ABSTRACT: It is now well-established that Australia has a significant issue with methamphetamine. Recent dramatic changes in manufacturing have led to significant shifts in both the patterns of use and the relative purity of this illicit drug, with the crystalline form of methamphetamine commonly referred to as ‘ice’. Excessive use not only impacts on those taking the drug, but also takes a heavy toll on their families. With few effective treatment options currently available, there is a strong focus on developing replacement pharmacotherapies and examining the efficacy of outpatient counselling and residential treatment options. Recent research in addiction care supports the positive impact that families of users can have on both treatment and recovery for their loved ones. Despite this recognition, there is little current research looking at the experiences of families of users of the uniquely problematic drug methamphetamine. This paper outlines the historical narrative that has led to the current worldwide phenomenon of ice use and explores contemporary directions of research into its impact and potential treatments. In doing so, it outlines the relatively unexplored impact of ice on families and highlights a current need for nursing research into their experiences living with loved ones using the drug.

KEY WORDS: addiction, Australia, comorbidity, family involvement, ice, methamphetamine.
Europe, the consumption of this substance has exceeded that of other illegal drugs (Hoffmann et al. 2016). This relates particularly to the crystalline form of this drug, commonly known as ‘crystal meth’, which has significant ramifications for users and their families.

In Australia, methamphetamine has now superseded alcohol as the drug of most concern to Australians. It can be smoked, snorted, ingested or injected (Australian Institute of Health and Welfare 2017). Because of its appearance, the crystalline form of methamphetamine is frequently referred to as ‘ice’ in Australia. In recent years, there has been significant media and political attention directed towards what is commonly perceived as an ‘ice epidemic’ (Australian Broadcasting Corporation 2016). It has even been called a ‘national menace’ by former Prime Minister Tony Abbott (Australian Broadcasting Corporation 2016). Indeed, this drug is now a source of such lucrative business that the Australian Crime Commission (2015) estimates that 60% of the highest level ‘criminal targets’ in Australia are involved in the production or distribution of methamphetamine or related drugs.

Not only has the ‘ice-epidemic’ gained increasing attention in the media over the past decade, but also Australian health researchers started to address the lack of scientific knowledge about this drug in its current manifestation and its effects. Over the past decade, its physiological effects and its impact on mental functioning have been studied (Moeller et al. 2016; Todd et al. 2016), and more recently, the difficulties that health professionals encounter when ice-users are admitted to emergency departments were addressed (Cleary et al. 2017; Usher et al. 2017). However, until now, the people most concerned with users have been largely ignored, while excessive ice-use can not only devastate the lives of individuals but also of their families.

This discussion paper describes the relatively recent transformation in methamphetamine, leading to a unique landscape of drug use worldwide. It explains how changes in both the formulation and patterns of methamphetamine use have led to the much-publicised ice situation in Australia. The paper then explores current directions of research into methamphetamine use and treatment before addressing the importance, and current lack (‘gaps in the ice’), of nursing research in the area of families affected by this drug. Understanding the process of how families cope with loved ones using this unique and devastating drug will provide valuable insight for nurses working with both ice-users and their families.

A recent UN report discussed the complex composition of the family entity, stating ultimately that ‘there is no definition of the family’ (see Gennarini 2016; n.p.). Consequently, ‘family’ can be understood in a broader sense, composed not only of those who share a biological relationship. Within this paper, the term ‘family’ not only concerns those most closely related to the user (partners, parents, children, siblings, grandparents), but also their extended family (uncles, aunts, cousins) and those who are closely involved with the user but without a blood tie (friends, colleagues, neighbours). In the sociological literature, such a group is usually described as a ‘primary group’ who meets face to face for mutual help, companionship, and discussion of common questions (Elliot 2017). In a recent Dutch study on Family Group Conferencing for adult care recipients in mental health, the family entity was understood as a primary group (Schout & De Jong 2018). Because of similarities in client population, the family entity in cases of methamphetamine use can also be seen as the ‘primary group’ around the user.

BACKGROUND

The current ‘ice-epidemic’ (Australian Broadcasting Corporation 2016) poses a unique issue for health professionals, police, lawmakers, and the community. Front-page headlines in Australian publications alert the public to the growing issues; a local Western Australian (WA) community newspaper reads ‘Exclusive: how the meth epidemic is flooding Perth emergency departments’ (Donaldson 2018) and another WA-based newspaper reports that ‘Meth heads clog up our hospital wards’ (O’Leary 2017). Hospitals cry out for more staff to manage these difficult presentations, and treatment clinics report an influx of users. For that reason, local governments in WA respond ‘Six specialist ‘meth’ nurses’ for hospitals (AAP 2017). The issue of increasing aggression in emergency departments by ice-users has also been recently addressed by a multidisciplinary team of health researchers from different Australian universities (Cleary et al. 2017; Usher et al. 2017). The last year the media also started to cover the difficulties that ice-use hold for families and communities, with growing realisation of its significant ramifications (Verghis 2017).

