

An exploration of transitioning from smoked to injected *nyaope* use among users in Tshwane district, South Africa: A phenomenological analysis

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ABSTRACT

Nyaope is a powerful opioid mix that is still commonly used in South African communities. People usually smoke it; however, intravenous use is gaining momentum. Injecting the substance increases the risk of getting blood-borne infections. The objective of this study is to explore the experiences and views of individuals who transitioned from smoking to injecting *Nyaope*, to gain an insight into drivers of transitioning and thus inform policy interventions. To understand what influences users to switch from smoking to injecting, a qualitative approach was utilized. Semi-structured, face to face interviews were conducted with 12 *Nyaope* users who met the eligibility criteria: at least 18 years old and above, mentally stable during data collection, and either preparing for rehabilitation, currently in treatment, or attending aftercare sessions after rehabilitation. The results of the study revealed five main drivers of transitions: peer influence, quicker and lasting substance effects, lack of constituents for a smoked joint, development of tolerance, and cost-saving measures. The findings highlight the need for a collaborative effort by key stakeholders to improve harm reduction strategies. While priority should be directed to those who are already injecting the substance, focus needs to be directed to those who are still smoking the substance to lower their chances of transitioning to injectable *Nyaope*.

Key words: *Nyaope, transition, injected substance use, harm reduction*

INTRODUCTION

South Africa is one of the countries that is overwhelmed by a spate of substance use, whose effects are damaging to the users (Bala & Kang'ethe 2021). Although different substances are used, alcohol remain the primary substance of use in South Africa (Probst, Parry, Wittchen & Rehm, 2018). Furthermore, there are a number of narcotic substances that are specific to the local context, among which *Nyaope* is one of them. *Nyaope* is a heroin-based product smoked mixed with cannabis (Harker et al, 2020), but it can also be injected.

According to Tetarwal et al. (2019), *Nyaope* has become one of the substances associated with severe health and community consequences in South Africa, especially in Gauteng Province. While literature suggests that *Nyaope* originated in 2000 from two townships situated in Pretoria (Gauteng Province), namely Mamelodi and Soshanguve (Mokwena, 2016, Tetarwal et al., 2019), various studies suggest that the substance is prevalent in various townships in different provinces (Mokwena & Huma, 2014; Mokwena ,2016; Nevhutalu, 2017 and Nkosi, 2017). *Nyaope* is also prevalent in Mozambique, the port of entry for heroin for the South African region, known there as “Whoonga”, (Hanlon, 2018).

The name “*Nyaope*” is a Tswana name that means (*MishMash*) or something that is worthless (Monyakane, 2018). *Nyaope* severely affects the cognitive functioning and mental health of the active user (Monyakane, 2018). The use of *Nyaope* results in feelings of excitement and ecstasy. The duration of the effect of *Nyaope* is subject to habituation and quickly wears off, compelling the user to seek another dose (Department of Justice & Constitutional Development, 2014). *Nyaope* is a substance that has been reported as highly physiologically addictive (Mthembu et al, 2018). This is due to the interactions of the different substances found in the *Nyaope* concoction (Mokwena, 2016).

Besides the base of heroin, the actual content of *Nyaope* varies. Charlton et al (2019) indicate that *Nyaope* can consist of crystal methamphetamine, rat poison, detergent powder, crushed HIV antiretroviral medication (ARVs), battery acid, third-grade heroin, pool cleaner, and milk powder. Khine et al (2015) describe *Nyaope* as a brown powder mixture with sand, soil, and in some instances, cement powder whose aim is to disguise the white powder of the substance. These authors collected samples of *Nyaope* from various sources in 12 townships of the Gauteng Province and found caffeine and several substances such as codeine, opiates, morphine, heroin, and methyl-dioxy amphetamine (MDA) consistently present. In some samples, coalescent agents (e.g., citroflex) and antiretrovirals (e.g., zidovudine) were also detected (Khine et al., 2015). Components such as heroin, crystal methamphetamine, and methyl-dioxy amphetamine can be used by smoking, but the active agents are perceived to be stronger when injected. Shifting methods of use is not uncommon. For other substances, such as crystal methamphetamine, there is evidence from different global

contexts that users initially engage with the substance via inhalation (smoking) but move towards injection substance use as this modularity is being perceived to deliver faster or more intense effects of the substance (Wood et al, 2008). Thus, it is not unreasonable to assume that similar trajectories are in place for *Nyaope*.

