The Effectiveness of a Brief Intervention for Illicit Drugs Linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) in Primary Health Care Settings:

A Technical Report of Phase III Findings of the WHO ASSIST Randomized Controlled Trial

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EXECUTIVE SUMMARY

There is substantial evidence of the benefits of screening and brief intervention for alcohol problems in primary health care (PHC) settings, however, there is currently a paucity of empirical information concerning the effectiveness of brief interventions (a) for illicit drug use; (b) as linked to screening outcomes, and (c) when used in primary health care settings.

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was developed under the auspices of the World Health Organisation (WHO) by an international group of specialist addiction researchers and clinicians in response to the overwhelming public health burden associated with problematic substance use worldwide. The ASSIST was designed to screen for problem or risky use of tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants (ATS), sedatives, hallucinogens, inhalants, opioids and 'other drugs'. A risk score is obtained for each substance and falls into either a 'low', 'moderate' or 'high' risk category which determines the type of intervention ('none', 'brief intervention', 'brief intervention plus referral').

The primary aim of the ASSIST Phase III Project was to conduct an international randomized controlled trial (RCT) evaluating the effectiveness of a Brief Intervention (BI) for illicit drugs (cannabis, cocaine, ATS & opioids) as linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). Participants were recruited from PHC settings in four countries (Australia, Brazil, India, the United States of America) and were randomly allocated to an intervention or waitlist control group at baseline and followed up three months later. Both groups were administered the ASSIST and a demographic profile questionnaire at baseline. Intervention participants received a brief intervention for the drug for which they scored the highest on the ASSIST (either cannabis, cocaine, ATS or opioids). They also received self-help materials relating to that drug. After being administered the ASSIST at the 3-month

follow-up, the brief intervention participants were administered a semi-structured interview (Brief Intervention Process Rating Form) which asked for their views on the information and feedback they had received at the last interview three months ago. For ethical reasons, control participants were given a brief intervention at the follow-up stage (after they had been administered the ASSIST).

The ASSIST-linked BI was designed to be very short and easily linked to the score from the ASSIST screening questionnaire via the use of the ASSIST Feedback Report Card which records the participants' ASSIST scores and presents the risks associated with the participants' current pattern of substance use. Furthermore, the ASSIST-linked BI incorporated FRAMES (Feedback, Responsibility, Advice, Menu, Empathy, Self-efficacy) and motivational interviewing techniques that have been found to reduce client resistance while still facilitating change, the main components of which were Feedback, Responsibility and Advice. Each country developed their own culturally appropriate brief intervention around these principles.

ASSIST Total Illicit Substance Involvement Scores (calculated by the addition of all responses to Questions 1-8 excluding alcohol and tobacco) and ASSIST Specific Substance Involvement Scores for each Substance (calculated by the addition of responses to Questions 2-7 within each substance class) were determined, and two-way repeated measures ANOVA (General Linear Model or GLM) were utilized to assess the effectiveness of the Brief Intervention. Comparisons of these ASSIST scores at baseline and follow-up for both groups of participants (Control and BI) were conducted, in which control participants served to control for the effects of time and determine if there was a significant interaction effect. GLM statistics were calculated for the total pooled sample (all countries), and also for each country where relevant. Comparisons between countries were made initially with GLM and significant findings were further investigated with Tukey's HSD post-hoc comparisons.

An integral aspect of this Phase III study was to investigate how participants perceived the feedback and information they had received and whether they had modified their attitude and substance use as a result. During the follow-up interview participants who received the BI at baseline were asked for feedback on the information and feedback they had received (using the Brief Intervention Process Rating Form), and these responses were analysed using qualitative research techniques.

A total of 731 participants were recruited from a variety of PHC settings for the international study (Australia n = 171; Brazil n = 165; India n = 177; United States of America n = 218). The United States site comprised participants combined from two different states; California (n=40) and Connecticut (n=178). Participants were aged between 16 and 62 years and scored between 4 and 26 (moderate risk) for cannabis, stimulants (cocaine or ATS) or opioids. A total of 372 participants were randomly allocated to the BI group (50.9%) and 359 (49.1%) were randomized to the wait list Control Group. A total of 395 participants were in the cannabis group, 247 in the stimulants group (92 cocaine; 155 ATS) and 89 were in the opioids group. A total of 628 participants were followed up (86%) and the remainder were lost to follow-up.

The inferential analysis of the pooled data (i.e. all countries' data combined) demonstrated that follow-up scores were significantly lower than baseline scores for Total Illicit Substance Involvement, Cannabis Specific Substance Involvement, Stimulant Specific Substance Involvement and Opioid Specific Substance Involvement. This first analysis did not differentiate between Control and BI groups and indicates that there was an overall decrease in substance use and risk over time. However, when group type was taken into consideration, (i.e. Control or BI) participants receiving the brief intervention had significantly reduced scores for all measures (excluding Opioid Specific Substance Involvement) compared with Control participants. These findings indicate that the brief intervention was effective compared with no intervention in getting participants to reduce their substance use and risk, as determined by the ASSIST questionnaire. However, it also indicates that even when a brief intervention was not received (as in the case of Control participants at baseline) a reduction in ASSIST scores also was observed, albeit not to the same degree as the BI participants.

While a significant interaction effect was not observed for the Opioid Specific Substance Involvement Score with the pooled data, there certainly was a tendency for participants receiving the opioid-targeted BI to have lower scores at follow-up compared with the Control participants. However, when Indian participants - who comprised the majority of opioid users - were considered on their own, there was a significant interaction effect ($p < 0.05$).

With the exception of the United States site, all countries demonstrated that the BI participants had significantly lower Total Illicit Substance Involvement scores at follow-up compared with the Control subjects. A similar pattern, including the lack of a brief intervention effect, also was observed for Cannabis and Stimulant Specific Substance Involvement Scores in participants recruited in the USA. Conversely, Indian and Brazilian sites demonstrated a very strong brief intervention effect for Cannabis Specific Substance Involvement Scores ($p < 0.005$), as did Australia ($p < 0.005$) and Brazil ($p < 0.01$) for Stimulant Specific Substance Involvement Scores.

The reasons underlying the contrast between the Australian, Brazilian and Indian sites and the United States site with regards to a brief intervention effect was not completely clear. However, there were some protocol and participant differences between the USA and other sites which may have contributed to the lack of a brief intervention effect.

Results from this study also demonstrated that the reduction in illicit drug use due to the implementation of the ASSIST and linked BI did not appear to have resulted in increased use of other substances including tobacco, alcohol, inhalants, sedatives or hallucinogens.

The ASSIST Brief Intervention Process Rating form was administered at the follow-up interview to a total of 372 participants (Australia n = 86; Brazil n = 94; India n = 89; USA n = 103) to determine how behaviour change occurred from an individual perspective. Over eighty per cent (82.8%) of all participants who received the brief intervention at baseline reported attempting to cut down on their substance use as a result of the feedback and information they had received. Of the participants who did manage to reduce their substance use (n=224, 60.2%) the average time participants maintained this reduction was 11.2 weeks.

Three main themes were identified overall regarding the feedback received ('*To help'*, '*To inform'*, '*To raise awareness'*) and were representative of the kinds of positive feedback received from participants about the ASSIST-linked BI process and its ability to raise awareness about levels of substance use and subsequent potential health effects of continued use. Participants identified four main themes when considering the influence of the brief intervention on their health behaviour. The themes '*Cutting down'*, '*Stopping use*', '*Thinking about it*' and '*Feeling better'* were identified from the analysis of comments from the 260 participants who stated the ASSIST-linked BI had influenced their health behaviour. Conversely, participants who reported that the feedback and information they had received as part of the ASSIST-linked BI had no influence on their health behaviour identified four themes, '*Heard it all before*', '*Choice', 'It's not an issue'* and *'I can't give up'*.

Participants also were invited to comment on which aspects of the information and feedback most influenced their health behaviour around their substance use. There were two dominant themes identified in the analysis *'Obligations and responsibilities'* and *'Identifying and defining the problem'*. The second theme: '*Identifying and defining the problem'* centred on comments relating to three aspects of the information and feedback identified by participants as being most influential: 1) the score, 2) the interview and 3) 'hearing myself speak'.

The success of incorporating motivational interviewing techniques into the ASSIST-linked BI is evident in the comments outlined above, which illustrate some of the ways in which participants valued the opportunity to receive a personalized score regarding their risk and to hear themselves talk about the effects of their substance use more fully. These comments also indicate that the opportunity to generate such 'change-talk' played an integral role in positively influencing their health behaviour.

The findings from the qualitative analysis above are commensurate with the inferential analysis of the effectiveness of the brief intervention. Participants' comments pointed to the successful and appropriate incorporation of ASSIST scores within a motivational interviewing context. The personal feedback given to participants through their ASSIST scores provided a non-confrontational way of drawing attention to the less positive

aspects (risks) of continued substance use in ways that elicited participants' own reasons for, and advantages of change.

Overall it appears that the ASSIST-linked brief intervention was effective in getting participants to reduce their substance use and risk as measured by their ASSIST score and these findings were commensurate with participant feedback which was gathered at the 3-month follow-up interview.

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1. INTRODUCTION

There is a significant public health burden associated with substance use worldwide. Tobacco, alcohol and illicit drugs (heroin and cocaine) account for 8.8%, 3.2% and 0.4% of all deaths respectively, and 4.1%, 4.0% and 0.8% of Disability Adjusted Life Years respectively. Indeed, according to the 2002 World Health Report substance use is among the top 20 risk factors for death worldwide (World Health Organization, 2002). There is also evidence that the burden on the public health care system from risky, albeit non-dependent use, may be greater than the burden due to dependent use (Institute of Medicine, 1990; Skinner, 1987).

There is substantial evidence of the benefits of screening and brief intervention for alcohol problems in primary health care (PHC) settings, particularly when the brief intervention is linked to the results of screening tests such as the Alcohol Use Disorders Identification Test (AUDIT) ((Babor *et al.*, 2007; Bien *et al.*, 1993; Cordoba *et al.*, 1998; Heather, 1996; Maisto *et al.*, 2001; Miller & Rollnick, 2002; Senft *et al.*, 1997; WHO Brief Intervention Study Group, 1996). The WHO Brief Intervention Study Group found that five minutes of simple advice, linked to the results of the AUDIT were as effective as 20 minutes of counselling (1996). Moreover, brief interventions have been shown to be a cost effective way of reducing alcohol consumption and associated problems (Fleming *et al.*, 2000; Wutzke *et al.*, 2001).

Screening and brief intervention for substance use other than alcohol might be effective in primary care settings if culturally appropriate procedures could be developed. However, compared with the number of studies for alcohol or tobacco, there is currently a paucity of empirical information concerning the effectiveness of brief interventions (a) for illicit drug use; (b) as linked to screening outcomes, and (c) when used in primary care settings ((Babor *et al.*, 2007; Dunn *et al.,* 2001). Part of the reason for the scarcity of research may be a result of not having access to adequate screening instruments for substances other than alcohol or tobacco.

There is evidence suggesting that brief interventions may work for non-alcohol, non-tobacco drugs such as cannabis (Copeland *et al.*, 2001; Lang *et al.*, 2000; Stephens *et al.*, 2000), benzodiazepines (Bashir *et al.*, 1994), opioids (Saunders *et al.*, 1995) and

cocaine (Stotts *et al*., 2001). For example, patients with chronic benzodiazepine problems received brief advice lasting a few minutes and a self-help book, as part of a routine visit to a general practitioner. The brief advice group significantly reduced their benzodiazepine use and showed improved general health both 3 and 6 months after the advice was given (Bashir *et al.,* 1994). In another study, regular amphetamine users – including dependent users, were recruited from a variety of health settings and assessed using a variety of procedures. Participants were found to reduce their amphetamine use following a brief intervention which comprised two-four sessions of Cognitive Behavioural Therapy and a self-help book (Baker *et al*., 2001). A randomized controlled trial conducted by Bernstein *et al.* (2004) used a variety of drug and alcohol screening tests to assess clients recruited from walk-in primary health care clinics. Clients randomized to the brief intervention group were more likely to reduce their cocaine and heroin use than those not receiving the brief intervention. In this US study, the brief intervention conducted by peer educators lasted an average of 20 minutes (range 10-45 min.) with an adjunct ten minute 'booster' intervention via telephone ten days later. Finally, a pilot study amongst adolescents recruited from primary care settings showed that a 15-20 minute intervention linked to a brief self-report screening questionnaire resulted in attitudinal changes towards substance use and decisions to cut down (Stern *et al.*, 2007). This same study (Project CHAT) found that brief interventions based on motivational interviewing techniques were a viable approach for working with adolescents in primary care settings.

While the above-mentioned studies demonstrate that brief interventions for drugs can be effective, it is worth noting that for the majority of the studies the brief intervention session lasted between 30 and 90 minutes and that the interventions were not necessarily linked to screening outcomes within primary care settings.

In fact, until recently, a culturally-neutral screening questionnaire for all substances, including illicit drugs, has not been available for use in primary care settings.

1.1 The Alcohol Smoking and Substance Involvement Screening Test (ASSIST)

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was developed under the auspices of the World Health Organisation (WHO) by an international group of specialist addiction researchers and clinicians in response to the overwhelming public health burden associated with problematic substance use worldwide. The ASSIST was designed to screen for problem or risky use of tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants (ATS), sedatives, hallucinogens, inhalants, opioids and 'other drugs'. It is worth noting that methylene dioxymethamphetamine (MDMA), also commonly referred to as ecstasy, was included in the amphetamine-type stimulants category.

The ASSIST has undergone significant testing (see below) to ensure that it is feasible, reliable, valid, flexible, comprehensive and cross-culturally relevant. Phase I of the ASSIST project investigated test-retest reliability at the item level and scale level, and included qualitative data collection on feasibility and acceptability. Two-hundred and thirty-six sets of test-retest interviews were completed by ten international sites in nine different countries. Data were examined according to question stem, substance class and data collection setting in order to provide recommendations for improving the instrument. Published results indicate that the ASSIST proved to be a reliable and feasible screening tool (WHO ASSIST Working Group, 2002).

