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Understanding the link between substance use and chronic pain: A qualitative study among people who use illicit drugs in Montreal, Canada

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ABSTRACT

- Background Chronic noncancer pain (CNCP) is highly prevalent among people who use illicit drugs (PWUD). PWUD suffering from CNCP are at the crossroads of two opioid crises: the prescription opioid crisis and the street-opioid overdose crisis. This qualitative study aims to improve knowledge of the substance use habits of PWUD suffering from CNCP and to assess the role of CNCP in the evolution of their substance use patterns.
- Methods In-depth semi-structured interviews were conducted with PWUD suffering from CNCP recruited in Montreal (Canada). To be eligible, participants had to self-report using cocaine and/or street opioids and having pain for at least three months. Twenty-five participants were recruited (10 women, 15 men; aged 27 to 61). Interviews were analyzed within a thematic framework.
- Results CNCP could contribute to either increasing or distancing from substance use. Participants described patterns of substance use with several interlaced purposes: recreational, CNCP relief, "emotional" pain relief, and withdrawal symptom control. In several cases, participants' awareness of their CNCP was delayed by the relieving effects of the substances they used for recreational purposes. Self-medication for CNCP was seldom the primary purpose of the participants' substance use. Many participants were reluctant to self-manage CNCP with street drugs, but some did so when experiencing recurrent problems accessing healthcare services for CNCP.
- Conclusions Suffering from CNCP complexifies PWUD's substance use patterns. In the opioid crisis context, new health policies and interventions should be implemented to improve PWUD's pain management and foster their addiction recovery.

1. Introduction: the hidden face of the opioid crisis

The opioid crisis prevailing in North America is comprised of two components. (1) First, the over-prescription of opioid medication in recent decades has given way to a major increase in overdose deaths and cases of addiction in the general population (Fischer, 2015; Fischer et al., 2012; Wisniewski et al., 2008). In a logic of "opioid pharmacovigilance" (Knight et al., 2017), several health authorities recently issued clinical recommendations prompting physicians to reduce their prescriptions of opioids and to avoid prescribing them to patients suffering from CNCP and presenting addiction risk factors (Busse et al., 2017; Centers for Disease Control and Prevention, 2016).

(2) Second, the presence of synthetic fentanyl as a cutting agent in various illicit drugs is causing an unprecedented upsurge in fatal overdoses among people who use illicit drugs (PWUD), particularly in Western Canada and in the United States. Harm reduction measures, such as naloxone distribution, drug testing, or supervised drug consumption sites, are currently being implemented with a view to prevent overdose deaths among PWUD.

The "opioid crisis" thus refers to two distinct public health problems

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involving different substances and substance use contexts, which demand diversified political and programmatic responses.

PWUD suffering from CNCP are at the intersection of these two crises. To date, their situation has generated little interest, both in research and in public health policy. Yet, some studies have shown that the prevalence of CNCP would be two to three times higher among PWUD than in the general population (Clark et al., 2008; Heimer et al., 2015). PWUD's pain would nonetheless remain underestimated and relatively unknown by health professionals (Baldacchino et al., 2010; Bell and Salmon, 2009; McCreaddie et al., 2010; Morley et al., 2015; Neale et al., 2007). This would be due, notably, to tenacious prejudices towards members of this population considered to be "drug-seeking addicts" (McCaffery et al., 2005; McNeil et al., 2014). The result is undertreatment of CNCP among PWUD, which contributes to the erosion of relationships between PWUD suffering from CNCP and physicians (Merril et al., 2002).