Originally, *Nyaope* was sold in a powder form and smoked by rolling it with cannabis (Mokwena, 2016). Scientific literature highlights a growing trend of dissolving *Nyaope* in water and injecting it right into the veins of the users (Fernandes & Mokwena, 2021). This method greatly exposes users to bloodborne infections, including HIV/AIDS due to use of non-sterile injections. In South Africa, it is estimated that as of 2025, 8.15 million people (approximately 12.9% of the overall population) are living with HIV (Statistics South Africa, 2025). While HIV/AIDS is a major health burden in the country, *Nyaope* injecting will heighten the problem. More recently, data reveals that active users employ the so-called “Bluetooth” method to get high, due to the unavailability of funds to buy the dose (Phakgadi, 2017). The Bluetooth method is a process whereby a user injects *Nyaope*-laced blood from another *Nyaope* user who is already high into his/her own arm to get high too (Charlton et al). Mahopo (2018) reported that almost half of the injecting substance users in Tshwane are HIV positive whereas more than 90% of them acquire hepatitis. Considering the ongoing practices of injecting this substance as well as the bluetoothing method, it is highly likely that this proportion may have been increasing.

Given the results of the studies mentioned above, it is important to track the paths of people who use the heroin-based substance, *Nyaope*, intravenously. This is crucial due to the increased health risks of HIV and Hepatitis C and the resulting burdens on society (e.g., unsafety, crime and health care costs). The present study aims to gain a deeper understanding of the experiences of users who switched from smoking to injecting *Nyaope*. It will explore the different factors that influence this change. The findings can inform targeted harm reduction strategies for people who inject *Nyaope*.

METHODOLOGY

A qualitative approach using individual interviews was adopted for this study, as it allows the researcher to capture how participants make sense of their experiences (Terr Blanche et al, 2006). The participants were recruited from two rehabilitation centres in Tshwane. The centres assisted the researcher by providing a list of all *Nyaope* users under their care during the study period. A purposive sampling method was then used to select participants who were available and met the selection criteria during data collection. To be eligible for participation in the study participants had to be 18 years old or above. Furthermore, the participants had to meet the following criteria:

1. Current users who were undergoing rehabilitation.
2. Ex-users who had completed the prescribed rehabilitation programme and were attending after care sessions.
3. Pre-rehabilitate users who were in the preparation phase for commencing with rehabilitation programme.
4. Participants should be mentally stable i.e. the participants should be able to understand the study and its objective, provide consent and meaningfully participate in the study. In essence, participants should be mentally fit to engage in a meaningful manner.

The sample of this study comprised of 12 participants whose ages ranged from 20-41 years. In terms of the participants' gender, the majority of them were males (8) with only four (4) female participants. All the participants initially smoked the substance and transitioned to injecting. The participants were mentally stable and successfully completed the prescribed period of rehabilitation (ex-users attending aftercare sessions), were undergoing rehabilitation (users), or those who were still in the process of being prepared for the rehabilitation (users who were at the pre-rehabilitation stage). Considering that the researcher was not a qualified mental health professional to conduct an assessment to determine the mental health status of the participants, she relied on the rehabilitation staff, to select only the participants who met all the selection criteria. Of the 12 participants, only one reported to have been employed, while all the participants were neither studying nor employed. Some of them reported to have dropped out of secondary education while others dropped out of tertiary institutions.

DATA COLLECTION

A semi-structured interview guide, which mainly contained open-ended questions, was developed for data collection. Before developing the interview questions, the researcher thoroughly reviewed the available literature, which provided further insight into the issues to be covered in the interview guide. The interview guide contained three main questions that documented the participants' experiences influencing the transition. The first core question explored both personal and external factors that influenced the transition from smoking to injecting *Nyaoe*. The second core question addressed the injected related practices (including veins used for injecting and access needles) and awareness of consequences thereof. The third question dealt with how the participants cope with withdrawal symptoms during the absence of the required doses. This also solicited alternative practices such as the blue toothing process. The open-ended questions assisted the researcher to probe more information as the participants were giving their narratives.

