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Pathways linking drug use and labour market trajectories: the role of catastrophic events

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Abstract

People affected by substance use disorders often experience sub-optimal employment outcomes. The role of drug use in processes that produce and entrench labour market precarity among people who inject drugs (PWID) have not, however, been fully described. We recruited 22 PWID from ongoing prospective cohort studies in Vancouver, Canada, with whom we conducted semi-structured retrospective interviews and then employed a thematic analysis that draws on concepts from life course theory to explore the mechanisms and pathways linking drug use and labour market trajectories. The participants' narratives identified processes corresponding to causation, whereby suboptimal employment outcomes led to harmful drug use; direct selection, where impairment, health complications or drug-seeking activities selected individuals out of employment, and indirect selection, where external factors, such as catastrophic events, marked the initiation or intensification of substance use concurrent with sudden changes in capacities for employment. Catastrophic events linking negative transitions in both drug use and labour market trajectories were of primary importance, demarcating critical initiation and transitional events in individual risk trajectories. These results challenge conventional assumptions about the primacy of drug use in determining employment outcomes among PWID and suggest the importance of multidimensional support to mitigate the initiation, accumulation and entrenchment of labour market and drug-related disadvantage.

Keywords: life course, drug use, employment, causality, catastrophic events

Background

People living with substance use disorders commonly experience socio-economic vulnerability in the form of income or material insecurity (Long *et al.* 2014, Ompad *et al.* 2012,) or unemployment (Henkel 2011). Poverty and poor health among people who use drugs represent longstanding, intractable and overlapping syndemics crossing biological, social and structural conditions (Singer and Clair 2003). The dynamics of such syndemics link interrelated domains in which vulnerability and marginalisation are manifested, recognising that 'drug abuse is related to housing is related to health care is related to joblessness is related to poverty' (Shavelson 2001: 100). That is, socioeconomic vulnerability impacts on and is impacted on by drug use and drug-related harm in a complex intertwining of health, social and economic trajectories. Disentangling these relationships is theoretically and empirically relevant because of their role in pathways into and out of harmful drug use and their significant implications for public health and labour market policy as well as programmatic interventions.

Among the harm resulting from substances use, lost productivity is cited as one of the most significant substance use-related costs (Heien and Pittman 1989, Reuter 1999). Lost productivity includes: (i) foregone economic contributions because of premature mortality and disability; (ii) absenteeism; (iii) impaired productivity because of substance related illness, treatment, injury or disability and (iv) crime-related costs, including the incarceration of perpetrators, or the costs to victims of substance-related crime (Bouchery *et al.* 2011, National Drug Intelligence Center [NDIC] 2011). These costs have been estimated at USD\$120.3 billion in the USA and CND\$24.3 billion in Canada, or 62.3 and 61% of the total costs attributed to drug use, respectively (NDIC 2011, Rehm *et al.* 2007). Consistent with previous research that explores the relationship between drug use and work (Draus *et al.* 2010, Kaestner 1998, McCoy *et al.* 2007, Platt 1995), these figures implicate drug use in suboptimal employment outcomes. In contrast, other research has suggested that unemployment may elevate levels of problematic substance use (Bourgois and Schonberg 2009, Henkel 2011, Pearson 1987). Such analyses reveal expectations of causal direction, anticipating that drug use produces decreased labour market participation or vice versa. However, given the equivocal conclusions from previous quantitative research (Kaestner 1998), the aim of the current study is to examine the relationship between drug use and work by exploring the trajectories and mechanisms linking these two domains.

Examinations of such patterning are usefully informed by research on labour market participation as a social determinant of health, which examines how socioeconomic status, labour market outcomes and unemployment relate to health inequities (Bambra 2011, Bartley 1994, van der Wel 2011). There is considerable debate whether this relationship a causal one, whereby unemployment produces poorer health outcomes, the direct health selection of individuals in poorer health out of employment, or the indirect selection effect of a third factor or interrelated factors that produce suboptimal outcomes in both areas (Blane *et al.* 1993, Ross and Mirowsky 1995). There is a growing consensus that processes of both selection and causation are applicable to the consistent association found between employment and health (Bartley 1988, McDonough and Amick 2001).