Phase II of the ASSIST project investigated the validity of the ASSIST for use in primary health care settings. The validity study conducted with 1,047 subjects from seven different countries, demonstrated that the ASSIST had good concurrent, construct, predictive and discriminative validity. A brief intervention linked to ASSIST scores also was piloted as part of Phase II and demonstrated that a brief intervention for alcohol was an effective way of significantly reducing alcohol ASSIST scores when compared with primary health care subjects who did not receive an intervention (Humeniuk *et al.,* (In press); Humeniuk, 2006; Newcombe *et al.*, 2005). Similarly, the brief intervention was also shown to be effective for drugs other than alcohol (cannabis, opioids & cocaine) and ASSIST scores for these substances were significantly reduced by 23% from baseline to follow-up three months later.

The ASSIST V3.0 questionnaire (see APPENDIX 1) commences with a general screening question that asks about lifetime use of any psychoactive substance; if the respondent reports no use, the interview can be terminated. If the respondent admits to lifetime use of one or more substances, the remaining questions need only to be asked with regard to those substances used. Question 2 asks about frequency of use in the past three months. If none of the substances have been used in the past three months, the interviewer can skip to the last three questions, which enquire about lifetime problems of those substances used. Question 3 is a measure of psychological dependence and asks about frequency of strong compulsion to use substances in past three months. Question 4 is a measure of harmful substance use, and asks how frequently the respondents' drug use had led to health, social, legal or financial problems. Question 5 asks whether respondents have failed to meet role obligations because of their use of substances (except tobacco). Questions 6 to 8 ask about lifetime and recent problems, including whether friends or relatives have expressed concern, prior attempts at controlling drug use and prior injection of drugs during the past three months and in their lifetime.

1.2 Phase III of the WHO ASSIST project

The international WHO ASSIST Phase III project is based on the model used by the WHO to advance alcohol screening and brief intervention through the development of the Alcohol Use Disorders Identification Test (AUDIT) (Babor *et al.*, 1989; Babor & Higgins-Biddle, 2001; Babor *et al.*, 2001; WHO Brief Intervention Study Group, 1996). The primary aim of the Phase III Project was to conduct a cross-cultural randomized controlled trial (RCT) evaluating the effectiveness of a Brief Intervention (BI) for illicit drugs (cannabis, cocaine, ATS & opioids) as linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). It is worth noting that participants recruited to this study scored within the moderate risk range of the ASSIST only (i.e. between 4 and 26) and were not high risk, dependent users. Participants in this group were at moderate risk of health and other problems because of their drug use and may have been currently experiencing problems or at risk of developing problems in the future including the risk of dependence.

1.3 The ASSIST-linked Brief Intervention

It was intended that this study be as 'real world' as possible and hence it was expected that only a very brief intervention would be feasible in most primary care settings. This was due to time constraints and a general reluctance by health care workers to deal with substance users. Consequently, the length of the brief intervention was expected to vary from country to country depending on the time available to the clinician and their cultural style, but was intended to be between 5 and 15 minutes in duration.

The aim of the ASSIST-linked Brief Intervention was to move participants through the stages of change using the technique of FRAMES and Motivational Interviewing (Bien *et al.,* 1993; Miller & Rollnick, 2002). The stages of change model proposes that individuals pass through recognised stages of change as they modify their own behaviour (Prochaska & DiClemente, 1982). Each stage of the cycle of change reflects both a period of time and a set of tasks or processes of change required for movement to the next stage. The specific stages of change include Pre-contemplation (not thinking about changing), Contemplation (thinking about change, weighing up the pros and cons and information/resource gathering) and Action (actually cutting down or stopping). While stage of change was not formally measured in this study, the outcome measure of ASSIST score change and associated participant feedback was used as a marker of change.

While it is clear that brief interventions are effective, particularly for alcohol, it appears that implementation and uptake within health settings may be hindered by a variety of barriers (Roche & Freeman, 2004). The three main reasons perceived by clinical staff as barriers to taking up screening of alcohol screening and BI within PHC settings were: (1) a lack of time, (2) concern that patients will be defensive and, (3) a lack of staff knowledge and skills to conduct the screening and intervention (Barry *et al.,* 2004).

To combat the identified limitations, the ASSIST-linked BI was designed to be very short and easily linked to the score from the ASSIST screening questionnaire via the use of the ASSIST Feedback Report Card (See APPENDIX 2), which records the participants' ASSIST scores and presents the risks associated with the participants' current pattern of substance use. Furthermore, the ASSIST-linked BI incorporated motivational interviewing techniques that have been found to reduce client resistance

while still facilitating change, the main components of which were Feedback and Advice. Each country developed their own culturally appropriate brief intervention based around these principles (see, for an Australian example, Humeniuk *et al.*, 2007). The brief intervention was further bolstered by a take-home guide called *Self-help strategies for cutting down or stopping substance use: A guide* (Humeniuk *et al*., 2003) which was a generic self-help booklet designed to take participants through the process of weighing up the risks associated with their substance use and providing simple strategies for change. Booklets were translated into the local language where relevant. Each country also provided participants with specific drug information booklets developed for that country.

1.4 Aims

The primary aim of the Phase III WHO study was to undertake an international multi-site collaborative project to evaluate the effectiveness of a Brief Intervention for illicit drugs (cannabis, cocaine, ATS & opioids) as linked to the ASSIST, in a variety of primary health care settings and in a number of different cultural contexts. A secondary aim involved the development of client and clinician resources incorporating: instructions for administering the ASSIST and Brief Intervention; self-help materials on specific drugs and generic self-help strategies to reduce drug use; information on injecting risk, and a feedback report card on current drug use.

While standard statistical techniques were used to determine if the BI was successful in reducing ASSIST scores, drug use and risk, these same techniques were less able to determine how the ASSIST-linked BI actually worked, which also was of interest in this study, and an area that is infrequently investigated by RCTs. Nock (2007) proposed that "showing that a treatment causes change does not in itself illuminate how this change occurred" and identified three goals that should be shared by clinical researchers: "(1) to develop methods that decrease pathology and return individuals to healthy, adaptive functioning, (2) to elucidate the processes through which these methods have their effects, and (3) to identify the conditions that influence the efficacy of these methods" (p. 4S).

Analysis of client talk has been shown to be an indicator of successful reduction or cessation of alcohol use and there is evidence that 'client commitment language'

occurring during motivational interviewing can predict drug use outcomes and "client language within treatment sessions is a promising mechanism for MI" (Amrhein *et al.,* 2003, p. 40S #184). Accordingly participants who received the BI at baseline were asked for feedback on the information and feedback they had received at that time, and these responses were analysed using qualitative research techniques as described in the Methodology (*2.8.2 Thematic Analysis on Participant Feedback at follow-up*).

Overall, the Phase III international study intended to provide answers to the following research questions:

1.   Does the ASSIST BI significantly reduce Total Illicit Substance Involvement[1]?

2.   Does the ASSIST BI reduce the Specific Substance Involvement Score[1] (cannabis, stimulants [cocaine and ATS], opioids) for which subjects received a Brief Intervention, and does the ASSIST-linked BI perform better for some illicit substances than others?

3.   Does reducing illicit substance use as a result of receiving a BI result in substitution with other substances?

4.   Do people who score higher within the moderate risk range (i.e., above 15) respond any differently to a specific brief intervention than people in the lower range (i.e., between 4 and 15)?

5.   Are there any differences between countries with regards to the above findings?

6.   Are the testimonies (feedback) of participants who received the brief intervention commensurate with the results of the quantitative analysis (Q1 – 3 above) and how did the ASSIST-linked BI create a change in drug use?

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[1] *See Section 2.7 on page 28 for a description of these scores*

2. METHODOLOGY

2.1 Countries Involved

The project was conducted at Clinical Research Units (CRU's) in four countries selected to represent the broad range of cultures, political and economic systems in which substance-related problems are prevalent, and to enhance the cross-national generalizability of the findings. The sites were; 1) Australia: Drug and Alcohol Services South Australia (also the Coordinating Centre); 2) Brazil: Departamento de Psicobiologia, Universidade Federal de Sao Paulo, Sao Paulo - *and* - Departamento de Farmacologia, Universidade Federal do Parana Curitiba, Paraná; 3) India: National Drug Dependence Treatment Centre and Department of Psychiatry, All India Institute of Medical Sciences, New Delhi; 4) USA: UCLA Integrated Substance Abuse Programs & Friends Research Institute, Los Angeles – *and* – Department of Community Medicine and Health Care, University of Connecticut, School of Medicine, Connecticut.

2.2 Overview

The study employed a randomized controlled design in which eligible participants were randomly allocated to an intervention or waitlist control group at baseline and followed up three months later. Both groups were administered the ASSIST and a demographic profile questionnaire at baseline. Intervention participants received a brief intervention for the drug for which they scored the highest on the ASSIST (either; cannabis, cocaine, ATS or opioids). They also received self-help materials relating to that drug. If participants scored within the moderate risk range for two or more of the target drugs, they were asked which substance was of the most concern to them, and the Brief Intervention was aimed at this substance. Details about the Brief Intervention were recorded on a BI checklist (APPENDIX 8.3, "WHO ASSIST Brief Intervention Record"). Both groups were re-interviewed three months later with the ASSIST. After being administered the ASSIST, the brief intervention participants were administered a semi-structured interview which asked for their views on the information and feedback they had received at the last interview three months ago (APPENDIX 8.4, "WHO ASSIST Brief Intervention Process Rating Form – Follow up"). For ethical reasons, control participants were placed on a waitlist for treatment, and were given a brief intervention at the follow-up stage (after they had been administered the ASSIST). Details of the follow-up intervention were recorded on a "WHO ASSIST Brief Intervention Record" but

are not included in the results of this study. With the exception of the Brazilian sites, participants were compensated for their time in the study and for travel relating to returning to the clinic for the second interview three months later.

2.3 Settings

The Primary Health Care (PHC) settings from which participants were recruited, and the periods over which recruitment took place, varied from country to country as outlined below.

2.3.1 Australia

Within Australia the Phase III study was conducted at a free, walk-in sexually transmitted disease service (Clinic 275) in metropolitan Adelaide, South Australia. This clinic is linked to the Royal Adelaide Hospital and is the primary clinic for sexual health in South Australia. Participants were recruited over two periods: September – October 2003 and April 2004 – May 2005.

2.3.2 Brazil

2.3.2.1 Sao Paulo

In São Paulo city, Phase III was conducted at four primary general health care units and two health centers which specialized in assessment and treatment of STDs. In Diadema city 17 primary general health care units were used to recruit participants. Participants were recruited between July 2004 and November 2006.

2.3.2.2 Curitiba

Within Curitiba, Parana Phase III was conducted at nine free, primary general health care settings in metropolitan Curitiba, and at one free, walk-in primary general health care outpatient setting linked to a general hospital in Palmas city. Both cities are located in South Brazil. Participants were recruited over the period between August 2004 and May 2006.

2.3.3 India

National Drug Dependence Treatment Centre and the Department of Psychiatry at All India Institute of Medical Sciences, New Delhi, India was involved in recruitment of the sample. The sample was recruited from the community at Trilokpuri and border area of

Delhi with Ghaziabad called Shadipur and assessed at the Community Drug Treatment Centre in Trilokpuri. The former was primarily used to recruit cannabis users whereas the latter, a community of transporters contributed to a mixed though predominantly opioid using sample. The recruitment of study sample started in March 2004 and data collection finished in March 2005.

2.3.4 United States of America

2.3.4.1 California

Within California the Phase III study was conducted both at a neighborhood clinic connected with UCLA, and at a walk-in health clinic associated with a drug treatment programme. Participants were recruited between September and December 2005 and August and September 2006.

2.3.4.2 Connecticut

In the United States of America (Connecticut site), participants were recruited from a number of general medicine and dental clinics within the Hartford area. The largest number of participants were recruited from the Advanced Education in General Dentistry Clinic at the University of Connecticut Health Center (UCHC). This dental clinic serves as the primary dental provider for low-income and emergency dental patients in the state. The clinic houses 25 dental residents, and six dental assistants. On average, 40 of the 100 patients seen per day are emergency cases. Participants were also recruited from the adult medicine and dental clinics at Community Health Services (CHS); a full-service Federally Qualified Health Center in Hartford. A small number of participants were recruited from the Internal Medicine Residency Clinic at UCHC, and less than one-third of the participants were referrals to the study. Participants were recruited from January 2005 through December 2006.

2.4 Participants

Participants were aged between 16 and 62 years and were clinic attendees. Participants who scored in the low risk range between 0 and 3 for cannabis, cocaine, ATS and opioids, and between 0 and 31 for tobacco, and between 0 and 26 for alcohol, hallucinogens, sedatives, inhalants or other drugs, were excluded from enrolment into the study, but received information on drugs if relevant.

Participants who scored between 4 and 26 (moderate risk) for cannabis, cocaine, ATS or opioids were enrolled in the study and randomized to either the Control or Intervention group.

Participants who scored in the high risk category (27 or higher for any of the substances), or who had frequently injected drugs in the last three months (more than 4 times per month on average) were excluded from enrolment into the study and were referred to specialist treatment services within that country.

The following were the primary inclusion/exclusion criteria for recruitment to the study. Participants in the study were:

1.   between the ages of 16 and 62 years;
2.   a member of the main ethnic group(s) in the population;
3.   able to communicate in the main language of the country;
4.   willing to participate in a 3 month follow-up where they return to the treatment agency for interview;
5.   able to be followed up three months later and give contact details of at least 2-3 other people;
6.   of fixed address and able to provide contact details of their home;
7.   not pending incarceration within the next three months;
8.   not severely cognitively impaired or have severe behaviour;
10.   not tended to violent or aggressive behaviour;
11.   physically well enough to participate in a 30 minute interview and intervention session;
12.   not intoxicated or going through withdrawal from alcohol or other drugs;
13.   not currently in drug (excluding nicotine) or alcohol treatment (within the last month),
14.   not incarcerated or in an environment where they were not able to come and go as they please in the last three months.

