Social Science & Medicine 226 (2019) 96–103

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

"I do my best to eat while I'm using": Mapping the foodscapes of people living with HIV/AIDS who use drugs

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ARTICLE INFO

Keywords:
Foodscape
Food security
HIV/AIDS
Drug use
Canada

ABSTRACT

Food insecurity can have negative health impacts on people who use drugs and are living with HIV/AIDS (PLHIV). These include both physical effects, including poorer health outcomes and morbidity, and also behaviors that can increase the risk of physical or psychological harm. This study used a semi-structured survey of 60 PLHIV who use drugs and service access mapping (SAM) interviews of a 20-person subset. The mapping helped to illustrate the daily routines used to access food and how food provision may contribute to both spaces of risk and care for a cohort of PLHIV who use drugs in Vancouver, BC. Study participants mapped the daily routes used to access food and discussed whether they felt that these routines increased their risk of physical harm. Additionally, study participants noted which food provision spaces provide social and health supports, which may protect against the nutritional and other harms of drug use. This study revealed that having access to space providing stable and reliable sources of food may protect individuals from experiencing certain risks associated with accessing food, including violence in food line-ups, having to enter areas of the city they considered unsafe or 'triggering' and engaging in risky behaviors in order to access food. These "spaces of care" not only provide nutrition but also social support and connections.

1. Introduction

Despite the meal programs available to him, few would consider Paul food secure. Paul (a pseudonym) is an Aboriginal man in his 40s who is HIV positive and has diabetes. He receives a monthly disability cheque of approximately CAD $1,000, intended to cover housing, food and any other expenses. He knows that his drug of choice, crystal methamphetamine, affects his diet and ultimately his health and he tries to eat healthy food when he can. As part of his daily routine, Paul eats breakfast and lunch at Vancouver, Canada's Dr. Peter Centre (DPC), an HIV/AIDS service organization (ASO), located in the city's West End neighborhood, that provides support for people living with HIV/AIDS (PLHIV). Sometimes the meals Paul eats each day at the DPC are his only food. Yet, for him, the importance of the DPC is as much to do with the people working there, the other participants in its programs, the multi-service nature of the ASO as it is with the quality and amount of food provided. His and others' health and well-being involve more than simply questions of availability and access, narrowly defined. We show how, for low-income PLHIV who use drugs, living in their food environments every day is a question of navigating spaces of care, inclusion, risk, and stigmatization.

Food insecurity for PLHIV who use illicit drugs, such as Paul, is shaped not only by the physiological and psychological effects of drug use itself but also by the ways in which low-income PLHIV face and negotiate food-related challenges that are unique to them, given their nutritional needs and the health and social barriers they face (Anema et al., 2010; Anema et al., 2013; Whittle et al., 2015a, 2015b). Exploring the lived experience and spaces of food access among PLHIV who use drugs emphasizes the complex and strategic ways in which individuals experience, construct, and navigate their food environments, or 'foodscapes' (Miewald and McCann, 2014), as they seek out nutrition and endeavor to manage the harmful effects of their health conditions and drug use.

1.1. The impacts of drug use on food security for low-income PLHIV who use drugs

Food insecurity is characterized by social and economic barriers to

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https://doi.org/10.1016/j.socscimed.2019.02.037
Received 14 June 2018; Received in revised form 22 October 2018; Accepted 24 February 2019
Available online 01 March 2019

obtaining nutritious, sufficient, and culturally appropriate food in ways that are safe and personally acceptable (Davis and Tarasuk, 1994). In high resource settings, food insecurity has been found to be more pronounced among both PLHIV and people who use drugs than in the general population (Weiser et al., 2009; Vogenthaler et al., 2010; Anema et al., 2011). In these contexts, PLHIV experience nutritional issues including moderate to severe food insecurity, poor dietary quality, anxiety about food access, and drug-induced anorexia, leading to low body weight and malnutrition (Weiser et al., 2013; Whittle et al., 2016). Drug use has been found to exacerbate those health effects, including increasing the risk of mortality (Anema et al., 2013). Additionally, drug use may result in other effects, such as the inability to remain housed, which increases reliance on charitable food providers (Shannon et al., 2011), and engaging in risky behaviors in order to access food (Anema et al., 2009; Whittle et al., 2015b, Barreto et al., 2017).

While there have been studies suggesting that PLHIV who use drugs are nutritionally vulnerable, there have been few studies exploring this phenomenon from the perspective of those people themselves. There is not enough information about how they understand, construct, negotiate, and travel through their foodscape, including its sites of food provision and the associated spaces of risk and care that define their daily routes and routines, particularly in urban settings (but see Miewald and McCann, 2014).