The individual interviews took place during the time that was arranged by the centres to ensure that these did not interfere with the services that the participants had to receive, especially those who were in-patients and needed to attend various activities including therapy. Data collection took place in two phases, with the first set of interviews conducted in June/July 2021. The second set of interviews was conducted in November 2021. This is because there were no female participants who met the criteria in June/July 2021, hence the second set of interviews were conducted in November 2021. Participants were informed of the study's purpose in advance and were asked to sign consent forms to participate in the interviews.

Considering the vulnerability of *Nyaope* users, the researcher prioritized their mental and emotional well-being throughout data collection. Only individuals who were considered mentally stable by the rehabilitation staff were interviewed. While the researcher was vigilant in continuously monitoring participants for signs of mental or emotional discomfort, no instances of emotional discomfort requiring referral for counselling were noted by the rehabilitation staff. It is also important to note that permission to use a tape recorder during the interviews was sought and obtained from all participants. On average, each interview lasted 45-60 minutes, with the longest interview lasting approximately 1 hour and 10 minutes. The interviews were conducted face-to-face with each participant, while the researcher also took some observation notes during the interviews.

DATA ANALYSIS

Considering that the interviews were conducted in various common local languages, i.e. Setswana, Xitsonga and Isizulu, the audio-recorded transcripts were transcribed verbatim from these languages to English by the researcher, with the assistance of language experts. Furthermore, the notes that the researcher took during the interviews were particularly useful during transcription, as they provided additional context. An inductive, phenomenological approach was used to make sense of the data. The phenomenological approach aims to make a detailed exploration of how participants themselves interpret their world (both personal and social). Central to the analysis process is the meaning held by participants regarding particular experiences, states, and events (Smith et al, 2009). This approach is most relevant in the current study as it examines the participants' world in detail as well as attempting to explore personal experiences, and also the individual's perception of himself/herself (Smith et al, 2009). The following steps were followed during data analysis:

1. Each transcript was read numerous times to identify significant and interesting accounts of the participants' narratives. By reading the transcripts and listening to the audio recordings several times, the researcher acquired a holistic understanding of the participants' expressions. The researcher's observations during data collection also provided insights into the data.

2. The researcher then identified emergent themes from the initial notes that were made in the first step. This was done to ensure that the themes correctly capture the participants' experiences, as detailed in the notes.
3. The next stage involved identifying connections between the themes and clustering them together based on their conceptual similarities. In this stage, some information that was redundant was eliminated and consequently, only three main themes emerged from the data, with various sub-themes.
4. Finally, a narrative account of each theme was described, supplementing them with the relevant extracts from the participants. This process was later followed by a discussion, relating findings to scientific literature that exist in the phenomenon under study.

METHODOLOGICAL LIMITATIONS

This study was only limited to two rehabilitation centres in Tshwane and as such, the results cannot be generalized to the whole population of injecting *Nyaope* users. However, given the local character of the use in the Gauteng province, this can also be seen as a strength of ecological validity. Our sample size is on the small end, but it needs to be acknowledged that this population is not often willing to disclose their substance use practices.

It is also important to note that the gender distribution was not even i.e. there were fewer female participants. Consequently, it made it difficult to observe the gender-based variations that influences the transition.

ETHICAL CONSIDERATIONS

Ethical clearance to conduct the study was requested and obtained from the Maastricht University Ethics Review Committee Psychology and Neuroscience (ERCPN-188_10_02_2018_S61). Thereafter, the researcher also sought and received permission (from Gauteng Provincial Government) to gain access to the Fabian and Florence (FF) Ribeiro rehabilitation centre, which is owned and funded by the Gauteng Provincial Government. As a result of this approval, the researcher was given permission to conduct interviews at the FF Ribeiro rehabilitation centre. For the centre which was staffed by a non-profit organisation, permission was requested from the managers of the non-profit organisation, and the researcher was allowed to access and interview *Nyaope* users (who were in the process of being prepared for rehabilitation sessions) and ex-*Nyaope* users who attended after-care sessions. The researcher (lead author) relied on the assessment of the rehabilitation facility to access only participants who were mentally and emotionally stable so that they will be able to understand the study and all its procedures. The researcher confirms that all the participants who took part in the interviews demonstrated adequate cognitive clarity and orientation and therefore were deemed eligible to provide informed consent to participate.

RESULTS AND DISCUSSION

The study sets out to explore the factors that influence *Nyaope* users to move from smoking *Nyaope* to injecting it. There are three main themes that emerged from the data, i.e. factors that influenced users to transition from smoking to injecting *Nyaope*, veins used for intravenous access and coping with withdrawals. Below is a description and discussion of the three themes and underlying sub-themes.