2.5 Procedure

Procedures varied slightly from country to country. In Australia, India and the USA clinical research interviewers were trained by the Study Coordinator at each site to

administer the test battery, ASSIST and Brief Intervention. For the purposes of this study, clinical interviewers were recognized as being 'defacto' staff of the clinic, to ensure that the screening and intervention were as 'real world' as possible. All interviewers had some level of tertiary education within the field of health. Within the Brazilian PHCs, both clinicians and researchers were used to recruit participants and conduct the study and were trained by the local study coordinators to administer the test battery, ASSIST and Brief Intervention.

Primary Health Care clients were pre-screened for suitability in terms of their ASSIST score and around the exclusion/inclusion criteria. Some PHC setting utilized a self-completion version of the ASSIST as an initial pre-study screen (Australia and USA), while other sites approached and screened clients directly. Participants who appeared to score within the desirable moderate risk range met the inclusion/exclusion criteria were recruited to the study under the proviso that they were eligible to participate. Participants were administered the ASSIST questionnaire and demographic profile by the interviewer and following enrolment into the study were randomized to either the waitlist Control or Intervention group and were assigned a unique identification number. Depending on their gender and the score received for a particular substance at baseline, participants in each group also were matched to a high use (scoring between 16 and 27 for cannabis, cocaine, ATS or opioids) or low use substance group (scoring between 4 and 15 for cannabis, cocaine, ATS or opioids). All participants gave their informed consent and were asked for contact information to arrange a follow-up interview.

Intervention participants received the ASSIST-linked Brief Intervention including the associated self-help materials. The Brief Intervention was timed and details of the Brief Intervention were recorded on a checklist (APPENDIX 8.3, "WHO ASSIST Brief Intervention Record"). Control participants did not receive an intervention, but were told that they would be contacted again in three months, and to contact the clinical interviewer if they had concerns about the study or their substance use during this time. Both Control and Intervention participants had an appointment made by the researcher for the three month follow-up at the completion of the baseline session. It is worth noting that baseline assessments were kept to a minimum because of the potential for

bias and disruption to the flow of routine medical consultation at the primary health care setting, although this did vary from country to country.

At the three month follow-up, both groups (Control & Intervention) were re-administered the ASSIST and the Intervention participants were administered a brief intervention feedback questionnaire to ascertain perceptions of how the information and feedback they received at baseline had affected their drug use (APPENDIX 8.4, "WHO ASSIST Brief Intervention Process Rating Form – Follow up"). Control participants received a brief intervention at this time.

2.6 Ethical Approval

Ethical approval for this study was obtained from the appropriate regulatory bodies in each country and all relevant ethical safeguards were met in relation to protection of participants. Ethical approval was obtained from the following regulatory bodies:

- Australia – Royal Adelaide Hospital board of ethics, South Australia
- Brazil
    - Sao Paulo – Committee of Ethics on Research from the Federal University of São Paulo/Hospital São Paulo and Committee of Ethics on Research of Reference and Training on STD/AIDS from S.Paulo State.

    - Curitiba - Ethics Committee for Human Research of the Hospital de Clínicas da Universidade Federal do Parana.
- India –Ethics Committee of the All India Institute of Medical Sciences, New Delhi
- USA CA - UCLA Office for Protection of Research Subjects
- USA Conn - Human Subjects Protections Office at the University of Connecticut Health Center

Participants were given verbal and written information concerning the study and asked to sign consent forms. Within the Australian, Brazilian and Indian sites the Information sheet was 1-2 pages and the consent procedure took a few minutes. The USA sites had an alternative approach relating to the ethical requirements of the investigating institution. Their required consent and HIPAA Authorization forms were 5 pages long

which needed to be read to participants. This process took approximately 10-15 minutes.

2.7 Scores derived from the ASSIST questionnaire

A number of scores derived from participants' results on the ASSIST were used for analysis. The following scores at both baseline and follow-up were calculated from data collected:

1.   *Total Illicit Substance Involvement Score* (calculated by the addition of all responses to Questions 1-8 excluding alcohol and tobacco)

$\sum$ Q1$_{c-j}$ + Q2$_{c-j}$ + Q3$_{c-j}$ + Q4$_{c-j}$ + Q5$_{c-j}$ + Q6$_{c-j}$ + Q7$_{c-j}$ + Q8 (Max Score: 336)

2.   *Specific Substance Involvement Score* for each Substance (calculated by the addition of responses to Questions 2-7 within each substance class). This score indicates the extent of involvement with specific substances (tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives/sleeping pills, hallucinogens and opioids). NB. Q5. is not included for calculation of the Tobacco Specific Substance Involvement Score, however, all other Specific Substance Involvement Scores are calculated similarly (for example, see Alcohol Score below).

$\sum$ Q2$_a$ + Q3$_a$ + Q4$_a$ + Q6$_a$ + Q7$_a$ (a = Tobacco, Max Score: 31)
$\sum$ Q2$_b$ + Q3$_b$ + Q4$_b$ + Q5$_b$ + Q6$_b$ + Q7$_b$ (b = Alcohol, Max Score: 39)

2.8 Data Analysis

2.8.1 Descriptive Statistics

Descriptive statistics were obtained for the demographic characteristics of the pooled sample as well as for each country. Substance involvement at baseline, ASSIST scores at baseline and average follow-up times also were calculated for the pooled and country by country data. Where relevant, one-way ANOVA and Chi-square comparisons were used to detect differences between groups. This also included the comparison of ASSIST scores between Control and BI participants at baseline.

2.8.2 Quantitative Analysis

Two-way repeated measures ANOVA (General Linear Model or GLM) were utilized to assess the effectiveness of the Brief Intervention. Comparisons of ASSIST scores at baseline and follow-up for both groups of participants (Control and BI) were conducted on several ASSIST substance scores (detailed below). Amphetamine-type Stimulants and Cocaine Specific Substance Involvement Scores were collapsed into one category called Stimulant Specific Substance Involvement Scores to create an adequate sample size for comparison.

Control participants (who did not receive the brief intervention at baseline) were included in the analysis to control for the effects of time and determine if there was a significant interaction effect. GLM statistics were calculated for the total pooled sample (all countries), and also for each country where relevant. Comparisons between countries were made initially with GLM and significant findings were further investigated with Tukey's HSD post-hoc comparisons.

Analysis was performed on the following scores and samples:

- ASSIST Total Illicit Substance Involvement Scores;
  - For all participants from all countries (pooled)
  - Country by country (Australia, Brazil, India, USA)

- ASSIST Specific Substance Involvement Scores for cannabis, stimulants (ATS and cocaine) and opioids*;
  - For all participants from all countries (pooled)
  - Country by country (Australia, Brazil, India, USA)
  - * India was the only country involved in an investigation of changes in the Opioid Specific Substance Involvement Score due to inadequate sample sizes in other countries.

- ASSIST Specific Substance Involvement Scores for substances not targeted by a specific BI;
  - Tobacco and Alcohol Specific Substance Involvement Scores for all participants from all countries (pooled)

- o Inhalant, Sedative and Hallucinogen Specific Substance Involvement Scores for all participants who scored positive (i.e., ≥1) for these substances at baseline from all countries (pooled)

- Comparison of 'high' (16-26) and 'low' (4-15) scorers for the following domain scores;
    - o Total Illicit Substance Involvement
    - o Cannabis Specific Substance Involvement
    - o Stimulant Specific substance Involvement
    - o Quantitative Participant Feedback scores

- Quantitative Participant Feedback;
    - o For all participants from all countries (pooled)
    - o Country by country (Australia, Brazil, India, USA)

2.8.3 Thematic Analysis on Participant Feedback at follow-up

A significant and innovative aspect of the responses resulting from ASSIST-screening, is that it allows personalized feedback to participants regarding their risk scores and the provision of information around their current patterns of use and the risks associated with those scores. The scores also allow the clinician to engage the client in a non-confrontational way using client-centred techniques. This is the essence of a good brief intervention. This personalized feedback was specifically incorporated into the design of the ASSIST BI via the use of the ASSIST Feedback Report Card (See APPENDIX 8.2) to increase participants' understanding of the relationship between their substance taking behaviour and their health outcomes.

An integral aspect of this Phase III study was to investigate how participants perceived the feedback and information they had received and whether they had modified their attitude and substance use as a result. In order to achieve this, feedback from participants receiving the brief intervention was incorporated to determine the effectiveness of the ASSIST BI. The ASSIST Brief Intervention Process Rating Form (see APPENDIX 8.4) was administered at follow-up three months after baseline. This gave participants, who received a brief intervention at baseline, the opportunity to provide feedback on the process of the ASSIST-linked BI via a series of open-ended

questions and/or rating scales. It is worth noting that participants were re-administered the ASSIST questionnaire prior to the Brief Intervention Process Rating Form. The ASSIST Brief Intervention Process Rating Form focussed on three broad areas:

1. General Information about participants' perceptions of feedback and information provided as part of the process of the BI;
2. Specific questions concerning the information and feedback received during the session with the interviewer, and
3. Specific questions concerning the written take-home information provided in the Substance Users Guide.

Descriptive statistics describing participants' self-report rating scale outcomes ascertained from the Brief Intervention Process Rating are presented using descriptive statistics.

Responses to each open-ended question (termed 'data set') were analysed using thematic analysis (Braun & Clarke, 2006). Responses in each data set were examined to identify similarities and/or differences and were manually coded into key themes. Themes were considered 'key' when there was a repeated occurrence of terms and/or phrases within the corpus of responses. More specifically, the patterned responses identified as key themes within each data set capture something important in relation to the research questions about the effectiveness of the BI. Where applicable, these themes were discussed in conjunction with results from participants' rating scales that formed part of the question. Implications arising from these results also are discussed.

3. RESULTS

3.1 Demographics

A total of 731 participants were recruited for the international study (Australia n = 171; Brazil n = 165; India n = 177; USA n = 218). The USA site comprised participants combined from two different states; California (n=40) and Connecticut (n=178).

Over two thirds (72.1%) of the sample were male (Australia 62%, Brazil 81%, India 100%, USA 51%) and 72% of all participants were currently employed (Australia 77%, Brazil 60%, India 94%, USA 58%). The mean age of participants was 31.4 (sd = 9.3) and ranged between 16 and 62 years. The mean number of years of education achieved by participants was 9.5 (sd = 5.2) and ranged from 0 to 22 years. The variation in participants' age and education levels by country is shown in Tables 1 and 2 respectively.

Table 1. Participants' age in years by country (N=731)

Country	Mean Age (SD) years	Min	Max
Australia	26.2 (6.0)	17	45
Brazil	34.2 (9.6)	16	62
India	33.4 (8.7)	18	50
USA	31.7 (10.0)	18	58

Table 2. Participants' education level in years by country (N=731)

Country	Mean education (SD) years	Min	Max
Australia	13.4 (2.3)	9	20
Brazil	9.5 (3.8)	1	22
India	2.5 (3.6)	0	12
USA	12.3 (2.0)	5	18

Over half of the total sample had never been married (55.5%) with 34.1% either married or cohabiting. There was some variation between countries with regards to the proportion of participants who had never been married. Australian participants in this study were the least likely to be married (91.2%) followed by American participants (54.6%), Brazilian participants (58.8%) and Indian participants (18.8%).

The majority of the sample lived either in their own home or their own rented accommodation (93.7%) and this was the case for the majority of participants in all countries (range: USA 91.3% - Australia 96.5%).

Just over one half of the participants identified themselves as white Caucasian (59.6%) followed by Indian (24.4%) or African (7.3%). The remainder identified themselves as Mulatto (3.1%), Hispanic (2.2%), Asian/Pacific Islander (1.2%), Native American (0.4%), Aboriginal/Torres Strait Islander (0.3%) or 'Other' (1.5%).

Around one third of participants (32.1%) reported having no religious preference, while another third reported having Christian (Protestant, Catholic or Orthodox Christian) beliefs (33.4%). The remaining participants identified as being Hindu (23.1%), Muslim/Islamic (1.2%), Buddhist (0.4%) or did not identify with any of the religious preferences presented (9.7%).

The variation in participants' race and religious preference by country is shown in Tables 3 and 4 respectively.

Table 3. Participants' religious preference by country

	Australia %	Brazil %	India %	USA %
Christian beliefs	24.0	48.4	0.6	55.9
Hindu	0	0	95.5	0
Buddhist	0.6	0.6	0	0.5
Muslim/Islamic	0.6	0	4.0	0.5
Not religious	70.2	26.1	0	33.0
Other religious	4.7	24.8	0	10.1

Table 4. Participants' race by country

	Australia %	Brazil %	India %	USA %
White Caucasian	94.7	79.4	0	65.6
Indian	0	0.6	100	0
Asian/Pacific Islander	3.5	0	0	1.4
Hispanic	0	1.2	0	6.4
Aboriginal/Torres Strait Islander	1.2	0	0	0
African	0	1.8	0	22.9
Native American	0	0	0	1.4
Mulatto	0	13.9	0	0
Other race	0.6	3.0	0	2.3

Fifteen per cent (15%) of participants had received treatment for drug or alcohol problems (excluding nicotine) at some stage in their lives (Australia 8.8%, Brazil 18.2%, India 0%, USA 29.8%) and the mean time since receiving the treatment was 3.8 years (sd=4.9) previously. Participants had most frequently received treatment for problems related to the use of cocaine (4.5%), alcohol (4.0%), cannabis (2.6%), ATS (1.8%), opioids (1.2%), hallucinogens (0.4%) or 'another drug' (0.5%), and treatment was most likely to be counselling (6.6%) followed by residential rehabilitation (3.3%), assisted detoxification (2.5%), a twelve step program (1.5%) or pharmacotherapy (0.7%).