A few population-based studies conducted with PWUD have reported a phenomenon of self-medication for pain with substances obtained on the street. According to these studies, this practice could be the consequence of frequent refusals to prescribe analgesics to PWUD suffering from CNCP (Fibbi et al., 2012; Ti et al., 2015; Voon et al., 2015 2014). The rare qualitative studies addressing CNCP among PWUD or methadone patients have confirmed that pain that is insufficiently managed by healthcare providers may lead these people to use illicit substances (Karasz et al., 2004; St. Marie, 2014; Voon et al., 2018). Nonetheless, the real impact of CNCP on the evolution of substance use patterns among PWUD remains uncertain. Indeed, there have been no qualitative studies from the perspective of PWUD suffering from CNCP regarding their substance use. What do PWUD suffering from CNCP seek when they use illicit substances? To what extent does CNCP help explain changes in the quantity and/or the type of substances consumed? The objective of our study is to understand how CNCP and substance use are linked in the daily lives of PWUD suffering from CNCP.

2. Materials and methods

This is a qualitative study involving in-depth semi-structured interviews with PWUD suffering from CNCP conducted in downtown Montreal (Canada). It was designed by an interdisciplinary team composed of researchers from the fields of social sciences and health sciences (substance use and pain). The study was approved by the ethics committee of the Centre Hospitalier de l'Université de Sherbrooke and of the Centre Hospitalier de l'Université de Montréal.

2.1. Eligibility and sampling

The inclusion criteria to participate in the study were 1) to report using illicit opioids and/or cocaine at least once a week in the past three months and 2) to report suffering from physical pain for at least three months. Both cocaine and opioid users were included to encompass a wide range of CNCP experiences among PWUD. The participants also had to be able to speak French, be aged 18 years or over, and be capable of giving written consent for the study. After the analysis of the first interviews, a diversification criterion was introduced in a perspective of progressive sampling (Corbin and Strauss, 2015): a few participants who had used opioids and/or cocaine but had quit more than three months before were recruited, to provide a better understanding of CNCP in cases where substance use decreases or stops.

2.2. Recruitment

Participants were recruited outside clinical environments, so that the population of active substance users who were not in contact with addiction treatment services would be reached. Part of the recruitment was conducted within three community-based harm reduction services working downtown Montreal whose main clientele consisted of people who inject drugs and/or inhale crack. Potential participants were referred to us by caseworkers or peer helpers who identified PWUD suffering from CNCP and suggested to them that they participate in the study. Before each interview, the interviewer (LD) asked brief questions about the duration of the pain and the frequency of drug use, to ascertain that the person satisfied the selection criteria. Another part of the recruitment was conducted among the participants in a prospective cohort study of people who inject drugs (HEPCO), which addresses several health issues, including CNCP. The people who met the selection criteria were identified in the database by a member of the cohort team, who would book an appointment when a person accepted to participate in the study. The participants' written consent was collected before each interview. The participants received CAD$25 for their time.

2.3. Data collection

The interviews were conducted by the first author (LD), a social scientist with several years' experience in qualitative research with PWUD. The guide for semi-structured interviews contained open questions pertaining to the experience and evolution of pain (including pain severity and functional impact), pain management techniques, medical management of pain, and history of substance use. The interviews lasted between 40 and 90 min. They were recorded and transcribed verbatim with de-identification of the people's names and of the locations.

2.4. Data analysis

The interviews were analyzed according to the thematic analysis method (Miles et al., 2014), with Nvivo 9 software. The analysis was performed concomitantly with the data collection. The first author (LD) and the fourth author (NA) double-coded the six first interviews (25%) using an open coding procedure based on the themes in the interview guide. The double coding helped highlight a preliminary set of emerging themes (Berends and Johnston, 2005), which was then enriched iteratively through the analysis of the next interviews conducted by the first author (LD). Memo writing helped in identifying and characterizing variations in the participants' narratives around each theme. Regular discussions between the five authors throughout the analysis process solidified the interpretation of the data and ensured their validity. The interview excerpts cited in this article were professionally translated from French to English. The research team checked all the translations to ensure consistency with the original transcripts.

2.5. Participants' characteristics

A total of 25 participants were recruited from July 2017 to May 2018, 11 in harm reduction services and 14 in the cohort study. There were 10 women and 15 men, aged 27 to 61 years. All but one of them were Caucasian, which matched the population of PWUD frequenting harm reduction services in Montreal and of the cohort study.