1.2. Foodscapes and PLHIV who use drugs

The health and well-being of low-income PLHIV who use drugs is influenced by multiple intersecting forces that are spatial in their constitution and effects. These factors include low-income status, poor housing, stigmatization, the location and character of the food programs they access, the overarching pressures of gentrification constraining housing availability and affordable food resources that low-income people need to survive, and punitive drug policies that criminalize and marginalize people who use drugs (Bourgois and Schonberg, 2007, Gowan, 2010). Therefore, the uniqueness and complexity of this population's relationship to food means that a deep understanding of their 'geography of survival' (Mitchell and Heynen, 2009) requires a holistic socio-spatial analytical approach.

A foodscape approach examines not only where food is distributed, but also how and why those resources exist and the different ways people utilize them. It also seeks to understand individuals' motivations to use certain resources, coupled with an attention to the economic, political, and cultural forces shaping the food landscape and how individuals interact with it (Miewald and McCann, 2014). People accessing charitable food programs are adept at structuring their daily pathways in order to access food at the right times and in the right locations. Yet for PLHIV who use drugs, the daily routes and routines of food provisioning can be dangerous, exhausting, and stigmatizing (Miewald et al., 2010). Drug use may cause people to lose their appetite, procuring drugs or the money to purchase them may take precedence over eating, and drug-induced paranoia may mean that individuals do not take advantage of food programs when available (Miewald et al. 2010, 2017). Concurrently, drug use is often associated with housing instability and many low-income PLHIV who use drugs lack food storage and cooking facilities, contributing to high rates of food insecurity, as people must use charitable food providers and potentially risky food acquisition tactics for their daily meals (Miewald and Ostry, 2014; Bowen et al., 2016; Weiser et al., 2009). Moreover, people like Paul live in a foodscape largely defined by mainstream charities (e.g., non-specialized food sites) providing free meals to anyone in need. The structure and organization of charitable food providers, such as their reliance on donated food (Pettes et al., 2016), the tendency to ask people to line up in public spaces to access meals, and restrictions they impose on who can be served based on their identity, states of intoxication, etc., means that they tend to be ill-equipped to deal effectively with the specific needs of PLHIV who use drugs.

The foodscapes of low-income PLHIV who use drugs include a variety of potential food sources, but accessing them can mean encountering *spaces of risk*: locations where multiple factors intersect to expose people to dangers that they deem physically, psychologically, or emotionally threatening or harmful (Pain and Francis, 2004). For PLHIV who use drugs, risk can manifest in the form of structural violence, physical violence to the person, or, on the other end of the spectrum, feelings of discomfort (Whittle et al., 2015a). Risk can also be manifest in exposure to people or behaviors that 'trigger' the individual. Being exposed to drug consumption in one's environment might trigger some people's own use, for example.

Foodscapes are also contexts in which low-income PLHIV who use drugs encounter and help shape *spaces of care*: places that mitigate exposure to risk and, more deeply, provide various forms of nutrition, social support, and community connections that enhance the lives of vulnerable people. Spaces of care, such as drop-in centres and meal programs, have been conceptualized as locations where material resources and refuge might be obtained, sites of therapeutic encounter, and spaces of license where individuals do not have to conform to hegemonic social norms of behavior (Johnson et al. 2005; Parr, 2003). As we show in the following sections, the foodscape, with its spaces of risk and of care, plays an important role in how, when, and where low-income PLHIV's who use drugs access food in Vancouver.

2. Methods

2.1. Research collaboration

From 2015 to 2017 we investigated the experiences of food insecurity among low-income PLHIV who use drugs in Vancouver, Canada as part of the Food as Harm Reduction (FaHR) study, a community-based research project lead by the authors of this paper and staff from the DPC. The purpose of this research was to: i) document the nature and extent of food insecurity for PLWH who use drugs; ii) identify geographical barriers to food access that may contribute to food insecurity; and iii) elucidate the potential benefits of low-barrier food provision programs. The study involved a survey of 60 PLHIV who use drugs and subsequent qualitative Service Access Mapping (SAM) interviews with a sub-sample of 20 survey participants. The SAM interviews involved participants using large paper maps of central Vancouver to map and discuss the daily routines they used to access food. This included discussions of whether these routines increased the risk of harm and whether certain spaces provided support and protection against nutritional and other harms of drug use.

As a community-based research project, the investigative team worked in collaboration with a community advisory board that included representatives from AIDS Service Organizations, food providers, as well as PLHIV with a history of drug use. Additionally, four peer research associates (PRAs), each of whom had life experiences in common with the study population, were hired as part of the research team. The PRAs were trained in survey administration, mapping, qualitative interviewing, data entry, transcribing, and coding. The PRAs administered the survey and assisted with the mapping and qualitative interviews as well as transcribing interviews, entering survey data, and coding and interpretation of qualitative data (for more details, see Miewald et al., 2018). Having PRAs and other members of the community involved in research design, administration, interpretation and dissemination of results helped break down traditional divisions between academic researchers, subjects, and the wider community and allowed for a greater diversity of perspectives considered in the research design (Damon et al., 2017; Miewald et al., 2017, 2018).