3.1.1 Treatment at baseline

All participants were randomized into two groups at baseline. The 372 participants who were randomly allocated to the BI group (50.9%) received a drug-specific BI at baseline and the 359 (49.1%) randomized to the wait list Control Group received a BI at follow up (approximately three months later). A total of 395 participants were in the cannabis group, 92 in the cocaine group, 155 in the ATS group and 89 were in the opioids group. Table 5 shows the variation between countries in the types of substance user recruited to the study.

Table 5. Substance group by country

	Australia	Brazil	India	USA	Total
Cannabis	31	112	106	146	395
Cocaine	9	45	0	38	92
ATS	129	8	0	18	155
Opioids	2	0	71	16	89
Total	**171**	**165**	**177**	**218**	**731**

Participants in each group also were allocated to a 'high' or 'low' use substance group depending on their gender and the score received for a particular substance at baseline. They were then randomized to get a brief intervention or wait list control. That is, participants scoring between 4 and 16 were allocated to the 'low score' category and those scoring 17-26 were allocated to the 'high score' category. However, it is worth noting that all these participants still were considered to be at 'moderate risk' from their substance use. Table 6 below summarises the distribution of male and female participants across the high/low substance use in both the Brief Intervention and Control Groups.

Table 6. Substance Group Randomization n (%) within total sample (N=731)

	Frequency of High or Low scorers by gender					
	Male High 47.2%	Male Low 24.9%	Female High 14.9%	Female Low 13.0%	Sub-total	Total
Cannabis BI	102	58	28	24	212	**395 (54.0%)**
Cannabis Control	85	47	23	28	183	
Cocaine BI	20	11	7	6	44	**92 (12.6)**
Cocaine Control	14	23	9	2	48	
ATS BI	23	19	17	15	74	**155 (21.2%)**
ATS Control	23	23	18	17	81	
Opioids BI	38	0	3	1	42	**89 (12.2%)**
Opioids Control	40	1	4	2	47	
Total	**527 (72.1%)**		**204 (27.9%)**		731	731 (100%)

3.1.2 Follow-up

It was intended that the period of time between baseline and follow-up interviews be 3 months (approximately 90 days). The average reported period of time between the baseline and follow-up interview was between three and four months (mean = 104.7 days, sd = 30.9, median 95 days). The time between the two interviews ranged from approximately one month (32 days) to over one year (435 days) for the total sample, although there was some variation between the sites. A total of 628 participants were

followed up (86%) and the remainder were lost to follow-up. Table 7 shows the variation in follow-up times and follow-up rates by country.

Table 7. Number of days between baseline and follow-up interview by country and follow-up rates by country

	Follow-up rate (%)	Mean (sd) days	Median days	Min days	Max days
Australia	94.7	101.7 (14.7)	97.0	80	158
Brazil	86.7	113.1 (24.9)	110.0	83	210
India	87.6	95.9 (7.8)	94.0	78	132
USA	77.1	106.9 (51.3)	92.0	32	435

3.1.3 Substance Involvement at Baseline

Alcohol, cigarettes and cannabis were the substances most likely to have been used ever, and to have received a positive Specific Substance Involvement Score by this sample, followed by ATS and cocaine. Gamma-hydroxybutyrate (GHB or 'Fantasy') was the substance most frequently reported (3.1%) under 'other drugs'. ASSIST scores obtained by the sample are shown in Table 8. These scores were calculated only for participants who scored positive (i.e. at least one) for the specific substance concerned. With regard to individual substances, the highest average score was for tobacco followed by ATS then cannabis and alcohol. Table 9 shows country by country variation of the frequency of participants scoring positive for the main illicit substances of interest (cannabis, cocaine, ATS and opioids) and tobacco and alcohol, as well as the respective ASSIST SSI scores obtained.

Table 8. Frequency of lifetime substance use and positive SSI scores for a substance and respective ASSIST scores obtained (N=731)

Specific Substance	Q1. Ever Used Lifetime N (%)	N (%) scoring +ve for substance (SSI)	ASSIST SSI mean score (SD)
Tobacco	707 (96.7)	622 (85.1)	17.0 (10.0)
Alcohol	715 (97.8)	634 (86.7)	12.0 (9.2)
Cannabis	706 (96.6)	617 (84.4)	13.2 (9.2)
Cocaine	373 (51.0)	216 (29.5)	3.2 (6.9)
ATS	323 (44.2)	215 (29.4)	3.9 (7.4)
Inhalants	208 (28.5)	50 (6.8)	0.3 (2.0)
Sedatives	237 (32.4)	97 (13.3)	1.3 (4.6)
Hallucinogens	292 (39.9)	85 (11.6)	0.6 (2.1)
Opioids	232 (31.7)	147 (20.1)	3.5 (7.9)
Other	37 (5.1)	12 (1.6)	0.1 (0.7)

Table 9. Frequency of positive SSI scores and respective ASSIST scores obtained for cannabis, cocaine, ATS, opioids, tobacco and alcohol by country

	Australia n=171		Brazil n = 165		India n=177		USA n=218	
	n (%) scoring +ve	SSI score (sd)	n (%) scoring +ve	SSI score (sd)	n (%) scoring +ve	SSI score (sd)	n (%) scoring +ve	SSI score (sd)
Cannabis	143 (83.6)	12.7 (8.6)	140 (84.8)	12.8 (6.9)	136 (76.8)	22.1 (2.6)	198 (90.8)	15.4 (7.8)
Cocaine	61 (35.7)	5.2 (4.4)	71 (43.0)	10.9 (8.0)	0	0	84 (38.5)	14.9 (10.0)
ATS	152 (88.9)	14.6 (7.5)	19 (11.5)	7.4 (6.3)	0	0	44 (20.2)	9.9 (7.2)
Opioids	17 (9.9)	6.1 (7.1)	1 (0.6)	3.0 (-)	84 (47.5)	22.1 (3.2)	45 (20.6)	12.9 (9.4)
Tobacco	142 (83)	18.7 (8.7)	127 (80.0)	18.2 (8.5)	176 (99.4)	23.1 (2.7)	177 (81.2)	19.3 (8.6)
Alcohol	169 (98.8)	12.6 (7.8)	144 (87.3)	10.8 (8.8)	124 (70.0)	19.1 (3.4)	197 (90.4)	13.9 (9.6)

The mean Total Illicit Substance Involvement Score at baseline for the total sample was 36.2 (SD = 19.4, n = 731). Participants from Australia had the highest Total Illicit Substance Involvement Score at baseline (45.2, sd=18.9) followed by those from the USA (37.1, sd=23.6), India (34.7, sd=14.3) and Brazil (27.2, sd=13.5). These scores were significantly different overall ($F_{(3,726)} = 27.2$, $p<0.001$).

The majority (N= 628, 86%) of participants had never injected any substance. Of the remaining participants who had injected drugs in their lifetime, twenty three (3.2%) reported injecting within the past three months.

3.1.3.1 Current Frequency of Substance Involvement

The substances most frequently used (Q2) by the total sample of participants in the last three months were alcohol, followed by tobacco, cannabis, ATS, cocaine and opioids (Table 10 below).

Table 10. Frequency of Substance use over last 3 months (Q2) (N=731).

	Frequency N (%) of use in last 3 months (Q2)				
	Never	Once or Twice	Monthly	Weekly	Daily / Almost daily
Tobacco	140 (19.2)	29 (4.0)	14 (1.9)	44 (6.0)	504 (68.9)
Alcohol	121 (16.6)	100 (13.7)	124 (17.0)	299 (40.9)	87 (11.9)
Cannabis	147 (20.1)	54 (11.5)	94 (12.9)	153 (20.9)	253 (34.6)
Cocaine	571 (78.1)	73 (10.0)	48 (6.6)	35 (4.8)	4 (0.5)
ATS	543 (74.3)	55 (7.5)	75 (10.3)	55 (7.5)	3 (0.4)
Inhalants	700 (95.8)	24 (3.3)	4 (0.5)	2 (0.3)	1 (0.1)
Sedatives	648 (88.6)	32 (4.4)	20 (2.7)	23 (3.1)	8 (1.1)
Hallucinogens	683 (93.4)	35 (4.8)	11 (1.5)	2 (0.3)	0
Opioids	605 (82.8)	19 (2.6)	23 (3.1)	21 (2.9)	63 (8.6)
Other	728 (99.6)	2 (0.3)	1 (0.1)	0	0

3.1.3.2 Comparison of substance use at baseline by Brief Intervention and Control groups

There were no significant differences between BI and Control groups at baseline with respect to their Total Illicit Substance Involvement Scores (p=0.73), Tobacco SSI (p=0.43), Alcohol SSI (p=0.90), Cannabis SSI (p=0.19), Cocaine SSI (p=0.92), ATS SSI (p=0.53), Inhalant SSI (p=0.57), Sedative SSI (p=0.20), Hallucinogen SSI (p=0.98), Opioid SSI (p=0.98) or 'Other drug' SSI (p=0.99). There was no significant difference in injecting behaviour between BI and Control subjects (Chi squared=0.99, p=0.61).

3.1.3.3 Administration Times

Table 11 below shows the average time taken to administer the ASSIST questionnaire and BI respectively at baseline and at follow-up. Tables 12 and 13 show the respective times taken by each country for administration of the baseline ASSIST and BI. There were significant differences in the overall time taken to administer the ASSIST (p<0.001) and BI (p<0.001) between countries.

Table 11. Time (minutes) to administer the ASSIST Questionnaire and Brief Intervention at Baseline and Follow-up

	Mean (SD)	Median	Min	Max
ASSIST Baseline (N = 702)	7.9 (3.7)	7	3	60
ASSIST Follow-up (N = 631)	6.7 (3.2)	5	1	25
BI Baseline (N = 369)	13.8 (8.5)	11	3	60
BI Follow-up (N = 285)	11.3 (6.9)	10	1	40

Table 12. Time (minutes) to administer the ASSIST questionnaire at baseline by country

	Mean (sd)	Median	Min	Max
Australia n=171	8.3 (2.4)	8	4	17
Brazil n=165	7.2 (3.7)	5	3	25
India n=177	6.6 (1.9)	6	4	12
USA n=189	9.3 (5.0)	10	3	60

Table 13. Time (minutes) to administer the BI at baseline by country

	Mean (sd)	Median	Min	Max
Australia n=83	7.7 (2.1)	8	3	15
Brazil n=94	23.3 (10.9)	20	8	60
India n=89	10.9 (1.6)	11	7	15
USA n=103	12.7 (4.7)	12	4	30

3.2 Inferential Statistical Analysis

3.2.1 Effect of the ASSIST BI on Total Illicit Substance Involvement Score

3.2.1.1 Pooled data (N=628)

All participants were included in the analysis, regardless of the substance targeted in the intervention (n = 628). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,626) = 117.5$, $p<0.001$) regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Total Illicit Substance Involvement scores at follow-up compared with the Control group (Table 14, $F(1,626) = 7.2$, $p<0.01$, observed power 76.4%, alpha=0.05). Results are shown graphically in Figure 1 below.

Table 14. Total Illicit Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=628) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=306)	36.9 (20.1)	32.3 (17.9)
Brief Intervention (n=322)	36.7 (19.0)	28.9 (17.3)

A similar interaction effect was observed when the two-way repeated measures ANOVA was re-calculated controlling for age and education ($F(1,624) = 7.6$, $p<0.01$, observed power = 78.4%) however, neither age nor education appeared to have a significant impact on the outcome (p=0.15 and p=0.85 respectively).

Figure 1. Total Illicit Substance Involvement scores over time, BI vs. Control (N=628) – Pooled data.
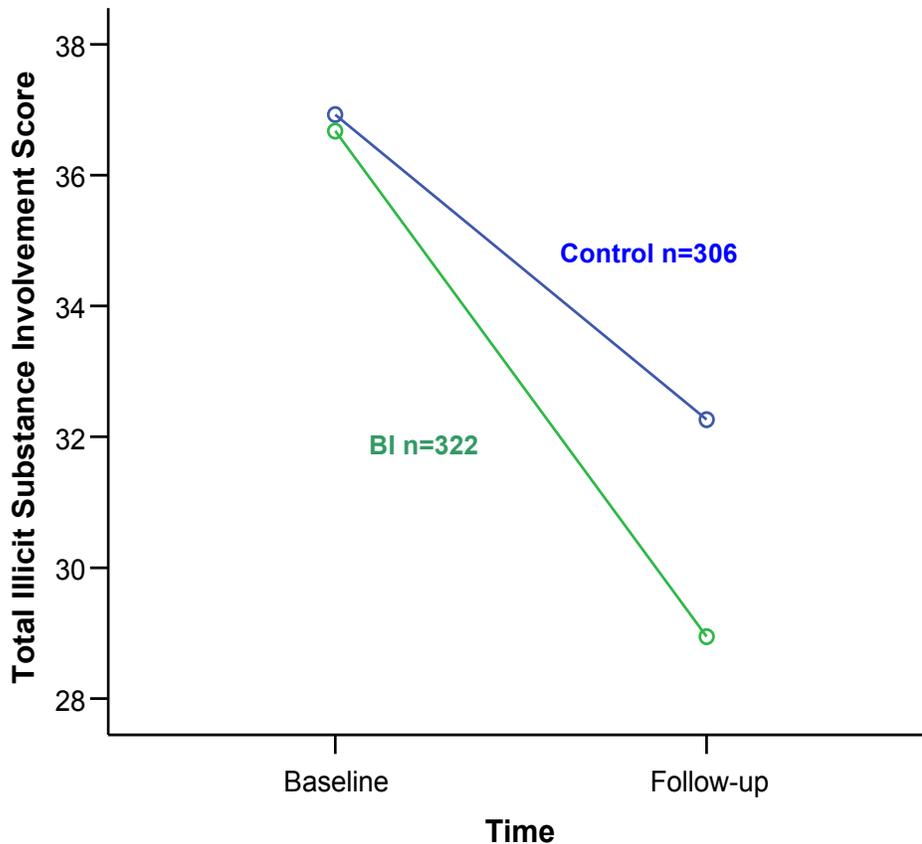
All participants were included in the analysis for each country, regardless of the substance targeted in the intervention. Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed there was a significant reduction over time for each country regardless of group (Australia: $F_{(1,160)} = 25.0$, $p<0.001$; Brazil: $F_{(1,141)} = 29.8$, $p<0.001$; India: $F_{(1,153)} = 66.5$, $p<0.001$; USA: $F_{(1,166)} = 23.2$, $p<0.001$).

