Relapse into opiate and crack cocaine misuse: A scoping review

Aims: International statistics show that relapse rates associated with opiate and crack cocaine (OCC) misuse remain high. This has led to an increased scientific interest in the topic of relapse. However, there are limited studies reflecting on the state of this field. This review provides an overview of the topic and directions for future research. **Method**: Guided by the overall question of how relapse into OCC misuse is understood, a scoping review was conducted using Arksey and O'Malley's framework. A total of 126 studies between 1972 and 2019 were included. The literature was thematically grouped into relapse definitions, theories, associated factors and treatment approaches. **Results:** This review found that the majority of relapse understandings were derived from the USA and UK, and that these studies predominantly used quantitative research designs. Relapse definitions were controversial with the majority using biomedical concepts of disease. Theories on relapse were based on psychological theories and developed through clinical and neuroscientific research. Findings show that the majority of the literature focussed on relapse risk factors with very few papers focussing on protective factors. Findings on treatment approaches indicate a steer towards harm-minimization strategies over relapse management strategies. **Conclusions:** This review demonstrates that drug relapse research needs to grow more diverse, inter-disciplinary and user-centred in perspective so as to respond to relevant challenges ahead.

Keywords: relapse, opiates, crack cocaine, scoping review

Introduction

Despite ongoing efforts by policymakers and practitioners to reduce levels of addiction, international statistics demonstrate that drug overdose death remains a global issue (European Monitoring Centre for Drugs and Drug Addiction 2019). Previous research has demonstrated that overdose is linked to relapse (Oliver and Keen, 2003; Kariisa et al., 2019). Scholars distinguish between a lapse and a relapse, whereby the former implies an initial resumption and the latter a continued resumption (to the point of pre-treatment levels) of drug using behaviour after a quit attempt (Gossop et al., 2002; Steckler et al., 2013). During periods of quit attempts, a person's tolerance to their drug of abuse drops. Depending on the dosage or purity of the substance, and whether this exceeds a person's tolerance level, relapse may have fatal consequences. It is evidenced that between 50-80% of those recovering from class A drugs (e.g. opiates or cocaine) relapse within twelve months of treatment (Pasareanu, et al., 2016).

The frequency of relapse has placed serious demands on drug policymakers and practitioners which has led to relapse being studied in several countries. For instance, in the USA, Canada and the UK has relapse been researched through prospective and retrospective clinical trials, as well as through real time assessments (McKay et al., 2006; Adinoff et al., 2016). However, whilst several reviews on drug and alcohol relapse exist (Dejong, 1994; Carroll, 1996; Drummond, 2001; Kantak, 2003; Bradizza et al., 2006; Doukas and Cullen, 2010; Donovan and Witkiewitz, 2012; Bailey and Husbands, 2014; Christiansen et al., 2015; Moeller and Paulus, 2018), only one of these (Bossert et al., 2005) has focussed on heroin and cocaine relapse.

Despite this scope of knowledge, drug overdose death rates as well as relapse rates associated with opiates and crack cocaine (OCC) misuse remain high. Therefore, a review and reflection of the current evidence base is timely. The purpose of this review is to offer

clarity and direction for future research by scoping the literature on human relapse into OCC misuse. In doing so, the review will highlight where current research attention is focused and where relevant gaps remain. This is imperative to advancing the field and informing future research.

Method

In keeping with the purpose mentioned above, a scoping review was conducted. Scoping reviews are most suitable for reporting the 'extent, variety and characteristics' (O'Donovan et al., 2019, p. 4) of the available evidence, especially when the 'research field is fragmented across several disciplines' (Callegari et al., 2019, p. 3). Unlike systematic reviews, scoping reviews do not seek to assess the quality of the evidence but aim to map the range of available research findings (Peters et al., 2015). Arksey and O'Malley's (2005) five-stage method for scoping reviews was employed, which allows for a rigorous search and analysis of the literature regarding the chosen aims, objectives and overall review questions.

Stage one: review questions, aims and objectives

This scoping review was guided by the overall question of how human relapse into OCC misuse is understood in the current literature, pertaining to relapse definitions, theories and treatment approaches. In accordance with the scoping review method, this broad question does not require specific definitions of the population and context, meaning that evidence on OCC users of any age, gender, socio-economic status or geographical background were considered.