2.2. Research population and recruitment

Study recruitment was done via posters displayed at four ASOs and one drop-in-centre for people who use drugs. Inclusion criteria mandated that participants had to be HIV-positive and had to have used illicit drugs, excluding alcohol and cannabis (used either medicinally or recreationally), in the 30 days prior to participating in the survey (both self-reported). The Survey of Food Security, Quality, Access and Health (FSQAH) was administered by trained PRAs and lasted from 30 to 60 min. Participants were given an honorarium of CAD $20 for participation. Participants who completed the survey and expressed an interest in the SAM interviews were included in the pool from which 20 individuals were selected, with attention to their age, gender, sexuality, and ethnic background. The SAM interviews were conducted between 1 and 3 months after the survey, in English, by one or two members of the academic research team, and at least one PRA. These interviews lasted from 45 to 90 min and participants were given a CAD $25 honorarium.

The average age of survey participants was 50 (range 31–62). The majority (88%) of respondents identified as male. Half identified as Caucasian, 33% Aboriginal, 13% multiracial (primarily Aboriginal and Caucasian) and 3% as Other (all other ethnicities were collapsed into the Other category to maintain anonymity). All survey participants had low incomes, with 95% receiving social assistance through disability benefits, averaging CAD $1150 per month. The majority of participants (56%) lived in a supportive or subsidized apartment, 35% resided in a Single Room Occupancy Hotel, and 8% reported having no fixed address at the time of the survey. Methamphetamines (33%) and crack/cocaine (28%) were the drugs of choice among respondents, followed by opioids (23%), and other drugs (15%) including benzodiazepines and cannabis. The majority could be described as using drugs regularly, with 38% indicating that they used their drug of choice daily, and 25% said they used 3 to 4 times a week. Less commonly, respondents used their drug of choice once or fewer times a week (13%) or monthly (17%). The demographics for the SAM cohort were similar with 90% identifying as male, while in terms of ethnicity, 50% were Caucasian, 45% Aboriginal and 5% Other ethnicity. The average age was 50 and the majority (55%) lived in supportive housing with in-room cooking facilities and a meal program. There were no significant differences between the two cohorts in terms of drug use and frequency.

2.3. Data collection and analysis

The first phase of the research was a structured survey of 60 PLHIV who use drugs which collected demographic information, self-reported health status, health service utilization, medical conditions (co-infections, co-morbidities) that may affect diet, food access and procurement, substance use (including frequency), and use of harm reduction programs and services, the effect of drug use on diet (self-reported), and frequency of non-traditional forms of food procurement. These questions were based on previous studies of PLHIV (Fernando et al., 2016; Anema et al., 2016; Bekele et al., 2017) or were developed by the research team in consultation with the community advisory committee. Additionally, Health Canada's Household Food Security Scale Module, Canada-HFSSM (Health Canada, 2012) was used to measure food security, diet quality was measured using the RRFSS Vegetable and Fruit Food Frequency Questionnaire (Traynor et al., 2006), and the Medical Outcomes Study Social Support Survey Score (Sherbourne and Stewart, 1991) was employed to ascertain degree of social support.

SAM is a form of community-based mapping designed to help document how individuals navigate space when accessing resources, including food. It is based on previous mapping-based research in Vancouver which examined health service utilization among street-involved women (Shannon et al., 2008) and spaces of risk and everyday violence for marginalized populations (McNeil et al., 2014, 2015). These approaches were adapted to the scope of our study and refined with the assistance of the PRAs and community advisory committee. The 20 SAM interviews allowed the detailing of specific routes and helped engage the participants in recalling and describing their daily routines. Researchers began by collecting basic demographic information and then asked participants to map their daily routes, using coloured markers on large paper maps. Participants' residences were used as initial reference points while the mapping focused primarily on where they accessed food, including meal programs, food banks, and grocery stores, and their use of harm reduction services. Different colours were used to symbolize daily and occasional routines, as well as safe and unsafe spaces. Participants were also asked if they used any non-traditional food resources, such as binning or buying food from informal street markets. For each location indicated by participants, we asked whether they felt safe in the space and whether they had to pass through any areas that they considered unsafe in order to access that location. We also inquired about their perception of the quality and quantity of food received in specific locations, how they were treated by staff, and their perception of safety within the spaces. All interviews were audio-recorded with participant permission and recordings were later transcribed verbatim. Maps were digitized into individual food routine maps and analytic maps, which combined the 20 respondents' food sites, routines, safe and unsafe spaces.

Transcripts were coded and analyzed based on the DEPICT model for participatory data analysis (Flicker and Nixon, 2014). The academic team and the peer researchers collaboratively developed a codebook for coding interview material. After coding, academic and peer researchers summarized salient categories, developed a shared understanding of the findings, and created a plan for distributing the findings (Flicker and Nixon, 2014). These codes were then refined into a final codebook that was used by one member of the academic team and one peer researcher to review the transcripts. Excerpts captured by the codes and sub-codes were reviewed and discussed by the research team to reach consensus and identify salient themes. Selected quotes were chosen to illustrate key themes and sub-themes.