There was a significant interaction effect for all countries with the exception of the USA. Table 15 shows Total Illicit substance Involvement Scores for each country and that the participants receiving the Brief Intervention in Australia, Brazil and India had significantly reduced Total Substance Involvement Scores at follow-up compared with Control subjects. Tukey's HSD post hoc comparisons of mean differences in Total Illicit Substance Involvement scores between each respective country are shown in Table 16. The table shows that there were significant differences between countries with respect to the change in Total Illicit Substance Involvement scores over time.

Table 15. Total Illicit Substance Involvement Scores – BI and Control at Baseline and Follow-up by country

		Baseline Score (SD)	Follow-up Score (SD)	Interaction effect p	Power	Interaction by country p
Australia	Control *(n=80)*	43.4 (18.7)	42.3 (20.3)	*F = 14.68, p<0.001*	*97%*	*F = 6.4, p<0.001*
	BI *(n=82)*	47.2 (19.4)	39.0 (17.8)			
Brazil	Control *(n=60)*	25.6 (12.2)	23.2 (12.2)	*F = 9.1, p<0.005*	*85%*	
	BI *(n=83)*	29.3 (14.3)	20.9 (13.5)			
India	Control *(n=77)*	34.5 (14.9)	30.4 (13.4)	*F = 10.0, p<0.005*	*85%*	
	BI *(n=78)*	34.5 (13.9)	25.2 (12.3)			
USA	Control *(n=89)*	40.9 (25.4)	31.0 (18.1)	*F = 2.5, p=0.11*	*35%*	
	BI *(n=79)*	35.6 (22.6)	30.6 (19.2)			

Table 16. Post hoc comparisons of mean differences in Total Illicit Substance Involvement Scores between countries

	Australia	Brazil	India	USA
Australia				
Mean difference	na	-18.2	-11.8	-8.4
(p value)		*(p<0.001)*	*(p<0.001)*	*(p<0.001)*
Brazil				
Mean difference	18.2	na	6.4	9.8
(p value)	*(p<0.001)*		*(p<0.005)*	*(p<0.001)*
India				
Mean difference	11.8	-6.4	na	3.4
(p value)	*(p<0.001)*	*(p<0.005)*		*(p=0.22)*
USA				
Mean difference	8.4	-9.8	-3.4	na
(p value)	*(p<0.001)*	*(p<0.001)*	*(p=0.22)*	

3.2.3 Effect of the ASSIST BI on Cannabis Specific Substance Involvement Score

3.2.3.1 Pooled data (N=328)

Participants included in this analysis were those from all countries randomized to receive BI for cannabis involvement at baseline (n=176), and those randomized to the Control Group for cannabis involvement at follow-up (n=152). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time $(F(1,326) = 51.2, p<0.001)$ regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Cannabis Specific Substance Involvement scores at follow-up compared with the Control group (Table 17, $F(1,326) = 4.2$, $p<0.05$, observed power 53%, alpha=0.05). Results are shown graphically in Figure 2 below.

Table 17. Cannabis Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=328)

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=152)	17.8 (6.7)	15.7 (8.1)
Brief Intervention (n=176)	17.6 (7.0)	13.9 (9.0)

Figure 2. Cannabis Specific Substance Involvement scores over time, BI vs. Control (N=328) – Pooled data.
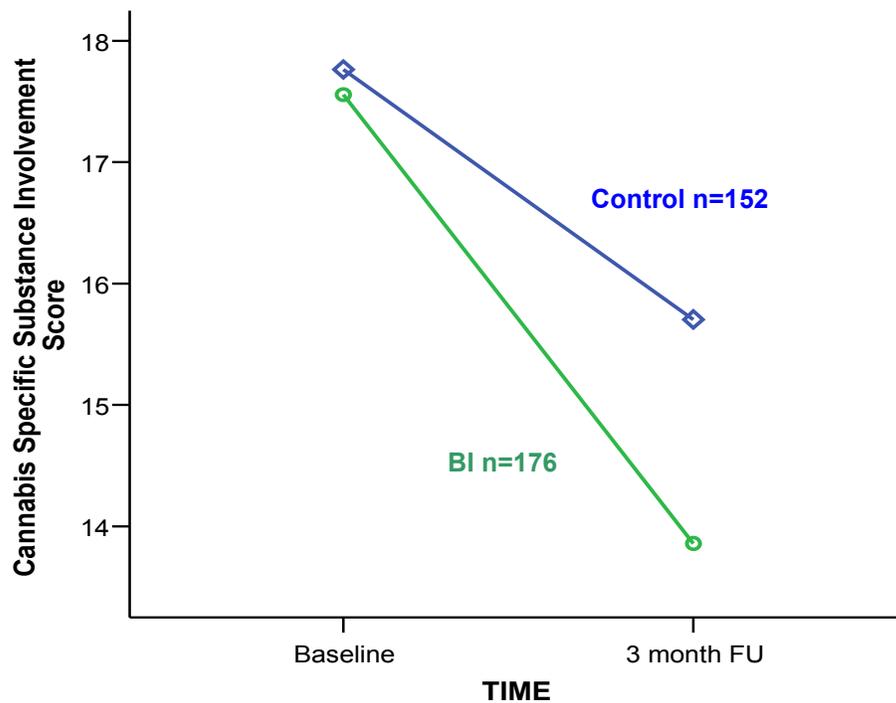
3.2.3.2 Country by Country

All participants in the cannabis group were included in the analysis for each country. Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed there was a significant reduction over time for each country regardless of group (Australia: $F(1,28) = 4.0$, $p=0.05$; Brazil: $F(1,90) = 9.0$, $p<0.005$; India: $F(1,96) = 20.2$, $p<0.001$; USA: $F(1,106) = 19.5$, $p<0.001$).

There was a significant interaction effect for Brazil and India, but not Australia or the USA. Table 18 shows the respective Cannabis Substance Involvement Scores for each country and that the participants receiving the Brief Intervention in Brazil and India had significantly reduced Cannabis Specific Substance Involvement Scores at follow-up compared with Control subjects. Tukey's HSD post hoc comparisons of mean differences in Cannabis Specific Substance Involvement scores between each respective country are shown in Table 19.

Table 18. Cannabis Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up by country

		Baseline Score (SD)	Follow-up Score (SD)	Interaction effect *p* value	Power	Interaction by country *p* value
Australia	Control (n=13)	19.1 (7.8)	18.7 (7.9)	*F = 24.07, p = 0.137*	*31%*	
	BI (n=17)	20.2 (5.3)	17.2 (6.2)			
Brazil	Control (n=35)	12.1 (5.9)	12.1 (7.4)	*F = 9.0, p<0.005*	*84%*	
	BI (n=57)	13.1 (6.2)	8.3 (7.8)			*F = 5.5, p<0.005*
India	Control (n=49)	22.3 (2.6)	21.7 (5.0)	*F = 11.7, p<0.005*	*92%*	
	BI (n=49)	22.9 (1.9)	18.7 (6.3)			
USA	Control (n=55)	17.0 (6.6)	11.9 (7.3)	*F = 2.7, p=0.105*	*37%*	
	BI (n=53)	16.6 (7.8)	14.3 (10.1)			

Table 19. Post hoc comparisons of mean differences in Cannabis Specific Substance Involvement Scores between countries

	Australia	Brazil	India	USA
Australia *Mean difference* *(p value)*	na	-7.6 *(p<0.001)*	2.6 *(p=0.12)*	-3.8 *(p<0.01)*
Brazil *Mean difference* *(p value)*	7.6 *(p<0.001)*	na	10.1 *(p<0.001)*	3.7 *(p<0.001)*
India *Mean difference* *(p value)*	-2.6 *(p=0.12)*	-10.1 *(p<0.001)*	na	-6.4 *(p<0.001)*
USA *Mean difference* *(p value)*	3.8 *(p<0.01)*	-3.7 *(p<0.001)*	6.4 *(p<0.001)*	na

3.2.4 Effect of the ASSIST BI on Stimulant Specific Substance Involvement Scores (Amphetamine-Type Stimulants and cocaine)

3.2.4.1 Pooled data (N=229)

Participants included were those from all countries randomized to receive BI for either cocaine or ATS at baseline (n=110), and those randomized to the Control Group for cocaine or ATS involvement at follow-up (n=119). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F_{(1,227)}$ = 95.6, $p<0.001$) regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Stimulant Substance Involvement scores at follow-up compared with the Control group (Table 20, $F_{(1,227)}$ = 9.4, $p<0.005$, observed power 86%, alpha=0.05). Results are shown graphically in Figure 3 below.

Table 20. Stimulant Specific Substance Involvement Scores (ATS and cocaine) –
BI and Control at Baseline and Follow-up (N=229)

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=119)	15.3 (7.3)	12.1 (8.6)
Brief Intervention (n=110)	17.3 (7.4)	11.1 (8.6)

Figure 3. Stimulant (cocaine & ATS) Specific Substance Involvement scores over
time, BI vs. Control (N=229) – Pooled data.
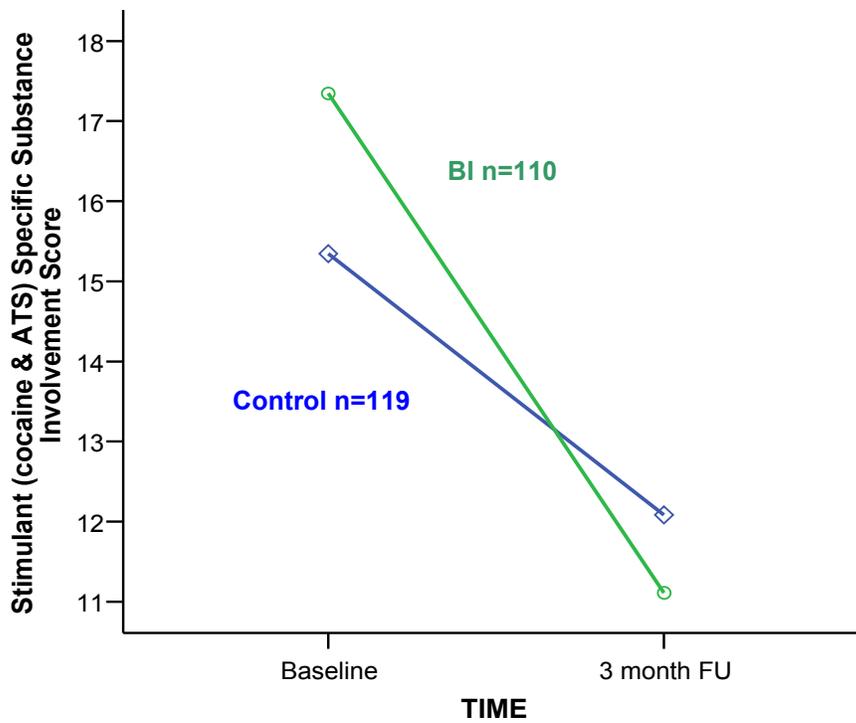
3.2.4.2 Country by Country

All participants in the stimulant groups (cocaine and ATS) were included in the analysis for each country where relevant. Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed there was a significant reduction over time for each country (excluding India which did not recruit any stimulant users) regardless of group (Australia: $F(1,128) = 41.4$, $p=0.05$; Brazil: $F(1,49) = 33.3$, $p<0.001$; USA: $F(1,46) = 22.1$, $p<0.001$).

There was a significant interaction effect for Australia and Brazil, but not the USA. Table 21 shows the respective Stimulant (cocaine & ATS) Substance Involvement Scores for each country and that the participants receiving the Brief Intervention in Australia and Brazil had significantly reduced Stimulant Substance Involvement Scores at follow-up compared with Control subjects. Tukey's HSD post hoc comparisons of mean differences in Stimulant Specific Substance Involvement scores between each respective country (excluding India) are shown in Table 22.

Table 21. Stimulant Specific Substance Involvement Scores (cocaine and ATS) –

BI and Control at Baseline and Follow-up by country

		Baseline Score (SD)	Follow-up Score (SD)	Interaction effect *p* value	Power	Interaction by country *p* value
Australia	Control *(n=66)*	15.4 (6.9)	13.5 (7.9)	F = 8.7, p<0.005	84%	
	BI *(n=64)*	16.8 (7.2)	11.7 (7.3)			
Brazil	Control *(n=25)*	11.2 (6.1)	7.7 (6.2)	F = 7.2, p<0.01	75%	
	BI *(n=26)*	16.0 (6.8)	6.5 (5.8)			*F = 2.9, P=0.06*
India	Control *(n=0)*	na	na	*NA*	*NA*	
	BI *(n=0)*	na	na			
USA	Control *(n=28)*	18.6 (7.6)	12.6 (10.9)	F = 0.1, p=0.73	6%	
	BI *(n=20)*	20.7 (8.4)	15.3 (12.4)			

Table 22. Post hoc comparisons of mean differences in Stimulant Specific Substance Involvement Scores between countries

	Australia	Brazil	India	USA
Australia				
Mean difference	na	-4.0	na	2.3
(p value)		(*p<0.001*))		(*p=0.11*)
Brazil				
Mean difference	4.0	na	na	6.3
(p value)	(*p<0.001*)			(*p<0.001*)
India				
Mean difference	na	na	na	na
(p value)				
USA				
Mean difference	-2.3	-6.3	na	na
(p value)	(*p=0.11*)	(*p<0.001*)		

3.2.5 Effect of the ASSIST BI on Opioid Specific Substance Involvement Scores

*3.2.5.1 Pooled data (N=73)*

Participants included were those from all countries randomized to receive BI for opioids at baseline (n=37), and those randomized to the Control Group for opioids at follow-up (n=36). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,71) = 49.4$, $p<0.001$) regardless of group. The interaction effect was not significant in this case although it appeared there was a tendency for the group receiving the Brief Intervention at baseline to have lower mean Opioid Substance Involvement scores at follow-up compared with the Control group (Table 23, $F(1,71) = 3.4$, $p=0.07$, observed power 45%, alpha=0.05). Results are shown graphically in Figure 4 below.

