



# HIV and Food Insecurity: A Syndemic Amid the COVID-19 Pandemic

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On February 1, 2020, approximately 1 month after cases of pneumonia of unknown cause were detected in Wuhan, China [1], an editorial titled ‘The syndemic threat of food insecurity and HIV’ was published in *The Lancet HIV* [2]. In this publication, the authors conclude that advances in the fight against HIV must not be undermined by an experience as fundamental as food insecurity. In the following month, coronavirus disease 2019 (COVID-19), an infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was declared a pandemic by the World Health Organization [3].

While the authors of this editorial did not have the opportunity to reflect on the impacts of COVID-19 on the HIV-food insecurity syndemic, they discussed a ‘severe economic situation’ in Zimbabwe that ‘has left the healthcare system in a dire state, and spiralling inflation has left many without the money to pay for food let alone basic health services’ [2]. While this statement reflects a difficult reality for people living with HIV (PLWH) in Zimbabwe, it is anticipated that there will be challenging economic situations ahead, for many countries, as a result of the COVID-19 pandemic [4, 5]. As such, it is not surprising that food insecurity has already been highlighted in a syndemic conceptualization of HIV and COVID-19 among PLWH [6].

In addition to the health [7] and social [8, 9] impacts, the economic impacts of COVID-19, at both the micro- and macro-levels, have been unprecedented: long-standing businesses are shuttering [4, 5], unemployment levels are climbing [10], and some countries are now reporting shrinking economies in Quarter 1, 2020 for the first time in more than

a decade [11–13]. For example, in March 2020, Statistics Canada reported that more than one million jobs were lost in Canada, the worst single-month change on record [14]. Similarly, a recent United States Department of Labor News Release (April 16, 2020) highlighted that several million Americans are now filing for unemployment insurance each week [15]. While it has yet to be quantified, the experience of food insecurity, along with its consequences, will potentially be exacerbated for vulnerable populations, including PLWH, during these turbulent times.

## Food Security: A Basic Human Right

According to the Universal Declaration of Human Rights [16], access to adequate food is considered a basic human right. An intrinsic precursor to this right is food security. Lack of food security, or food insecurity, exists ‘whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain’ [17]. Central to the concept of food insecurity is the focus on uncertain or inadequate food access due to limited financial resources [18]. As such, any events that impact one’s ability to acquire financial resources may, potentially, increase their risk of experiencing food insecurity.

“Everything we know about household food insecurity in Canada suggests that without effective responses to the hardships brought on by COVID-19, food insecurity will increase in prevalence and severity, and the health implications of being food insecure will become even more dire.”

- Dr. Valerie Tarasuk (PROOF—Food Insecurity Policy Research, Canada) [19]

Food insecurity, a social determinant of health [20], is a dimension of nutritional vulnerability [21]. Therefore, as a result of the deprivation that underlies the experience of food insecurity, it is a public health issue [22] and a matter for social action [21, 23]. In terms of the immediate impacts

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of COVID-19 on food insecurity, there have been recent news reports, in both Canada [24] and the United States [25], highlighting dramatic increases in food bank usage. Acknowledging that food banks are, in fact, limited in their capacity to address the root causes of food insecurity [26, 27], their utility in acting as a ‘canary in a coal mine’ [28] should serve as a warning sign for us all.

## Food Insecurity Among People Living with HIV

Among PLWH, the existing body of food insecurity-related literature is diverse and rigorous. Numerous studies have been completed in a variety of settings, providing food insecurity prevalence estimates as well as descriptions of consequences of food insecurity [29]. From this work, it is understood that there are consistently high prevalences of food insecurity, particularly severe food insecurity, among PLWH [30–32]. Importantly, food insecurity prevalence estimates among PLWH are, almost universally, higher than those found in comparable general population samples [33–35]. Although comparability is limited by differences in the tools used to measure food insecurity [36], the overwhelming occurrence of this experience among PLWH has resulted in researchers describing the HIV-food insecurity relationship as a ‘vicious cycle’ that must be addressed [30–32].

In addition, several systematic reviews have linked food insecurity with outcomes that are important among PLWH; food insecurity is associated with lower CD4 cell counts [37], incomplete HIV viral load suppression [38], and sub-optimal HIV treatment adherence [39]. Therefore, while the experience of food insecurity is a cause for concern regardless of the setting [34, 35], there are, indeed, HIV-specific implications to consider [32]. Subsequently, intending to inform interventions to reduce food insecurity among PLWH, several studies have also examined risk factors for this experience [29]. In addition to behavioural and clinical factors, such as illicit substance use [40, 41] and depressive symptoms [41, 42] (both of which may be exacerbated by the COVID-19 pandemic [6]), socioeconomic factors, such as low income and unemployment, are consistently identified as important risk factors for food insecurity among PLWH [41–43].

## Policy Interventions in Response to COVID-19

During a time when the economic impacts [4, 5] of a pandemic may be propagating the HIV-food insecurity syndrome [6], it is important to reinforce the idea that food assistance, whether it be from food banks or elsewhere, is

not necessarily targeting the drivers of food insecurity [44, 45]. In other words, if the goal of risk factor epidemiology is to identify unbiased associations, or causes of outcomes, and to intervene on such causes [46], the provision of food does not necessarily act on these determinants (e.g., illicit substance use, depressive symptoms, low income, unemployment [40–43]). While we certainly do not discourage the provision of food as a form of harm reduction [47], the historic policy actions being taken, in response to COVID-19, may provide an opportunity to better understand potential solutions to food insecurity.

For example, researchers have previously used the introduction of a ‘Universal Child Care Benefit’ in 2006 to estimate the effect of income supplementation on food insecurity in Canada’s general population [48]; this was a policy that provided parents with \$100, per month, for each child aged less than 6 years. Treating the implementation of the policy as a ‘natural experiment’ [49], it was found that a relatively small monthly income supplement led to reductions in food insecurity, with larger reductions in vulnerable sub-groups. A more recent study [50], using the same difference-in-differences methodology, examined a similar policy; severe food insecurity declined among Canadian families who received the income supplement. Other food insecurity-related publications have evaluated similar interventions [51–53], further contributing to the expanding evidence-base in this area.

In response to COVID-19, the Government of Canada announced a ‘Canada Emergency Response Benefit’ on March 25, 2020 [54]. This taxable benefit provides \$2000 per month, for up to 4 months, to Canadian’s suffering losses of income during the pandemic. Around the same time, the White House unveiled a two-trillion-dollar relief package within their ‘Coronavirus Aid, Relief and Economic Security (CARES)’ Act [55]. While these are limited examples from two North American countries, they serve to highlight an opportunity for researchers to carefully unpack these policies, and others like them, to determine if their impacts on food insecurity can be evaluated. It is important to note, however, that several assumptions are necessary when attempting to quantify the effects of policies (e.g., the parallel trends assumption when using the difference-in-differences method) [56, 57]. As such, findings should be presented alongside sensitivity analyses and robustness checks [56].

## Conclusions

The health [7], social [8, 9], and economic [4, 5, 10] impacts of COVID-19 may interfere with the availability of nutritionally adequate and safe foods as well as the ability for people, including PLWH, to acquire food in socially acceptable

ways. As indicated by reports of increasing food bank usage [24, 25], it is reasonable to suggest that food insecurity among PLWH, along with its consequences (i.e., lower CD4 cell counts [37], incomplete HIV viral load suppression [38], and sub-optimal HIV treatment adherence [39]), may become more common. While decision makers, PLWH, and their caregivers need to acknowledge this potential reality, it may also be an opportunity for HIV researchers to study the impacts of COVID-19-related policy implementations on food insecurity.

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