



Risky Behaviour among Intravenous Drug Users (IDUs) with Respect to the Self-management of Needle-inflicted Wounds, Damaged Veins, and Limb Ulcers: A Comparative Descriptive Review between South Africa and China

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ABSTRACT Intravenous drug users are exposed to great risk, not only through exposure to HIV infection, but also as a consequence of attempting to treat the injuries which result from injecting drugs. This paper takes the form of a review of relevant available literature, in order to assess the risks to which IDUs expose themselves and suggest possible measures for containing the hazards which are inherent in self-medication. The findings of the review revealed that stigmatisation, isolation, discrimination, and the criminalisation of possession of drugs all influence the inclination of IDUs to avoid seeking medical treatment. The researchers believe that policies pertaining to the use of illicit drugs should be restructured or reformulated to prioritise the rights and well-being of IDUs and encourage them to seek primary healthcare treatment, as opposed to attempting to tackle the social problem of intravenous drug abuse through punitive law enforcement.

INTRODUCTION

The use of intravenous drugs has become widespread throughout the world and represents a serious threat to the public health of countries as geopolitically diverse as South Africa and China. In 2016, the World Health Organisation (WHO) estimated that fifteen percent of the population of South Africa abused drugs and that the use of heroin was escalating, particularly in Cape Town. In 2011, the Chinese National Institute on Drug Dependence and the National Drug Abuse Surveillance Centre announced that an estimated 1.794 million people were registered drug users in China, of whom more than 1 million used heroin, with a significant proportion of 75.5 percent being intravenous users. The work of Parry et al. (2017) confirmed that there was a positive correlation between intravenous drug abuse and the spread of HIV in South Africa. Chen et al. (2018) also characterised the re-emergence of widespread abuse of illicit drugs in China as constituting a significant public health problem, particularly the use of intravenous drugs, which has played a leading role in the spread of HIV infection. The phenomenon of addicts sharing needles has been documented for decades. In response to the implications

for the spread of HIV infection, both South Africa and China have begun to implement methadone maintenance and needle exchange programmes (Li et al. 2010). Although local authorities have embarked upon needle and syringe programmes (NSPs) in China, particularly in the province of Yunnan, where the abuse of illicit drugs is rampant and the first outbreak of HIV among Chinese IDUs was reported (Luo et al. 2015; Chen et al. 2018), in South Africa NSPs are generally neglected and tend to remain unimplemented. Although most studies which have been conducted among intravenous drug users have inevitably endeavoured to detect correlations between intravenous drug abuse and the spread of HIV infection, some studies have been primarily concerned with the consequences and implications of the intravenous administration of drugs. By contrast, although others have documented the common practice of self-managing wounds which result from injecting drugs, many have tended to overlook the question of why intravenous users of narcotics choose to treat their own wounds, instead of seeking professional medical treatment. Consequently, it became evident that research to determine why many IDUs choose self-management, a decision which places their lives at great risk, was an urgent priority.

Many intravenous drug users choose to inject drugs into areas of their lower limbs, where veins are likely to surface. A growing body of literature suggests that intravenous drug users are at a high risk of lower limb ulceration as a consequence of incorrect administration of drugs to their veins, with long-term consequences such as severe damage to the superficial veins and thrombophlebitis (Heit 2015). As repeated trauma is likely to cause the veins to disappear, IDUs are likely to suffer from deep venous damage as a consequence of deep vein thrombosis. According to Kelechi et al. (2015) deep venous damage is the source of chronic venous hypertension, which results in the development of venous limb ulceration. It is also well known from research which has been conducted that when users are unable to locate veins, they resort to injecting drugs subcutaneously, by means of a technique which is known colloquially as 'skin-popping'. As the drugs are absorbed by the skin tissues, abscesses frequently form, which, in turn, can subsequently result in open wounds (Kelechi et al. 2015). In addition, Coull (2016) maintains that the use of unclean equipment, the common practice of sharing used needles, and the quality and cleanliness of the drugs which are injected could also cause abscesses and limb ulcers. She explains that long-term users are likely to suffer from sclerosis and the formation of blood clots in the most superficial veins.