By answering the above question, the review aimed to:

1. provide an overview of relapse understandings in the existing literature
2. highlight research trends within the literature
3. illuminate any gaps in the evidence base
4. provide recommendations for future research

Stage two: identification of relevant studies

Given Arksey and O'Malley's (2005) emphasis on searching a variety of sources, the initial search, conducted in February 2019, utilized four electronic databases and seven peer-reviewed journals in the field. This search yielded 5,178 hits and can be examined in Table 1 below. The search was restricted to peer-reviewed literature published in English (due to limited translation services). Subject restrictions were kept to a minimum in order to consider literature from the social, health and life sciences. No limit was set on time period, study design and methodology.

[Table 1 near here]

Stage three: literature selection

In this stage, titles and abstracts were screened for relevance by using designated inclusion and exclusion criteria. Abstracts which signalled a focus on drugs other than OCC (e.g. ketamine) were excluded so as to keep to the central question of the review. However, studies were included if they investigated a topic in relation to OCC use (e.g. mental health and heroin addiction) or the use of other drugs with OCC (e.g. alcohol and cocaine users). This is because people with drug misuse issues, and particularly those using opiates and psychostimulants, often use more than one drug or substitute one drug for another (Bailey and Husbands, 2014). Further, literature which focussed on brain simulations or which used non-human primates as study subjects were excluded, given that the focus of the review was on human relapse understandings. After these criteria were applied, a total of 413 pieces of literature remained. Of the 413 studies selected, 69 were duplicates which left 344 pieces of literature for full-text screening. Some works may have been missed in the initial search due to the key words used, or because the electronic databases were incomplete or had not been updated at the time of the search. Therefore, relevant literature was also identified through ongoing hand searches of reference lists and bibliographies of included articles. This process

yielded an additional seven studies. As shown in Figure 1, the full-text screening process and simultaneous hand search left a total of 126 pieces of peer-reviewed literature to be included in the review.

[Figure 1 near here]

Stage four: charting the review data

This stage produced the main source of data for the subsequent analysis. The Arksey and O'Malley (2005) framework provided a structure for this process. Data was charted (extracted) on a Microsoft Excel spreadsheet and structured so as to reflect the general characteristics of included studies as well as the review question identified in stage one. Therefore, two sets of variables were charted: firstly, generic variables (e.g. year of publication) and secondly, more specific information regarding the review questions (e.g. relapse definitions). While the former set of variables offered an overview of the distribution and scope of the literature, the latter set provided the data for the subsequent thematic analysis. A synthesized form of the data charting sheet can be viewed in Table 2 below.

[Table 2 near here]

Results

Stage five: collating, summarizing and reporting

In this section, the analysed data is reported numerically and thematically, thereby directly answering the overarching review question. First, the general characteristics of the reviewed literature are presented which comprise geographic coverage, publication trends, research design and topic coverage. Second, the four key themes which emerged through the thematic analysis are presented. These themes were: 1) definitions; 2) theories; 3) associated factors; and 4) treatment approaches.

Characteristics of the literature

The literature included book chapters (n=5), books (n=1) and journal articles (n=120) of which 83 studies were retrieved from the *Web of Science* database. The majority of the remaining journal articles were retrieved from the *Addiction* journal (n=6). The drug under investigation varied in the included literature, with 37 studies investigating opiate relapse, and with 20 of these studies examining relapse into heroin misuse only. Thirty-three studies investigated psychostimulants, of which 29 examined relapse into cocaine misuse only. Further, seven studies investigated relapse into more than one drug (e.g. alcohol and cocaine) and 29 studies did not make this information explicit (e.g. they examined 'illicit drugs' or people with 'substance use disorder'). Only one study examined relapse into crack cocaine use (Wallace, 1992). The included studies originated from a total of 19 countries, of which the majority represented North America (n=78) with the leading country being the USA (n=76). The next most common region was Europe (n=30), of which most literature came from the UK (n=12) and the Netherlands (n=7), and then the region of Asia (n=16), within which China (n=7) and Iran (n=4) were the most represented countries. There was limited literature from South America and Africa, with only one study covering Brazil and one focussing on Ghana.

