Research Report

A Desktop Review of Adolescent Substance Abuse Intervention

Royal Bafokeng Administration

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Acknowledgements

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Definitions

Binge drinking	Five or more drinks on a single occasion
CBT	Cognitive Behaviour Therapy
CRA	Community Reinforcement Approach
FM	Family Matters
Indicated interventions	Targeted to individuals who are users of substances
LST	Life skills training
MET	Motivational Enhance Therapy
MI	Motivational Interviewing
NICE	National Institute for Health and Clinical Excellence
Nyaope	Heroine-based name for street drug
Risky drinking: Harmful drinking	Alcohol consumption that results in adverse events (physical and/ or psychological)
Risky drinking: Hazardous drinking	Quantity or pattern of alcohol consumption that places individual at risk for adverse consequences
SACENDU	South African Community Epidemiological Network on Drug Use
SBI	Screening Brief Intervention
SBIRT	Screening Brief Intervention and Referral to Treatment
Selected interventions	Targeted to specific groups because they represent a high risk or vulnerable group
SFP 10-14	Strengthening Families Program for Parents and Youth 10-14
Sugars	Heroine-based name for street drug
TIK	Methamphetamine
Universal interventions	All individuals with the same systems (e.g., schools) – population focus
Whoonga	Heroine-based name for street drug

1. Preamble

Most of the established evidence on substance use exists in developed rather than developing countries. Despite this bias, only the most robust available evidence is presented in this report. Nevertheless, research undertaken in local contexts is cited and used, especially if the research builds on existing evidence using well recognised research methodologies. On this basis, I believe that the evidence-base is substantive and more than likely to apply to local contexts. The contexts and conditions under which individuals engage in using substance may vary across research settings. For example, cheaper as opposed to more expensive substances may be consumed which nevertheless constitute risky and hazardous drinking. In addition, employment and educational levels as well the range and extent of drug use and the type of drugs used are likely to vary (for example, 'TIK', 'nyaope' 'whoonga' and 'sugars'). Given that alcohol and marijuana constitute universal substances of choice, much of the evidence presented is focused around these substances (use and misuse). This review tends to emphasise alcohol use because of its ubiquitous presence in the lives of adolescents and in treatment populations with substance abuse issues. Marijuana use is highlighted given a similar presence in the substance abuse profile of adolescents in South Africa (Dada et al., 2014).

Contextual issues will play a significant role on whether intervention programmes should be universal, selective or indicated and is not addressed by this review as all of these conditions are present in the context of the review. Universal programmes focus on all individuals within some system, usually the school environment or a well-defined community. In essence, users and non-users are part of this primary intervention. A possibility exists that its effects will generalise to those most at risk. On the other hand, a selective programme may focus only on a specific age-cohort, either because they are vulnerable or because they are at high risk for the onset of substance abuse (secondary prevention). The risk is amplified by factors such as poor parental monitoring, negative peer influences and/ or an environment that promotes the use of substances. For those already engaged in using/ misusing substances, an indicated intervention programme may work better (tertiary prevention). For the best outcomes, individuals using substances should be identified early on as the longer the duration of substance use, the more difficult it is to treat or manage (Cuijpers, 2002a). For some or all of these individuals, risk factors may be distal (parental socio-economic status) to their substance use, or proximal (peer pressure to smoke and drink alcohol) or in some intermediate space. When these multiple risk factors combine, as in being from a financially poor home, with substance abuse among parents, peer influences that encourage substance misuse and being unemployed, the risks escalate given the multiple systems of influence involved. Hence it is likely that youth of different ages and varying social and economic backgrounds will present with different risk profiles.

Non-behavioural Interventions (NBI) forms a second major focus of this review. Inevitably, the focus of such interventions is larger in scope, policy-driven and attempts to influence drinking behaviours and cultures across a wide spectrum of society. Many of these "interventions" are therefore located

within policies that govern the sale and availability of alcohol, the enforcement of laws enshrined in the statute and the role that producers of alcohol play in supporting or circumventing such roles.

It is apparent that whatever interventions are promoted, these cannot occur independently of other elements in the community that contribute to youth substance abuse and should be integrated with policy and policing recommendations for reducing ease of access and proliferation of alcohol outlets.

2. Background

Alcohol constitutes the third largest risk factor for disease, contributing to 4% of the global burden of disease (Rehm et al., 2009, Rehm et al., 2003). While alcohol consumption is highest in the developed northern hemisphere, South Africa (and Namibia) constitute the highest medium level consumption countries in the world (WHO, 2011). The World Health Organisation's Global Burden of Disease study assigned cause-specific disability adjusted life years (DALYs) lost for youth aged 10-24 years to alcohol (7%), unsafe sex (4%), iron deficiency (3%), lack of contraception (2%) and illicit drug use (2%) (Gore et al., 2011, Hanson et al., 2011). Behaviours such as binge drinking (defined as drinking five or more alcohol drinks on the same occasion on at least 1 day in the past month), smoking, substance use and risky sexual behaviour emerge in adolescence and there is evidence that these tend to cluster together (Wiefferink et al., 2006). These authors usefully suggest an integrative approach to individual health behaviours that incorporates the interaction between various risk behaviours. The early use of alcohol is also associated with predisposing adolescents to mental health and neurocognitive deficits. Poor cognitive abilities also moderated the relationship between poor coping skills and future likelihood of developing alcohol dependence (Hanson et al., 2011). Using data from the US National Co-morbidity Study Adolescent-Supplement (NCA-S), the increase in prevalence rates over the years 13-18 years suggests this period to be key in the development of alcohol use disorders (Marshall, 2014). A systematic review from general population studies of drinking behaviour in late adolescent populations between the ages of 15-19 years revealed on 3-year follow up that higher alcohol consumption in late adolescence continues into adulthood and is associated with alcohol related problems, including dependence (McCambridge et al., 2011, Curtis et al., 2014).