Theme 1: Factors influencing transitioning from smoking to injecting *Nyaope*

A total of five sub-themes were identified from the data in the context of intravenous use (referred to as “bluetoothing” or “spiking” in the terminology of the users). Users of this substance use the term “spiking” to refer to inserting the needle into their bodies. The five sub-themes were, hanging around with injecting peers, quick and lasting effects, lack of constituents for smoked joints, development of tolerance, and cost-saving measures.

Hanging with injecting peers

The findings illustrate that the users are influenced by other users with whom they socialize with, who have already moved from smoking to injecting the substance. This aspect creates a strong incentive for the participants, as otherwise, they will be unable to get help during withdrawal effects, since the smoked joint will not be available among their injecting peers. The narratives below support this aspect:

“How I came to spike, okay I stay in Mamelodi, I then decided to visit my friend in Mabopane and when I arrived in Mabopane, I only discovered that they are no longer smoking through a joint and the joint was not there so, I was then compelled to spike” (Participant 10, male, 41 years).

“Because I saw other people injecting themselves then I just thought let me try it as well, so that I can get to experience how it feels” (Participant 4, female, 35 years).

The researchers also found evidence of social networks of injecting users being very supportive of fellow users who would like to start injecting the substance. Initially, the injecting users would inject these first timers while in the process they orientate them so that they would be able to inject it themselves going forward. The participants’ responses reflect the importance of the social circle and its strong influence on fellow users to the culture of injecting the substance. These findings dovetail nicely with the results of Lefoka and Netangaheni (2022), Masombuka (2013) and Tyree et al (2020) who also found peer pressure effects of use modalities. From a theoretical perspective, the findings align with the Social Cognitive Theory by Bandura (1977) which suggests that people learn both behaviors and cognitive strategies by watching and imitating other people’s actions (Al-Thani & Ahmad, 2025).

Quick and lasting effects

Several of the participants reported that injected *Nyaope* produces faster and a more sustained effect than smoking, which is the central motivation for transitioning to injection. This is reflected in one of the participants' accounts who explained that "*I needed something that will be fast because the one that is smoked is slow and you might need three or four hits, with the spiked one, I only inject one bag*" (Participant 8, female, 23 years). The long duration of action was also commented on by other respondents, for whom one dose kept them in maintenance and enabled them to function for hours free from any withdrawal setting in. The quotation below further supports this finding:

"...like if I inject one packet, I can go and hustle for the whole day. It gives me an opportunity to hustle without withdrawals" (Participant 3, male, 37 years).

These results reflect a pattern identified in previous qualitative research on *Nyaope* use and on the lived experiences of users. Lefoka and Netangaheni (2022) also found that injecting *Nyaope* gives immediate results, and the high stays much longer relative to the one obtained when smoked. These findings converge with other more general research into transitions in substance use, which has demonstrated that users' preferences are largely formed by the immediate as well as long lasting effects of the substance. Those who choose injecting over smoking often do so because they think it might have certain benefits. Such an interpretation of the effects of the substance is supported by Tuchman (2015), and resonated in Lefoka & Netangaheni's 2022 work, too.

Lack of constituents for a smoked joint

According to the participants' description, a smoked joint consists of three components i.e. *Nyaope* powder, cannabis (dagga) and rizla rolling paper, and all the three are essential. By comparison, the recipe for preparing an injected use is much "simpler" as it only requires *Nyaope* powder and water. Therefore, the participants perceived injected use to be an easier method that could be modified when certain traditional materials for smoked joints were not readily available. It also emerged during the interviews that the participants disregarded potential health risks and for them, their immediate need for the substance outweighed concerns about the safety of the syringes that are used during injecting. The excerpts below from the participants further substantiate these findings:

"...there were times when I did not have dagga and the friends were already spiking then and I also had to spike". (Participant 6, male, 23 years).

"I found that I ran short of dagga. I could not have spent a sleepless night..., then I requested that guy to spike me" (Participant 11, Male, 32 years).

Scientific literature, mostly highlight the social and psychological factors but rarely mention material constraints in preparing a smoked *Nyaope* joint. This novel finding offers a significant contribution to the existing *Nyaope* scholarship. Evidence found from this study suggests that transition to injection is not solely motivated by the quest for more intense but out of necessity when key ingredients for smoking are not available.