THE REALITY

The use of ice in Australia occurs in all layers of its society. The most recent estimate is that 280 000 Australians (in a population of almost 25 million
inhabitants) aged 14 and over reported using methamphetamine in the past 12 months (Australian Institute of Health and Welfare 2017, p. 67). It is popular as a nightlife drug with several specific groups using ice more frequently. Methamphetamine use is common among truck drivers, needing to cross the country in a short time span and who may use this drug to stay awake. In addition, fly-in/fly-out workers, after spending long periods away from home on mining sites, may use excessively during their time off. Other groups include ‘remote area’ communities, which are often plagued by long-term unemployment and social decline. Furthermore, people identifying as either homosexual or bisexual use stimulant drugs, including both ecstasy and meth/amphetamines at rates 5.8 times as high as heterosexual people (Australian Institute of Health and Welfare 2017).

In one sense, however, the ‘epidemic nomenclature’ is, perhaps, misplaced. According to Chalmers et al. (2016), the idea of a widespread epidemic is mainly created by the media. Academics, on the other hand, are more reserved (Usher et al. 2015). Overall use of methamphetamine has, in fact, remained relatively stable over the past 10 years in Australia. It has actually slightly declined, according to the most recent drug and alcohol household survey conducted in 2016, from 2.1% to 1.4% reporting use in the previous 12 months. Nevertheless, while the overall number of methamphetamine users appears to have declined, the number using the crystalline form of the drug, ice, has remained relatively stable; for example, in the years between 2013 and 2016, it was 1% and 0.8%, respectively. It is the other, often less potent, forms of methamphetamine that appear to have declined since 2007 and most notably between 2013 and 2016 (from 1% to 0.6%; Australian Institute of Health and Welfare 2017).

Despite this apparent overall decline in methamphetamine use, the real danger of the drug seems to lie in the increased potency of its current form. It is the improved and simplified methods of manufacture that have largely led to the current popular outcry and more visible harms of use in the Australian community. Indeed, internationally, the ease with which methamphetamine is produced has led to greater availability across the globe (European Monitoring Centre for Drugs and Drug Addiction and Europol 2016). In Australia, methamphetamine is a substance that is readily available compared to other stimulant drugs and is therefore relatively cheap (especially in comparison with the availability and price of cocaine).

Furthermore, because Australia is close to the largest ice-producers in Asia, it can therefore be supplied faster, but also because the country is so immensely large and meth laboratories can consequently easily remain under the radar.¹

Common routes of administration have changed for the way ice is used, meaning that it is most commonly administered by smoking or injecting directly into a vein, and with improved production methods comes a significantly higher purity of the drug itself. Whereas in the past, purity of police seizures of methamphetamine demonstrated a range somewhere between 10% and 20%, in recent years, it is common for Australian police seizures of methamphetamine, to range from 60% to 50% purity (Australian Institute of Health and Welfare 2014). It is precisely through the increased purity and the changing patterns of administration that a user gets faster and a higher concentration of the drug in their system with a greater risk of physical and psychological harms relating to use. As a result, the pressure on ambulances and police due to emergency notifications has increased dramatically since 2010 and the emergency departments in hospitals experience challenges in dealing with the extreme aggression sometimes exhibited by users (Cleary et al. 2017).

These changes in production, purity, and mode of use have happened relatively quickly and recently. It is worth noting that the Australian Household Survey did not even include ice as a category until 2007 (Australian Institute of Health and Welfare 2014). This is even though methamphetamine has been around for many years worldwide. First synthesized as a crystalline substance in the early 20th Century, amphetamine and methamphetamine as one of its derivatives, was initially marketed in clinical circles as a bronchodilator (Richards et al. 2017). Since then, it has popped up in various periods of history, for example when Hitler was credited with a systematic distribution of the drug to his troops in Second World War to improve their stamina and performance (Weindling 2016).

THE MAIN CULPRIT

To put the effects of the current ‘batch’ of methamphetamine into context, it is important to understand how the drug works. Put simply, methamphetamine is a central nervous system (CNS) stimulant and, as such, stimulates several important neurotransmitters. These include dopamine (which makes people feel good, gives them energy, and keeps them alert), serotonin (which assists with sleep, appetite, and regulating mood), and

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noradrenaline (which is involved in the ‘fight and flight’ response; Jenner & Lee 2008). These abnormally high levels of neurotransmitter stay in the brain for extended periods of time, around 8–24 hours depending on route of administration (Hill 2015).