Adverse consequences of adolescent use of marijuana are illuminated in work that combined three large longitudinal studies from Australia and New Zealand. Daily users of marijuana before the age of 17 years had a distinct reduction in the odds of completing high school, obtaining a degree and greater odds of later dependence and use of other illicit substances, compared to individuals who never used marijuana before the age of 17 years (Silins et al., 2014).

Surveys of substance use in South Africa have largely focused on adults. The South African Stress and Health study (SASH) undertaken from 2002-2004 used national household data to estimate the cumulative use of alcohol among adults at 38.7%, tobacco use at 30%, extra-medical psychoactive

drug use at 19.3%, marijuana use at 8.4%, and other drug use at 2% (van Heerden et al., 2009). Substance misuse is largely prevalent among males, typically with an 80% male and 20% female split. The South African national HIV prevalence, incidence, and communication survey 2008 (SABSSM) surveyed a random population sample using the Alcohol Use Identification Test (AUDIT) and found 41.5% of men and 17.1% of women currently drink alcohol (Peltzer et al., 2011). In this survey, risky or hazardous drinking was reported by 17% of men and 2.9% of women, with risky drinking occurring predominantly among those between 20 and 54 years of age, who lived in urban areas, were from a lower economic status group and had lower education (Peltzer et al., 2011).

3. Patterns of Adolescent Substance Abuse

Patterns of alcohol consumption help establish the determinants of the types and levels of problems associated with drinking behaviour. Alcohol consumption in South Africa follows a similar pattern to that of sub-Saharan Africa, namely a predominance of infrequent heavy drinking by men or heavy episodic drinking (WHO, 2011). Typically, men consume high quantities of alcohol, get drunk on more occasions when drinking is allowed, drink in public places and at community festivals (WHO, 2011). South Africa is one of the countries characterized by hazardous drinking patterns which is defined as a quantity or pattern of alcohol consumption that places individuals at risk for adverse health events, while harmful drinking is defined as alcohol consumption that results in adverse events (e.g., physical and/ or psychological harm) (Peltzer et al., 2011).

The SABSSM findings indicated that 5.3% (95% CI: 4.2-6.5) of 15-19 year olds had engaged in binge drinking in the past month and 6.1% (95% CI: 4.9-7.5) had hazardous or harmful patterns of alcohol consumption. The three national Youth Risk Behaviour Surveys (YRBS) of over 10,000 grade 8-11 learners conducted in 2002, 2008 and 2011 show stable rates of alcohol consumption (ever used in past 30 days) of 32-49% (Reddy et al., 2010, Reddy et al., 2013, Reddy et al., 2003). Binge drinking is reported to have stabilised around 25% among youth (Reddy et al., 2013). The consistently higher rates of hazardous or harmful drinking in the targeted YRBS survey suggest significant underreporting may play a role in more general household surveys. A survey of grade 8-10 learners in the Western Cape noted that 66% of learners reported alcohol as the most frequent substance ever used, with almost a third reporting early initiation (prior to age 13). In this sample, binge drinking among males was 25.4%, with about 12% engaging in hazardous or harmful drinking. Outside of the school environment, the prevalence of risky alcohol use, binge drinking and other drug use was found to be higher among those aged 18-24 than older adults (Ward et al., 2008, Morojele et al., 2013). In addition, these age cohorts also represent high risk groups for risky behaviour. The most recent survey found an HIV prevalence rate of 8.2% in North West Province, the third highest after KwaZulu-Natal and Mpumalanga province in the 15-24 year age group (Shisana et al., 2012). In addition, it was noted that key populations most at risk for HIV consistently underestimated their vulnerability to HIV infection. The low perceptions of personal risk for HIV

infection was predominantly among Black African females aged 20-34 years, Black African males aged 25-39 years, high risk drinkers aged 15 years and older and recreational drug users aged 15 years and older, and the majority of disabled aged 15 years and older (Shisana et al., 2012).

The South African Community Epidemiological Network on Drug Use (SACENDU) noted in their most recent research brief that across the country, the average age of those in treatment ranged in age from 27 to 34 years of age. However, closer inspection of these age cohorts reveals that a significant number of these comprised youth under the age of 20 years, ranging between 16% in the Eastern Cape and 34% in KwaZulu-Natal (Dada et al., 2014).

The following section of the desktop review focuses on the best research evidence available on substance abuse interventions for adolescents. Each section reviews the most important studies related to the intervention. The importance of the studies cited is determined to a large extent by their methodological rigour. Typically, the study would be a systematic review or a meta-analysis of the most important work in a particular area. A description of the most important elements of the intervention is also provided. The outcomes of the evaluative research studies is then summarised and tentative recommendations provided.

4. Behavioural Interventions for Adolescent Substance Use

4.1 Motivational Interviewing

Motivational interviewing (MI) has steadily gained in importance in being a treatment of choice in adult behavioural medicine and addiction. Originally introduced by Miller and Rollnick, the client centred method seeks to enhance personal motivation for change in individuals through communication and an exploration of client perspectives and resolving ambivalence (Miller and Rollnick, 2009, Erickson et al., 2005). MI is a patient or client centred approach to enable discussion of psychosocial issues that are directly and indirectly related to an individual's health. The approach emphasises communication that focuses on building an empathic partnership, that focuses on interpersonal sensitivity and information giving (Erickson et al., 2005). The four underlying principles of MI include: *Express empathy* (acceptance facilitates change; reflective listening is a core skill; and ambivalence is normal); *Develop discrepancy* (the client is responsible for presenting arguments for change; change is a function of the perceived discrepancy between present behaviour and desired goals or values); *Roll with resistance* (avoid arguing for change; resistance is not directly opposed; new perspectives are encouraged but not imposed; answers and solutions are provided by the client; resistance is viewed as a pointer to find alternative responses); and *Support self*-efficacy (belief in the possibility of change is an important motivator; responsibility for change rests with the client; belief in the clients ability to change becomes a self-fulfilling prophecy) (Erickson et al., 2005).