Table 23. Opioid Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=73)

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=36)	21.9 (3.8)	16.3 (9.4)
Brief Intervention (n=37)	22.7 (3.5)	13.1 (8.9)

Figure 4. Opioid Specific Substance Involvement scores over time, BI vs. Control (N=73) – Pooled data.
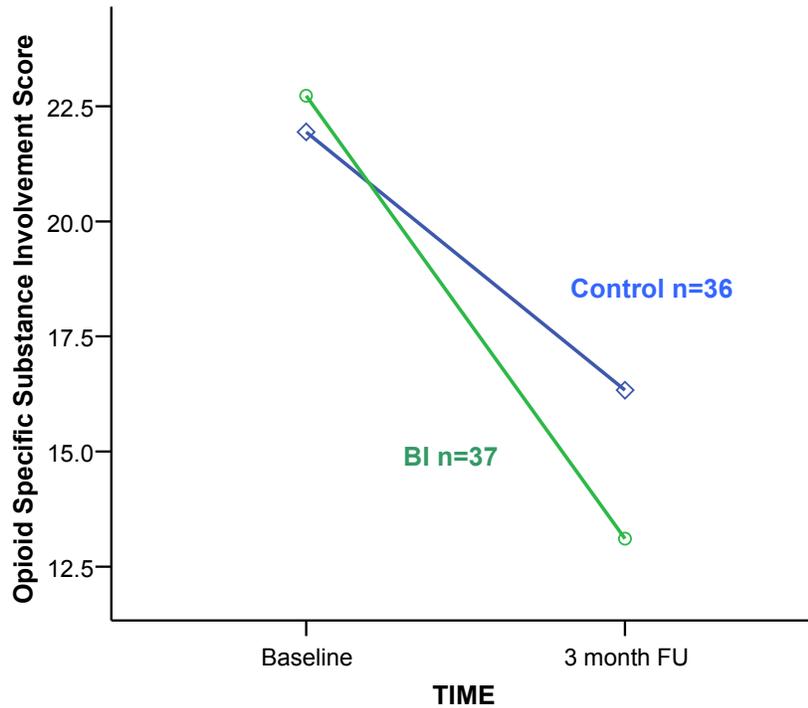
3.2.5.2 Country by Country

Only participants from the Indian site were included in any analysis because other sites had recruited either very small or zero numbers of opioid users (Australia = 2; Brazil = 0, USA = 16). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed there was a significant reduction over time for India regardless of group ($F(1,56) = 57.2$, $p<0.001$). There was a significant interaction effect for India and Table 24 shows the respective Opioid Substance Involvement Scores for India and that the participants receiving the Brief Intervention had significantly reduced Opioid Substance Involvement Scores at follow-up compared with Control subjects ($F(1,56) = 6.9$, $p<0.05$).

Table 24. Opioid Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up for India

	Baseline Score (sd)	Follow-up Score (sd)
Control Group (n=28)	22.4 (2.4)	16.9 (8.3)
Brief Intervention (n=30)	22.9 (2.0)	11.5 (8.2)

3.2.6 Effect of the ASSIST BI on other substances

3.2.6.1 Tobacco Specific Substance Involvement Score, Pooled data (N=631)

All participants were included in the analysis, regardless of the substance targeted in the intervention (n = 631). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F_{(1,629)} = 117.5$, $p<0.05$) regardless of group, but not a significant interaction effect. Participants receiving the BI for illicit drugs did not have significantly higher or lower Tobacco Specific Substance Involvement Scores at follow-up in comparison with their Control counterparts (Table 25, $F_{(1,629)} = 1.2$, $p=0.28$). Results are shown graphically in Figure 5 below.

Table 25. Tobacco Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=631) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=308)	17.5 (10.1)	17.2 (10.0)
Brief Intervention (n=323)	16.8 (10.0)	16.0 (10.0)

Figure 5. Tobacco Specific Substance Involvement scores over time, BI vs. Control (N=631) – Pooled data.
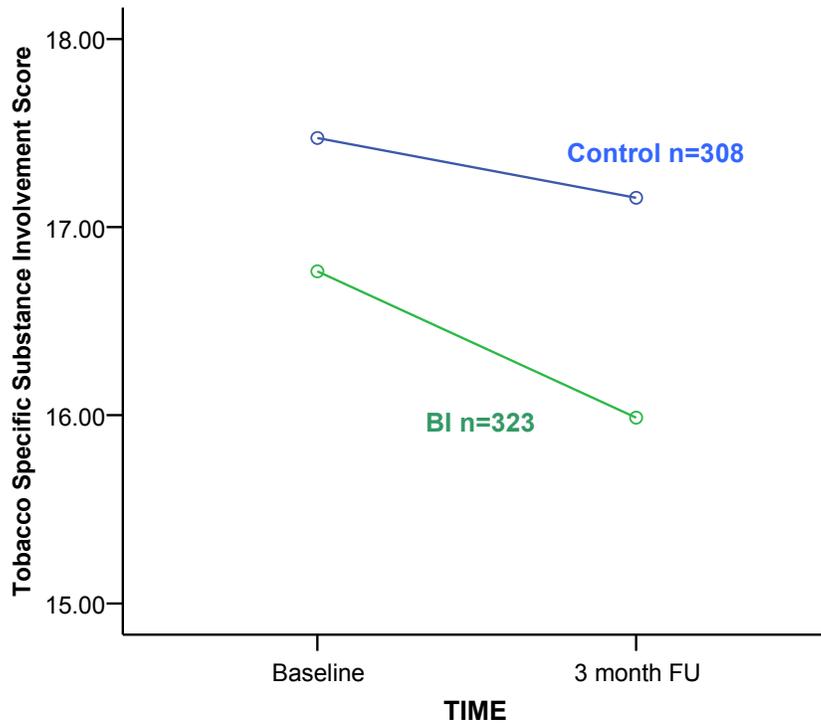
3.2.6.2 Alcohol Specific Substance Involvement Score, Pooled data (N=630)

All participants were included in the analysis, regardless of the substance targeted in the intervention (n = 630). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F_{(1,628)} = 59.8$, $p<0.001$) regardless of group, but not a significant interaction effect. Participants receiving the BI for illicit drugs did not have significantly higher or lower Alcohol Specific Substance Involvement Scores at follow-up in comparison with their Control counterparts (Table 26, $F_{(1,628)} = 3.4$, $p=0.07$). Results are shown graphically in Figure 6 below.

Table 26. Alcohol Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=630) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=308)	12.4 (9.3)	10.7 (8.6)
Brief Intervention (n=322)	12.1 (9.0)	9.3 (8.3)

Figure 6. Alcohol Specific Substance Involvement scores over time, BI vs. Control (N=630) – Pooled data.
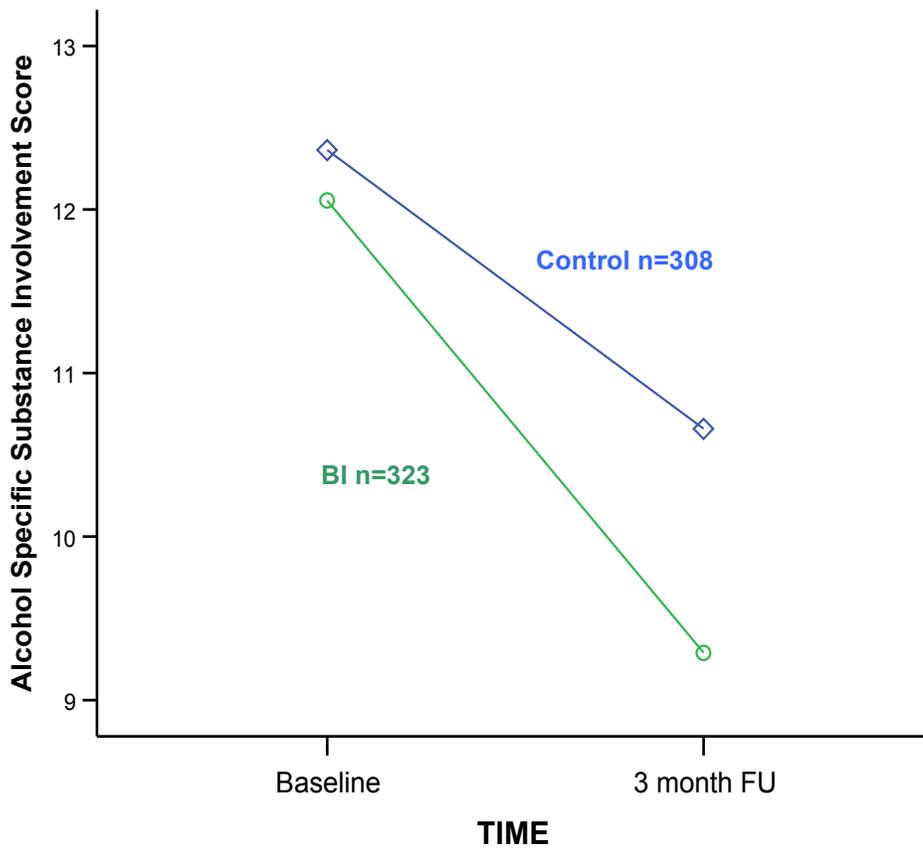
3.2.6.3 Inhalant Specific Substance Involvement Score, Pooled data (N=47)

All participants who scored positive for inhalants at baseline (ie. >1) were included in the analysis, regardless of the substance targeted in the intervention (n = 47). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,45) = 15.1$, $p<0.001$) regardless of group, but not a significant interaction effect. Participants receiving the BI for illicit drugs did not have significantly higher or lower Inhalant Specific Substance Involvement Scores at follow-up in comparison with their Control counterparts (Table 27, $F(1,45) = 0.3$, $p=0.61$). Results are shown graphically in Fig 7 below.

Table 27. Inhalant Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=47) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=19)	5.7 (6.9)	3.7 (7.1)
Brief Intervention (n=28)	4.9 (5.3)	2.3 (2.7)

Figure 7. Inhalant Specific Substance Involvement scores over time, BI vs. Control (N=47) – Pooled data.
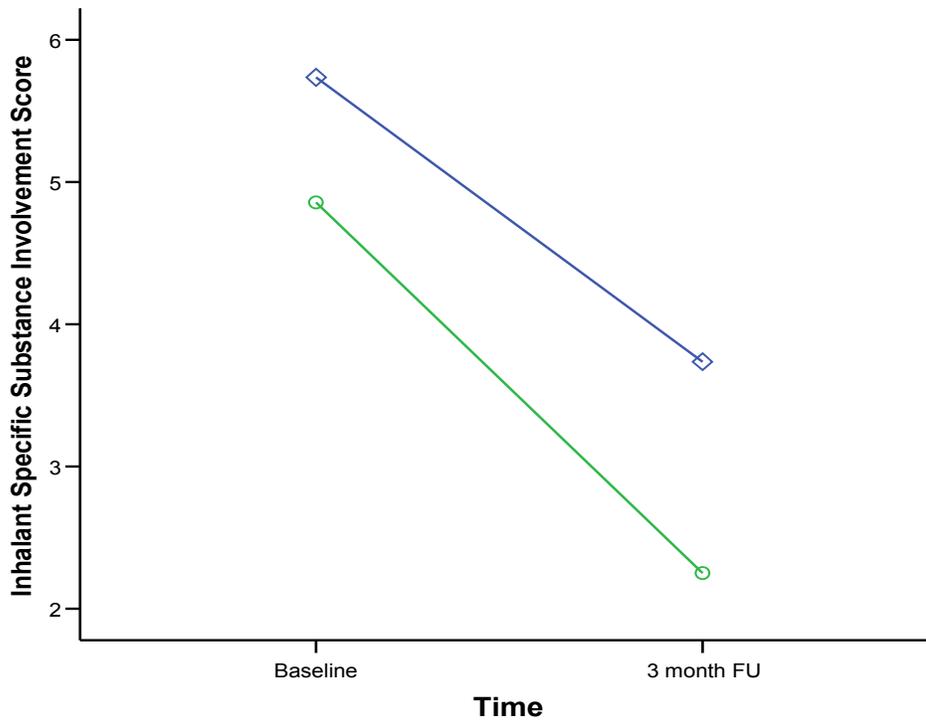
3.2.6.4 Sedative Specific Substance Involvement Score, Pooled data (N=90)

All participants who scored positive for sedatives at baseline (ie. >1) were included in the analysis, regardless of the substance targeted in the intervention (n = 90). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F_{(1,88)}$ = 53.3, $p<0.001$) regardless of group, but not a significant interaction effect. Participants receiving the BI for illicit drugs did not have significantly higher or lower Sedative Specific Substance Involvement Scores at follow-up in comparison with their Control counterparts (Table 28, $F_{(1,88)}$ = 0.2, $p=0.7$). Results are shown graphically in Figure 8 below.