Within the included literature, no study was published prior to 1972 and only one study was published in the 1970s (Goldstein, 1972). Figure 2 shows that the publication trend for relapse literature has nearly doubled every ten years since 1972, with the largest increase having been in the last decade (55%).

[Figure 2 near here]

In 62% of the reviewed studies, relapse was investigated through quantitative, prospective research designs. Of these studies, the most frequently employed designs were prospective controlled trials (51 studies) through which data was collected using cognitive

assessments/interventions, such as the Cocaine Stroop task[1], or functional magnetic resonance imaging (fMRI). The second most common type of literature were 'non-traditional' research studies (19%). These included commentaries, critiques, discussions or case reports. Document analyses, such as literature reviews, made up the third largest proportion of research designs (14%). Surprisingly, only one systematic review on opiate and cocaine relapse was located (Dominguez-Salas et al., 2016). Finally, four studies employed qualitative designs and two studies provided mixed-method analyses. The four qualitative studies used individual interviews to investigate the following topics: relapse prevention strategies of poly-drug service users in Ghana (Appiah et al., 2018); relapse prevention strategies of street users in Scotland (McIntosh & McKeganey, 2002); perceived withdrawal symptoms (McAuliffe, 1982); and heroin use amongst men in mid-life (Mullen & Hammersley, 2006). No study included in this review was co-constructed or used participatory research designs. This shows that we know much more 'about' than 'directly from' those who have experienced relapse.

Research in the field focussed on the following four topics: associated factors, and how relapse can be predicted (n=68); treatment, and how relapse can be prevented (n=48); theories, and how relapse has been conceptualized (n=27); and lastly, how relapse has been defined (n=3). As some of the studies covered more than one topic, the count of 126 increased to a total of 147. Given that 47% of the studies covered associated factors and 33% covered treatment, an interest in how to predict and prevent relapse can be seen to dominate the literature.

Key themes

[1] Stroop tasks assess for cognitive control, specifically, for attentional bias and salience attributed to the drug. Participants are shown words in coloured font. The task is to name the word, not the colour of the word, as quickly as possible (see Smith and Ersche, 2014).

Theme one: definitions. Definitions of relapse vary and remain controversial within research and practice. This may explain why only 35 studies out of the 102 studies examined have made their working definitions of relapse explicit (see Table 2). Bradizza et al. (2006) note that working definitions, where made explicit, either focussed on time (e.g. time until first drug use; time to first heavy drug use; number of days until four consecutive days of drug use) or frequency of using behaviour (e.g. number of relapse events occurring in a specific time interval). This variance has created tensions between scholars in the field. Some authors (Brown, 1988; McKay et al., 2006) have argued that having to choose from a variety of working definitions can lead to different research outcomes and, consequently, can create ambiguous evidence. Consequently, they recommend the use of one overarching relapse definition in research and practice.

While relapse definitions are debated in the research context, this is not the case in clinical practice where relapse has predominantly been defined in one way, namely, as part of a substance-use disorder (McLellan et al., 2000). For instance, the governing body of addictions research and treatment in the US, the National Institute on Drug Abuse (NIDA), defines relapse as 'the return to drug use after an attempt to stop' (2018). This definition was adopted because NIDA compared drug relapse to that of other chronic health conditions, such as asthma and hypertension (McLellan et al., 2000). Studies revealed that this way of conceptualising relapse has also been integrated into practice and research in the UK (Best and Lubman, 2012). However, some scholars (Brown, 1998; Flynn and Brown, 2015) have argued against 'normalising' relapse as being a chronic part of the addiction disease, as it could create relapse as a *default-and-no-fault-state* and leave 'client and program…equally powerless to do battle with the fates' (p. 2518). Brown (1998) has argued that this terminology undermines the efforts of service users who have been able to significantly

reduce their drug use following a relapse. In summary, a lack of agreement about whose relapse definition should be adopted, remains.

Theme two: theories. Theories on relapse for opiates and cocaine have developed from those of alcohol and nicotine (Marlatt and Gordon, 1985; Gorski, 1990) and have been influenced by theories within socio-cognitive and behavioural psychology (Connors et al., 1996). This review identified two different streams of theories.