Heterogeneous pathways inferred from previous research suggest the analytical utility of an approach that considers the health, social and economic pathways implicated in both work and drug use. In the case of drug use trajectories, which have been previously characterised as drug use careers (Anglin *et al.* 1997), these pathways may include drug initiation, experimentation, escalation, habituation, problematic experiences, treatment, temporary abstinence, relapse, maturing out, retirement, disability, premature mortality or total abstinence (Shaw 2002). Life course perspectives on drug use focus on identifying factors, critical events and turning points contributing to persistence or change in drug use pathways (Hser *et al.* 2007). Labour market trajectories may include similarly complex processes of capital accumulation, labour market entry, transitions into work, the maintenance of employment, job transitions, job losses and labour market exits (Rigg and Sefton 2006, Virtanen *et al.* 2005). Life course approaches to employment similarly focus on turning points, the accumulation of advantage and disadvantage and the importance of both proximal and distal individual, social and

structural forces in the production of inequality along life course trajectories (Elder *et al.* 2003). In both cases, processes of transition, accumulation and reinforcement are seen as critical in the production and maintenance of disadvantage.

While the current study does not involve cohort approaches common to life course analyses, it adopts key components of life course theory to retrospectively explore the relationship between drug use and work trajectories, with three specific objectives. Firstly, it seeks to examine the underlying mechanisms through which this relationship is experienced, perceived and understood by people who inject drugs (PWID). Secondly, it aims to understand the implications of transitions, accumulation and mutual reinforcement in the production and maintenance of drug-related and health-related disadvantage over time. Thirdly, it seeks to complement existing quantitative research on the relationship between drug use and labour market outcomes through an improved understanding of the pathways that characterise this relationship.

Research context

Deprived neighbourhoods, subject to concentrations of individual, social and structural vulnerabilities (Diez Roux 2001) are locales where labour market, drug and health-related disadvantage may accumulate in spatially defined urban environments (Browning and Cagney 2002). Vancouver, Canada's Downtown Eastside (DTES), an area of 15 blocks directly east of Vancouver's downtown core, is often identified as a site where dynamics of neighbourhood deprivation have had highly visible and harmful consequences (Smith 2003). High levels of substance use increasingly characterised the area alongside concurrent economic decline in the mid to latter half of the 20th century (Campbell *et al.* 2009). The emergence of HIV/AIDS in the injection drug-using community in the 1990s resulted in an explosive HIV outbreak among PWID and their sexual partners, with the HIV incidence being among the highest in the developed world (Strathdee *et al.* 1997). While rates of HIV incidence have decreased considerably, the DTES remains a locus of open drug use and sales, endemic poverty, unstable housing, crime, high HIV prevalence and widespread mental illness (Wood *et al.* 2007).

Labour market outcomes in the DTES are further indicative of significant localised disadvantage. While census data from 2006 indicate that the 11.3% unemployment rate among those aged 15 years and older in the DTES was higher than the Vancouver and national rates of 7.2 and 6.6% respectively (Brethour 2009, City of Vancouver 2006) the rate of labour market participation in the DTES was 38.2%, just over half the Vancouver and Canadian national averages of 67.0% (Brethour 2009). Statistics Canada has identified a 2006 median income of CAD\$13,691 compared to the Vancouver (\$47,299) and national (\$63,600) medians. The co-occurrence of drug use, labour market and health disadvantage in the DTES make it an appropriate milieu to explore individual labour market and drug use trajectories among PWID.

Data and methods

Participants for the current study were recruited from the Vancouver injection drug users study (VIDUS) and the AIDS care cohort to evaluate exposure to survival services (ACCESS), long-running community-recruited prospective cohort studies of HIV seronegative and seropositive people who use illicit drugs. Most of the participants reside in Vancouver's DTES. Individuals were eligible for the current study if they were of adult working age (between 18–65 years old), had a history of injection drug use and provided their written informed consent. Recruitment efforts selected individuals whose income generation and drug use trajectories could provide information on a broad range of experiences such as employment in different sectors of the economy, alternative income generation strategies and different types of drug use and drug use intensity. This recruitment strategy sought participants who could elucidate our research objectives from many different perspectives (Creswell 2012). Individuals were

informed of the study by VIDUS and ACCESS research staff, the study involved an informed consent process separate from that of the parent studies, and standard measures (such as the de-identification of data, use of pseudonyms, and encryption of data files) were taken to ensure participant confidentiality and assure participants about the security of their study data. This study received ethics approval from the University of British Columbia and Providence Health Care Research Ethics Board and the University of Oxford Central University Research Ethics Committee.