Development of tolerance

Several participants reported that prolonged use of *Nyaope* led to reduced noticeable effects, indicating the development of tolerance. Since the smoked joint no longer produces the desired sensations, individuals turn to injecting it to achieve a stronger and quicker high. This shift shows that changes in consumption practices emanate from the need to counteract the reduced effectiveness of the smoked form. The participants' accounts below illustrate this process for people who inject *Nyaope*:

"I was no longer feeling it indeed. I didn't feel that dizziness, being high you see, I felt like I was just wasting money". (Participant 9, male, 34 years).

".... I ended up not smoking it but started spiking because I was no longer feeling it through smoking" (Participant 1, male, 35 years).

Previous studies on addiction show how tolerance builds over time. Users physically adjust to a substance, often changing how they use it by taking larger doses or switching methods. For instance, Morare et al (2025) note that as *Nyaope*'s first rush fades away, users often increase or modify how much they take. Again, this trend aligns with Lefoka and Netangaheni's (2022) findings, which show that the desire for stronger and longer highs leads users to switch to injecting.

Cost saving measure

The findings of this study highlight that economic burdens significantly influence the shift from smoking to injecting *Nyaope*. It was mentioned by participants that smoking demands several joints per day to maintain the desired high. As a result, the daily cost becomes significantly higher compared to injecting. The participants indicated that a single dose or bag of *Nyaope* cost between €1.56 and €2.09 in 2021 (approximately R30–40), which implies that the cost of sustaining a smoked habit (with multiple joints per day) could reach €6.24–8.36 (R120–160). Compared to smoking, injecting requires one bag only and thus offers financial savings. One of the participants illustrated these economic estimates by saying that *"...you might need three or four hits, with the spike one I only inject one bag"* (Participant 12, female, 21 years).

These findings show that dependence is not only pharmacological but also shaped deeply by the socio-economic realities of the users. Shifting to injecting reflects that users adapt to a route of administration which is economically sustainable. In their study among female Nyaope users, Lefoka and Netangaheni (2022) noted that cost effectiveness was also a factor in women who moved from smoking to injection, as it produces a more sustained high with less substance. It is therefore evident that the injected dose is perceived to be far cheaper compared to the dose needed for smoking. Nonetheless, this transition increases health risks since injecting is associated with a greater potential of harm, including overdose and infections.

Theme 2: Veins used for intravenous access

Although the participants in this study revealed that they mostly relied on the veins that are found in their arms, it was also made clear that repeated use of those veins led to vein collapse. This results in them using alternative, deeper veins, including veins found on the neck. One participant noted, “...when you start to spike, they disappear. I don’t want to lie, in my case instead of pricking on my number one (meaning male reproductive organ) ... I would prick myself on my buttock” (Participant 1, male, 35 years). One of the participants corroborated this aspect when he said “I did not have any more veins sister. I was also spiking here (participant pointing at his neck), straight on the pulse” (Participant 9, male, 34 years). Missed shots were also reported by the participants as one of the devastations associated with injecting the substance. Some of the participants reported having experienced swelling, abscesses and rotting flesh due to missed shots. Furthermore, the findings highlighted that some of the participants are hesitant to seek medical treatment as they fear being overcome by withdrawal symptoms. These narratives from the participants demonstrate how the participants have normalized the health risks where avoiding withdrawal is prioritised as opposed to worries of potential harm.

The findings describe various physiological consequences where users face health issues such as sclerosis, thrombosis and vein collapse. The participants in this study also reported episodes of fainting and collapsing, which were associated with their inability of substance tolerance. It is clear that there is a thin line between intoxication and medical consequences. The practice of intravenous administration of the substance as well as the consequences associated with injection are well documented by Lefoka & Netangaheni (2025) and Lefoka & Netangaheni (2021).

Syringe access

While the majority of the participants acknowledged sharing needles, several other sources were mentioned where the participants sourced their needles. The sources that were mainly cited during interviews included people living with diabetes, street vendors who are not authorised to sell syringes and further introduce other health risks. One of the participants

illustrated that “...like in my case I don’t buy syringes, my mother is diabetic and the woman next door is diabetic too and they just give me the syringes and even gents used to come and buy from me” (Participant 10, male, 41 years). Some of the participants reported that the South African National Council on Alcoholism and Drug Dependence (SANCA) also provide sterile needles to users, as part of harm reduction campaign. However, participants reported that some users turn this into a hustling strategy i.e. they exchange the syringes with fellow users in exchange of the hit. One of the participants said “Isn’t it we hustle in different ways, so some people would volunteer to go and exchange needles for us and when they return, you also share with them Nyaope” (Participant 11, male, 32 years). This practice weakens the effectiveness of such harm reduction strategies.