Theories from the first stream have developed from Pavlov's theory of classical conditioning from the late 1890s. These theories posit that relapse is a result of cues which trigger withdrawal symptoms (i.e. the drug's biochemical interaction with the individual's body). Goldstein (1978) observed that relapse was dependent upon a person's genetic makeup and suggested this was why some developed a dependency, and some did not. Later, Dejong (1994) proposed that relapse resulted from the individual's 'physical, psychological or social dysfunction' prior to drug use (p. 687). Contemporary theories now understand relapse as a result of neurobiological deficits. For instance, Christiansen et al. (2015) found that attentional bias[2] can correlate with any current motivational state of the drug user, which in turn can influence relapse trajectories (see theme three). Similarly, Adinoff et al. (2016) proposed relapse to be the result of a lack of people's 'capacity to make optimal decisions' specifically those with long-term prospects (p. 88).

A second stream of theories disagreed with this 'medical' view and emphasised the management of psychosocial and environmental high-risk situations (Drummond, 2001; Powell et al., 1993). A forerunner of these theories was Albert Bandura (1977) with his work on self-efficacy and social learning theory, from which Marlatt (1985) developed the classic relapse prevention model. Marlatt suggested that unpleasant feelings of guilt and self-blame,

[2] Attentional bias is the acute awareness of some things while simultaneously not being aware of others (Cherry, 2019)

all of which can result from violating the commitment to abstinence, can be numbed through relapse behaviour (Marlatt and Witkiewitz, 2004; Donovan and Witkiewitz, 2012). This theory was further advanced by Vaillant (1988), who found that relapse occurs mainly because of non-pharmacological factors, such as unemployment, social exclusion at a young age, desire for gratification and the pressure to conform to cultural norms (i.e. going to pubs or having drug-using friends). Other studies have confirmed this view. For instance, Wallace (1992) found that relapse could serve to reinforce a user's feeling state (e.g. euphoria; relief of pain), and Khantzian (2011) added that relapse could serve as a protective function by helping the user 'escape' from an unwanted reality.

Theme three: associative factors. The studies reviewed identified risks associated with relapse and other factors which are protective of relapse. These risk and protective factors occur at two ecological levels, namely, at the individual and social level. The individual level is comprised of factors associated with relapse in neurological, psychological, physiological and biological dimensions. Factors occurring at a social ecological level include relationships, history of use, treatment and work/housing dimensions. In this review, these associative factors are grouped into risk and protective factors under the ecological level in which they occur and are categorised below if they are associated with more than five reviewed articles.

Risk factors at the individual level were referenced in 70 articles, including impulsive decision-making without regard to the long-term consequences in 7 studies; deficits in neurocognitive functioning in 7 articles; damage to brain structure and functioning in 8; difficulty in emotion/affect regulation in 9; history of, or current mental health issues in 9; craving and withdrawal symptoms in 8; stressful life events in 9; male gender in 5; and being of young age also in 5 studies. Risk factors at the social level were referenced in 50 articles, including peer pressure to quit or maintain recovery in 6 studies; feeling excluded or

disconnected from family and friends in 7 articles; unstable housing or homelessness in 6; unemployment in 5; having had more than three attempts to recover and having experienced an unsupportive therapeutic relationship in treatment in 5 studies; long history and severity of drug use in 5; and poly-drug[3] use or drug substitution also in 5 articles.

Protective factors at the individual level were referenced in 17 articles, including motivation and desire to change in 10 studies. Protective factors at the social level were referenced in 20, including spirituality and a sense of connectedness in 7 studies, and setting boundaries and keeping a busy/structured lifestyle in 8 studies.

These results indicate an emphasis in the literature on promoting and measuring risk factors over resiliency, resources and assets which help protect against relapse.

Theme four: treatment approaches. The studies reviewed indicated a common steer towards a provider-led treatment approach and a user-led treatment approach. Of these two, the dominant stream focussed on interventions that were exclusively administered by the service provider (i.e. a provider-led approach). Such interventions mainly targeted physiological aspects and required the service user to regularly visit provider sites. One such intervention was pharmacotherapy. This intervention aims to inhibit relapse by treating chemical imbalances or neurocognitive impairments. Numerous studies (Dackis et al., 2003; Carroll et al., 2004; Oliveto et al., 2011) have investigated prescription drugs, including naltrexone, buprenorphine and methadone for opiate dependency, and disulfiram, modafinil, sertraline and propranolol for cocaine dependency. Kantak (2003) argued for the use of medications as 'anti-relapse vaccines' in addition to traditional (non-pharmaceutical) treatment interventions. Additionally, several preclinical trials focussed on preventing relapse by treating glutamate imbalance (LaRowe et al., 2013; D'Souza, 2015; Berridge and

[3] For a discussion around the causal effects of poly-drug use on relapse, please see Williamson et al. (2006).