Most of the participants were regular substance users (several times a week in significant doses), and more than two-thirds of them consumed several substances. The most used substance was cocaine/crack (14 participants), followed by street opioid medication (11 participants), heroin (8 participants), and amphetamines (six participants). Most of them also consumed cannabis and/or alcohol regularly or occasionally. Ten were being treated for an opioid addiction (methadone or buprenorphine-naloxone), sometimes while using other concomitant substances. Only one participant had access to opioid medication prescribed by a physician for his CNCP, and three had had access to some in the past.

All the participants had been suffering from CNCP for several years (more than 10 years for almost half of them). The pain was localized on various parts of their body (back, knees, legs, stomach, arms, etc.) and

was the result of variable causes, such as accidents, aggressions, pathologies, complications from substance use, or wear and tear on the body from life on the street. Besides CNCP and substance use, the majority of the participants had additional health issues (e.g. HIV, Hepatitis C, mental health disorders), as well as social difficulties. Most lived off social assistance, more than half had experienced homelessness in the past, and two were in a homeless situation at the time of the interview.

3. Findings

3.1. When chronic pain contributes to an intensification of illicit substance use

We did not meet any people who had begun using illicit substances for the purpose of relieving their pain. Many participants had used substances before the onset of their pain or did not report any causal link between these two aspects of their lives, which they conceived as being different from one another. In several cases, however, CNCP had an exacerbating effect on the evolution of the participants' substance use. Pain had thus been the source of an intensification of the use of certain substances. It had contributed to a shift from occasional use to an addiction, especially in the case of opioids:

> That's when I started being addicted, on top of using recreationally, because I've always used drugs, at parties and all that. I'd take it from time to time, but when I got back pain, at night I didn't necessarily feel like taking it for fun, but I'd tell myself, "I'll just take one because my back hurts too much. At least it'll take the pain away." That's how it started. After that, it escalated really fast because it's addictive. (Laure, 27 years old)

The risks of relapse into intensive substance use (not necessarily opioid use) further to the onset of pain can also increase, as illustrated by Eric's case:

> I had abstained for three years and I started using again after my accident. I don't know if it was the pain or boredom, but I started using again, and right away I was injecting cocaine, and I was smoking pot, and… It was immediate. (Eric, 36 years old)

3.2. When chronic pain contributes to distancing from illicit substance use

In other cases, an indirect consequence of CNCP was a reconsideration of substance use. Pain led some participants to distance themselves from the substance use environment, because they felt misunderstood by their peers:

> I don't really have friends, and I like it that way because on the street, it taught me that people, even if you think he's your friend… I talk about my pain to some people, and people don't understand. They always think you're pretending because they see you doing really well at one point and then at some other point, you can't walk anymore. (Bertrand, 38 years old)

For other participants, the pain was so debilitating that it prevented them from leading the same, physically demanding, lifestyle as before. Being unable to muster the energy required to seek, use, and/or sell products, some progressively reduced their investment in drug consumption. Sometimes, CNCP also contributed to a loss of interest in substance use and the associated lifestyles:

> I took coke, and morphine. They are the two drugs that I used to take before. I took some again a few times after my accident [accident at the source of the pain]. But I don't like it anymore. (Richard, 36 years old)

Reconsidering or stopping substance use was generally motivated by multiple factors including CNCP but also ageing and deteriorating health, particularly for those who had experienced homelessness.

3.3. Substance use with multiple, intermingled intentionalities

According to most participants, their first reason for using substances was rarely to physically relieve pain. Most often, they did so for recreational purposes first, or to relieve withdrawal symptoms. However, they described pain relief as a welcome side effect:

> I take heroin really to feel good. It's not to remove the pain. I would be lying if I said it was to remove the pain. It removes the pain. For sure, I have no more pain when I take it. (Julian, 40 years old)

In fact, the recreational dimension, relief from withdrawal symptoms, and relief from physical pain, but also from psychic or emotional sufferings, appeared to be intertwined in many participants' accounts regarding their substance use. French-speaking PWUD often used the polysemous term "*se geler*," which refers both to "getting high" and to "freezing" in the sense of "numbing." The substances used allowed them to get high while also numbing their physical pain and emotions:

> When you get high, you numb the emotions, you numb the pain, you numb the physical, you numb everything (Lyonel, 45 years old)
> I don't feel my pain anymore, when I take coke. It numbs my body. It numbs my mind, but it numbs my body too. (Josiane, 61 years old)

Physical and psychic pain were often interlinked in the people's accounts. Substances were sometimes used not for physical relief but to "forget" the pain, in a form of mental rather than physical relief. Using substances helped these participants stop thinking about their pain while under the influence of the substance:

> Sometimes also, it's to forget the time. But, generally, it takes away the pain. When I'm using, it's that I forget it, and I don't hurt. And when I'm not using, that's when I'm in pain. (Jean-Sébastien, 29 years old)

Some participants had doubts about a real physiological effect of substances on their pain, considering that the effect was only mental or psychological:

> When I'm in too much pain, I smoke a joint. It's pretty much my miracle medicine. Maybe it prevents me from thinking about it! [Laughter] Because you can say what you want, I don't think that pot really takes away the pain. I think it's more of an urban legend… (Mathieu, 46 years old)

3.4. When substance use delays awareness of the pain

For several participants, using substances delayed awareness of the pain. In such cases, substance use was mainly recreational or aimed at relieving withdrawal symptoms. Some people discovered their pain only when they cut down or quit using substances. They would then become aware of the presence of pain, but also of the analgesic effects of the products on their body.

> I didn't have back pain until I started on Suboxone®. My back didn't hurt because I was taking substances on top of that. Then, it was when I quit taking them, and I got onto Suboxone®, that's when I went: "Shit, my back hurts!" (Laure, 27 years old)

This situation may also delay the use of health services for pain. Some participants felt the need to consult a physician only several years after the onset of their pain, when they stopped or took a break from using substances.

> Because I'm a former addict, when I took substances, it didn't hurt me. I was addicted to morphine, and to Dilaudid® too, which are two rather strong painkillers. When I took that, I had no pain. It may be connected. Then, I stopped taking that. It hurt, so I went to see my family doctor. (Norbert, 56 years old)

3.5. Using substances to relieve pain: a last resort when faced with a lack of alternatives

Many participants were reluctant to self-medicate for their CNCP using substances bought on the street. Those who had stopped or cut down their substance use were afraid particularly of relapsing into addiction.

> There are days when I'm in so much pain that I would damn well feel like going to get some Dilaudid® on the street, but I don't want to start again. I don't want to sink back. Because the withdrawal was horrific. Pill withdrawal is tough! (Josiane, 61 years old)

Reluctance to relieve pain with street drugs was also present among participants who were using these drugs recreationally. Most of the people we met used illicit substances or street drugs intentionally for relief only when they could find no other satisfactory alternative in the healthcare system. They felt powerless against the intensity of their pain and the physician's lack of consideration towards them:

> I try to self-medicate because, unfortunately, doctors, even though I talk about it, they don't listen. They know I have a history of substance use, that I'm a user. So, they're scared to give me the least bit of anything that might be habit forming. But y'know, I have tried heroin. I've tried several drugs that could help it, and I've never wanted to abuse them specifically because I know what it's like already, on that side. So, I don't want to get into that, in other words, to worsen my situation. (Karine, 36 years old)
>
> I am aware that it's no good, you know, Dilaudid® and all that: you get hooked on that. I quit heroin, not to get hooked on that! I quit methadone too, not to get into that. But at some point, I say to myself: "Damn it, I'm not going to hurt like this until I die." (Mathieu, 46 years old)

4. Discussion

This study has helped provide a better understanding of how CNCP interacts with substance use practices among PWUD. We highlighted several original findings worth discussing: (1) the impact of CNCP on the intensification or reconsideration of substance use; (2) the complex links between pain and various intentionalities of substance use; and (3) the reluctance of many PWUD to use illicit drugs to relieve their pain.