Table 28. Sedative Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=90) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=46)	10.0 (8.9)	4.3 (6.5)
Brief Intervention (n=44)	8.8 (6.9)	2.9 (6.0)

Figure 8. Sedative Specific Substance Involvement scores over time, BI vs. Control (N=90) – Pooled data.
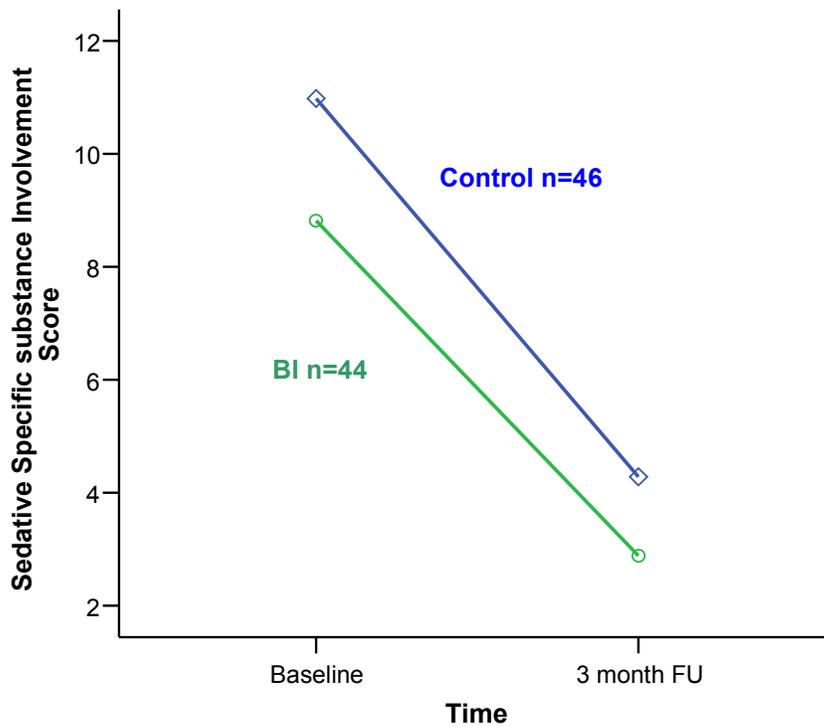
3.2.6.5 Hallucinogen Specific Substance Involvement Score, Pooled data (N=76)

All participants who scored positive for hallucinogens at baseline (ie. >1) were included in the analysis, regardless of the substance targeted in the intervention (n = 76). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,74) = 29.4$, $p<0.001$) regardless of group, but not a significant interaction effect. Participants receiving the BI for illicit drugs did not have significantly higher or lower Hallucinogen Specific Substance Involvement Scores at follow-up in comparison with their Control counterparts (Table 29, $F(1,74) = 0.1$, $p=0.7$). Results are shown graphically in Figure 9 below.

Table 29. Hallucinogen Specific Substance Involvement Scores – BI and Control at Baseline and Follow-up (N=76) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=37)	5.2 (4.3)	2.2 (2.2)
Brief Intervention (n=39)	4.7 (4.7)	2.1 (3.0)

Figure 9. Hallucinogen Specific Substance Involvement scores over time, BI vs. Control (N=76) – Pooled data.
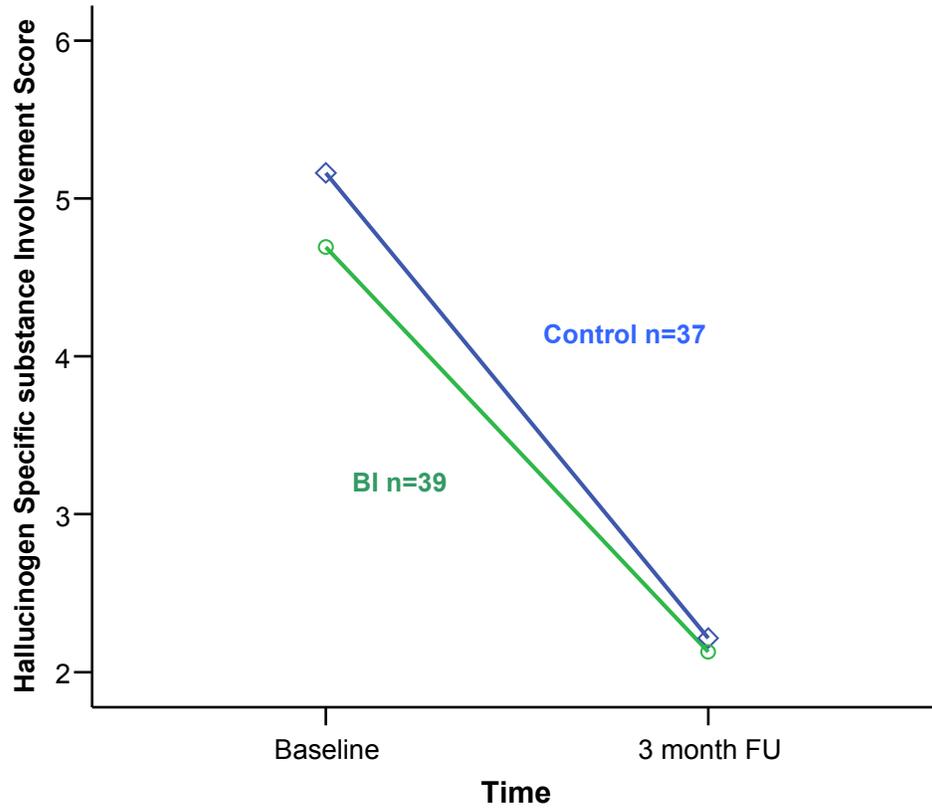
3.2.7 Effect of group (high or low scoring) on ASSIST scores

3.2.7.1 Total Illicit Substance Involvement

An initial two-way repeated measures ANOVA analysis comprising experimental condition (BI or Control) severity level (high/low), gender and country was calculated where the latter three factors were included in the analysis as covariates. The results showed that there was a significant interaction effect ($F(1,623) = 7.1$, $p<0.01$, power = 76%). Gender and country did not have a significant impact on the outcome ($p=0.86$ and $p=0.25$ respectively) however, severity (high/low) did have a significant impact ($p<0.001$) and this was investigated in two discrete analyses below.

All participants allocated to the high scoring group (ie. scoring between 16 and 26) were included in the analysis, regardless of the substance targeted in the intervention (n = 393). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,391) = 109.6$, $p<0.001$) regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Total Illicit Substance Involvement scores at follow-up compared with the Control group (Table 30, $F(1,391) = 4.2$, $p<0.05$).

Table 30. Total Illicit Substance Involvement Scores for high scoring participants– BI and Control at Baseline and Follow-up (N=393) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=188)	42.9 (20.8)	36.2 (18.6)
Brief Intervention (n=205)	41.4 (19.4)	31.6 (18.1)

All participants allocated to the low scoring group (ie. scoring between 4 and 15) were included in the analysis, regardless of the substance targeted in the intervention (n = 235). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,233) = 14.4$, $p<0.001$) regardless of group. However, a

significant interaction effect was not observed, and the low-scoring group receiving the Brief Intervention at baseline did not have significantly lower mean Total Illicit Substance Involvement scores at follow-up compared with the Control group (Table 31, $F(1,233) = 3.0$, $p=0.09$).

Table 31. Total Illicit Substance Involvement Scores for low scoring participants–BI and Control at Baseline and Follow-up (N=235) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=118)	27.4 (14.6)	25.9 (14.7)
Brief Intervention (n=117)	28.3 (15.1)	24.3 (14.7)

Chi-squared comparisons between low and high scorers at follow-up showed that high scoring participants receiving a BI for any substance were significantly more likely to have attempted to reduce their substance use compared with low scoring BI participants (67.9% vs. 32.1%, Chi-squared = 13.4, $p<0.001$). However an Independent t-test showed that there was no significant difference between high and low-scoring participants in terms of their rating of how much they had reduced their substance use (3.4 vs. 3.5, $t=0.4$, $p=0.7$).

3.2.7.2 Cannabis Specific Substance Involvement

All participants allocated to the high scoring cannabis group (ie. scoring between 16 and 26) were included in the analysis (n = 204). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,202) = 58.4$, $p<0.001$) regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Cannabis Specific Substance Involvement scores at follow-up compared with the Control group (Table 32, $F(1,202) = 4.8$, $p<0.05$).

Table 32. Cannabis Specific Substance Involvement Scores for high scoring participants– BI and Control at Baseline and Follow-up (N=395) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=96)	22.1 (3.5)	19.3 (7.0)
Brief Intervention (n=108)	22.1 (3.5)	17.0 (8.2)

All participants allocated to the low scoring group (ie. scoring between 4 and 15) were included in the analysis (n = 124). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was not a significant reduction over time ($F(1,122) = 3.5$, $p=0.07$) regardless of group. Additionally, a significant interaction effect was not observed, and the low-scoring group receiving the Brief Intervention at baseline did not have significantly lower mean Cannabis Specific Substance Involvement scores at follow-up compared with the Control group (Table 33, $F(1,122) = 0.4$, $p=0.5$).

Table 33. Cannabis Specific Substance Involvement Scores for low scoring participants– BI and Control at Baseline and Follow-up (N=124) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=56)	10.4 (3.9)	9.6 (5.9)
Brief Intervention (n=68)	10.3 (4.8)	8.8 (8.0)

3.2.7.3 Stimulant Specific Substance Involvement

All participants allocated to the high scoring stimulant group (ie. scoring between 16 and 26 for cocaine or ATS) (n = 121). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time ($F(1,119) = 80.4$, $p<0.001$) regardless of group. However, the interaction effect was less strong and the group receiving the Brief Intervention at baseline did not have significantly lower mean Stimulant Specific

Substance Involvement scores at follow-up compared with the Control group (Table 34, F(1,119) = 3.0, p=0.09, power = 40%).

Table 34. Stimulant Specific Substance Involvement Scores (cocaine and ATS) for high scoring participants– BI and Control at Baseline and Follow-up (N=121) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=59)	21.7 (4.3)	16.1 (9.2)
Brief Intervention (n=62)	22.8 (4.7)	14.5 (9.5)

All participants allocated to the low scoring group (ie. scoring between 4 and 15 for cocaine or ATS) were included in the analysis (n = 108). Assumptions of normality, homogeneity of variance and sphericity were met. Two-way repeated measures ANOVA results showed that there was a significant reduction over time (F(1,106) = 24.9, p<0.001) regardless of group. Moreover, there was a significant interaction effect and the group receiving the Brief Intervention at baseline had significantly lower mean Stimulant Specific Substance Involvement scores at follow-up compared with the Control group (Table 35, F(1,106) = 8.5, p<0.005, power = 82%).

Table 35. Stimulant Specific Substance Involvement Scores (cocaine and ATS) for low scoring participants– BI and Control at Baseline and Follow-up (N=108) – Pooled data.

	Baseline Score (SD)	Follow-up Score (SD)
Control Group (n=60)	9.1 (3.1)	8.2 (5.8)
Brief Intervention (n=48)	10.3 (3.0)	6.8 (4.5)

3.3 Participant Feedback – quantitative analysis

3.3.1 Did you attempt to cut down on your drug use (after receiving the BI)?

A total of 317 participants provided information on the above question, and of those a total of 262 (82.6%) reported attempting to cut down on their substance use after

receiving the information and feedback as part of the brief intervention (Australia 72%; Brazil 82.7%; India 97.4%; USA 79.5%).

3.3.2 Rating of extent of reduction in drug use

Participants receiving the BI were asked to rate out of 5 (1 being not at all, 5 being completely stopped) the extent to which they had reduced their substance use. Of the 315 responses, an average rating of 3.4 (sd=1.3) was given. There was a small but significant difference between countries with regards to this rating ($F(3,270) = 2.8$, $p=0.04$) with Brazilian participants reporting the highest rating (3.7, sd=1.3) and Australian participants the lowest (3.2, sd=1.0).

3.3.3 How long in weeks did the reduction in drug use last?

Of the participants who did manage to reduce their substance use (n=224, 60.2%) the average time participants maintained this reduction was 11.2 weeks. The maximum length of time was 49 weeks, and the minimum was 1 week (sd = 5.4 weeks, median = 12 weeks). While there were differences in this length of time between countries, it did not quite reach statistical significance ($F(3,224) = 2.5$, $p=0.06$).

3.3.4 Rating of influence on general health

Participants receiving the BI were asked to rate out of 5 (1 being no influence, 5 being completely influenced) the extent to which receiving the information and feedback had impacted on their general health. Of the 315 responses, an average rating of 3.1 (sd=1.3) was given. There was a significant difference between countries with regards to this rating ($F(3,311) = 12.1$, $p<0.001$) with Indian participants reporting the highest rating (3.6, sd=1.2) and Australian participants the lowest (2.5, sd=1.1).

4. DISCUSSION

The recruitment sample for this randomized controlled trial was likely to be employed, in their early thirties and residing in stable accommodation. Sixty per cent of the sample identified as Caucasian which reflected the main race of two of the four countries from which the samples were recruited. There were some expected profile differences between the countries (for example marital status, age, race, education and religion) however, these were considered to be a reflection of the culture from which the samples were drawn, or a reflection of the type of primary health care clinics from which they were drawn. Similarly, there were differences in the frequency and type of substances used by the participants of each country, with the exception of alcohol and tobacco which were readily used by the majority of participants in all countries. These differences impacted on the ability of each country to recruit specific drug users to the study. Accordingly the majority of opioid users were recruited from India, the majority of ATS users were recruited from Australia, and Brazil and the USA recruited the majority of cocaine users. No country had difficulty recruiting cannabis users, but it is worth noting that cannabis recruitment was greater in those countries where it was difficult to recruit other kinds of drug users. Accordingly a larger number of cannabis users were recruited to the study (n=395) compared to those using ATS (n=155), cocaine (n=92) or opioids (n=89) despite the initial intention of the study having equity in recruitment numbers across drug types.

There were differences between the countries with regards to the Total Illicit Substance Involvement Score at baseline, and Australia and the USA tended to have higher scores than Brazil and India. This could reflect more frequent drug use in these countries, but may also be indicative of the availability of more substance types in these countries and a tendency towards higher levels of polydrug use. However, there were no significant differences between control and BI subjects in terms of their Total Illicit Substance Involvement Scores, or any of their Specific Substance Involvement Scores, or the percentage of those who had used drugs intravenously.