Robinson, 2016; Levi Bolin et al., 2017). Within this stream of approaches, the research focus has recently shifted towards treating relapse as a neurological illness. For instance, Chen, Li et al. (2019) found that administering deep brain stimulation to heroin-dependent participants decreased the likelihood for future relapses. Additionally, recent studies recommend that treatment facilities monitor clients' biomarkers to identify those at particular risk for relapse. Such biomarkers for relapse included altered white matter integrity (Li et al., 2016), cortisol levels or other stress responses (Fatseas et al., 2011), serum brain-derived neurotrophic factor (BDNF) (D'Sa et al., 2011) as well as amygdala-connectivity functioning (McHugh et al., 2014; Gawrysiak et al., 2017). Given these shifts in treatment, the contemporary presumption seems to be that relapse is an indicator of a failed recovery, and as such should be *inhibited*.

By contrast, the focus in the second stream of approaches is on equipping the service user to *manage* relapse independent of the treatment service (i.e. a user-led approach), with the assumption that relapse forms part of the recovery process. These approaches include interventions which can be carried out by the service users themselves and which also address the users' environments. Studies in this stream focussed on the development of employment skills, relationships, and time-management (Sánchez-Hervás et al., 2012). Here, studies included approaches in which clinicians aimed to educate the user on how to enhance their self-belief and positive thinking skills (see Bradley et al., 1992), as well as promoting habit and lifestyle shifts. The latter entails helping the service user disconnect from their previous, drug-using environments, and to forge new, non-drug-using habits (Dejong, 1994). More recently, such literature has focussed on mindfulness-based relapse prevention (MBRP) approaches. Zemestani and Ottaviani (2016) found that MBRP was not only simple to implement, but also effective in reducing a range of risk factors, including traumatic stress, anxiety and depression. These results were later confirmed by Bowen et al. (2017) who added

that MBRP enhanced service users' self-efficacy because most of the participants were able to engage in the process and were thus empowered to practice independent of the treatment facility. The literature which aligns with this stream assumes that relapse *will* occur and therefore focusses on teaching service users how to manage their recovery independent of the treatment provider.

Discussion

This review applied Arksey and O'Malley's (2005) framework to map the scope, distribution and topic trends relating to the understanding of human drug relapse in the peer-reviewed literature. Findings from the numerical analysis show an increasing focus on the topic of relapse within the past decade. This increase may reflect the change in practice that took place in 2010. Prior to 2010, substance misuse was mainly dealt with by 'acute biopsychosocial care and symptom reduction' (Kelly and White, 2010, pg. 304) and little consideration was given to the risk period after treatment. Therefore, relapse was not yet understood to be taken care of by service providers and was also no yet seen as the responsibility of the service user. However, 2010 marked a time when addiction scientists began to understand addiction as a chronic condition which required maintenance care (Kelly and White, 2010), and the empowerment of service users in the management of their own recovery. Given the high relapse rates in the service-led approaches (Hser et al., 1998), the shift in emphasis led to the introduction of models like recovery management (RM) and recovery-oriented systems of care (ROSC). These models gave greater weight to the period after acute treatment and, with that, to relapse. Since this shift, the prevention and management of relapse has become a part of the care and support that service providers offer, and therefore may have motivated more research on relapse.

This review also identified a geographically narrow focus on relapse. Most opiate and crack cocaine relapse understandings were derived from the USA and the UK, whereas only

one study was conducted in Africa (Appiah et al., 2018) and one in South America (Lopes-Rosa et al., 2017). In addition, only one study in this review, dated 1992, has focussed on crack cocaine relapse.