Research Objectives

- ♦ To assess risk behaviour with respect to specific populations of IDUs in South Africa and China.
- ♦ To suggest possible measures which could be taken to mitigate risky behaviour among populations of IDUs.

Conceptual Framework

There is sufficient evidence to suggest that interventions which are developed in accordance with sound theoretical frameworks are generally more effective than those which lack an adequate theoretical basis. Tashakkori and Teddlie (2010) maintain that it is essential to understand both why and how certain types of behaviour occur and the contexts in which they occur. Consequently, interventions to encour-

age behaviour which promotes health, such as taking adequate care of wounds which are sustained as a consequence of injecting drugs, need to be well designed, on the basis of an adequate understanding of relevant theories pertaining to behavioural change and an ability to apply them skilfully (Davis et al. 2015). The theoretical basis for this study was provided by social cognitive theory, which was advanced by Albert Bandura as an extension of his social learning theory. Social cognitive theory holds that behavioural change is determined by environmental, personal, and behavioural factors. Accordingly, it was of great relevance to acquire an in-depth understanding of the three categories of factors in the specific context of IDUs, in order to effect behavioural changes through the development and implementation of effective interventions with respect to the self-management of wounds which result from injecting drugs.

Statement of the Problem

Throughout the world, intravenous drug users have contributed significantly to the spread of communicable infections such as HIV and hepatitis. In addition, they have continued to engage in risky behaviour by attempting to self-manage the wounds, abscesses, and leg ulcers which result from injecting drugs (Roose et al. 2009). The findings of several studies which have been conducted among intravenous drug users have revealed that high percentages of the participants, of the order of ninety-three percent in the case of one, reported that they self-managed their wounds, often by taking antibiotics which have been obtained without a doctor's prescription (Roose et al. 2009; Li et al. 2018). Relevant available literature also suggests that self-management of wounds is common among South African intravenous users (Kapp 2016). It has also been found that the practice of injecting drugs is rampant, with an estimated eighty-nine percent of users using sharing needles (Plüddemann et al. 2008). Consequently, populations of intravenous users in South Africa are also highly likely to attempt to self-manage the wounds and other injuries which they acquire as a consequence of injecting drugs, which, in turn, can result in the injuries becoming severely infected, with consequences which can range from lengthy periods of hospitalisation, to limb

amputation and even death. It is logical to conclude that the practice of self-management of wounds and vein maintenance among this population represents risky behaviour which endangers the lives of those who practise it. Consequently, it is imperative to develop solutions which enable the consequences of the risky behaviour of IDUs to be contained in an optimal manner.

RESEARCH METHODOLOGY

A research methodology is characterised by Creswell and Creswell (2017) as a set of procedures and techniques which researchers use to carry out particular research studies. In the case of this paper, the researchers made use of a systematic literature review in order to determine the nature of the types of risky behaviour in which intravenous drug users engage. According to De Vos et al. (2011), a systematic literature review entails identifying existing literature pertaining to the phenomenon which is being investigated through the use of specific key terms in searches. Relevant literature was collected from journal databases, e-books, and specific professional websites by means of key words such as 'abscess', 'limb ulcers', 'intravenous drug use', 'discrimination', and 'isolation'. The key words 'South Africa' and 'China' were used in each search, in order to ensure the relevance of the information to the study. De Vos et al. (2011) maintain that systematic reviews have particular advantages and disadvantages as research methods. The advantages with respect to this study included cost effectiveness, the saving of time owing to not needing to comply with formalities such as obtaining ethical approval, as the study did not entail direct interactions with human participants, and also the significantly shorter duration of the study than would have been possible if other research methods had been used. By contrast, the disadvantages for the researchers as the source of information relies only on published materials which can potentially limit the extent to which in-depth information can be obtained, but comparison with that which is obtained from studies in which other research methods are used. This potential drawback was overcome to the satisfaction of the researchers by the quality of the studies which were consulted in order to gauge the extent to which intravenous users of drugs en-

gaged in the risky behaviour in which they were interested for the purposes of the paper.