Semi-structured interviews explored current and past experiences of income generation and work among PWID, views and experiences on the relationship between drug use and work, and perceptions and experiences of practices, behaviour and circumstances that operate as either barriers or facilitators to labour market engagement. Consistent with previous studies (Draus *et al.* 2010) and concepts from life course theory described above, interviews focused on identifying linkages between drug use and employment in the participants' personal social histories. Individuals were paid a CAD\$20 honorarium for their participation, consistent with previous research in this setting (Small *et al.* 2007). No individual declined the invitation to participate. The interviews lasted between 30 and 120 minutes and were transcribed verbatim. Transcripts were verified against interview recordings for accuracy and read several times to develop familiarity with the data. Interview data were sorted, labelled and coded using a word processing computer program.

The coding framework made use of themes derived from the pre-existing literature as well as emergent codes that arose from the content of the interviews. This blending of deductive and inductive analytical methods positioned this analysis in relation to points of reference identified by previous studies (Miles and Huberman 1994), while extending our understanding of drug use and labour market pathways in the narrative construction of participants' trajectories in previous research (Abell *et al.* 2004). Coding focused specifically on the connections between events, sequences and consequences in the formulation of biographical events and individual life situations (Bruner 1987, Taylor and Littleton 2006), paying particular attention to how these shaped work and drug use experiences, and the interactions between the two. This approach positioned participants' descriptions of their situations as the cumulative outcome of practices, decisions, circumstances and events that impacted on drug use and labour market trajectories. All content related to each individual code was compiled, and the coded text segments were analysed thematically to develop interpretations of the complex relationship between employment, income generation, drug use and related aspects of the participants' lives.

Results

Descriptive information

A total of 22 individuals with a median age of 48 years (interquartile range: 42–50) participated in interviews for the current study. Eight participants were women (36.4%), 12 (54.5%) were White, seven (31.8%) self-identified as having Aboriginal (that is, Métis, Aboriginal, First Nations or Inuit) ancestry, and one each (4.5%) reported South-East Asian, Latin American or Black-Caribbean ethnicity. Drug use patterns at the time of interview were heterogeneous across participants. Only two (9.1%) participants reported no current illegal drug use; both had extensive drug use histories and one was currently enrolled in methadone maintenance therapy. The most common current illegal substance that participants reported using was smoked crack cocaine (12 or 54.5% of participants). This was followed by injection heroin (40.9%), injection cocaine (31.8%), injection methamphetamine, speedball injection (that is, combined heroin and cocaine) and use of cocaine powder (5.4% for each). In all, 16 participants (72.7%) used many substances.

Four (18.2%) participants were engaged in the labour market at the time of interview. Seven (31.8%) individuals held formal stipendiary volunteering positions. Only three (13.6%) participants were not receiving some form of government assistance. Most supplemented a government income with

unreported, informal work doing construction, manual labour or odd jobs (36.4%), sex work (18.2%), drug dealing (18.2%), street-based income generation in the form of recycling cans, panhandling or windshield washing (13.6%), or other informal economic activity such as selling their artwork or goods on the street (5.4%). All but two participants (90.9%) had formal employment histories of reported economic activity. These roles traversed the socioeconomic spectrum; while most reported employment in manual labour, construction, trades, or resource-based industries, employment roles also included senior administration and business ownership as well as professional and senior managerial positions.

Labour market impacts of drug use

Participants described many different patterns of their experiences and understandings of the relationship between drug use and work. Some participants said that drug use had a direct, significant and deleterious impacts on their labour market outcomes. Nearly one-third of participants indicated that for them, 'it's gotta be one or the other. You can't have your cake and eat it too. It doesn't happen' (Participant 2, male). This was not universally the case, however, as some participants conversely suggested that 'I never missed work due to it [drugs]. That kind of thing, you know, last one out, first one in and all that stuff' (Participant 19, male). Participants that directly linked drug use to their employment outcomes described instances where drug use rendered their vocational responsibilities impossible to execute:

Why would I hire somebody who's been a crackhead? He comes to work fried out of his face all the time. Why would you hire me like this when I wouldn't hire me, I wouldn't hire myself like this? (Participant 17, male)

I'd go in there all fucked right up and I would fuck everybody up, right? You have to be on the ball and you have to be really there, and when you're not there, it totally shows. (Participant 2, male)

Consistent with the common hypothesis of an inverse relationship between drug use and work as a result of drug-related impairment, many participants identified high-intensity drug use in particular as interfering with their labour market participation.