Findings from the thematic analysis demonstrate that issues around relapse definitions remain and impact on how relapse is treated and researched. Although practitioners advocate that the definitions should be left open to interpretation, one overarching relapse definition dominates in practice. The reason for this dilemma is the critique that having only one definition could foster stigma by assuming relapse to happen regardless of service user and provider efforts. The reverse is true for research. To make relapse measurable, researchers have used multiple definitions. This has attracted criticism around the validity and comparability of findings and led researchers to recommend the use of one, overarching relapse definition. Such a lack of agreement between relevant professional implies that the current dominance of NIDA's relapse definition may be influenced by NIDA's political stance on addictions research and practice, rather than on its scientific merit. Additionally, the studies indicate that relapse definitions have mainly been established by scientific perspectives rather than by frontline worker accounts. McKeganey et al. (2004) have long argued that the perspectives of frontline workers and service users must be considered in future research, to enhance the accuracy and validity of addiction-related topics. Additionally, this review has identified that working definitions of relapse were not made explicit in over 60% of the studies reviewed. As working definitions of the phenomenon under investigation should be provided *in all* research (Ashford et al., 2019), the validity and generalisability of the current evidence base may be questioned.

This review has further shown that contemporary relapse theories have developed from early notions in psychology and are divided into two streams with the more dominant stream focussing on illness (relapse prevention and inhibition), and the other focussing on

wellness (relapse management and coping). As contemporary relapse theories have predominantly been developed through clinical and neuroscientific evidence (e.g. biological relapse profiles (Sinha, 2011), biomarker (Chen, Li et al., 2019), mathematical formulas (Tasic et al., 2018)), opiate and crack cocaine relapse research is ripe for inter-disciplinary investigations. Additionally, several of these studies on biomarkers have provided recommendations which might be hard to implement. For instance, researchers have suggested that fMRI machines be used in clinical practice (e.g. in detox facilities) to identify those at risk early on (Gawrysiak et al., 2017). However, drug services and treatment facilities across Europe, particularly in the UK, and North America struggle with recurrent budget cuts (Rhodes, 2018, BBC News England), making such recommendations unfeasible.

This review revealed that the literature on risk factors for relapse dominates over literature on protective factors for relapse. While knowledge about risk factors is invaluable, there remains less knowledge on how users can effectively protect themselves from relapse experiences. This finding is however not surprising, given that the disease model remains the dominant theoretical lens through which relapse is understood. A focus on risk factors over protective factors can portray the service user as a victim of their disease and helpless without the treatment provider, which is the premise for the disease model. Pickard (2017) has argued that the disease model is 'neither credible in the face of the evidence, nor helpful in so far as it disempowers addicts' (p. 176), as have many others (see Heather et al., 2018). This argument is supported by this review's findings on associative factors, as many of these did not relate to physical disease (e.g. lack of social support; childhood trauma). Stigmatisation of the drug service user community is fostered by overlooking the evidence that relapse is in fact, not only related to a physical disease, but also to psychosocial factors. Based on these findings, it can be argued that whatever 'comfort' or political advantage the adherence to the disease model of addiction brings, it ultimately stalls scientific advancement in the field

(Heather et al., 2018). This view concurs with Pickard (2017), who challenges experts to consider asking 'what our part is, as a society, in drug use and addiction?' (p. 177).

The presumption that relapse is based on physical health issues was also mirrored in the literature on relapse treatment approaches. Treatment interventions which are administered by the provider dominate over interventions which can be carried out by the service user, thereby indicating an overall emphasis on harm minimization and prevention rather than on self-maintained health and wellness. This emphasis is supported by the World Health Organization, as evidenced in a recent statement which suggests that 'prevention is the best means of fighting the problem [of illicit drug abuse]…rapid rises in drug-related deaths and in infectious diseases related to drug abuse…show the need for programmes to minimize risk' (WHO, 2019).

This review demonstrates that most of our relapse understanding is derived from quantitative and experimental research designs. Merely 3% of the literature in this review used qualitative interviews. One reason for such a lack of qualitative inquiry could be how relapse is currently being understood. The findings on definitions and treatment approaches indicate that the scientific community seems to primarily understand relapse as a physiological issue and therefore a responsibility of the clinician, which is best explored/assessed by experts rather than through participants' accounts. Another possible reason could be lack of ease of access to drug service users as participants for relapse studies. Given the high relapse rates and the general criticism around self-report data (see Chan, 2009), accessing drug service users who are stable enough to be interviewed and to provide 'valid' self-report data could be challenging. Nevertheless, this highlights a fundamental need to explore relapse from a service user and provider viewpoint.