OBSERVATIONS AND DISCUSSION

Reasons for which Users Choose to Inject Drugs

Illicit drugs such as cocaine, methamphetamine, heroin, and *nyaope*, which enjoys great popularity in South Africa at present, are usually more expensive than recreational drugs such as *dagga*, as cannabis is known in South Africa. Recently the possession and cultivation of *dagga* for private use has been decriminalised in South Africa. Although *dagga* is usually smoked when it is used as a recreational drug, there is substantial evidence to demonstrate that users of drugs such as heroin and *nyaope* generally prefer to administer them intravenously because they perceive it to be cost effective to do so, as a relatively small amount of a drug can be administered to a number of users and provide the same effect to each (Haysom et al. 2018). In addition, many intravenous drug users prefer to inject owing to the swift action of drugs which are introduced directly into the systems of users and the effects are perceived to last longer than those which are obtained from methods of administration such as smoking and sniffing (Baloyi 2018). Although the phenomenon which has become known as 'Bluetooth' does not appear to be common in China however, its proliferation has reached alarming proportions in South Africa. Adherents of the practice inject the blood of other addicts into their veins in the belief that they experience the same effects as the person who injected the drug.

By contrast, medical evidence suggests that the 'Bluetooth' injections have a placebo effect only and that it would be impossible for users to experience the same effects as a user who had injected the drug merely by injecting his or her blood into themselves (Sara 2017). According to Baloyi (2018), medical researchers have maintained that injecting the blood of someone who had injected the drug would result in an insufficient level of it in the blood of a person who injects the blood to enable him or her to experience the effects of the drug. Consequently, users who inject the blood of others place their lives at grave risk, without even experiencing the coveted effects of the drugs concerned.

Prevalence of Wounds, Abscesses, and Limb Ulcers

It is evident from the findings of relevant research that chronic wounds such as leg ulcers and abscesses are not confined to intravenous drug users and that people who suffer chronic illness such as diabetes mellitus are also likely to develop leg ulcers, although abscesses, wounds and limb ulcers are common among addicts who inject drugs (Roose et al. 2009; Smith et al. 2015). It has been suggested that behavioural and biological patterns are likely to be causal factors in the high prevalence of these types of wounds among injecting addicts. A report of the World Health Organisation (2008) reveals that an estimated eighty percent of women in China who inject drugs, particularly in the province of Guangxi, have histories of abscesses and other wounds which stem from the practice. Although there has been a gradual increase in the use of heroin in South Africa, data pertaining to its intravenous use is relatively scarce. From the relatively small body of available literature, the findings of a study which was conducted by Dada et al. (2018) revealed that in the region twenty-eight percent of the addicts who had been admitted to a treatment centre in Cape Town had histories of injecting heroin and abscesses and other wounds which stemmed primarily from the intravenous administration of the drug. It is also pertinent to acknowledge that the group of twenty-eight percent of the addicts who had been admitted to the centre represented only those who had sought treatment and did not reflect the actual size of the epidemic proportions which the use of heroin in South Africa now assumes. According to Smith et al. (2015), intravenous users are likely to inject into the same anatomical sites repeatedly, which increases the risk of tissue and venous trauma. In addition, the trauma is often further compounded by their tendency to inject in contaminated environments and to use unsterilised equipment, which frequently results in bacterial infections and the eventual development of abscesses.

The formation of abscesses is frequently followed by that of large limb ulcers among injecting drug users (Williams and Abbey 2006; Larney et al. 2017). Although prevalence of limb ulcers among injecting drug users are not well documented for either China or South Africa,

there is a considerable amount of evidence to confirm the prevalence of inflammation of the veins, thromboses, and clots in the venous systems among intravenous drug users. Consequently, it may be assumed that the prevalence of limb ulceration among intravenous users of drugs is particularly high, as the conditions from which they stem, namely, wounds and abscesses, are highly prevalent. As the long-term consequences of limb ulcers for injecting addicts are high rates of morbidity and mortality, the bilateral educational relationship between China and South Africa could provide an ideal basis for conducting extensive research in both countries to develop new strategies and to upgrade existing ones to reduce the suffering of these severely marginalised segments of the populations of both countries.