The interplay between trajectories of drug use and labour market involvement was by no means limited to physical impairment. Drug-seeking activities and the avoidance or management of withdrawal produced daily routines that many found inimical to the requirements of being a 'nine-to-fiver' (Participant 11, female). One individual said, for example, that gathering empty bottles for recycling was the first activity of her day: 'I start binning to make sure that I have enough empties at nine thirty to get my beer' (Participant 12, female). The economic instability associated with drug-seeking was perceived as directly consequential to upholding the expectations of employers. As one participant said:

If you work past a certain hour, you can get the company vehicle, company credit card to get you home, right? I come down to play in the sandbox [drug scene] and get some dope and, you know, I was sick [going through withdrawal]. Cigarettes can contribute to the dope, so I just put [them] on my company card. My boss called me up and said, 'It says here there was cigarettes purchased. You remember buying this?' I said, 'You know, what? What happened was I paid for the gas but I had a hundred dollar bill and it was three in the morning and they didn't have change for this thing so I just put it on my company card.' So it sounded believable. They got the tape [video recording] about how it all went down. They said, 'We have reason to believe it that didn't go down that way, so here's the short: you can resign, and we'll get you a letter of recommendation because you're a hell of a tradesman.' I lied, I took a credit card and abused it, there's no denying that. They gave me a chance to get honest about it, you know, and I chose not to. (Participant 23, male)

In this case, drug-seeking behaviour and the avoidance of withdrawal resulted in the inappropriate use of resources, a subsequent evasion of responsibility and the termination of employment. The need to

secure drugs constituted a competing interest that runs counter to the requirements of employment. Many participants identified drug access as a critical reason for being unable to undertake employment, as explained by the following participant:

I was a heroin addict and when you're a heroin addict you can't make a dentist appointment because you don't know if you're going to have heroin that day to go and function. And same for work. You can't say you'll be there because you just don't know. (Participant 21, female)

While drug use significantly interfered with many individuals' capacity to work, this inability was linked to ongoing drug use as well the capacity to ensure their access to drugs, rather than avoid them.

Participants further positioned changes in the intensity or type of drug as strongly influencing long-term trajectories. One individual, for example, identified her initiation into injection drug use as a key change in her personal trajectory that began a chain of events including losing her job and initiating sex work, which she perceived as significantly affecting her health and capacity to avoid risk and harm:

And it's a lot of shit, like, I wouldn't of gotten raped and ended up with HIV. You know what I mean? Like, all these things that wouldn't have happened if I hadn't of started using. And [my HIV] wasn't from a needle but it still was, you know, down the long run. Now it's very hard to crawl out of the hole. (Participant 11, female)

The positioning of her drug use trajectory within a long-term chain of risk points to individuals' awareness of the accumulation of disadvantage, across which the consequences of drug use can influence pathways in many different domains. This awareness is consistent with life course approaches emphasising the importance of transitions and the accumulation of disadvantage over the long term.

Also consistent with these concepts was the identification of the short and long-term health consequences of drug use as disrupting their ability to engage in the labour market. For many study participants, their health was 'the only thing that impacts if I work or not' (Participant 22, female). Drug-related health concerns included a wide range of conditions, including cirrhosis of the liver, pulmonary diseases such as pneumonia and asthma, and infectious diseases commonly attributed to receptive syringe sharing including hepatitis C (HCV) and HIV, infective endocarditis and related complications such as stroke. Some participants described the implications of these drug-related health problems on their daily functionality:

There were times where I just wasn't physically capable of working and doing the job I do. I mean, I go to work for 8 or 10 hours, go up and down stairs and ladders and carry materials, working with your hands over your head for hours. So living a lifestyle that's not healthy, you know, it's just mentally, physically, it really takes you out of the game. (Participant 5, male)

Others described long-term or permanent impacts on their capacity to work:

I also got a bad heart from endocarditis. I've got degenerative arthritis in my neck up here. They want to take the vertebrae out which kills the nerves. My arms go numb, I can't work. If I carry something my arms go numb. I'll drop it. It sucks. (Participant 16, male)

The treatment of health conditions associated with drug use further had the capacity to operate as a barrier to employment. One participant noted the potentially debilitating effects of undergoing treatment for HCV:

I had hepatitis and I was sick. I had already been diagnosed but I had no idea that I was really sick. Within a matter of weeks I was on interferon [HCV treatment] and I stayed on interferon for 1 year and it has an incredible amount of side-effects, my hair fell out, I went crazy, and you're sick as a dog. With hepatitis [and taking interferon] I didn't have the stamina to do my nine to five. (Participant 21, female)

Thus, both drug-related health complications and their management often interrupted or changed the course of labour market trajectories.