The findings of this review have clearly demonstrated that relapse into drug misuse is mainly being understood on an individualistic level, that is, how the biological or

physiological state of the individual is impacted by, and can impact, relapse into substance misuse. Reducing the understanding of relapse primarily to a biological phenomenon provides both limitations and opportunities – limitations due to a failure to appreciate the importance of psychosocial factors and opportunities for enhanced funding from commissioners who favour the more biological approaches. However, when a person in recovery relapses back into drug misuse, following their housing situation becoming unstable and their close friend passing away, it is difficult to discern whether this was due to heightened cortisol levels or the issues faced within their social context, or both. It would be unwise to understand a complex phenomenon such as relapse into drug misuse independently of the wider social and political context (Spanagel and Mann, 2006; Best, 2012). Bronfenbrenner's (1992) ecological systems theory, for example, has offered a framework to understand how social interaction is embedded in, and interconnected with, social systems and their sub-systems. International research helps us shed light on the factors influencing outcomes, but this research must be interpreted within the given socio-political context. For instance, the USA and the UK have different health and social care systems which may reflect how these nations approach issues like substance misuse. To gain a more complete picture of relapse into drug misuse, we must consider the wider context, including how it impacts the relationship between an individual's microsystem (i.e. biology, emotional system) and their mesosystem (e.g. family, treatment provider), all the while acknowledging their relationship to the political context (e.g. drug policy).

Limitations

This scoping review has several limitations. Firstly, the application of strict inclusion/exclusion criteria as well as the choice of search databases employed, influenced the range and volume of the included studies. Secondly, the language restrictions could explain the limited geographic coverage and cultural perspectives covered, as the focus only

on studies published in English may have excluded information on relapse understandings from other countries published in other languages. Pragmatic constraints, and in particular the lack of funding to translation sources, limited what was possible. Nevertheless, the inclusion of literature from Spanish-speaking countries (which often produce and export cocaine) and other countries warrants future research. Lastly, although no search restrictions were set on demographics, the population that the reviewed literature focussed on was limited primarily to adult participants (n=81). Of these 81 studies, six focussed specifically on male participants and two on women. Only three of the reviewed studies focussed on adolescent participants. Therefore, important information on relapse understandings from, for example, women or young people, is lacking.

Future research

The above limitations indicate that future research would benefit from cross-cultural investigations of relapse, which would enhance the accuracy and diversity of the current relapse evidence base. Such studies could, for example, explore how relapse is understood in Western compared to non-Western cultures. It would also be useful to synthesise evidence from literature published in languages other than English. For instance, this scoping review could be replicated by multi-and/or bi-lingual researchers who can scope and translate evidence from non-English published literature in order to make it available to English-speaking readers. It would also be beneficial to investigate relapse in populations other than white male adults (e.g. young Native American people or Latina women). Additionally, promoting inter-disciplinary research is crucial to prevent fostering a discipline-limited evidence base, which would involve encouraging collaboration between researchers from multiple disciplines (i.e. sociology, health and wellbeing, anthropology, nursing, mental health, policy sciences). Examining the cost-effectiveness of the recommendations made by health researchers (i.e. biomarker studies), for example via advisory groups, within which

drug service providers could offer feedback and recommendations, would add to the usefulness of studies. A systematic review which assesses the quality, validity and rigour of the relapse evidence that has been scoped here would be beneficial. Lastly, and in particular, future research on relapse understandings should consider qualitative or participatory-based research designs in order to explore the voices and experiences of those most closely related to it (e.g. drug users or providers).

Conclusion

This review was the first to explore understandings of relapse into opiate and crack cocaine misuse using a scoping review methodology. Despite its limitations, this review captured effectively the characteristics and distribution of the literature, and identified key debates relating to definitions, theories, risk and protective factors and treatment modalities. With opiates and crack cocaine-related issues becoming more prevalent across the globe, it has never been more important to engage in drug relapse research, which therefore needs to grow more diverse, inter-disciplinary and user-centred in perspective so as to respond to the challenges ahead.

Disclosure of Interest

The author reports no conflict of interest.

Acknowledgements

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