Self-management of Wounds, Vein Maintenance, and Treatment of Abscesses

Relevant literature from diverse sources confirms that injecting addicts are likely to attempt to treat their wounds, damaged veins, abscesses, and track marks, as opposed to seeking professional treatment and assistance. The findings of a study which was conducted among a population of intravenous drug users revealed that sixty percent of the participants had suffered from abscesses which they had treated themselves (Pollini et al. 2010). The most common method of treatment was to apply either a heated or an unheated aloe vera leaf to the affected area (Pollini et al. 2010). Other methods of treatment include draining the wound with a syringe or a knife (Roose et al. 2009). Smith et al. (2015), maintain that as intravenous drug users tend to shy away from seeking primary healthcare treatment, they often attempt to manage their own wounds, a practice which entails a high risk of infection.

Although some researchers maintain that intravenous drug users have been known to seek primary healthcare treatment when their wounds are at an early stage of infection, a growing body of evidence suggests that many delay or decline proper treatment (Roose et al. 2009). Although the reasons for declining treatment are not well documented, Takahashi et al. (2007) maintain that there is a complex relationship between social characteristics, types of behaviour with

respect to drug use, and behaviour in relation to seeking healthcare treatment. In addition, although it has been reported that injecting drug users often acquire antibiotics without medical prescriptions and lance their own abscesses, relatively little is known about how they attempt to treat wounds which are at a more advanced stage of infection, such as limb ulcers, other than attempting to drain them with syringes, a practice which is unlikely to result in proper healing.

Factors which Tend to Encourage the Self-management of Wounds and Damaged Veins

Isolation and Stigmatisation

There is a great deal of evidence to suggest that intravenous drug users are often isolated and socially stigmatised in their societies. Scheibe et al. (2011) maintain that people who inject drugs are often subjected to discrimination when they seek help from public healthcare centres in South Africa. According to Li and Li (2013), many injecting drug users in China refrain from seeking assistance from providers of primary healthcare services to free them from their habits as a consequence of rejection and discrimination. The findings of a study which was conducted outside of both China and South African study revealed that of a large research sample of 1008 participants who were drug users, some eighty-five percent believed that many people considered drug addicts to be unreliable, while 84.5 percent believed that people believe that addicts were dangerous (Ahern et al. 2007). One recent study which was conducted in South Africa found an inextricable link between excessive use of drugs and aggressive behaviour. The study has found that both alcohol and illegal drug use contribute significantly in criminal activities such as murder, intimate partner violence and child abuse (Sommer et al. 2017.) Perhaps why the general communities believes that many drug addicts are dangerous and unreliable.

Owing to social stigmatisation and isolation, many intravenous drug users may choose not to avail themselves of the healthcare services which could enable them to have their wounds treated professionally and hygienically and even free them from addiction. In a study of discrimination against drug users which was conducted

in South Africa, some of the participants reported that when they visited healthcare facilities they experienced discrimination, prejudice, and in some instances had been referred to as junkies by healthcare practitioners (Scheibe et al. 2011). From the relevant available literature, it is evident that most of the discrimination to which drug users are subjected stems from ostracisation at the hands of members of society at large, who view their lifestyles as repugnant (Scheibe et al. 2011). Consequently, drug users tend to be thrown together and to seek solace from the company of others whose experiences are similar to their own. There can be little doubt that the dangerous practices to which they resort in relation to lancing their abscesses, draining their wounds by using syringes, and creating makeshift dressings from items of clothing or tissue paper is the direct consequence of the leper status which is assigned to them by the societies in which they live (Roose et al. 2009). From this standpoint, it can be contended that discrimination against drug users constitutes a serious violation of human rights.