In the context of youth, the development of a therapeutic alliance with the parents is important. MI has been found to be especially effective in promoting substance use change and considered to be better than cognitive behavioural therapy and medication for reducing alcohol, drug use and cigarette smoking in adults (Erickson et al., 2005), and may be especially attractive to youth because it does not impose specific outcomes, is not linked to a specific substance and is non-confrontational. It is because of these elements that MI may be useful as an instrument of public health intervention. These investigators were able to significantly reduce use of cannabis, alcohol and cigarettes using a 1-hour single session face-to-face interview (McCambridge and Strang, 2004). Nevertheless, a meta-analytic review revealed that while some studies have demonstrated that MI decreases alcohol use as well cannabis and tobacco frequency of use over a long-term, other studies showed that the reported initial gains from MI interventions disappeared over time (Jensen et al., 2011).

A single session brief MI nurse-delivered randomised control trial was undertaken using a primary health care clinic in the Western Cape (Mertens et al., 2014). The nurses were provided with 3-day training in Brief Motivational Interviewing (BMI) for alcohol and drug misuse using Rollnick's Health Behavior Change: A Guide for Practitioners training manual. The trainer was an experienced practitioner and trainer. Regular weekly supervision meetings were held allowing the nurse practitioners to listen to recordings of their interviews with the trainer, with feedback provided to ensure fidelity with the training manual. The mean age of the sample was 21 years, 48% males, 49% Black, 51% mixed-race, with 79% having a secondary school education, 74% were unemployed and 20% lived in a shack or traditional dwelling. Alcohol and cannabis were most commonly used. While a significant effect was not noted at 3 month follow up, a significant reduction in alcohol scores use was noted for those who received BMI compared to those on usual care (Mertens et al., 2014).

A meta-analytic review of the effectiveness of MI for adolescent substance use behaviour change noted small but significant effect sizes across numerous substances use outcomes, including tobacco, alcohol, marijuana and illicit drug use. These findings are impressive because most of the evidence reviewed comprised single treatment sessions (average of 4 sessions overall) delivered by those without graduate training in MI (Jensen et al., 2011).

The National Institute for Health and Clinical Excellence (NICE) guidelines suggest one or more sessions of MI lasting about an hour should be offered that focus on adolescents' use of both legal and illegal substances as well as any physical, psychological, social, educational or legal issues related to their substance misuse. Reduction or elimination of misuse of substances should be one of the primary goals of the MI sessions (National Institute for Health and Clinical Excellence, 2014). It has further been argued that a developmental understanding of age appropriate reasoning, self-understanding, language ability to express one's self and environmental context is important to MI success (Erickson et al., 2005).

4.1.1 Outcome and Recommendation

MI or its elements is to be found in most effective intervention programmes. The fact that single session MI interviews can produce small but significant changes in alcohol and drug misuse habits is promising and must form part of any consideration in reducing risk for adolescent substance use. A potential barrier to its effective implementation is that it requires a level of skill and training that is not readily available, but which can be acquired. MI as part of a public health effort may prove to be cost-effective but given the level of skill required, adequate supervisory mechanisms need to be place.

4.2 School-based interventions

A review to establish the key characteristics of effective drug prevention programmes in school established the following principles. Intervention programmes must:

- be empirically established;
- be delivered interactively;
- employ the 'social influence model';
- focus on norms, commitment and intentions to not use substances

In addition, recognise that the effects of school-based programmes are strengthened by community interventions, the use of peer leaders and additional life skills programmes (Cuijpers, 2002b, Cuijpers, 2002c, Cuijpers et al., 2002).

The social influences model is based on the idea that inoculation against social pressures to use drugs will help minimise the chances of later use. These skills can be trained and can be used to counteract the influence of high risk milieus where the use of substance may be common and even seen as desirable (Sussman et al., 2004). Using these guidelines, a programme called *Unplugged* was devised which emphasised training in resistance skills against drug use, enhancing personal attitudes and self-commitments to remain a non-user, enhancing cognitive-behavioural skills, focusing on norms and life skills such as communication and social skills. In addition, a family component was introduced to complement the programme on the assumption that parents lack basic knowledge about drugs and to generate parenting skills to strengthen family relationships, improve communication and increase their self-confidence as parents. In sum, knowledge and attitudes toward drug use, interpersonal and intrapersonal skills are emphasised. Given the central role of teachers, they also received training in interactive school work. (Van Der Kreeft et al., 2009). The largest European drug education trial ever conducted tested whether 'comprehensive social influence' (CSI) school-based drug prevention programmes could prove effective in Europe in seven European countries involving 170 schools, among students aged 12-14 years. The European Drug Addiction Prevention Trial (EU-Dap) tested the 12-lesson *Unplugged* curriculum delivered by class teachers. In addition, workshops for students' parents and debriefing sessions were led by class peers.

The modest findings of the study show that the *Unplugged* programme had the most marked effect on problematic drinking rather than the frequency of drinking, i.e., those receiving the intervention were not less likely to have been drinking. In part, this is explained by a European culture where drinking is a commonly accepted social behaviour. Problematic drinking however related to individuals and their circumstances, and hence they appeared to be more responsive to the programme. The study also concluded that the social influence curricula can be effective in delaying onset of substance use or hinder progression to higher levels of use or help reduce high levels of use to lower levels (Caria et al., 2011). At 18 month follow up, more of those in the prevention arm continued to report that they were not drunk in the past month, fewer individuals who reported being drunk once or twice in the past month progressed to more frequent drunkenness, and more did not become drunk at all (Faggiano et al., 2010).