First, the results of this study suggest that CNCP may have a negative impact, but also a positive one sometimes, on the evolution of illicit drug use. In some cases, it is conducive to a shift from occasional to regular use of substances and may cause difficulties with substance use control or perhaps relapses. These results are consistent with those of another study among people being treated with methadone, which showed that intense chronic pain may lead people to restart using illicit drugs combined with their methadone treatment (Karasz et al., 2004). Furthermore, opioid-induced hyperalgesia could lead to a heightened tolerance to opioids (Angst and Clark, 2006) and thus to an increase in the doses needed to achieve pain relief. Moreover, our research shows that in other cases, CNCP may be indirectly involved in distancing from substance use. In these situations, the mechanisms at play would be primarily of a social nature: the reconsideration of substance use seems to be a consequence of stepping back from the world of drugs and the associated lifestyle. Our data on this subject help to explain the results of some quantitative studies reporting a protective effect of chronic pain on the use of non-opioid illicit substances, such as cocaine (Dennis et al., 2015; Kaboré et al., 2018). However, we did not identify a direct link between CNCP and reduced substance use. CNCP may rather be a component of the broader phenomenon by which substance use generally decreases with age (Lopez-Quintero et al., 2011; Vasilenko et al., 2017). Further research is needed to better document the links between these issues.

Second, our study shows that the multiple intentionalities of substance use, which include relief from CNCP, go beyond the mechanical link between consuming substances and seeking relief, previously documented in terms of self-medication for pain (Voon et al., 2014). A few quantitative studies have underscored the fact that withdrawal relief, recreational substance use, and pain relief are not necessarily mutually exclusive (Davis and Johnson, 2008; Roy et al., 2013). In fact, our research highlights the complexity of illicit substance use among PWUD suffering from CNCP, showing that these intentionalities are often simultaneous and even undifferentiated for the person using the drug. Recreational substance use may have the effect of relieving pain without being the primary intention, which may delay PWUD's awareness of the presence of pain. This leads to major consequences for medical training and practice. PWUD with CNCP may not seek medical help because of the relieving effects of recreational substances. Physicians may thus miss health problems that ordinarily cause pain. In addition, physicians' tendency to underestimate PWUD's pain (Baldacchino et al., 2010; Merril et al., 2002) and PWUD's tendency to avoid medical care due to stigma (Dassieu et al., 2019; McNeil et al., 2014; Neale et al., 2007) can lead to delayed pain management and worsening pain. Our findings suggest that primary care physicians should be better educated on the high prevalence of CNCP among PWUD and the importance of assessing it. Furthermore, providing adequate pain screening and management could also help to improve the outcomes of dependence treatment.

Another aspect to consider is that physical pain and psychic suffering may intersect in a person's motivations to consume substances. Several studies have already reported the role of emotional suffering in over-consumption patterns and related harms, such as overdoses (Garcia, 2010; Kerr et al., 2013; Moore, 2004). One study among people using prescribed opioids also showed that seeking relief for emotional distress can increase the risks of becoming dependent on drugs that were prescribed primarily for physical pain (Stumbo et al., 2017). Nevertheless, the authors of these studies consider that physical and emotional relief are two separate intentionalities of substance use. Our findings provide a more complex picture by demonstrating the intersection between both forms of relief in the case of PWUD suffering from CNCP. Consideration of the complexity of substance use highlighted in our study is an important issue both in the field of research and at the clinical level with respect to proposing addiction treatment modalities adapted to PWUD with CNCP. Caregivers should be aware that PWUD's powerlessness to relieve both physical and emotional pain may increase the risk that they will lose control of their substance use. Providing both physical pain relief and psychological support is fundamental to prevent drug related harms. Social work interventions focusing on the improvement of PWUD's living conditions should also be prioritized, since both CNCP and emotional distress often stem from their social deprivation (Moore, 2004).