2.4. Ethics statement

Our study was granted ethical approval by Simon Fraser University's Ethics Board. Participation was voluntary and did not affect participants' access to services at any participating organizations. Informed written consent was obtained from all participants.

3. Findings

In the following section we begin by summarizing issues of food access and insecurity including the extent to which food assistance programs were utilized by our study population, the extent of food insecurity as well as non-traditional forms of food access. We then explore three themes that emerged from the research, the effect of drug use on diet, risks associated with food access and the potential of spaces of care to mitigate these risks.

3.1. The meal access and food security for PLHIV who use drugs

Based upon data from the survey and the SAM interviews, it is evident that the use of food assistance programs is a central component of the daily food access strategy of participants in the FaHR study. All survey respondents indicated that they regularly used some form of food assistance, usually a combination of: food bank programs (92%); free or low-cost meal programs (82%); and/or community kitchen programs (30%). Participants mentioned a total of 18 different programs or sites where they accessed food in the city. This is further highlighted through the SAM interviews in which individual respondents mentioned using between one and six food providers on a regular basis.

Despite the use of these meal programs, 88% of survey respondents were found to have some level of food insecurity with 42% moderately

food insecure, meaning that the quality or quantity of food they consumed was inadequate and 47% experiencing severe food insecurity, meaning that they reduced their food intake and/or experienced disrupted eating patterns. The SAM interviews further suggested that PLHV are food insecure due to limited income to purchase food, lack of cooking facilities where they live, and/or drug use that can reduce appetite or cause paranoia or stigma (thus restricting movement through the city) for individuals who are using.

Food insecurity often results in individuals using non-traditional means of food procurement, which can increase their risk of disease, violence, and incarceration (Anema et al., 2016). Among our survey participants, 68% had engaged in one or more non-traditional means of acquiring food in the past year. The most common strategies were: borrowing money from a friend or family member for food (43%); selling, trading or pawning personal or household items for food (33%); and stealing food (27%). The SAM interviews also revealed the use of non-traditional food procurement, such as salvaging food from garbage dumpsters, buying food on the street, or trading or selling drugs for food.

Drawing on our survey results, findings by Wittmer and Parizeau (2016), among others, as well as our own experience with the participants and our community advisory committee, we hypothesized that places where our SAM interviewees accessed food would be important nodes in their everyday geography. For example, Frank's (Aboriginal Male, 40s) daily food route largely consists of traveling between his residence in a supportive housing complex for PLHIV, to the Dr. Peter Centre, where he eats breakfast and lunch. For dinner, Frank often eats left-overs from lunch, supplemented with potatoes or rice that he can prepare in his room. Similarly, Winston's (Aboriginal Male, 40s) primary source of food comes from the Positive Outlook Program (POP), which provides both breakfast and lunch to its HIV positive members. Located in the Downtown Eastside neighborhood of Vancouver, the program has a strong First Nations focus, but offers membership to anyone living with HIV. In addition to a daily meal program, POP provides harm reduction supplies, nursing care, social work services, and a weekly food bank. When asked why he uses POP, Winston responded that it is close to where he lives and that it has other services, such as a health clinic, that he also uses. As Frank does at the Dr. Peter Centre, Winston tends to "hang around" POP until lunch is served. Afterward he heads to a nearby park to socialize, or to a convenient drop in centre. Wintson feels safe in most of the sites he uses for food as well as in the Downtown Eastside although he said he rarely travels outside of his "comfort zone" of a few blocks from his residence.

3.2. Thematic analysis

Three prominent themes emerged from the project: the impact that drug use has on food access; the risks associated with accessing food; and the way that spaces of care can mitigate or protect against some of the nutrition-related harms of drug use. We draw on the SAM mapping and interviews with participants to illustrate and emphasize these themes. They highlight the risks associated with accessing food for this population as well as respondents' perception of personal safety and risk, how they negotiated urban spaces, and where and how they experienced care in the form of food provision and other services.

3.2.1. Diet and drug use

While drug use has been associated with impacts on individual's diets and food security status (see Anema et al., 2015; Neale et al., 2012), less is known about how low-income PLHIV perceive and negotiate this connection. One way in which the relationship between diet and drug use was assessed was by asking survey participants if they felt that their use of drugs affected their diet. In response, 70% said that in the past 12 months, they found themselves not eating enough, on occasion, because of drug use. Additionally, 77% of all respondents said drug use affected their diet. Of these individuals, drug use affected when they ate (60%), where they ate (40%), what they ate (63%), and how well they ate (62%). For example, one survey respondent said that when they used drugs, they were more likely to eat sugary snacks. Another noted that they ate more fast food when using drugs. Others reported eating nothing or very little because of a drug-related lack of appetite. Several survey respondents indicated that while using drugs, they avoided leaving their residence to access food due to stigma or paranoia.