The release of these neurotransmitters activates both the nervous and cardiovascular systems (Kish 2008). The outcome to the user of the major increase in the release and reuptake of these chemicals is to feel intense euphoria followed by long periods of stimulation, excitement, and alertness. However, this excess dopamine also damages the dopaminergic and serotonergic axon terminals which can lead to lasting negative effects. Research has demonstrated that use of methamphetamine can lead to complications with multiple organs and cardiac function (Paratz et al. 2015), can have a significant impact on cognitive functions (Yu et al. 2015), and can even lead to changes which seem somewhat similar to those observed in Parkinson’s disease (Todd et al. 2016).

Methamphetamine acts a little differently to other CNS stimulants such as cocaine, which is removed relatively quickly from the body and does not flood the brain with more dopamine in the way that methamphetamine does (US Department of Health and Human Services, National Institute of Health 2013). Dopamine is, of course, stimulated by other pleasurable experiences; sex and food, for example, may elevate dopamine release by 150–300%, while cocaine can stimulate it by around 300%. Methamphetamine, and especially its crystallised form, however, towers above the other competitors and has been noted to increase dopamine release by greater than 1000% above normal levels during the initial hour after taking the drug, effectively overloading the brain (Allerton & Blake 2008). Such grossly abnormal levels of dopamine in the brain can lead to creation of dependence far more quickly than other, less potent, forms of the drug. The overload of the dopaminergic system has also been shown to cause psychotic symptoms in users, often resembling schizophrenia (Hsieh et al. 2014). Indeed, it is argued that up to 40% of users will actually experience a psychotic episode (Glaser-Edwards & Moore 2014). While not inevitable, an increase in presentations to the emergency department or the criminal justice system is perhaps not surprising.

SEARCHING FOR THE HOLY GRAIL

Today, within this new ‘overpowered’ stimulant drug landscape, there has been an associated rush to discover effective treatment for methamphetamine use into line with the level of the problem. The main body of research, to date, has focused largely on treatment for the methamphetamine addiction itself, that is considering talking therapies, residential treatments, and medication-based options.

To date, most of these treatments have generally failed to impress with anything other than occasional mild improvements. For nonpharmacological approaches, the most recent Cochrane review of psychosocial treatments for stimulant use found some support for specific approaches such as ‘contingency management’, but the evidence was thin as to whether this was maintained at longer follow-up (Minozzi et al. 2016, p. 23). In general, some form of individual counselling combined with longer stays in residential rehabilitation programmes seems to offer an increase in prolonged abstinence, but once again, these gains must be balanced against ‘a low probability of abstinence overall’ (McKetin et al. 2017, p. 75).

For pharmacotherapy treatments, current literature demonstrates a paucity of effective options for methamphetamine users, except for some moderate effects demonstrated in smaller studies, such as for naltrexone implants (Colfax et al. 2011) or combination slow release naltrexone plus bupropion (Mooney et al. 2016). In general, all effects were either small to moderate or not replicated in more recent larger randomized control studies. There remains a collective sense of despondency in this area. For example, Pérez-Mañá et al. (2013) state that ‘no significant differences were found between psychostimulants and placebo for any of the studied efficacy outcomes’ (p. 2).

ICE IN THE FAMILY

It is in this climate, where researchers hesitantly search for the ‘holy grail’ of methamphetamine treatment, that the families of users can be easily overlooked. Recent Australian studies, for example, reflect on the experiences of mothers and children of methamphetamine users (Murphy et al. 2010; Nelson et al. 2014) and partners of users (Watt et al. 2016). However, the need to spend time examining the impact of methamphetamine use in families more broadly is clearly apparent. In the United States, Sheridan (2014) conducted a systematic review titled ‘Family Context and Mental Health of Children from Rural Methamphetamine-Involved Families’ to consider the impact on rural child welfare practices. The author found that in the five studies reviewed, children were exposed to
such issues as ‘child neglect and abuse, violence, anti-social socialization, and loss’ (Sheridan 2014, p. 514).

Interestingly, Sheridan also reported that while children in families affected by methamphetamine shared several similarities with families affected by other substances, there were some significant differences. In children from methamphetamine-affected homes, for example, there was the presence of ‘clinically and statistically significant’ trauma symptomatology (Sheridan 2014, p. 518).