The influence of labour market (non)-participation on drug use

While the experience of a directional relationship linking drug use and associated health conditions to suboptimal employment outcomes was common among participants, the inverse was also reported: suboptimal labour market outcomes also influenced drug use trajectories. Participants connecting non-employment, unemployment or under-employment to drug use often emphasised how employment, as a structured activity, distances individuals from their propensity to use drugs. Discussing her work, one participant who used crack on a daily basis said, 'I'm doing something that I like to do and it keeps me busy and it keeps me off other drugs. It's a good thing to be doing' (Participant 22, female). Another participant connected his lack of employment as a young man to his long-term pathway: 'Yeah I should've been kept busy being a young guy and, yeah, I wouldn't have steered myself the way I went' (Participant 1, male). His attribution of earlier unemployment as a significant determinant of his labour market trajectory demonstrates how labour market interruptions at sensitive developmental periods can have significant effects on future outcomes. While some did not link their employment status to their drug use, stating, 'I don't think it matters if I work or not, or if I work a lot, or anything. It's just how I'm [doing]' (Participant 4, male), a prominent theme in the participants' understanding of the relationship between drug use and work was tied to its ability to shape their daily routines and to provide alternatives to drug use and drug-related activity.

This included spatial considerations where employment was seen as a way of avoiding drug scene involvement. One participant considered avoiding the local drug scene to be a crucial component of her strategy to not use drugs:

I try and keep myself busy. It's very hard sometimes, but I know that I have to. Otherwise it's too easy to just walk down the street and get picked up [by sex work clients] and make money and go use drugs and just get swept right back into that again. (Participant 11, female)

Similarly, the following participant identified access to paid employment as intimately connected to her ability to decrease drug use or maintain abstinence, by distancing her from street-based income generation activities:

I cleaned myself up 'cause I got really bad into the powder and stuff and I was telling my friend, you know, 'I'm just, I'm sick of that life, you know, I'm sick of jumping in garbage bins'. The only way I was gonna maintain straightening out was to have a real job. (Participant 12, female)

Another participant suggested that their work shifts provided a sanctuary, where he was able to avoid using and exposure to periods of heightened drug scene activity:

I do volunteer work. I do 8 hours a week. I don't use and abuse the place. I use that place for. . . . It's my safety zone. I won't go in there drunk, I don't go in there high. If I wanted to go stay clean for a day or two, I go hang around down there. That's a useful place. If you believe this, I actually picked a Friday night to be in there volunteering. I'll tell you why. Because Friday night everyone goes out and parties. (Participant 13, male)

In the absence of time structure or a means to avoid the local drug scene, individuals with a history of high-intensity substance use would have to manage the periods of unstructured time that were seen by participants as potentially fostering drug use. Participants' narratives therefore identified work as a crucial part of both achieving and maintaining less harmful drug use patterns.

The reduction of drug use vis-à-vis employment activity was also linked to employment as an inherently meaningful activity:

I want to do something that I get a sense of purpose out of, I don't wanna just get a paycheck. You know, I'd rather just get by and be doing something that I love doing and that I get that sense of purpose from than making a lot of money and being miserable. Or even just making a lot of money and not being miserable but not really feeling like I'm adding anything to life, right? And I believe that that's an important part of my sobriety that I do that. (Participant 20, male)

The ability of employment to mitigate their exposure to drug-scene related risk, structure time or provide meaning was therefore considered an important influence on addiction trajectories, predominantly, though not exclusively, in beneficial ways.

Exogenous influences on drug use and employment

Participants also described circumstances external to both their drug use and labour market pathways that were nevertheless crucially influential on both. A predominant experience was that of a catastrophic event, defined here as a significant and highly stressful life event that was self-described as impacting on their labour market participation. Such events were reported by 14 of the 22 participants (63.6%), and generally demarcated a sudden change in an individual's capacity to work, socioeconomic position, social relationships or access to resources. Accidents resulting in significant injury, for example, commonly prompted the initiation or intensification of opiate use as self-medication for pain, as exemplified by the following participant:

[I was] walking and they hit me twice [with a car]. And then I start using, [thinking I would] only use one time, with the pain and [me] wanting to get good sleep. I got back on welfare, then day after day, month after month and year after year I keep using. If I'm not using, I [would] enjoy going to work, get a family or whatever. People they can come back with injury [after] 1 year, right? But I got [into an] accident and using, now [it's] hard to say. (Participant 10, male)