In South Africa, many schools rely on various forms of life skills training (LST) programmes) to deal with issues related to alcohol and drug misuse, but lack evaluation and evidence to indicate the impact on substance use behaviour in school children. While alcohol and drug education may increase knowledge, it has little effect on drinking behaviour or illegal drug use (Drug and Alcohol Findings, 2011a).

An authoritative review on universal school-based prevention programmes for alcohol misuse in young people examined 11 trials of alcohol-specific interventions and 39 more generic studies (Foxcroft and Tsertsvadze, 2011). Of the alcohol-specific trials, there was no impact in 5 of these studies and the remaining 6 showed significant differences relative to a standard curriculum, though the impact of the intervention was confined to particular subgroups (no generalizing effect). Of the 39 trials, 24 did not have an impact, while the remaining studies had similar outcomes to the alcohol-specific trials. One study found a negative impact.

4.2.1 Outcome and Recommendation

While it would be tempting to suggest that school-based interventions do not work, it is more likely that the effectiveness of school-based programmes is affected by particular settings. It is unclear what these may be. It is also apparent from this review that generic programmes based on psychosocial or developmental approaches which emphasise life skills; social norms, behaviour norms and peer affiliation tended to fair better than usual care (minimal treatment options). Even though the impact of generic programmes is small, they may have secondary benefits in improving other problem behaviours and consequently influence alcohol specific behaviour. The widely used *Unplugged* programme has many elements that could be successfully adapted to South African schools, but would need a fair amount of research and implementation to determine which elements work best in the varying school contexts in South Africa.

4.3 Non School-based Multi-component Interventions

A systematic and methodological review evaluating interventions delivered outside of the school system targeted to youth (ages 11 to 25 years) with alcohol problems or those engaged in

behaviours that places them at high risk of alcohol-related harm was undertaken (Calabria et al., 2011). Almost all (8) of the nine studies evaluated counselling-based interventions, with the majority (7) of these being individual counselling. Four of the individual counselling interventions involved motivational interviewing, three used cognitive-behavioural therapy and four employed a family therapy and/ or a community reinforcement approach. One study tested the efficacy of medicating alcohol-dependent adolescents with 'ondansetron' (a serotonin antagonist drug that appears to work best with early onset of alcohol dependence) (Drug and Alcohol Findings, 2014a). Unfortunately, the methodological quality of these studies varied greatly, but they do represent the best evidence available for young people with existing alcohol use or who participate in behaviour that places them at risk of harm. Cognitive-behaviour therapy (CBT), family therapy and community reinforcement appear to hold promise as effective out of school-based interventions (Drug and Alcohol Findings, 2011b).

The community reinforcement approach (CRA) is a comprehensive cognitive-behavioural programme for the treatment of substance abuse premised on the idea that the environment has a strong influence in encouraging or discouraging drinking or drug use (Smith et al., 2001). The approach seeks to identify external and internal triggers related to familial, social, recreational and occupational areas of a person's life reviewing both its positive and negative consequences. Where skill deficits are noted, behavioural training is provided (e.g., drink/drug refusal, communications training, problem-solving) as well as involving significant others.

Early studies, even though small sample sizes were small, revealed high levels of efficacy for CRA. For example, at six month follow up CRA participants had drunk alcohol on 14% follow-up days compared to 79% after standard treatment; they were unemployed on average of 5% of days relative to 62% of the standard group and only 2% were hospitalised compared to 27% after standard treatment (Smith et al., 2001). Later studies have confirmed these initial positive findings with CRA being extended further to work in combination with the standard alcohol treatment of 'disulfiram'. CRA has recently been extended to include those unwilling to seek treatment. Instead of attempting to motivate individuals to seek treatment directly, a variant of the original CRA programme called Community Reinforcement and Family Training (CRAFT) works through a significant other associated with the substance abuser. These associates receive training in behavioural techniques (positive reinforcement for clean/sober behaviour, withholding reinforcement for substance using behaviour) which change how they interact with the user. Various evaluation studies have found CRAFT to be superior Al-Anon, 12-step programmes or other treatment interventions (Drug and Alcohol Findings, 2011b). Even though CRA and its variant CRAFT has an excellent research pedigree, it has not been widely adopted because it appears to be a more complex way of dealing with a person who is abusing substances rather than simply focusing on the substance abuse itself (Drug and Alcohol Findings, 2004b). Nevertheless, CRA provides a basis for developing an intervention approach that involves families, schools, local authorities as well as social and peer networks implicated in ongoing abuse of substances and holds significant promise in low resources contexts given the group-based nature of the intervention.

An extension of the CRA is the Adolescent Community Reinforcement Approach (A-CRA) which was manualised and tested in the US Cannabis Youth Treatment Study compared to two one-on-one motivational interviewing, three cognitive-behaviour group sessions. In some sites in the study, further CBT sessions were provided, plus family support and parent education. CRA delivered 10 individual sessions, four with parents and caregivers, including practicing communication and problem-solving. While none of the interventions proved superior to each other the A-CRA showed the most days of abstinence and was more cost effective (Drug and Alcohol Findings, 2014c).

