

1 Introduction

The purpose of this study is to review interventions that have been implemented to combat volatile substance misuse (VSM), defined as the ‘deliberate inhalation of a volatile substance in order to achieve a change in mental state’ (Advisory Council on the Misuse of Drugs, 1995, p. 14). The focus is on interventions in Australia, but we have also sought and incorporated evidence from overseas. The review is an updated edition of one initially published by the Cooperative Research Centre for Aboriginal and Tropical Health² as *Petrol Sniffing in Aboriginal Communities: a Review of Intervention* (d’Abbs & MacLean, 2000).

As well as incorporating literature published since 2000, the updated review is broader in scope than its predecessor. The 2000 review focused on petrol sniffing in remote Australian Indigenous communities. Coincidentally, around the time of publication of the earlier review, other forms of VSM such as inhalation of aerosol paints also began to arouse concern. These new patterns emerged mainly in urban and regional settings, and involved non-Indigenous as well as Indigenous young people. In response to this trend, we have expanded the scope of this review to cover other forms of VSM besides petrol sniffing, and other settings besides remote communities.

Volatile substances are so-called because they give off fumes at room temperature. Volatile substance misuse differs from other forms of psychoactive drug use in that direct inhalation is almost always the only means of self-administration (National Institute on Drug Abuse, 2005). Around 250 household, medical and industrial products—many of them readily available—contain potentially intoxicating inhalants (Australian Drug Foundation, 2005). They are usually classified into four groups:

- Solvents—liquids or semi-liquids that vaporize at room temperature, such as glues and petrol;
- Gases—medical anaesthetics and fuel gases, such as lighter fuels;
- Aerosols—sprays containing propellants and solvents;
- Nitrites—amyl nitrite or cyclohexyl nitrite found in room deodorizers.

This review covers the first three of these categories. **Aerosol paint sniffing is the form of VSM mostly commonly reported within urban and rural areas.** This practice is known in some settings as ‘chroming’ for the silver and gold ‘chrome’ coloured paints preferred by users. In remote Indigenous communities petrol sniffing remains the most common form of VSM. Gases (often butane and propane) are among other products subject to VSM in Australia. **We do not consider nitrites in this review. While strictly speaking they are volatile substances, nitrites are used primarily to enhance sexual pleasure (on nitrites see French & Power, 1998; Romanelli, Smith, Thornton, & Pomeroy, 2004).**

² The Cooperative Research Centre for Aboriginal and Tropical Health has since been superseded by the Cooperative Research Centre for Aboriginal Health.

Much of the literature on interventions into VSM consists of unpublished or ‘grey literature’. We have endeavoured to survey both published and unpublished reports, by taking the following steps:

- searching databases for post-1999 literature, using the keywords volatile substance, solvent, and inhalant;
- following up articles referenced in literature accessed through the search;
- writing to Australian Government departments, non-government organisations known to be associated with VSM interventions, and key international researchers.

Despite our efforts, it is likely that we have overlooked some material. We should also acknowledge drawing on a number of major inquiries and reports on VSM that have taken place since 2000. In particular, the report of a Victorian Parliamentary inquiry released in 2002 provides a detailed consideration of VSM and associated interventions, in both rural and urban contexts (Parliament of Victoria Drugs and Crime Prevention Committee, 2002). In 2006 the Community Affairs Reference Committee of the Commonwealth Senate reported on an inquiry into petrol sniffing in Australian Indigenous communities (Senate Community Affairs Reference Committee, 2006). Also in 2006 the final report of the Australian National Inhalant Abuse Taskforce (NIAT), a body established by the Ministerial Council on Drug Strategy in 2003, was released under the title *National Directions on Inhalant Use* (2006). A list of VSM research and reports is provided in the NIAT report (National Inhalant Abuse Taskforce, 2006, pp. 31 & A5).

Since publication of the first edition of this review, there has been a shift towards both more systematic literature reviews, and towards viewing evidence hierarchically, with randomised control trials at the top of most hierarchies, and purely descriptive studies at the bottom. Almost all of the published evidence relating to VSM interventions belongs in the lower orders of evidence. We are not aware of a single relevant randomised controlled trial, and few studies use ‘controls’ of any sort. Many reports of interventions contain little more than a program description and some quantitative or qualitative post-intervention data; a few include pre- and post-intervention data, quantitative and/or qualitative. In many cases, although the scientific quality of the evidence is poor, the reports still contain insights or observations that we believe are relevant to likely readers of this review. That, indeed, has been our principal criterion for inclusion.

We have aimed to provide a broad overview of the literature for people with reasonable English skills. We imagine our readers to be either living in affected communities, members of non-government organisations dealing with VSM, or policy makers. People for whom English is not a first language may not find the review easy to read. We refer them to the Aboriginal Alcohol and Drug Council of South Australia’s plain language resource kit for communities wishing to address VSM (Aboriginal Drug and Alcohol Council (SA) Inc, 2000).

The review is also limited to documents written in English. Some accounts of petrol sniffing interventions in Aboriginal languages—for instance the CD set produced by CAYLUS (2006b)—have not been translated into English and thus we have been unable to draw upon them.

The review is divided into three parts. The first part focuses on ‘VSM as a problem’, and includes chapters on prevalence and patterns of VSM both overseas and in Australia, causes of VSM, and the large number of associated problems. Part Two is concerned with interventions, and is divided into chapters dealing with supply reduction, demand reduction, harm reduction and legislation. In the context of VSM, these are defined as follows:

- **supply reduction**—actions taken to limit the availability of volatile substances, either by restricting their accessibility (i.e. through retailer education) or by substituting the products with a less toxic alternative;
- **demand reduction**—measures aiming at encouraging individuals and groups of people not to misuse volatile substances;
- **harm reduction**—measures which reduce the risk of harm from VSM, without necessarily reducing its prevalence;
- **law enforcement**—statutory and community-based measures aimed at enforcing laws, by-laws or other sanctions relating to VSM.

The final part, entitled ‘From interventions to strategies’, is an attempt to summarise and integrate the findings from the previous chapters into a framework which provides a basis for planning interventions. This framework draws on the work of Zinberg (1984), who argues that the manner in which mind-altering substances are used, and the consequences of those patterns of use, are a product of the interrelated effects of three sets of factors: pharmacological properties of the *substances* concerned, attributes of individual *users*, and characteristics of the *environment* in which use takes place. No single factor, taken by itself, provides an adequate framework for explaining the use and effects of a mind-altering substance, and consequently no single factor constitutes, by itself, an adequate basis for intervention. One major reason why so many interventions addressing VSM in the past have had little or no effect is that they were focused exclusively on one of these factors, without consideration being given to interactions with other factors.

Finally, in considering intervention options, one qualification should be borne in mind. People who misuse volatile substances often use a range of drugs (Australian Institute of Health and Welfare, 2005). In the main, interventions that address the issues underlying drug use will have a more profound effect than attempts to stop them from using a specific substance. Indeed, the most effective measures against VSM by Indigenous and marginalised people may prove not to be drug-related interventions at all, but other developments which change the mix of economic, cultural and spiritual contents of people’s lives and environments. Brady concludes a major study of petrol sniffing by pointing out that members of Aboriginal society, like those of all societies, need opportunities for meaningful productive activities. ‘People abandon their drug use when it begins to interfere with too many other valued aspects of their lives. If there are no other valued aspects to life then there is simply no compulsion to abstain’ (1992, p. 193).