MacLean et al. (2017) used semi-structured interviews to look at the perceptions of ice-users, their families, and workers. They found that family reintegration after ice-use provided ‘the strongest motivation for change’ and the authors recommended interventions to ameliorate the sense of shame felt by both users and their families in relation to their methamphetamine use (p. 502). This is also reflected in the broader Australian community, the Law Reform Drugs and Crime Prevention Committee. Their 2014 ‘Inquiry into the Supply and Use of Methamphetamines in Victoria’ highlighted several wide-ranging areas of impact that methamphetamine use is having in that State but mentioned the damaging effect on family support with particular emphasis. Specifically, the inquiry detailed the various submissions that outlined harrowing stories of ‘[...] financial strain and loss of assets, families providing round-the-clock support to loved ones who are agitated and awake during periods of intoxication, and fear of aggression and violence’ (Law Reform, Drugs and Crime Prevention Committee 2014, p. xiv).

The quality of the relationship with family members has also been associated with predicting abstinence from methamphetamine following treatment. For example, McKetin et al. (2017) found that involving families in the treatment process is important in the Australian context. According to these authors, family relationships with methamphetamine users were both a predictor of early discharge from residential treatment (missing family) and a protective factor against relapse. It is important to add that this is not always the case, as Alexander et al. (2018) found that, by providing a safe environment for users, family and friends were sometimes perceived as providing protection from the negative consequences of use and thus facilitating relapse.

As a Clinical Nurse Specialist in Alcohol and Other Drugs (AOD) services, the first author of this study has worked closely with users of methamphetamine in both hospital and community treatment settings. Within this role, the strain and stresses of living with, disengaging from and, sometimes, reconnecting with family members, have been acutely apparent for both users and their family members. Parents often report being at the end of their tether, navigating the highs and lows that often accompany the journey of ice-use. Frequently, it is the family members themselves who are referred to AOD services for support and counselling; this is often regardless of whether the actual methamphetamine user also attends.

There is clear significance in examining experiences of families, not least because current literature does indeed acknowledge the importance of family support in achieving better outcomes in AOD treatment in general and concludes that family involvement improves compliance with treatment and treatment outcomes with AOD use overall (Arteaga et al. 2010; Guibord et al. 2011; ). When looking specifically at facilitators for methamphetamine abstinence, Herbeck et al. (2014) found that users cited pressure and concern from family members as one of the most reported themes in their research. However, Cleary et al. (2017) reported that health professionals drew attention to the, sometimes divergent, expectations of methamphetamine users and their parents. They discussed situations where parents brought their adult children to hospital to seek treatment, often when the user themselves, did not want treatment. This apparent disparity is important when health professionals are making assumptions on client’s reasons for seeking treatment and warrants further investigation. It is reasonable to assume that it could be both a cause and result of disharmony in family relationships.

The above reveals that there has been a notable change in recent years to include family support as a central treatment component in AOD services. There remains, however, a limited focus in the current literature, on understanding the actual processes that families of methamphetamine users go through. New directions of research are therefore required in this unique and troubled landscape to explore how families can be included as partners in care.

GAPS IN THE ICE – FUTURE DIRECTIONS FOR RESEARCH

Patterns of methamphetamine use have changed across the globe in recent years, while both research and treatment have struggled to keep pace with the emerging issues surrounding it. There have been significant changes in the ‘landscape’ of methamphetamine itself in recent years, such as increases in purity and patterns
of use. This study has described the journey to the current ‘ice epidemic’ in Australia and has identified what we have termed the gaps in the ice, referring to current research. In doing so, it has argued the importance of exploring and understanding the specific, and possibly unique, themes and processes that families experience in living with methamphetamine users. This, it has argued, is important because the scarce accounts from the literature indicate that living with ice-users can be a significant cause of stress and disharmony, but also potentially an unmined resource for future treatments.

For these reasons, in the next year, an exploratory qualitative study will be conducted in Western Australia to specifically gain an understanding of the experiences of close family members who reside with loved ones using methamphetamine and, especially its crystalline form, ice. It is anticipated that gaining an understanding of this process will provide valuable insight for nurses working with both methamphetamine users and their families.

The proposed study will serve to underpin proposed future work on the topic of methamphetamine use and treatment. Following the exploratory study, an intervention study may be conducted utilising a collaborative approach with the families themselves. A participatory action research (PAR) design would be beneficial, where involvement of the primary group in every stage of the research project is the guiding principle. For PAR, the ultimate goal is ‘giving the voiceless a voice in identifying and solving their health problems’ (Garcia & Gonzalez 2011, p. 2). Such a research approach finds support within Western Australia’s health policy in designing new directions for treatment and recovery together with the consumers and their families (Government of Western Australia, 2018). For families of those affected by ice-use, the action component of PAR can generate hope and reduce despondency, while contributing to a search for successful social interventions.

Note

1 For example, drug laboratories in the Netherlands, the country of birth of the second author, are usually discovered when, for ‘unexplained’ reasons, the leaves fall from the trees and eventually it appears that chemical residual waste has been dumped (see Schoenmakers et al. 2016); residual waste can be dumped in the desert region of Australia without having leaves falling from trees.

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