4.3.1 Outcome and Recommendation

Aside from standard interventions such as MI, CBT and family therapy which have been commonly employed in treating adolescent substance use, the Community Reinforcement Approach (CRA) helps extends this work by paying attention to the internal and external cultural and environmental contexts of youth in providing a treatment platform. The multiple domains in which youth operate also form a focus of the intervention and includes parents and families, schools and local health and social service agencies. The downside to most of these approaches is that it requires a fair amount of training and dedicated staff to undertake these interventions.

4.4 Family-Based Interventions

Considerable promise for treating youth delinquency and substance use problems was noted from a meta-analytic review of studies of four family therapy approaches (Baldwin et al., 2012) . The therapies include brief strategic family therapy, functional family therapy, multidimensional family therapy and multisystemic therapy. All of these approaches seek to change dysfunctional family patterns or family systems that contribute to the onset and maintain adolescent delinquency and substance use. A central focus is to assist parents and adolescents to improve communication and manage conflict. In addition, improving parenting skills (e.g., how to set limits) and integrating with external systems such as the school system was promoted. The review considered all studies that focused on youth 11-19 years and were assigned to one of the family interventions compared to either an alternative therapy, treatment as usual or no treatment condition. While the effect sizes for these family focused interventions varied on outcome measures depending on the comparison condition used, the overall results provide modest support when compared to treatment as usual. However, follow up periods are limited to the end of treatment and long-term effects are unknown (Baldwin et al., 2012). Nevertheless, these four family programmes have been recommended by the National Institute for Health and Clinical Excellence (NICE) for children and youth who misuse alcohol and who also have other major problems and/ or limited social support (Drug and Alcohol Findings, 2014b).

The cost of running such (family) programmes is considerable and is in the hands of private developers which would make it inaccessible to many. It requires staff who are well trained and competent in running family interventions of one sort or another. Further, most of the evaluations were undertaken by those who developed these programmes with the likelihood that the

effectiveness of these interventions may see a decline in intervention effects (Drug and Alcohol Findings, 2014b).

4.4.1 Family Matters Programme

Family Matters (FM) is a family-directed program to prevent adolescents 12 to 14 years of age from using tobacco and alcohol. The intervention is designed to influence population-level prevalence and can be implemented with large numbers of geographically dispersed families. The program encourages communication among family members and focuses on general family characteristics (e.g., supervision and communication skills) and substance-specific characteristics (e.g., family rules for tobacco and alcohol use and media/peer influences). The program involves successive mailings of four booklets to families and telephone discussions between the parent and health educators. Two weeks after family members read a booklet and carry out activities intended to reinforce its content, a health educator contacts a parent by telephone. A new booklet is mailed when the health educator determines that the prior booklet has been completed. The program can be implemented by many different types of organizations and people, such as health promotion practitioners in health departments, school health educators and parent-teacher groups, volunteers in community-based programs, and national non-profit organizations.

The Strengthening Families Programme for Parents and Youth 10-14 (SFP 10-14), a parent, youth, and family skills-building, was developed for Project Family, a research endeavour of the Institute for Social and Behavioral Research at Iowa State University. SFP 10-14 is a curriculum designed to i) prevent teen substance abuse and other behaviour problems, ii) strengthen parenting skills and, iii) build family strengths. The programme is taught with 8 to 13 families over a seven week period, usually in the evenings (to accommodate working parents and school going children). Parents and youth meet in separate groups for the first hour and together as families during the second hour to practice skills, play games, and do family projects. Sessions are highly interactive and include role-playing, discussions, learning games, and family projects. In addition to preventing substance use, SFP 10-14 helps parents/caregivers learn nurturing skills that support their children, teaches parents/caregivers how to effectively discipline and guide their youth, gives youth a healthy future orientation and an increased appreciation of their parents/caregivers, and teaches youth skills for dealing with stress and peer pressure.

SFP 10-14 has been scientifically evaluated in randomized, controlled trials with families of sixth graders in various settings by the Iowa State University (Spoth et al., 1999a, Spoth et al., 1999b). The initial large-scale, experimental design trial involved random assignment of 33 Iowa Public Schools. Outcome evaluations entailed the use of multi-informant, multi-method measurement procedures at pre-test, post-test, and follow-up data collections completed approximately one half, one and one half, two and one half, four, and six years after pre-test. Assessments included in-home videotapes of families in structured family interaction tasks and in-home interviews that included scales from standardized instruments and commonly used measures such as the National Survey of Delinquency and Drug Use. A total of 161 families participated in 21 intervention groups at eleven different

schools, with group sizes ranging from three to fifteen families. Participation rates were high among pretested families. An analysis of data demonstrated positive results for both parents and youth. Comparisons between the intervention and control groups showed significantly improved parenting behaviours. Specifically, improvements were noted in

i) Communicating specific rules and consequences for using substances,
ii) Controlling anger when communicating with the child,
iii) Positive involvement with the child, and
iv) Better communication with the child.

Analyses of youth substance use and use-related child outcomes such as substance use, problem conduct, school-related problem behaviours, affiliation with antisocial peers, peer resistance have demonstrated positive outcomes at follow-up assessments (Spoth et al., 2001).

4.4.2 Outcome and Recommendation

Compared with youth in the control group, those in the *Family Matters* intervention group showed statistically significant delays in initiation of alcohol, tobacco, and marijuana use (Spoth et al., 2004, Spoth et al., 2000, Spoth et al., 2001). The *Family Matters* programme has been scrupulously studied by independent researchers and was singled out as the most promising "effective intervention over the longer-term for the primary prevention of alcohol misuse" (Drug and Alcohol Findings, 2008, Drug and Alcohol Findings, 2004a, Foxcroft et al., 2011). Family Matters has since been replicated in more than 20 countries (e.g. Latin America Sweden, U.K., Central America, Spain, Turkey, Greece, Italy, Norway, and Croatia).