From the SAM interviews, we learned that there were three ways that drug use might affect diet. First was drug-induced anorexia. Respondents said that they lacked appetite or were too busy accessing drugs to worry about eating. For example, Paul noted, "when you're using a lot of drugs you just have your mind on one thing: that's using drugs. You don't think about eating or taking care of yourself." Drug use can also affect the palatability of food. Maurice (Caucasian Male, 50s) explained that he did not eat while using cocaine because, "for some reason, I don't like the feel, the texture of the food in my mouth or anything like that." Additionally, others reported not wanting to leave their residence when using drugs and, in some cases, avoiding food providers when they were high. Carlton (Caucasian Male, 50s) explained,

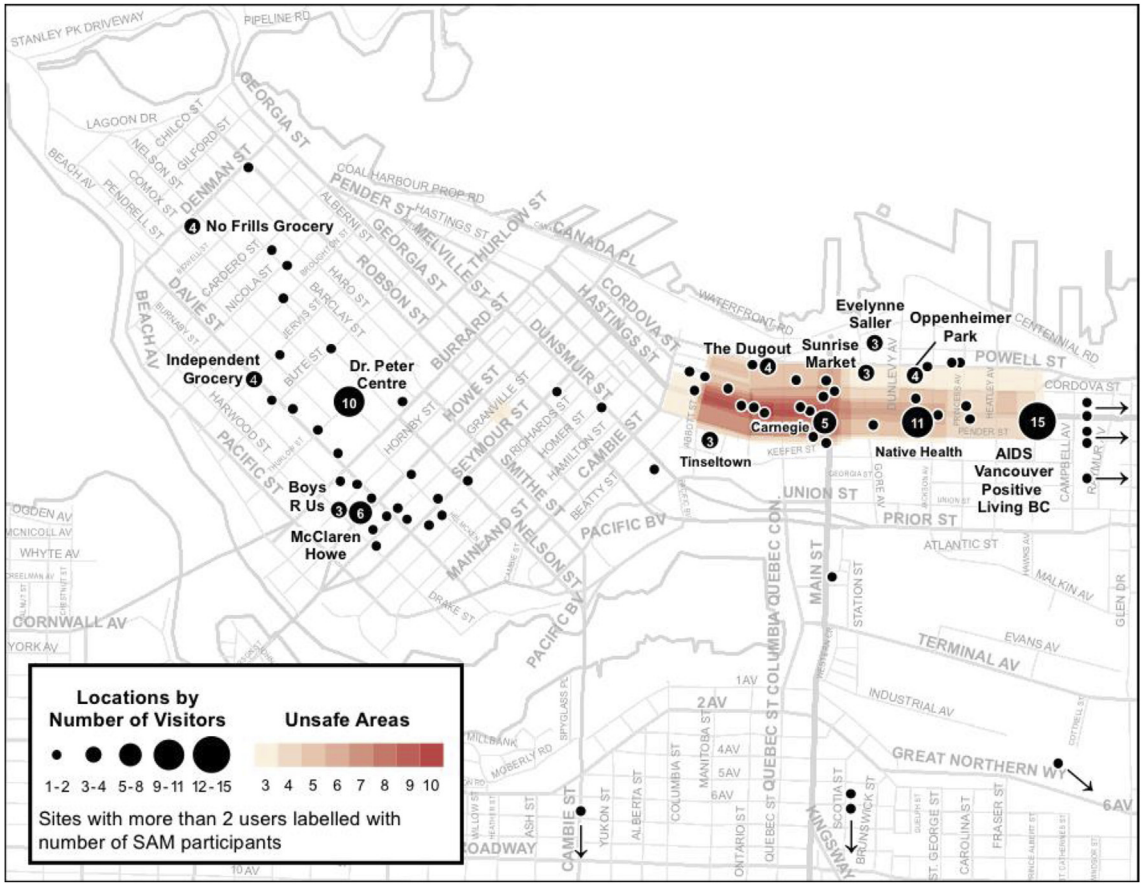
> When I'm using I tend not to eat. You're so high and you're where you are. You don't want to go out and get it [food]. You're paranoid or whatnot, so yeah, if you've got nothing in your fridge I usually … would just take a sleeping pill and wait till the next day. And then, that way, everything is back to normal.

Carlton went on to note that although going to the DPC for meals was an important part of his routine, if he is really high, he does not go. "People know, they can tell. Even when I'm not [high], they said that I was. So that's what I'm telling you: people are judgmental when it comes to doing drugs." Finally, some respondents said that they ate differently when they were using drugs. Victor (Aboriginal Male, 50s) said, "Oh yeah, maybe some water, maybe chips, chocolate bar just basically to live. I'd eat a chocolate bar, a sandwich, whatever … eating wasn't a priority on my list." Others said that they avoided eating in order to preserve their high. Jody (Other Ethnicity Male, 40s) put it this way: "Because of the economy, I want to preserve the high … If I eat, I cut my high, so that means I have to invest more in my high."