Finally, our data testify to the reluctance of many PWUD suffering from CNCP to use street substances to relieve pain. PWUD are conscious of the greater risks of overdose and addiction, and they end up turning to these products only after exhausting all other possibilities available through the health system. Prior studies have underscored the fact that there are numerous difficulties in medical pain management for this population (Baldacchino et al., 2010; St. Marie, 2014; Voon et al., 2018). We showed in another paper that a large number of PWUD suffering from CNCP would like to access non-pharmacological alternatives to treat their pain, such as physiotherapy, but these solutions are often not available to them for financial reasons (Dassieu et al., 2019). Improving access to this type of therapeutic modality would be a promising avenue for reducing the risks associated with the use of street substances by PWUD suffering from CNCP. This is even more meaningful in the current context of the opioid crisis, which has led to a political will to reduce opioid prescriptions for CNCP (Busse et al., 2017; Centers for Disease Control and Prevention, 2016).

4.1. Strengths and limitations

To our knowledge, this is the first study pertaining to how the presence of CNCP interacts with substance use patterns among PWUD from their own perspective. The results obtained contribute to advancing the scientific knowledge in the field because they underscore the complexity of the relationship between CNCP and illicit substance use. Furthermore, our findings are of prime importance considering the high prevalence of CNCP among PWUD and the fact that this population is commonly neglected in the health care system when it comes to adequately managing their pain. Additionally, there is a strong likelihood that some of our results (e.g. the blurring between physical pain relief, emotional pain relief, withdrawal relief, and recreational use) can be generalized to a broader population of PWUD who do not suffer from CNCP. Our analysis framework could be used in future studies describing various intentionalities of substance use.

Like any other study, this one has some limitations worth discussing. First, none of the participants in this study developed their addiction after taking medication to relieve pain (e.g., opioid intake after a surgery). Whether our findings apply also to this population merits further investigation. Furthermore, our recruitment procedure enabled us to reach only PWUD who self-identified as chronic pain sufferers.

Moreover, in any qualitative study, the desirability bias must be considered a possibility when people are asked to recount their experiences. Nonetheless, the long duration of the interviews, which allowed relationships of trust to be established between the interviewer and the participants should have reduced this bias. Another important aspect to take into account in qualitative research has to do with scientific validity (Whittemore et al., 2001). In this study, we used various strategies to ensure the reliability and validity of our findings. First, the number of interviews (N = 25) was large enough to generate diversified narratives and lead to data saturation, that is, when new interviews provide no different information from the previous ones. This helped ensure a good representativeness of the plurality of the experiences of PWUD suffering from CNCP. Second, conducting the analysis concomitantly with the data collection was a particularly efficient method of readjusting our first interpretations during the empirical research, thus reinforcing the reliability of the description of the phenomenon being studied. Finally, the involvement of the entire research team in the data analysis helped limit bias during the interpretation.

5. Conclusions

Because of its focus on the link between CNCP and illicit substance use patterns, this study showed the complexity of the relationship between these two issues, which may be explained at least partly by the numerous difficulties encountered by PWUD suffering from CNCP. These difficulties pertain notably to very limited access to medical care for pain. The blatant lack of adequate health resources for pain relief is contributing to the exacerbation of PWUD's situation in terms of the quantity and/or the type of substances used. Health policies and intervention strategies recognizing the complexity of the relationship between substance use and pain must be implemented to, on one hand, improve PWUD's relief from CNCP and, on the other hand, facilitate their addiction rehabilitation. More research among PWUD suffering from CNCP is needed to document their everyday living conditions, in the perspective of developing and implementing health and social interventions adapted to their situation.

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Contributors

Lise Dassieu designed the study, conducted the data collection and data analysis, and drafted the manuscript during her post-doctoral fellowship under the supervision of Élise Roy and Manon Choinière, who both oversaw the study. Jean-Luc Kaboré and Manon Choinière both contributed to the data analysis and manuscript revisions. Nelson Arruda contributed to the data collection and analysis. Élise Roy contributed to the study design, data analysis, and manuscript revisions.

Declaration of Competing Interest

The authors have no conflict of interest to declare.

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