Inaccessibility of Healthcare and the Criminalisation of Drugs for Personal Use

From the relevant literature which has been covered, it is evident that drug users, particularly intravenous users, have considerably less access to primary healthcare facilities than their law-abiding counterparts, owing to both stigmatisation and their subjective perceptions of stigmatisation. One of the most consistent findings of the research which has been conducted is that policies concerning illicit drugs are concerned with law enforcement, at the expense of concerns for public health and human rights, which places both intravenous users and their communities at great risk. There is also a considerable amount of evidence to suggest that factors such as poverty and living in marginalised communities effectively deter many intravenous drug users in South Africa from seeking professional treatment and assistance (Scheibe et al. 2011; Li and Li 2013). Although many intravenous users in South Africa are likely to reside in informal settlements and squatter camps close to cities and towns, a significant proportion are likely still to be located in marginalised communities in which primary healthcare is not easily

accessible (Grut et al. 2012). These circumstances are likely to leave drug users with no options other than self-management for treating wounds which result from injecting drugs. Although the healthcare system of China has advanced considerably, the cost of primary healthcare is low, and there are more than 700 active harm reduction centres throughout the country, rates of attendance and participation by intravenous drug users remain relatively low (Li and Li 2013).

In 2008, as a result of the work of experts in the field of epidemiology throughout the world concerning correlations between incidences of injecting drugs and HIV infection, it was estimated that some 15.9 million people in 148 countries, including South Africa and China, injected drugs. As addicts who lived in low and middle income countries constituted nearly three quarters of this estimated number, it was concluded that a significant proportion of people were at risk owing to a lack of access to primary healthcare (Matsuzaki et al. 2018). UNAIDS (2010) estimates that only five percent of intravenous users throughout the world have access to HIV prevention services such as needle exchange programmes. The criminalisation of the use and possession of illicit drugs for personal use would inevitably undermine participation in programmes, because users are afraid of being arrested. Stone (2016) projects that between fifty six and ninety percent of drug users will be imprisoned at least once during their lives. From a similar standpoint, Matsuzaki et al. (2018) maintain that the predominantly punitive global response to the use of drugs results in an estimated ratio of one of every five prisoners throughout the world being held on drug-related charges. Research demonstrates that drug detention centres are mandatory in China, some of which detain users without providing treatment for withdrawal symptoms (Amon et al. 2013). Accordingly, the criminal status of users effectively discourages them from seeking assistance from primary healthcare facilities which are able to provide professional treatment for wounds, damaged veins, abscesses, and limb ulcers. Consequently, it can be concluded that the mistreatment and gross violations of their basic human rights to which users are often subjected in healthcare facilities and the criminalisation of their behaviour, which is a response to addiction, are likely to constitute the principal factors

which aggravate their resorting to self-managing the wounds and infections which result from injecting drugs.

Individual and Environmental Factors

There is substantial and compelling evidence which reveals how individual behaviour and social environments influence the risk of intravenous users attempting to self-manage their wounds and infections. According to Strathdee et al. (2015), the severity of the addiction of individual users increases the influence of behavioural risk factors which are not limited to sharing of syringes and needles which have not been sterilised, an increased likelihood of transmission of HIV, and avoiding professional healthcare interventions. McCool and Chappell (2015) explain that the types of drugs to which individual users are addicted or upon which they are dependent play a significant role in determining the magnitudes of the risk to which they are exposed. Relevant literature reveals that users who inject cocaine often do so as many as ten times a day, by comparison with users of heroin, many of whom are reported to inject the drug from one to three times a day (Tilson et al. 2007; Des Jarlais et al. 2016). As it has been pointed out in this paper, there is evidence to suggest that high frequencies of injecting can cause veins to become inaccessible, which can prompt users to resort to the technique of 'skin-popping', which results in abscesses and ulcers. As it has also been explained, despite the severity of their wounds and infections and owing to the overarching demands of their addiction, many intravenous users are likely to forego medical treatment and attempt to treat their wounds and infections themselves. Although the frequencies with which intravenous users of cocaine are known to inject the drug might be expected to expose them to a particularly high risk of falling prey to wounds and infections, research suggests that the phenomenon of self-managing wounds and infections is particularly prevalent among intravenous users of heroin (Tilson et al. 2007).