Yet, not all respondents said that drug use affected their diet and several took active steps to ensure that they ate while using. Among survey respondents, 65% said that they used strategies to mitigate the effects of drug use including: drinking *Gatorade*, a sports drink, or *Ensure*, a dietary supplement; increasing fluid intake to avoid dehydration; taking vitamins; and eating small meals or snacks. When we asked Paul whether drug use affected his diet, he responded, "no I don't let it. Maybe when I was younger it did, but as I've grown older I've learned to adapt to using and eating." Or as Alan (Aboriginal Male, 50s) said, "I do my best to eat while I'm using" although he occasionally struggled given his drug use and health problems that affected his appetite. Some participants noted that they watched what they ate and were concerned about their diet for health reasons including diabetes, liver problems, and HIV. For example, Frank noted, "having HIV, I kind of learned to look into what I'm eating, if it's going to affect cholesterol." These kinds of self-care strategies, such as trying to reduce sugar intake or walking for exercise, appeared in several interviews (see also Drumm et al., 2005).

3.2.2. Spaces of risk

Previous research has shown that low-income people enact spatial tactics to cope with and manage risks associated with accessing food and other resources in Vancouver (Miewald and McCann, 2014; Fast et al., 2010; Shannon et al., 2008). The SAM interviews assessed when, how and why participants put themselves at potential or perceived risk including physical, social and economic harms to access food, and our findings elaborate on research that suggests that areas perceived to be



Map 1. Food resource use and unsafe space.

unsafe can be a significant barrier to accessing resources (Collins et al., 2016, 2017; Fast et al., 2010).

Map 1 displays the location and frequency of use for all food resources (including meal programs, food banks, and grocery stores) mentioned in the 20 SAM interviews. These are mapped in relation to spaces that participants identified as being unsafe. The most frequently used sites were the DPC, POP, and the AIDS Vancouver food bank – all food programs designed specifically for PLHIV. Several of the most frequently used food sites are located in areas that some respondents felt were unsafe, in particular the Downtown Eastside, where a number of important food programs for PLHIV are located. In particular, those who lived in the West End tended to avoid the Downtown Eastside although they did occasionally feel it necessary to go there to access some services including the AIDS Vancouver Food Bank which had temporarily relocated from the West End to the Downtown Eastside.

One of the primary reasons the Downtown Eastside (the area in red) was considered unsafe by some was the prevalence of open drug use and dealing on the streets, which can be triggering. For example, during the SAM interview, Ricky (Caucasian Male, 30s) said, "I'm going to zone [Hastings Street, the neighborhood's main thoroughfare] out [on the map]. It's an unsafe space … drug addiction central." Others noted they felt there was too much violence in the neighborhood or spoke of instances in which they had been physically or verbally attacked there. Yet, as Carlton (Caucasian Male, 50s) explained, although he does not go to the Downtown Eastside for food, he does visit the neighborhood to find drugs:

> All along, more or less, along those three blocks [at the heart of the neighbourhood] that's where a lot of the dealings would be going on and that's where you shouldn't be hanging around but when you're in a sort of state you just head down there.

At the same time, many who lived in the Downtown Eastside did not consider it to be an unsafe place. For example, Mike (Aboriginal Male, 40s) described how he feels safe in the Downtown Eastside because he "knows everyone down here" after spending decades working as a binner in the neighborhood. Personal connections with family and friends in the Downtown Eastside often enhanced respondent's perception of the area unlike those who avoided the area, which highlights the contradictory meaning of the neighborhood as one of both risk and of community (Masuda and Crabtree, 2010). This finding highlights the personal nature of how risk is experienced. The perceptions of what constitutes both "risky" and "safe" space can change for individuals as their circumstances, such as housing situation, drug use, and health status, change. These perceptions, in turn, can affect where an individual seeks food.

The ways that food is accessed from mainstream providers can also produce spaces of risk. Line-ups for food, which force people to stand outside, can cause physical harm through exposure to disagreements and fights. For example, Jerald (Aboriginal Male, 40s) said that he avoids certain food line-ups because of the stresses associated with dealing with others in the line.

> "You've already been there and they just cut in at the last minute. They sort of just rush in the door. That's why I try to stay away from the food lines because you'll be standing there and somebody will cut right in front of you."

Additionally, standing in cold and wet weather can exacerbate physical illness. Moreover, individuals may feel stress and anxiety if they feel they might not get served because there isn't enough food for everyone in line (Miewald and McCann, 2014).

Finally, places where people engage in non-traditional food procurement are also spaces of risk. Participants who searched in

dumpsters reported sometimes consuming the found food and several participants said they bought food from people selling on the street. While this food is often inexpensive or free, its consumption is risky and can result in food-borne illness. Participants are aware of these risks and make strategic decisions about whether to expose themselves. For example, Mike explained that he would access food from certain residential dumpsters that he trusted, but was still careful about what he ate from them:

> "the meat would still be frozen and you've got half things of syrup so of course I'd bring it home when I was binning. In the summer I'd tend to stay away from the meats if they weren't frozen but the fruits and vegetables [were okay].