The initiation of heroin use was linked not only to changes in substance use for the self-medication of physical pain. Event-driven emotional distress also impacted on an individual's substance use patterns. The following participant described how her initiation into heroin use coincided with distress from a cancer diagnosis:

And that's when I found out that I ended up with cancer. Stomach cancer. And the doctor had given me the actual date that I'm supposed to die. That shouldn't be allowed, and that's what made me begin to use heroin, was because of that. (Participant 14, female)

Also common among participants were depictions of initiated, re-initiated or intensified use in close succession to the death of a loved one:

I restarted after she died. It's not even getting high, or forget[ting] or anything, it's just that you need a break [to] stop my brain. After she died I got wired real quick. It took 3 days and I got wired again. (Participant 4, male)

The idea that 'grief is disabling' (Participant 21, female) was reflected in the comments of individuals who experienced some form of family dissolution, either through relationship failure, divorce or involuntary separation from their children because they lost custody or the children were seizure by government authorities:

As soon as my separation happened I was over with the project. I was so screwed up and depressed and stressed and, you know, my husband ran away with my son. (Participant 14, female)

Study participants demonstrated a clear awareness of the long-term impacts of the events they described. They connected, for example, childhood events with decreased adult functionality:

It's just I can't maintain stuff, right? I just can't. Like, I was abused, horrifically, as a child. And I don't use that as an excuse but the way it has in the long term affected me is that I just don't have it within me to be responsible for that long. You know, I can't explain it. I just know that's the way it is.
(Participant 12, female)

Additionally, individuals noted how long-term consequences of catastrophic events were commonly related to the criminalisation of their drug use. These events, beginning with their apprehension by police, leading to their incarceration or other custodial arrangements in the criminal justice system, interrupted their employment trajectories. They further and indefinitely affected their ability to re-engage with the labour market by their acquisition of a criminal record. One participant stated, 'Cause of my criminal record you don't want me. Hire me I might steal something' (Participant 1, male). The considerable and negative potential consequences of labour market interruption and ongoing labour market scarring resulting from criminalisation were common. Many participants perceived the catastrophic events they experienced as having significant long-term effects.

The participants repeatedly referred to catastrophic events that had adversely affected many different domains of their lives. These compound events, where, for example, an individual 'lost my marriage, got shot and I was in a hospital all in one night' (Participant 17, male) or 'lost my daughter, my home, my home-based business all in one day' (Participant 12, female) invariably influenced individuals' ability to generate income. Any loss in productive capacity would in turn impact on their ability to endure catastrophic events:

I got served custody papers one day at work and I came home, and my husband and daughter were gone. Everything was gone. I lost my job. Things went downhill. I lost everything. I was literally more homeless than I was when I first moved onto the streets in Toronto. And so he got custody.
(Participant 11, female)

Catastrophic events were positioned by participants in relation to broader psychological, social, economic, cultural, environmental and structural processes. Regardless of their origin, the consequences of these events were real and often irreversible. These effects involved changes to physical and mental health, the initiation or intensification of drug use, relationship and family composition, the capacity to generate income through incarceration or other negative impacts on labour market and drug use trajectories.

Discussion

Descriptions of the relationship between drug use and labour market trajectories in the current analysis emphasise the complex intermingling of many different pathways in the production, reproduction and entrenchment of vulnerabilities that are social, economic and health-related among people who use drugs. To our knowledge, this is the first qualitative exploration of the relationship between drug use and labour market trajectories identifying the complex mechanisms linking the two domains, and offering an explanatory alternative to deterministic portrayals of the impact of drug use on employment or vice versa. Thematic analyses of individual narratives emphasised three broad themes. Firstly, they identified the way that drug use interfered with their ability to acquire, maintain and perform formal employment. Secondly, the participants focused on how labour market participation had a direct bearing on individual drug use patterns, which was for the most part positive. Thirdly, individuals identified external forces that negatively influenced both their drug use and labour market trajectories. Exposure to exogenous catastrophic events, in particular, resulted in considerable reductions in individuals' perceived and real capacity to participate in the labour market, as well as the initiation or intensification of harmful drug use practices.

