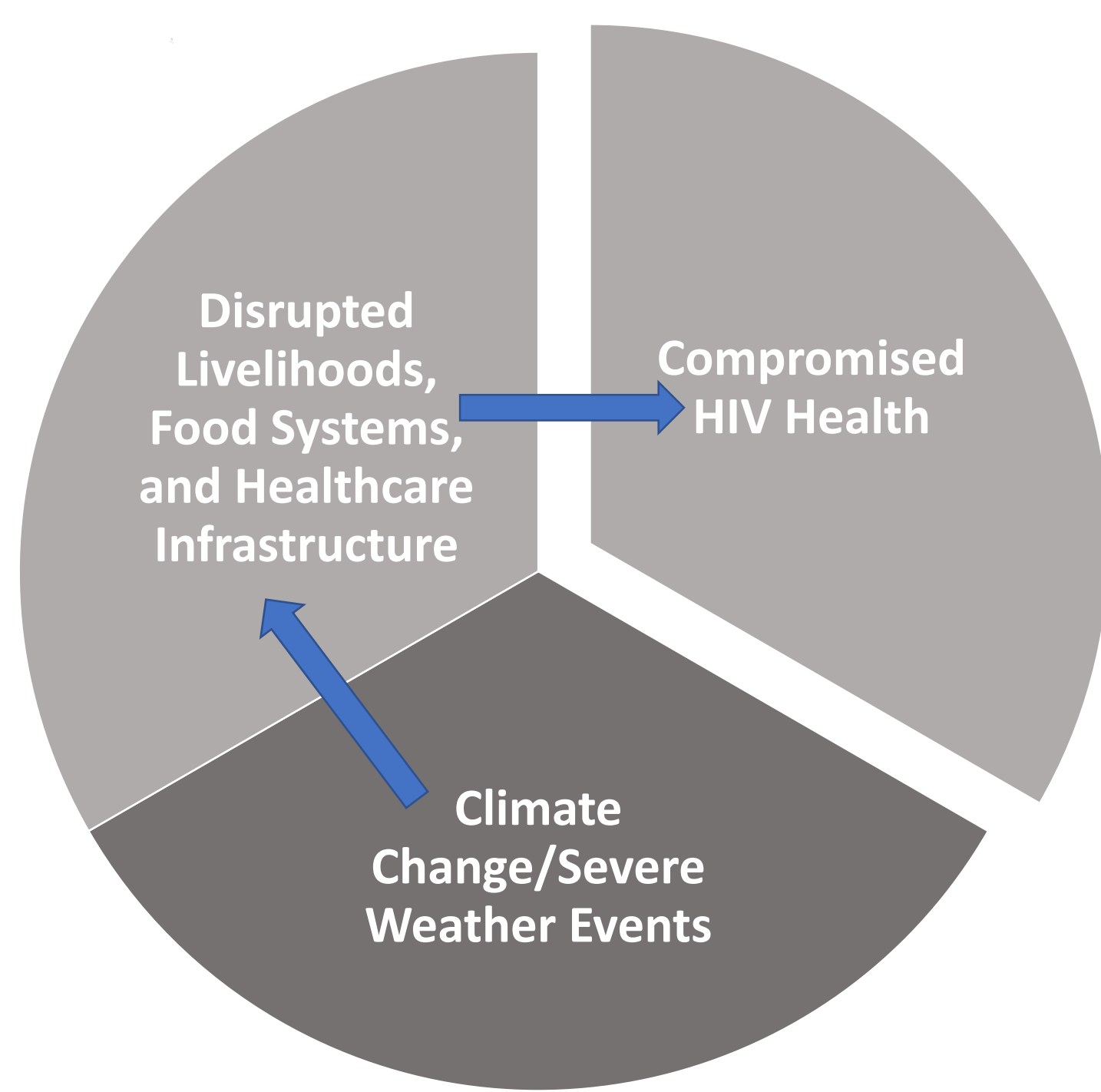
Assessing perceived impacts of climate change on HIV health among HIV-infected smallholder farmers in the Nyanza region of Kenya

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Background

Global efforts to combat HIV may be compromised by climate change since severe weather events disrupt livelihoods, food systems, and healthcare infrastructure. Few studies have examined the impact of climate change on HIV health outcomes. Using qualitative methods, we aimed to understand perceived impacts and mechanisms by which severe weather events affected HIV-related health, and gender-specific adaptation strategies.