The potential health risks associated with consuming dumpstered food were mitigated by knowledge of which foods are safe to eat.

3.2.3. Spaces of care

Places where food is provided have often been considered *spaces of care* both through the provisioning of food and encounters with staff or volunteers (Conradson, 2003; Johnsen et al. 2005; Midgley, 2017). Bowlby (2012) has explored the geographical nature of the provision of care through the concept of carescapes, paying attention to both the space and time aspects of the giving and receiving of care. For participants in our study, accessing spaces of care was part of their daily routines. These spaces provide protection from the risks associated with drug use and are therefore part of the spatial tactics used by PLHIV who use drugs. While accessing food may include a certain level of risk, the places that most of the respondents chose were considered to be "safe", often providing support and social connections they could not find elsewhere. In this respect, food services designed for PLHIV not only provide nutrition (in the form of meals and/or food bags) but also serve as an important social node for participants, often relieving them from having to travel long distances for food or from standing in line-ups.

Additionally, these spaces were viewed as "safe", where individuals felt welcomed and supported. Individual SAM interviews revealed that many respondents started their day by either going to the DPC or POP, eating breakfast there and then either staying at that location until lunch or leaving then returning around noon. The DPC and POP are both spaces of care where PLHIV who use drugs can access food, but, as the SAM mapping and interviews suggested, they also serve as important nodes in participants' daily routines, offering predictability, familiarity, feelings of acceptance and inclusion, among other forms of physical and social support (see also Collins et al., 2017, Fernando et al., 2016). Two discussions highlight the ways in which these spaces provide social support and a sense of safety. When asked why he liked the Dr. Peter Centre, Maurice (Caucasian Male, 50s) responded,

> Just knowing that I have a place to come to where it will be safe for me, rather than just wandering the streets. At least I can come here and watch some TV; just get away from the outdoors. The people that work here, I like. They're very understanding.

Similarly, Jesse (Caucasian Male, 40s) said of POP,

> "[It's] just the people and the atmosphere in there, everybody knows me there. It's kind like [the fictional television bar] *Cheers*, when Norm walks in. I walk in [to POP] and everybody's like, 'Hey Jesse!' It's really welcoming there."

Additionally, being low-barrier and having a First Nations focus means that the POP program was considered a safe space for Aboriginal PLHIV who use drugs.

Participants noted that one of the benefits of spaces such as POP and the DPC is the social connection with both other participants and staff. Frank spoke of the DPC as a space of social interaction:

> "I like [the DPC] because there's a lot of people around, I feel safe here. There's always someone to talk to if I'm having a good day, bad day … It gets me out of my comfort zone, my isolation."

While the food program may be the primary reason Frank goes to the DPC, positive social interactions can also provide physical and mental health benefits.

Both the DPC and POP operate within a harm reduction framework, meaning that participants are not expected to be sober to use the services and that there is low-barrier access to food and other resources. At the same time, both programs require that participants be registered in their day health programs. While membership can be a barrier for some (e.g., it involves disclosing HIV status) (Whittle et al., 2016), it was also one of the aspects contributing to members' perception of safety. For example, when asked what made him feel safe at the Dr. Peter Centre, Frank replied "because it's a community-based building and there's rules and regulations and limitations … boundaries." These rules and regulations allow members to feel safe in that they know that, unlike the street or in some instances their housing situation, there are staff members monitoring the behavior of participants. In this respect, the DPC and POP members utilized spaces where they felt safe and supported and were at least somewhat protected from the risks associated with having to access multiple food providers.

While one model of food provision for PLHIV is home meal delivery, which enhances privacy, this should be balanced with consideration of the social benefits of attending meal programs at supportive locations such as the DPC or POP. Not only do participants access nutrition, but they are able to connect with nursing and support for HIV medication and participate in a number of other activities, including art therapy, yoga, and massage. These programs create a social space for participants to interact with staff and other participants. In several interviews, respondents noted the positive effects of eating in a congregate meal setting. Concurrently however, the social aspect of these meal programs can serve as a barrier if drug use is stigmatized and participants feel uncomfortable attending when they are using drugs. Therefore, while we can make general claims about the relative safety of spaces in the foodscape, we must also acknowledge the individual experiences of different participants who use, or avoid, those spaces.

4. Discussion

We suggest that the health of PLHIV who use drugs can be differentially impacted by the ways in which they access food. These spaces and methods of food provision affect people in ways that include, but also extend beyond, nutrition. These results support our findings that food insecurity for PLHIV who use illicit drugs is shaped by the physiological and psychological effects of drug use itself and by the unique challenges of food access that they face. They also support our argument that lived experience and spaces of food access highlight the various ways in which people experience and produce their everyday foodscapes.