The strengthening families approach emphasised by SFP 10-14 has been adopted by The City of Cape Town municipality as their flagship programme and has been dubbed a model programme by the US-based Substance Abuse & Mental Health Services Administration (SAHMSA) as a "Model" programme for families.

The NICE guidelines for family-based interventions suggest that for youth who misuse substances, a structured programme of support is offered over a period of two or more years. Such a programme should include at least three brief motivational interviews each year targeted to parents/ caregivers, assess family interaction, offer parental skills training and encourage parents to monitor their child's behaviour and academic performance (National Institute for Health and Clinical Excellence, 2014).

4.5 Screening and Brief Intervention

A major evidence-based approach to substance is screening, brief intervention and referral to treatment (SBIRT). SBIRT focuses on providing short, one-on-one counselling sessions for individuals who engage in drinking in ways that are harmful or hazardous, unlike traditional approaches which focus on alcohol dependency. As such, SBIRT's primary goal is to moderate alcohol consumption to sensible levels and eliminate harmful drinking patterns such as binge drinking (National Institute on Alcohol Abuse and Alcoholism, 2005). SBIRT can also be delivered by non-specialist staff, including

community health workers, teachers, nurses or nurse assistants with adequate training and a minimum of supervision. The initial step in the process is to apply an effective screening tool to identify harmful patterns of alcohol consumption. The intervention itself ranges from a few simple statements that indicates to the patient that based on the screening score, the patient's drinking exceeds recommended limits and could lead to alcohol-related problems and advises the patient to cut down or stop drinking (National Institute on Alcohol Abuse and Alcoholism, 2005). However, the brief intervention (BI) itself could vary from giving advice to extended counselling in short sessions delivered on one or more occasions. Over three decades of SBIRT evidence-based interventions, primarily with adults in medical settings, has established SBIRT as an effective and cost-effective approach in multiple settings (Academic ED SBIRT Research Collaborative, 2007, Agerwala and McCance-Katz, 2012, Bertholet et al., 2005, Bray et al., 2012, Kaner et al., 2013, Curtis et al., 2014).

A review of various studies noted that BI helped reduce alcohol-related harms among adolescents (Patton et al., 2014). However, the systematic reviews with adolescents regarding its effectiveness to reduce risky alcohol use have proved inconclusive (Curtis et al., 2014). MI or motivational enhanced therapy (MET) appears to be closely associated with reductions in alcohol consumption, but largely within a health domain. A number of issues remain unresolved, particularly the exact relationship between age, alcohol consumption and harm remains unclear (Patton et al., 2014). A review of 24 studies of online BI found that computerised SBIRT which is interactive and which incorporates MI (motivational interviewing) techniques that are client centred and non-confrontational could lead to lower levels of alcohol consumption and binge drinking (Curtis et al., 2014). There are few studies reporting applying SBIRT to public school-settings. Nevertheless, the few studies that have done so report significant reductions in alcohol and cannabis use, with enhanced effects if the programme involved parents as well (Winters et al., 2012). It has been pointed out that adapting SBIRT to school settings may prove challenging as it will require adaptation, additional training for school counsellors, be a service that students can trust, and not interfere with the students' education or school operations (Curtis et al., 2014).

4.5.1 Outcome and Recommendation

Using a trained school counsellor or social worker to deliver SBIRT universally to students on a voluntary basis using computerised SBIRT is likely to yield great benefits in reducing alcohol use. While the evidence is highly promising, significant challenges remain in terms of organisational and procedural barriers related to school environments, including access and familiarity with computers. School authorities may not see the school as an appropriate site for dealing with issues of alcohol use, teachers may not see it as part of their role and function, time and training issues, and access to computers are likely to be raised as major impediments to implementation.

5. Overview and Recommendations for Behavioural Interventions

The evidence for this review is primarily from developed countries with a few exceptions. In addition, only robust findings are presented here which tend to rely on large and replicated studies undertaken independently of researchers promoting particular intervention approaches. In general, the literature in relation to adolescent substance abuse is less well developed than for adults. Thus, the dearth of local evidence is to be expected, but the few studies that do exist, nevertheless adopt similar perspectives and theoretical standpoints in describing local findings which tends to add to the overall quality of the studies as a whole.

The overall summary of evidence indicates that intervention approaches such as MI, school-based programmes, and non-school multicomponent interventions and some family-based interventions would require considerable human, technical and financial resources. Nevertheless, elements of these interventions could prove to be useful in developing interventions for local contexts using selected constituent elements of MI, teacher and peer groups in schools for younger adolescents, as well as parent elements that focus on communication and skills building. These elements are described in the Community Reinforcement Approach (CRA) which presents perhaps the best evidence for a holistic approach that encompasses both internal and external influences that maintain and promote substance abuse. However, because of the complexity and intensive resource and organisational elements required to make this intervention work, selected elements may again be the best option.

Both FM and SFP 10-14 present strong evidence and potential for implementation. Further, SFP 10-14 is being trialled in another part of the country at a school level. Finally, screening and brief interventions, especially those utilising computerised interventions and which involves parents has potential to be integrated into a programme targeted to children 12-14 years of age.