Schematic of the theorized relationships between climate change, livelihoods, food systems, healthcare infrastructure and HIV health outcomes.

Methods

We interviewed 40 HIV-infected individuals from July to December 2018 enrolled within a larger cluster-randomized control trial of a multisectoral agricultural and financial intervention to improve HIV health outcomes among HIV-infected farmers in Kisumu, Homabay and Migori counties in Kenya (NCT02815579). We used purposive sampling to select an equal number of male and female participants from a diverse range of geographies among the 16 sites. In-depth interviews were conducted in participants' native language, transcribed, translated into English and double coded. Thematic content analysis of transcripts followed an integrated inductive-deductive approach.

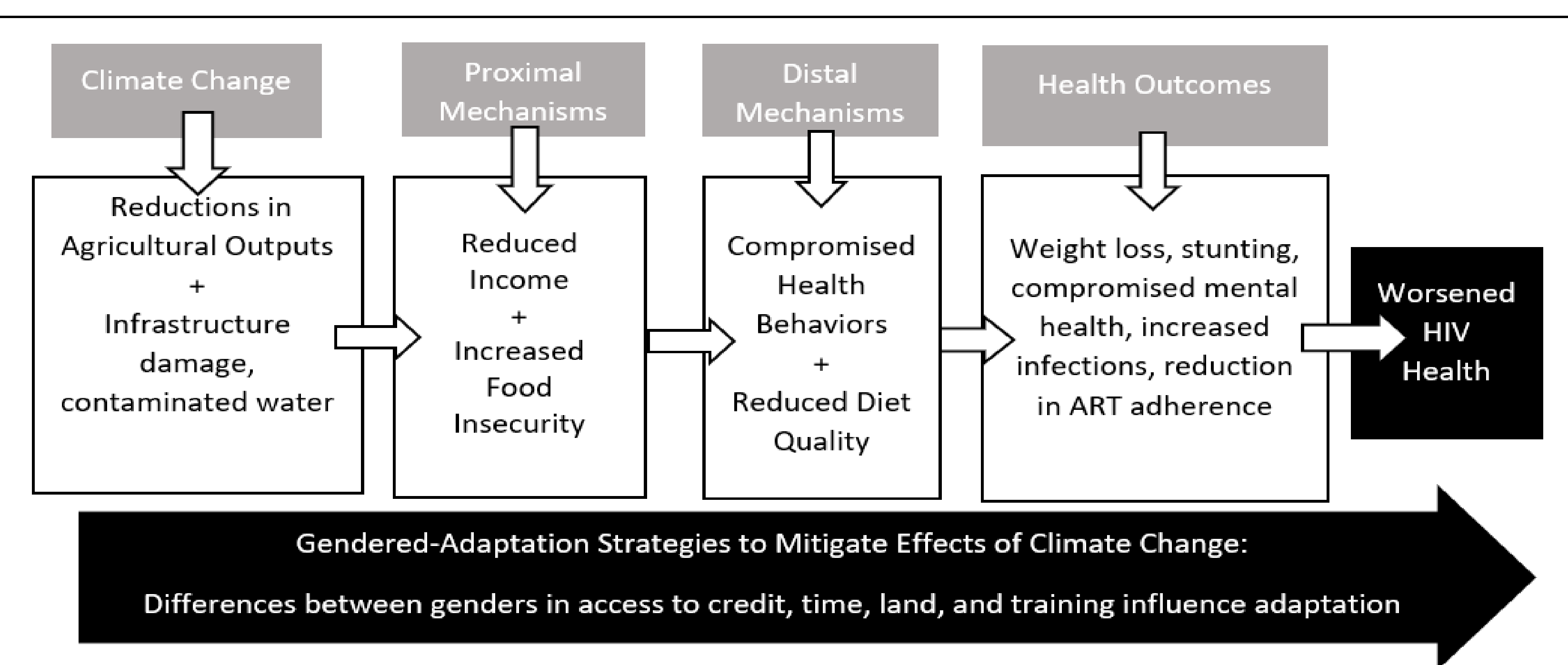


Figure 1 Theoretical Framework of Impacts of Climate Change on HIV Health and Gendered-Adaptation Strategies to Mitigate Effects of Climate Change

Results

Participants reported severe weather had negative impacts on HIV health through several interrelated mechanisms. Changes in food insecurity and diet quality, largely from decreased agricultural yields, negatively impacted nutritional status. Stress, insomnia, and symptoms of depression were important mental health impacts, attributed to loss of crops from flooding and drought, and hopelessness and despair related to not being able to feed one's family. These mental health and nutritional impacts compromised adherence to antiretroviral therapy and clinic attendance, which were also affected by infrastructure challenges such as road blockages in the setting of flooding. Participants also noted increases in other infections including malaria, diarrhea and flu-like illnesses related to contaminated waters during floods, and cold and damp living conditions.

Results cont.

Men and women reported different strategies to adapt to severe weather, with resources more readily available to men including time, money, and utilization of agricultural extension services.

Gender & Adaptation Strategies to mitigate effects of climate change		
Adaptation Strategy	Utilized by Men	Utilized by Women
Increase size of farm plots	YES: Access to land ownership	NO: Less access to land ownership
Invest in farm implements	YES: Access to credit	NO: Almost no access to credit
Increase farming hours	YES: Time available	NO: All time consumed with domestic chores