The relationship between drug consumption and diet is reflected in the study participants' high rates of food insecurity, despite having access to nutritious and high quality meal programs. This suggests that despite the existence of low-barrier food programs designed specifically for PLHIV, gaps remain in food provision in Vancouver. These gaps are related to the structuring effects of the city's foodscape, something that is readily evident when participants both map and narrate their routes. Despite the strategic efforts of participants to navigate this foodscape, with its risks and affordances, food insecurity and the potential for nutritional harms remain. For example, drug use was found to decrease appetite and increase paranoia, which presented barriers to food access for some. Feeling stigmatized for using drugs in some settings also means that individuals may not use the food services available to them. Furthermore, participants tend to have specific geographies and routines for accessing food, often designed to avoid locations that might be dangerous or triggering. Therefore, closing, moving food or altering food provision sites may have a significant effect on when and where

individuals access these services. Simultaneously, our participants were very much aware of how drug use affected their diets and in many instances developed strategies to mitigate these effects, including making regular use of the food programs available to them. The heavy reliance on charitable meal programs among participants suggests that these programs are a critical source of nutrition. However, gaps in meal provision for PLHIV, such as a general dearth of evening meals, may contribute to the need to supplement these food resources with non-traditional food procurement, including engaging in potentially risky behaviors such as scavenging, binning, or trading drugs and food.

When examining the daily food access routines of PLHIV who use drugs, it is evident that for the most part individuals use food resources where they feel safe and supported and avoid going into areas or spaces where they perceive risk. Nonetheless, it is clear that even the most inclusive and accessible food programs cannot address the root causes of food insecurity among low-income PLHIV who use drugs (Bowen et al., 2016). Charitable meal programs fail to address wider structural issues of poverty, social stigmatization, and housing inequality, all of which contribute to food insecurity. The structural nature of food insecurity is evident in the high rates that PLHIV who use drugs experience, despite having access to high quality meal programs. Food insecurity and the potential for associated negative health outcomes are likely to persist without significant changes to social, drug, and welfare policy.

While it is critical to address the structural issues of food security (Whittle et al., 2015a and b), it is also important to understand how food programs can provide more than nutrition, especially for those who might be physically and/or socially isolated because of their HIV status and/or drug use. Specifically, free and low-cost food for PLHIV who use drugs should be provided in ways that maximize choice, such as a pantry model, where a variety of ingredients are available for people who have the skills and desire to cook. Even in more structured settings, meal programs and food assistance with flexible hours, and that emphasize participant choice are an opportunity to support participants' overall wellbeing. Finally, welcoming participants in with food in a low-barrier setting can reduce drug use and the stigma surrounding it, thereby enhancing access and participation (McIntosh 2016).

4.1. Limitations

Our study has several limitations. First, we recruited individuals who were already accessing some form of food assistance and did not include those who were not and, therefore, may be more vulnerable to food insecurity. This population may include people who are HIV negative but use drugs – people who may have an even more difficult time accessing food since several key food providers in this study only provide meals to PLHIV. Therefore, our findings do not capture the routines of and barriers to food access for those who do not participate in some form of food program or who are unable to access HIV-specific services. Second, using self-reports of daily food access relies on people's recollections and perceptions of their routines. Therefore, it is a method that is subject to errors of memory. Finally, women and youth are underrepresented in this study despite efforts at recruitment. It is likely that areas of risk are more common and widespread, for example, for women who experience gender-based violence or threats (Miewald and McCann, 2014).

5. Conclusions

In this study we used a foodscape approach to understand the daily food-access strategies and routines of PLHIV who use drugs. The combination of surveys, interviews and mapping allowed participants to recount their daily food routines and note both spaces of risk and spaces of care as they navigated the foodscape. For many participants, accessing food had to be balanced against the effects of drug use and the potential for harm to occur while traveling among spaces of food provision. It also appears that food spaces where people felt safe and supported can serve as an anchor for individuals, reducing their need to travel in search of food and to be exposed to related risks and triggers.

While the charitable food provision landscape for PLHIV who use drugs is varied, we suggest that for individuals in our study, attachment to low-barrier, HIV-specific programs can provide a number of benefits. Not only can food be tailored to the needs of PLHIV, but perhaps more importantly, they operate as important spaces of care, reducing risks associated with using mainstream charitable food providers. This point is essential for developing food programing for PLHIV who use drugs so they can avoid some of the risks associated with accessing food. While the current system of food provision, as practiced by the DPC and POP, provides safe spaces for individuals who face daily challenges and undoubtedly contributes to their health and well-being, we must also move beyond these sites in order to tackle the various dimensions of persistent food insecurity experienced by Paul and his peers.

Acknowledgements

This research was supported, in part, by the Social Science and Humanities Research Council under Grant #435-2013-2197 and the Vancouver Foundation under Grant #UNR14-0024.

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