6. Policy Focused Non-Behavioural Interventions

It would be overly simplistic to construe the availability of alcohol and its consumption as a societal evil. Alcohol occupies an ‘ambiguous’ space in the economies of low and middle income countries (Herrick, 2014). Alcohol undoubtedly contributes to the development of economies through a tax revenue stream, but also through the creation of jobs and in the case of South Africa, earning foreign exchange. In South Africa, the alcohol industry has an expanded and sophisticated commercial system for the production and distribution of alcohol and constitutes an “important, economically embedded commodity”(p. 769), (Alcohol: Public Policy Group, 2010). The major point around this is that the production and sales of alcohol products are inextricably linked with employment at multiple levels in various sectors of society. The dominance of alcohol production and sales by four multinational companies is also marked by global marketing interests which have the sole purpose of promoting the policy interests of these companies (Jernigan, 2009). Alcohol

policy initiatives are similarly dominated by the alcohol industry in which the alcohol producer, together with an alcohol-friendly policy group, promotes 'partnerships' with governments in developing alcohol policies. In a comparison of four draft National Alcohol Policy documents from Lesotho, Malawi, Uganda and Botswana, not only were they almost identical but all of them retained a narrow focus on economic benefits from trade in alcohol (Bakke and Endal, 2010). In view of alcohol being treated as an ordinary commodity (like bread and milk), international trade agreements by definition are meant to drive prices down. This scenario then may conflict with government policies that seek to increase the price of liquor to control its social ill effects.

At the same time, alcohol is identified as one the four major risk factors for the social and economic burden associated with non-communicable diseases (NCDs) (WHO, 2011). Depending on the pattern of drinking, it is also associated with chronic disease, accidents and injuries, acute and chronic social problems (Alcohol: Public Policy Group, 2010). Recent work by Rehm and colleagues noted the strong association between alcohol and violence, injury, crime, compromised mental health and promoting and compromising the treatment of infectious diseases such as TB and HIV/AIDS (Rehm et al., 2009).

6.1 Policy-based Strategies and Interventions to Reduce Alcohol-related Harm

Alcohol policies are the deliberate sets of measures to minimise the health and social harms associated with alcohol use and abuse (Anderson et al., 2009). Notably, these policies have mostly been developed and evaluated in high income countries. The best evidence and practice is usefully summarised by the Alcohol and Public Policy Group (Alcohol: Public Policy Group, 2010) and the Lancet Series on Alcohol and Global Health (Anderson et al., 2009).

Table 1: Summary of Best Practices: Policy Approaches

Policy Approach	Theoretical Assumption	Best Practices
Alcohol taxes and other price controls	Increasing cost of alcohol relative to alternative commodities will reduce demand	• Alcohol taxes (Studies show higher taxes lead to lower mortality rates, crime and car accidents) (Wagenaar et al., 2009)
Regulating physical availability through restrictions on time and place of sales and density of alcohol outlets	Restricting physical availability will increase effort to obtain alcohol, and reduce consumption and alcohol-related problems	• Ban on sales • Minimum legal age for purchase • Rationing • Government monopoly of retail sales • Restriction on hours and days of sale* • Restrictions on outlet density* • Differential availability by alcohol strength
Altering the drinking context	Creating environmental and social constraints will limit alcohol consumption and reduce alcohol-related violence	• Enhanced enforcement of on-premises policies and legal requirements*
Education and persuasion: Provide information to youth and adults, especially through mass media and school-based education programmes	Health information that increases knowledge and changes attitudes will prevent drinking problems	• None/ Evidence is very weak. While some effects on increased knowledge, no sustained effect on behaviour
Drunk-driving countermeasures	Deterrence, punishment and social pressure will reduce drunk driving	• Checkpoints for sobriety • Random breathalyser testing • Lowering BAC limits • Licence suspension • Low BAC for young drivers ('zero tolerance')

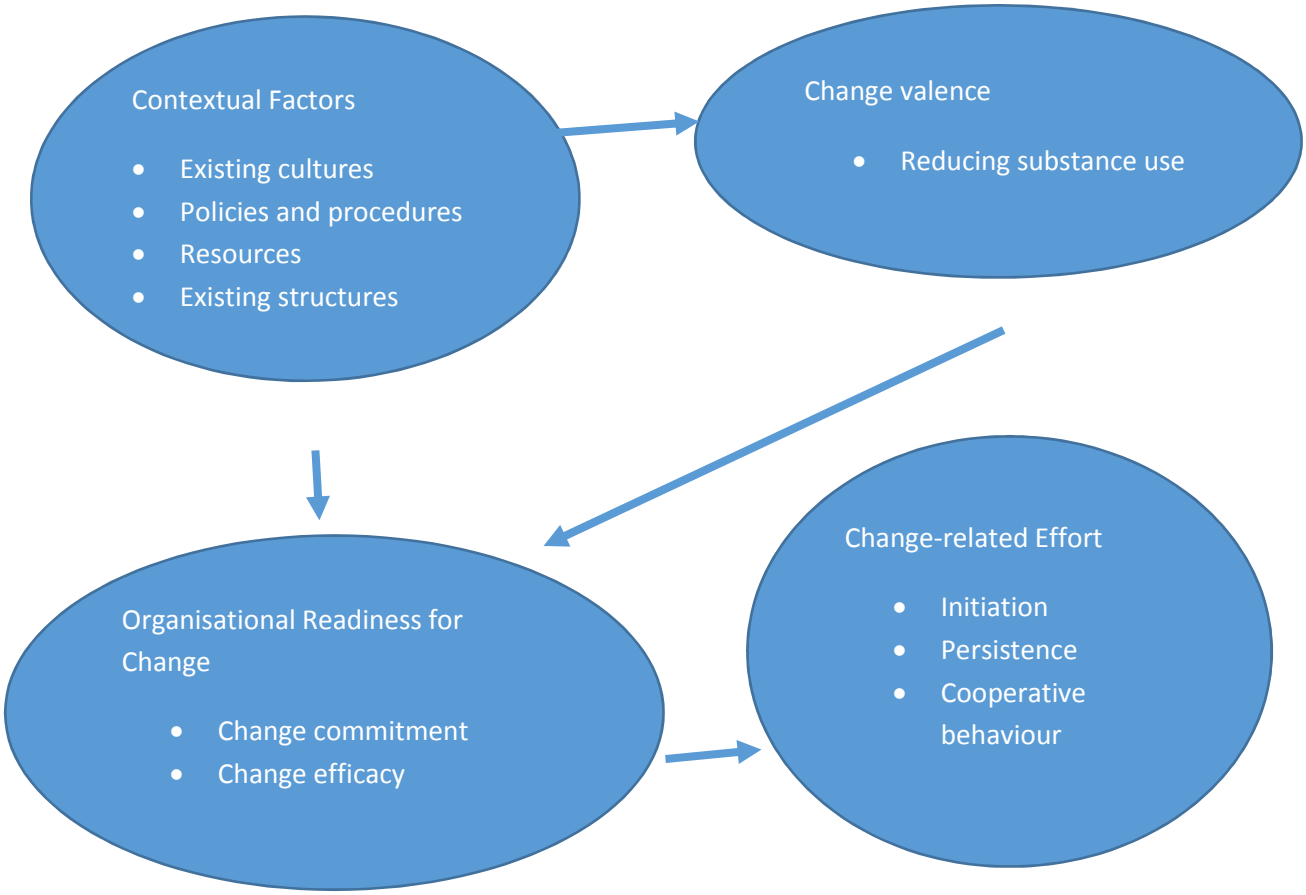
		• Graduated licensing for novice drivers
Conduct screening and brief intervention in health care settings/ increase availability of treatment programmes	Prevent dependence by motivating heavy drinkers to reduce consumption; Various therapeutic interventions will increase abstinence among those with dependence on alcohol	• Brief intervention with at-risk drinkers • Detoxification • Talk therapies • Mutual help/ self-help organisation attendance