The findings of a study which was conducted among sex workers in China reveal that factors such as socio-economic status make intravenous drug users particularly vulnerable to a range of hazards and risks. As Gu et al. (2014)

explain, the desperate need for money to finance their drug habits makes commercial sex an inevitable option for many female users in China. They point out that in many instances they are unable to negotiate safe sex with customers and engage in unprotected sex, for fear of the effects of withdrawal symptoms. As commercial sex is illegal in South Africa and China, owing to the stigmatisation which accompanies injecting drugs and the transactional sex, many sex workers may avoid seeking proper medical help for the wounds which result from injecting drugs. Although the literature suggests that female intravenous users are more likely to seek medical treatment for their injuries than their male counterparts, some will inevitably resort to treating their wounds with the assistance of their sexual partners. Gu et al. (2009) suggest that as women who engage in commercial sex are usually ostracised for their socially deviant behaviour and often blamed for spreading HIV and sexually transmitted infections to men, they are likely to avoid primary healthcare treatment for wounds which result from injecting drugs. Strathdee et al. (2015) explain that sex workers in China who inject drugs survive at the lowest social stratum of society and are often shunned as social outcasts by their families, people who are in socially respectable employment, and healthcare personnel. The inevitable consequence is that many will be reluctant to seek assistance from healthcare facilities and instead resort to attempting to treat their own drug-related wounds and infections.

CONCLUSION

In the light of the literature which has been reviewed, the researchers of this paper conclude that intravenous users of drugs in both South Africa and China expose themselves to great risk, particularly with respect to their attempts to treat the wounds and infections which result from lifestyles which are characterised by regularly injecting drugs. It is evident from the literature that the access which intravenous drug users have to adequate primary healthcare is severely limited, owing to stigmatisation and discrimination which stem from all quarters of the societies in which they live. The criminalisation of their activities precludes most users from taking advantage of the primary healthcare ser-

vices which are available to them, for fear of being arrested. It is also evident from the literature that the limited access which intravenous users in marginalised communities have to primary healthcare effectively obliges them to resort to self-medicating their wounds, abscesses and other infections, often with severely debilitating consequences.

RECOMMENDATIONS

From the conclusion which has been drawn, the researchers recommend that awareness should be raised among members of population which are particularly at risk of resorting to self-medicating drug-related wounds and infections, in order to inform them of their rights with respect to obtaining access to primary healthcare without fear. Making users aware of their basic human rights could serve to curb instances of misconduct by healthcare practitioners and enable appropriate action to be taken in an overall shift of emphasis from perceiving users as criminals to patients who are in need of assistance, compassion, and treatment. Intravenous users should be encouraged to seek medical help during the early development of the wounds, abscesses, and limb ulcers which result from injecting drugs, in order to preclude the necessity of long periods of hospitalisation and prevent deaths which result from infected wounds and the use of medication which has not been prescribed by professional healthcare practitioners. It is also recommended that policies pertaining to the abuse of illicit drugs should be restructured or reformulated to prioritise the rights of intravenous drug users in a move away from punitive law enforcement. It is the considered opinion of the researchers that in a culture in which the rights of users are respected and they know that they will not be prosecuted for the illegal possession of drugs, they will avail themselves of appropriate primary healthcare interventions, thereby significantly reducing the likelihood of resorting to measures which entail great personal risk. It is only through awareness of the social problem which the use of intravenous drugs represents for societies that it can be combated by treating its victims with compassion, as opposed to driving it underground and allowing it to fester unchecked.