Utilize agricultural extension services	YES: Access to training and time to implement techniques	YES: Access to some training, but not all. Less time available to implement techniques
Participate in other forms of non-farming employment	YES: Multiple sectors available for employment	NO: Limited employment opportunities

Participant Quotes

"I felt a lot of pain. All my work had been drained just like that. I was deflated. I felt so weak. My heart was bleeding and my body became weak. There was no drive to farm. Every time I would go to the farm I would remember the loss. It also reflected in the way I ate. I lost appetite completely. I was so stressed up and worried. I lost my appetite and consequently lost so much weight during that season that when I attended the clinic, the doctors were shocked. They asked me if I was alright. I tried to put up a brave face but I couldn't lie to them. I had so much, but now I was hopeless." Male intervention participant

"One day I was forced to skip [ART]. I didn't get food at all. I realized that the effect of the drugs was going to be hazardous on an empty stomach. I have told you that I would get dizzy and nauseated if I didn't get enough food. What about eating nothing completely? I feared for my life so I didn't take the drugs. This was last year when the floods rendered me destitute." Male intervention participant

"You know why I can't get enough money for my food and health? There are several connected reasons. If I wanted to plough my farm and grow rice, maize or sorghum, I will be worried because floods washed away top soil. I need fertilizer to boost soil fertility. Secondly, I don't have ploughing oxen. Thirdly, I am not able to hire tractors to work on a larger piece of land and produce sufficient food. I will plough my farm manually. I will use crude tools like hoes, toil and get about 10 sacks of rice. If I would sell my own farm produce and earn at least Kshs. 50,000 a season, what would prevent me from getting meat at least thrice a week and be healthy? I will get enough eggs, go the lake and get the fish I would love to eat, then take my drugs without so much worry and be strong; and live long. I would gladly ensure strict ART adherence. But that's not the case. We have so many needs." Male control participant

Conclusions

Climate change is an under-recognized potential determinant of poor HIV health outcomes operating through multiple interrelated pathways and should be explored in future studies. Furthermore, women may find it more difficult to adapt to the effects of climate change on HIV health due to access to fewer resources than men.