As depicted in Figure 1, these three themes correspond to the theoretical pathways of causation, direct selection and indirect selection at issue in the broader debate surrounding the relationship between employment and health (Bartley *et al.* 2006). Of particular note are the mechanisms specific to each of these patterns. In the case of the direct selection effects of drug use on employment, these include immediate physiological effects, drug-related health outcomes that mediated the relationship between drug use and employment, and drug-seeking activities, which often interfered with participants' ability to reliably fulfill expectations of employer–employee relationships. Additionally, drug-related health conditions may produce acute or chronic illnesses impacting on their labour market participation that, as in the general population, are significant, negative, and differentially experienced by different demographic groups (Bambra 2011, Ross and Mirowsky 1995) through their effect on functionality, side-effects or treatment burden (Treloar and Rhodes 2009). The importance of drug-seeking behaviour demonstrated in the current study in shaping the daily activity of PWID has been described in earlier research (Draus *et al.* 2010, Preble and Casey 1969). Indeed, drug-seeking was described as work by many participants, and as something that was time-consuming and that structured their daily activities. These results are consistent with longstanding characterisations that the avoidance of withdrawal from opioids in particular leads to drug-seeking behaviour as a defining characteristic of daily routines and the maintenance of functionality (Draus *et al.* 2010, Lindesmith 1947).

[Figure 1 around here](#)

Mechanisms specific to processes of causation that link suboptimal employment to subsequent ill health were also identified in the current study. The presence or absence of a time structure, of productive or meaningful activity, and exposure to the drug scene are in line with literature on employment in the general population that points to the non-material functions of work that strongly influence health and wellbeing (Jahoda 1982, Warr 1994). Psychosocial factors identified in this literature, which include time structure, stress, purposeful activity and positive social interactions in the workplace (Cutler *et al.* 2008, Matthews *et al.* 2010) are important mediating processes linking work and individual drug use trajectories. Additionally, the identification of unemployment as an experience that can be formative to both drug use and labour market trajectories is consistent with research in the general population demonstrating its sustained consequences through labour market and health scarring (Burgess *et al.* 2003, Hammarström and Janlert 2002).

Finally, external events, processes or conditions were described as important and often principal drivers of negative transitions in both labour market and drug use trajectories. Participants' attributions correspond to processes of indirect selection (Bartley *et al.* 2006). Of particular relevance for most of the participants in the current study was their experience of catastrophic events, described by participants as including accidents and injuries, family breakup, bereavement, loss of child custody and criminal convictions. The mechanisms connecting catastrophic events to labour market outcomes included displacement, the cutting of social ties, abrupt decreases in access to social, economic, human or other resources, acute emotional trauma or decreased physical capacity. Mechanisms linking these events to drug use trajectories included medication or self-medication for physical or emotional pain management, as well as changes to their individual exposure to drugs or drug scenes. Consistent with concepts used in life course approaches to both drug use and employment, these events and their consequences marked transitions in individuals' ability to participate in the labour market as well as the initiation, re-initiation, or intensification of harmful substances use. While processes of indirect selection have been previously identified among the general population (Bartley *et al.* 2006), the current analysis newly identifies the central role of exogenous events as drivers of indirect selection that negatively impact both on the labour market and drug use trajectories of PWID.

The narratives of participants further demonstrate that catastrophic events are phenomena where drug use and labour market trajectories intersect. As critical initiation and transitional events among

PWID, these catastrophic events were key turning points that are further implicated in processes of accumulation, entrenchment or reinforcement in broader risk trajectories and disadvantage in many different domains (Ben-Shlomo and Kuh 2002, Virtanen *et al.* 2005). The findings of the current study therefore underscore how trajectories of disadvantage are analytically inseparable across different domains and can be multiple in their effects, shaping opportunities and constraints, conditioning both exposure to risk and the ability to mitigate the impacts of that risk. For example, the health-specific consequences of catastrophic events follow from both proximal and direct health effects from the event itself as well as from subsequent, distal health impacts resulting from long-term changes to individuals' socioeconomic security and drug use patterns. Following a catastrophic event, an individual's increase in vulnerability to socioeconomic marginalisation and drug-related harm may be amplified, for example, by increased challenges to meet basic needs, the intensification of drug use and pressure towards engagement in high-risk income generating activity such as sex work or drug dealing produced by income scarcity or material insecurity (Debeck *et al.* 2007, 2011). Over the life course, these burdens may significantly shape an individual's prospects for future employment, increase exposures that perpetuate drug use and decrease their ability to avoid drug-related and other health harm, including HIV infection, extreme violence, treatment failure and death (Shannon *et al.* 2008, Small *et al.* 2013, Richardson *et al.* 2014). Catastrophic events are therefore a juncture characterised by the intersection of many different trajectories as markers of accumulated disadvantage and critical drivers of health and labour market inequality.