REFERENCES

- Ahern J, Stuber J, Galea S 2007. Stigma, discrimination, and the health of illicit drug users. *Drug and Alcohol Dependence*, 88(2-3): 188-196.
- Amon J, Pearshouse R, Cohen J, Schleifer R 2013. Compulsory drug detention centers in China, Cambodia, Vietnam, and Laos: Health and human rights abuses. *Health Hum Rights*, 15(2): 124-137.
- Baloyi P 2018. Nyaope - the dangers of the Bluetooth craze. *Servamus Community-based Safety and Security Magazine*, 111(6): 50-52.
- Chen X, Zhou YH, Ye M, Wang Y, Duo L, Pang W, Zheng YT 2018. Burmese injecting drug users in Yunnan play a pivotal role in the cross-border transmission of HIV-1 in the China-Myanmar border region. *Virulence*, 9(1): 1195-1204.
- Coull AF 2016. Leg Ulceration in Young People who Inject Drugs; Causative Factors, and How Harm May Be Reduced - A Mixed Methods Approach. From <<https://dspace.stir.ac.uk>> ... > Faculty of Health Sciences and Sport eTheses> (Retrieved on 30 April 2019).
- Creswell JW, Creswell JD 2017. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition. Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Dada S, Burnhams NH, Laubscher R, Parry C, Myers B 2018. Alcohol and other drug use among women seeking substance abuse treatment in the Western Cape, South Africa. *South African Journal of Science*, 114(9-10): 1-7.
- Davis R, Campbell R, Hildon Z, Hobbs L, Michie S 2015. Theories of behaviour and behaviour change across the social and behavioural sciences: A scoping review. *Health Psychology Review*, 9(3): 323-344.
- De Vos AS, Strydom H, Fouché CB, Delpont CSL 2011. *Research at Grass Roots*. 3rd Edition. Pretoria, South Africa: Van Schaik Publishers.
- Des Jarlais DC, Arasteh K, Feelemyer J, McKnight C, Barnes DM, Tross S, Hagan H 2016. From long-term injecting to long-term non-injecting heroin and cocaine use: The persistence of changed drug habits. *Journal of Substance Abuse Treatment*, 71: 48-53.
- Grut L, Mji G, Braathen SH, Ingstad B 2012. Accessing community health services: Challenges faced by poor people with disabilities in a rural community in South Africa. *African Journal of Disability*, 1(1): 19.
- Gu J, Bai Y, Lau JT, Hao Y, Cheng Y, Zhou R, Yu C 2014. Social environmental factors and condom use among female injection drug users who are sex workers in China. *AIDS and Behavior*, 18(2): 181-191.
- Gu J, Wang R, Chen H, Lau JT, Zhang L, Hu X, Tsui H 2009. Prevalence of needle sharing, commercial sex behaviors and associated factors in Chinese male and female injecting drug user populations. *AIDS Care*, 21(1): 31-41.
- Haysom S, Gastrow P, Shaw M 2018. The Heroin Coast. A Political Economy along the Eastern. From <<http://globalinitiative.net/wp-content/uploads/2018/07/2018-06-27-research-paper-heroin-coast.pdf>> (Retrieved on 5 October 2018).
- Heit JA 2015. Epidemiology of venous thromboembolism. *Nature Reviews Cardiology*, 12(8): 464.
- Kapp SE 2016. Self-management of chronic wounds: A mixed method study. From <<http://orcid.org/0000-0002-5438-8384>> (Retrieved on 12 October 2018).
- Kelechi TJ, Johnson JJ, Yates S 2015. Chronic venous disease and venous leg ulcers: An evidence-based update. *Journal of Vascular Nursing*, 33(2): 36-46.
- Larney S, Peacock A, Mathers BM, Hickman M, Degenhardt L 2017. A systematic review of injecting-related injury and disease among people who inject drugs. *Drug and Alcohol Dependence*, 171: 39-49.
- Li J, Li X 2013. Current status of drug use and HIV/AIDS prevention in drug users in China. *Journal of Food and Drug Analysis*, 21(4): S37-S41.
- Li J, Feng Y, Shen Z, Li Y, Tang Z, Xiong R, Fang N 2018. HIV-1 Transmissions among recently infected individuals in Southwest China are predominantly derived from circulating local strains. *Scientific Reports*, 8(1): 12831.
- Li J, Ha TH, Zhang C, Liu H 2010. The Chinese government's response to drug use and HIV/AIDS: A review of policies and programs. *Harm Reduction Journal*, 7(1): 4.
- Luo W, Wu Z, Poundstone K, McGoogan JM, Dong W, Pang L, Cao X 2015. Needle and syringe exchange programmes and prevalence of HIV infection among intravenous drug users in China. *Addiction*, 110: 61-67.
- Matsuzaki M, Vu QM, Gwadz M, Delaney JA, Kuo I, Trejo MEP, Christopoulos K 2018. Perceived access and barriers to care among illicit drug users and hazardous drinkers: Findings from the seek, test, treat, and retain data harmonization initiative (STTR). *BMC Public Health*, 18(1): 366.
- McCool BA, Chappell AM 2015. Chronic intermittent ethanol inhalation increases ethanol self-administration in both C57BL/6J and DBA/2J mice. *Alcohol*, 49(2): 111-120.
- National Institute on Drug Dependence and National Drug Abuse Surveillance Centre (NIDDA and NDASC) 2011. *Report of Drug Surveillance*. Beijing, China: National Narcotic Control Commission.
- Parry CDH, Carney T, Williams PP 2017. Reducing substance use and risky sexual behaviour among drug users in Durban, South Africa: Assessing the impact of community-level risk-reduction interventions. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 14(1): 110-117.
- Plüddemann A, Parry CD, Flisher AJ, Jordaan E 2008. Heroin users in Cape Town, South Africa: Injecting practices, HIV-related risk behaviors, and other health consequences. *Journal of Psychoactive Drugs*, 40(3): 273-279.
- Pollini RA, Gallardo M, Hasan S, Minuto J, Lozada R, Vera A, Strathdee SA 2010. High prevalence of abscesses and self-treatment among injection drug users in China. *International Journal of Infectious Diseases*, 14: e117-e122.
- Roose RJ, Hayashi AS, Cunningham CO 2009. Self-management of injection-related wounds among injecting drug users. *Journal of Addictive Diseases*, 28(1): 74-80.
- Sara S 2017. Drug Use in South Africa Takes Dangerous Turn as Addicts Share Blood in 'Bluetooth' Trend: A Review. From <<http://www.abc.net.au/news/2017-08-20/heroin-bluetooth-trend-growing-in-south-africa/8823256>> (Retrieved on 5 October 2018).