Multiple studies reflect that people who inject *Nyaope* most often share needles, in a desperation of avoiding withdrawal effects. Ratshisusu et al (2024) emphasize that *Nyaope* users are highly susceptible to blood-borne infections due to unsafe contaminated needle sharing. Although some participants in this study reported that they obtain needles from diabetics, no published research reflecting diabetics as a common source of injecting gear for *Nyaope* users. Scientific research records that users rely on their friends and other harm reduction programmes (Varshney et al, 2023; Lefoka & Netangaheni, 2021). The findings highlighted that the participants acknowledged the dangers associated with sharing needles. Nonetheless, this did not stop them from sharing the needles, which shows the strength of dependence and normalizing any other form of harm.

Theme 3: Coping with withdrawals

In this study, the participants conceded that the most difficult experience they face as users of *Nyaope* concerns severe physical pains when they do not have the dose. Regardless of this, their account reflected a strong network of support when one member did not have the dose. Through this supportive circle, members will share their doses to prevent or mitigate withdrawal symptoms. Again, users admitted that they engage in various activities, including stealing household items, in pursuit of money to buy the substance. The study also noted that the participants were familiar with the bluetooth practice, however, none of them acknowledged having received the blood themselves except to being a donor. One participant mentioned that *“I usually see them do it at the taxi rank...because they don’t have anything. I will spike my Nyaope, then I will withdraw my blood, I should not re-insert the blood, I then take the blood and give to another person because it will be containing Nyaope”* (Participant 8, female, 24 years). Although the participants were reluctant to admit to receiving blood, this could reflect fear of judgment and stigma. Participants perceived bluetooth as one of the effective methods to get rid of withdrawal effects when one lacks the dose. This dangerous version of sharing needles increases the risks of HIV and Hepatitis infections (Zanoni et al, 2023).

CONCLUSIONS AND RECOMMENDATIONS

This study sets out to understand why *Nyaope* users switch from smoking to injecting the substance. The findings highlighted several reasons including challenges with finances, pressure from friends, and the need for quick and lasting effects. These insights align with the research goal squarely, revealing how individual choices and social pressure influence how *Nyaope* users form their substance use patterns. When users transition from smoking to injecting the substance, it has implications on public health as infection rates increase. This is because infections such as HIV, hepatitis C, and other blood-borne diseases spread fast through needle sharing. If the problems do not receive immediate attention, the findings highlight that more users could suffer the same harm. Aside from the personal health risks, transition to injecting also affects communities, as there will be a need for more rehabilitation centers and thus straining South Africa's already laden public health system.

It is fundamental to increase harm-reduction efforts to provide easy access to needle and syringe programs, offer clear guidance on safe injections practices, and deliver timely education for both those who already inject and those who continue to smoke the substance. Policymakers should also focus on local awareness campaigns that dispel myths about injecting and promote safer habits among users. Furthermore, tailored programs for young people and outreach led by peers could aid in counteracting the social and economic factors that influence people to move to injecting. In collaboration with the Department of Health and the community at large, youth could be targeted in the context of harm reduction programmes. Outreach activities in *Nyaope* use hotspots could distribute clean needles to users. If led by local young people and supported by the community, stigma surrounding the injecting *Nyaope* use could be reduced. Users might then be less reluctant to openly access sterile needles and thus minimizing chances of infectious diseases. For those who are still smoking the substance, campaigns should robustly focus on highlighting the dangers of injecting the substance while providing easy access to rehabilitation programmes. The study findings highlight an urgent need to connect harm-reduction efforts, treatment, and policy to prevent an increase in injection-related harm among *Nyaope* users.

In addition, it is important for future research to focus on blue-toothing amongst *Nyaope* users' population. In this case, more qualitative and quantitative studies providing more in-depth information and focusing on different settings is recommended. Considering the limitations of this study, i.e. uneven gender distribution, future studies should also investigate the gender-specific dynamics to determine other structural factors across genders to make comparisons.

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