Community programmes in the form of media advocacy will help draw attention to the problem but not actually change drinking behaviour. The effects of counter-advertising, i.e., providing information about a product and its effects (as with tobacco use) to decrease its appeal are inconclusive (Anderson et al., 2009). Similarly, community resources to implement effective policies are best when accompanied by enforcement measures (Anderson et al., 2009). Six key policy approaches were identified that would be applicable to countries in which alcohol is normally available. These mimic the ones listed above, though they add that educational programmes should not be implemented in isolation (once off, etc.), but should be used to prepare the ground to create awareness and specific interventions and policy changes (Anderson et al., 2009).

6.1.1 Community Readiness to Change

An important component of addressing substance use and abuse at a community level is to understand the extent to which such a community is ready to change in dealing with substance abuse issues. Weiner understands readiness for change as a multilevel construct that refers both to 'organizational members' change commitment as well as change efficacy to implement such changes (Weiner, 2009). Change efficacy is a shared belief by community members in their collective capabilities to organise and execute a planned course of action. Commitment to change based on 'want to change' represents the highest level of commitment in this approach. The desire for specific outcomes by a community is shaped by how much they value a particular goal or outcome (change valence), in this instance, reducing substance use. The figure below is adapted from Weiner (Weiner, 2009).

Figure 1: Model of Readiness to Change



In a similar exercise, the National Institute for Drug Abuse (NIDA) lists community responses to readiness to change ('organisationally'). An adapted version is reproduced here to show the steps involved in moving from an idea to implementation (National Insitute on Drug Abuse, 2003).

Table 2: Implementation Science: Steps in Community Readiness to Change

Readiness Stage	Community Response	Community Action/ Idea
No awareness	Relative tolerance of substance use	Create motivation through community meetings, media and motivate for plan of action
Denial	Not happening in this community/ can't do anything about it	
Vague awareness	Awareness but no motivation	
Pre-planning	Leaders aware, some motivation	
Preparation	Active, energetic leadership and decision-making	Work as teams. Develop plans for prevention through coalitions and other community groups
Initiation	Data used to support prevention actions	Identify and implement evidence-based programmes
Stabilisation	Community generally supports existing programmes	Evaluate and improve ongoing programmes
Confirmation/ expansion	Decision-makers support improving or expanding programmes	Institutionalise and expand programmes to reach more members in the community
Professionalization	Knowledgeable of community substance use problems; expect effective solutions	Put multi-component programmes in place

6.2 Overview and Recommendations for Policy-based Non-behavioural Interventions

Aside from the taxes (national responsibility), the most effective policy approaches to dealing with alcohol misuse is the ***enforcement*** of prosecutions of liquor outlets that sell alcohol to underage individuals (notwithstanding that the system is open to manipulation). In addition, policy effects are most noticeable when the law is strictly applied relating to hours when alcohol is available for sale and enforcement of on-premises alcohol consumption. If a licensed premise serves alcohol to underage youth, or operates beyond its hours, severe penalties should be the norm rather than an exception with potential loss of license with repeated infractions. An important part of this strategy must be informational sessions at community meetings that outline exactly how these procedures will run and which is widely communicated. Transgressions must also be widely publicized. Unlicensed alcohol outlets would need very severe penalties applied to them (targeted and

frequent). Controlling the density of alcohol establishments would need wider discussions with the business community and local authorities as they will have implications for employment.

The resolve of a community or local authorities to deal with underage drinking or public drunkenness (readiness to change) among youth could be underscored by meetings with school-parent body and broader community meetings that emphasise the need for better control of access to alcohol. Aside from law enforcement officials consistently applying the rules, a targeted diversion involving screening brief intervention (SBI) for youth could be introduced. In practical terms, any young person (as defined by RBN) would have to attend a single mandatory SBI session with a designated health worker. If the screening reveals substance use at the level of dependence, then further action in the form of referral to a treatment centre for longer-term management may be recommended. Youth who continue to fall foul of this rule may be further counselled by involvement of the family as well in the management of alcohol misuse.

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