- Scheibe A, Brown B, Duby Z, Bekker LG 2011. *Key Populations, Key Responses: A Gap Analysis for Key Populations and HIV in South Africa, and Recommendations for the National Strategic Plan for HIV/AIDS, STIs and TB (2012-2016)*. Cape Town: Desmond Tutu HIV Foundation, Joint UN Team on HIV and AIDS.
- Sommer J, Hinsberger M, Elbert T, Holtzhausen L, Kaminer D, Seedat S, Weierstall R 2017. The interplay between trauma, substance abuse and appetitive aggression and its relation to criminal activity among high-risk males in South Africa. *Addictive Behaviours*, 64: 29-34.
- Smith ME, Robinowitz N, Chaulk P, Johnson KE 2015. High rates of abscesses and chronic wounds in community-recruited injection drug users and associated risk factors. *Journal of Addiction Medicine*, 9(2): 87.
- Stone K 2016. The Global State of Harm Reduction. Harm Reduction International. From <https://www.hri.global/files/2016/11/14/GSHR2016_14nov.pdf> (Retrieved on 7 October 2018).
- Strathdee SA, Beletsky L, Kerr T 2015. HIV, drugs and the legal environment. *International Journal of Drug Policy*, 26: S27-S32.
- Tashakkori A, Teddlie C (Eds.) 2010. *Sage Handbook of Mixed Methods in Social and Behavioral Research*. Thousand Oaks, CA: Sage.
- Takahashi TA, Baernstein A, Binswanger I, Bradley K, Merrill JO 2007. Predictors of hospitalization for injection drug users seeking care for soft tissue infections. *Journal of General Internal Medicine*, 22(3): 382-388.
- Tilson H, Aramrattana A, Bozzette S, Celentano DD, Falco M, Hammett T, Schottenfeld R 2007. *Preventing HIV Infection among Injecting Drug Users in High-risk Countries: An Assessment of the Evidence*. Washington, DC: Institute of Medicine.
- United Nations Programme on HIV/AIDS 2010. *Report on the Global AIDS Epidemic*. Geneva: UNAIDS.
- Williams K, Abbey E 2006. Knowledge of deep vein thrombosis among intravenous drug misusers. *Psychiatric Bulletin*, 30(7): 263-265.
- World Health Organisation 2008. Management of Common Health Problems of Drug Users. *Technical Publication Series No. 56*. New Delhi, India: WHO Regional Office for South-East Asia.
- World Health Organization 2016. Management of Substance Abuse Unit. *Global Status Report on Alcohol and Health*. Geneva: WHO.

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