Through its examination of the pathways and associated mechanisms that link drug use and labour market trajectories, the current analysis further suggests intervention strategies that could potentially mitigate the long-term health and labour market impacts of harmful exposures, transitions and turning points. These findings reinforce previous calls for addiction treatment and harm reduction providers to consider the potential impacts of services on the social and economic functioning of individuals (Richardson *et al.* 2012). Designing and delivering services that facilitate the maintenance or resumption of labour market activity and avoid punitive measures for drug use or relapse are key considerations, given the complex interrelationship between drug use and labour market trajectories identified here. Further, a sustained focus on multifaceted support to facilitate positive labour market involvement may significantly and beneficially alter life course trajectories. These supports could involve different forms of employment protection, the creation of adaptive economic opportunities such as low-threshold employment, the accommodation of episodic labour market absences and increased economic, psychological and social support for individuals who experience catastrophic events. The implications of the study findings for public health and related social policy particularly point to multifaceted approaches that recognise the symbiotic benefits of improvements to drug use and labour market outcomes.

Like all qualitative studies, this research is limited by the potential for various forms of response bias, such as recall or social desirability bias (McElrath *et al.* 1994). This may be particularly the case, given that participants offered long-term retrospective narratives about their drug use and employment histories and that discussions about employment may be accompanied by perceptions that labour market engagement was expected or valued. The findings are also specific to the individuals who participated in the study; others may have different experiences or perspectives. While the current analysis focuses on trajectories along the dimensions of drug use and labour market participation, this relationship may be further shaped by factors not examined here. These include, but are not limited to, early experiences of social and economic exclusion such as poverty, homelessness or other features of structural vulnerability, such as variations in the participants' accumulation of human capital, or broader labour market conditions that influence the quality and quantities of drug use and labour market activities. Lastly, individuals were recruited into the study in many cases because of their current or past experiences with formal and informal labour market activity, which may be atypical among the wide

PWID population in Vancouver. More research is required to determine if the experiences described here are more broadly applicable to inner-city PWID in this and other contexts.

The current study drew on concepts from life course approaches to explore the relationship between drug use and labour market trajectories among a sample of 22 PWID. Focused on individuals who were current or recent residents of Vancouver's Downtown Eastside, analyses outlining the processes of causation, and direct and indirect selection provide considerable insight into the specific relationship between employment and drug use trajectories. The identification of underlying mechanisms associated with each causal process emphasises the importance of understanding the relationship between drug use and work as complex, multifaceted and conditioned by the accumulation of risk and disadvantage through mechanism that are endogenous and exogenous to these domains. Of particular note, the importance of catastrophic events as critical to initiation and transitional points linking labour market and drug use trajectories among PWID engenders an approach that considers how cross-domain linkages significantly impact on longer chains of risk accumulation and entrenched disadvantage. The subsequent implications of these cross-domain linkages for health and social policy and programmatic interventions emphasise the need to develop multifaceted approaches that facilitate mutually reinforcing improvements in both drug use and labour market outcomes to reduce labour market and health inequalities.

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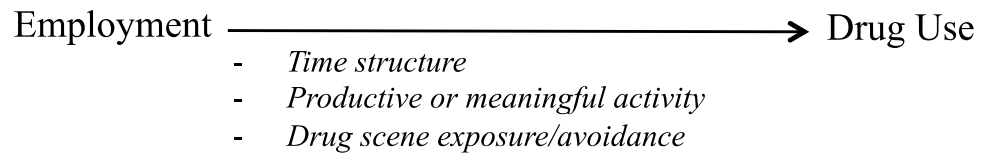
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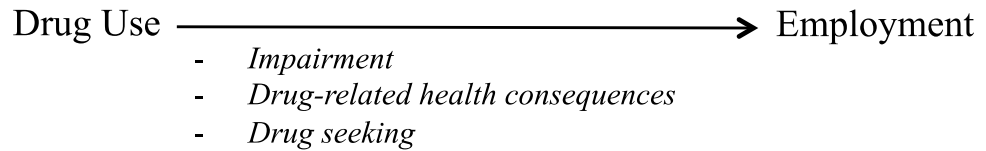
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Figure 1. Theoretical pathways and mechanisms linking labour market and substance use trajectories among people who use drugs in Vancouver, Canada

Causation



Direct selection



Indirect selection