Fifteen per cent of the total sample had previously received some kind of treatment for drug and alcohol issues, generally counselling, although this tended to be some years in the past. Moreover, just over three per cent of participants had injected substances

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in the last three months, and these features, alongside the overall demographic profile of the sample, suggest that the participants in this study were not dependent or high risk substance users. Furthermore, the high overall follow-up rate (86%) also indicates that this was a relatively stable sample.

The inferential analysis of the pooled data (i.e. all countries' data combined) demonstrated that follow-up scores were significantly lower than baseline scores for Total Illicit Substance Involvement, Cannabis Specific Substance Involvement, Stimulant Specific Substance Involvement and Opioid Specific Substance Involvement. This analysis did not differentiate between Control and BI groups and indicates that there was an overall decrease in substance use and risk over time. However, when group type was taken into consideration, (i.e. Control or BI) participants receiving the brief intervention had significantly reduced scores for all measures (excluding Opioid Specific Substance Involvement) compared with Control participants. These findings indicate that the brief intervention was effective compared with no intervention in getting participants to reduce their substance use and risk, as determined by the ASSIST questionnaire. However, it also indicates that even when a brief intervention was not received (as in the case of Control participants at baseline) a reduction in ASSIST scores also was observed, albeit not to the same degree as the BI participants. This may suggest a "regression towards the mean" effect whereby participants spontaneously reduced their substance use toward the mean use of the general population, however, may also indicate that administration of the ASSIST questionnaire alone influenced participants to reduce their substance use. The data collected by this study does not allow for further scrutiny of this phenomenon.

While a significant interaction effect was not observed for the Opioid Specific Substance Involvement Score with the pooled data, there certainly was a tendency for participants receiving the opioid-targeted BI to have lower scores at follow-up compared with the Control participants, and probability tended towards significance (p=0.07). It is likely that the lack of actual significance reflected the small sample size for this calculation (n=73), however, when Indian participants - who comprised the majority of opioid users - were considered on their own, there was a significant interaction effect (p<0.05). This suggests that there may have been a small confounding effect when

data from the other countries (Australia and USA) was included in the overall pooled analysis, albeit considering their small sample sizes (Australia, n=2; USA, n=16).

From the probability values obtained from the analysis of the pooled data, it appears that the BI targeting stimulants (ATS and cocaine) was the most effective statistically ($p < 0.005$) followed by the BI for cannabis ($p < 0.05$), then opioids ($p = 0.07$). However, statistical significance may not necessarily dictate the level of clinical effectiveness, and could reflect differences in the patterns of use of these drugs by participants. Both cannabis and opioids were more likely to be daily/almost daily if used in the last three months compared with stimulants which were most likely to be used monthly or less by participants. More frequent drug use may be associated with entrenched behaviour and less susceptibility to change. However, this assumption is based on a comparison of the pooled data from all countries, and country by country comparisons reveal differences in interaction effects for each of the drugs targeted, as discussed below.

With the exception of the USA site, all countries demonstrated that the BI participants had significantly lower Total Illicit Substance Involvement scores at follow-up compared with the Control subjects. This difference appeared to be greatest among Australian participants. The USA site tended towards an interaction effect ($p = 0.11$) and while both groups (control and BI) had reduced scores at follow-up, the direction favoured Control participants having a larger decrease in scores over time than participants receiving the BI. A similar pattern, including the lack of a brief intervention effect, also was observed for Cannabis and Stimulant Specific Substance Involvement Scores in participants recruited in the USA, but the pattern was unable to be determined for opioids due to the inadequate sample size. Conversely, Indian and Brazilian sites demonstrated a very strong brief intervention effect for Cannabis Specific Substance Involvement Scores ($p < 0.005$), as did Australia ($p < 0.005$) and Brazil ($p < 0.01$) for Stimulant Specific Substance Involvement Scores. And while a significant brief intervention, or interaction, effect was not demonstrated in Australian participants for the Cannabis Specific Substance Involvement Score, the direction certainly tended towards a brief intervention interaction effect and it is likely that the lack of actual significance ($p = 0.14$) reflected the small sample size for this calculation (n=30).

The reasons underlying the contrast between the Australian, Brazilian and Indian sites and the USA site with regards to a brief intervention effect is not completely clear. Within the USA site the randomization was successful in balancing the experimental and control groups on key variables, and the follow-up rate was adequate for clinical studies of this kind, with no apparent bias introduced by either the randomization or differential attrition at follow-up. However, there were some protocol and participant differences between the USA and other sites which may have contributed to the lack of a brief intervention effect.

One issue at the USA Connecticut site that may have affected the intervention was the introduction of a new ethics/IRB protocol early on in the study in which the attainment of informed consent comprised a lengthy and detailed process lasting 10-15 minutes. Prior to the induction of this new protocol, and in the other participating countries, the informed consent process took less than a few minutes to administer. This extra 10-15 minutes spent with USA participants may have either diluted the effect of the BI or served as a BI to the control group. The findings in California which appear to be similar to the Connecticut findings, albeit on a smaller scale (n=33 compared with n=136), may have been affected in a similar way. The IRB required that all potential participants provide informed consent before the initial screening, as well as providing informed consent for study participation. Obtaining consent on the two occasions put the time spent obtaining consent from the participants well within the 10 to 15 minute time period found in Connecticut. Comments made by control participants in California were consistent with the consent and testing procedures serving as a BI for the control group.

A second issue was the time taken to follow-up participants at the USA site. While the mean and median times were not dissimilar between sites (i.e. between 3 and 4 months), the standard deviation and range indicate high variability, and follow-up ranged from as little as one month after baseline (32 days), to over one year after the baseline interview (435 days). For some participants this may have impacted on the time available for the brief intervention to work, or have captured a period of time many months later where the effects of the brief intervention may have been eroded. It is worth noting however, that even when outliers were removed from statistical

calculations of effectiveness that this difference between the USA and other sites still remained.

A third difference in protocol that may have impacted on the effectiveness of the brief intervention concerned interviewer protocol. The Australian, Brazilian and Indian sites tended to use the same interviewer for both the baseline and follow-up interviews for any one participant. The USA used this method for around half of their participants, however the reminder of participants were interviewed by a different interviewer at baseline and follow-up, although there is no obvious reason how this would account for the difference between the USA and other sites.

Furthermore, another point that arose during conversations with the clinical research staff at the USA site was the possibility that some participants may have minimized their alcohol and drug use at baseline, but reported more honestly at follow-up. It is not possible to investigate this further with the data available, and any further investigation would need to show that the BI group were more likely to behave in this was than the Control group.

Finally, participants from the USA site were more likely to have received previous treatment for drug or alcohol issues in the past (around 30%) than participants from the other sites, and it is possible that on some level this modified the sensitivity of participants with respect to talking about their substance use within the context of the ASSIST questionnaire and of receiving a brief intervention. However, it is worth noting that prior treatment did not appear to have an impact on the outcome in other sites. For example, a brief intervention focussed on Cannabis in Brazil where 18% of participants had received prior drug and alcohol treatment, worked equally as well as it did in India where none of the participants reported receiving prior drug and alcohol treatment.

The use of illicit substances often occurs within a context of other substance use. Moreover, there is evidence that reduction in one illicit substance such as heroin, can result in substitution and or increased use of another substance (Fairbank *et al.*, 1993; Topp *et al.*, 2003), and this phenomenon also has been observed within clinical settings. Results from this study demonstrate that the reduction in illicit drug use due to the implementation of the ASSIST and linked BI does not appear to have resulted in

increased use of other substances including tobacco, alcohol, inhalants, sedatives or hallucinogens. For all of these substances there was a significant time effect in which follow-up scores were significantly lower than baseline scores, regardless of group, and once again this may indicate regression toward the mean or an ASSIST questionnaire administration effect.

A final aim within the quantitative analysis section of this study was to determine whether higher-scoring participants were impacted by the brief intervention any differently than were lower scoring participants. Higher-scoring participants did show a significant interaction effect with regards to their Total Illicit Substance Involvement scores, in comparison with lower-scoring participants who only tended towards significance ($p=0.09$). Moreover, significantly more of the higher-scoring participants reported attempting to decrease their drug use compared with the lower-scoring participants, although there was no significant difference between the two groups with respect to the rating of their reduction. However, these findings were not consistent across substances, and while high-scorers did better than low-scorers with respect to Cannabis Specific Involvement scores, the opposite was true for Stimulant Specific Involvement scores. While these findings may reveal some differences in susceptibility to a brief intervention by drug type and score, it is worth noting that the sample sizes from which these conclusions are drawn are somewhat limited and further investigation may be required.

Overall it appears that the ASSIST-linked brief intervention was effective in getting participants to reduce their substance use and risk as measured by their ASSIST score. These findings were commensurate with participant feedback which was gathered at the 3 month follow-up interview and Section 5 in this technical report details the findings of the qualitative participant feedback to attempt to illuminate how this change actually occurred. Over eighty per cent of all participants who received the brief intervention at baseline reported attempting to cut down on their substance use as a result of the feedback and information they had received. Despite the differences between the USA and other sites with respect to the inferential analysis described above, almost eighty per cent of the USA participants who received the brief intervention also reported attempting to cut down. While it is not possible to make a direct comparison with USA participants who were randomized to the control group, it

does suggest that the treatment that USA participants received was effective in facilitating an attempt to reduce substance use.

4.1 Conclusion: Implications for a Public Health Approach

Early intervention for substance misuse and related disorders has gained momentum internationally with the validation of alcohol and tobacco screening tests, and the development of an impressive evidence base for the efficacy of brief interventions for hazardous drinking and nicotine dependence. The WHO project described in this report has built upon this research to support an early intervention approach for illicit drug use. Although the findings from a single study do not constitute sufficient reason to disseminate drug screening and brief intervention strategies internationally, this study does have important implications for the initiation of demonstration programmes in the context of a public health approach to early intervention in general medical settings.

There are a variety of reasons why a public health approach to the early identification of illicit drug use is warranted in health care and social service settings.

The availability of new validated screening tests, such as the WHO ASSIST, which provide the basis for an integrated approach to substance misuse across alcohol, tobacco and eight other psychoactive substances (Humeniuk et al., in press).
Scientific studies that brief interventions, brief treatments, and traditional treatments for cannabis (and other substance) use disorders are effective (Babor et al., 2006).
The compelling needs of medical and public health practitioners in both developing and developed countries for a comprehensive approach to HIV infection and other conditions related to substance misuse.
The economies of scale associated with multiple risk factor screening and intervention for co-occurring conditions such as risky alcohol use, cigarette smoking and illicit drug use.

To the extent that brief interventions for illicit drug use can be formulated in the context of a public health approach directed at high risk populations, we believe that strong consideration should be given to translating into clinical practice the kinds of programmes studied in the WHO ASSIST Project.

Translation from research to practice can be considered at two levels: 1) making scientific knowledge accessible and relevant to practitioners; and 2) improving the health of the population by broad dissemination of effective health promotion and secondary prevention technologies. Based on the results of this project, the following recommendations seem warranted:

Broad dissemination by WHO of the ASSIST screening and brief intervention manuals, which should proceed under the guidance of an international Advisory group that can monitor utilization and oversee further developments in the instrument and clinical procedures.

Establishment of training and reference centres that are capable of providing workshops and consultation on the applications of the ASSIST materials in different parts of the world.

Planning and monitoring of large-scale demonstration programmes that attempt to integrate the ASSIST technologies into the routine work of health care delivery systems.

Further research focusing on ASSIST training, programme implementation and cost effectiveness should be encouraged at both the national and international levels.

There is general agreement on the need to "broaden the base" of drug treatment by expanding services to less severe cases and populations at risk. In order for this to happen, the traditional, specialized care model of substance abuse treatment will have to be expanded to include a new population-based healthcare management perspective in which persons experiencing or at risk of substance use disorders are provided with a range of early intervention services, including screening, brief intervention, and brief treatment. These services should be designed to fit the needs of defined populations, with different providers, such as nurses and community health workers, appropriately trained, supervised and supported so that they can integrate ASSIST technologies and procedures into routine practice. Alternative implementation models for screening, brief intervention, and referral should be considered where there are limited resources or staff resistance, such as using interns from professional programmes that train physicians, nurses, psychologists and social workers. In all cases, it is important to fit the ASSIST programme to the population. It is clear from the findings of this project

that population-wide measures to implement the various ASSIST components have the potential to reduce the burden of illness associated with substance use disorders.

5. RESULTS – ANALYSIS AND DISCUSSION OF FEEDBACK ON BI

5.1 Overview of Process and Analysis

The ASSIST Brief Intervention Process Rating form (see APPENDIX 4) was administered at the follow-up interview to a total of 372 participants (Australia n = 86; Brazil n = 94; India n = 89; USA n = 103). This rating form gave participants the opportunity to provide feedback about the ASSIST-linked brief intervention via semi-structured questionnaire consisting of a series of open-ended questions and rating scales. Prior to the administration of the questionnaire participants were reminded that during their baseline interview the interviewer had given them feedback and information on their substance use, and had discussed with them some of the positive and negative aspects of their substance use. Participants were informed that the aim of this semi-structured questionnaire was to find out what they honestly thought of the feedback and information they received in general; which specific aspects of the session (if any) changed their substance use behaviour, and whether the Substance Users Guide (Humeniuk *et al.*, 2003) that was provided at the end of their session was useful. The results of three parts of the questionnaire are presented below.

The aim of the analyses of participants' comments was to elucidate client perspectives about which aspects of the ASSIST-linked BI were most helpful in mediating change from the perspective of the participant.

Participant responses were recorded on the questionnaire by the interviewer. Responses for each question were considered to be a data set and each response within that data set was allocated an individual identification number; the question number followed by individual identification number is shown in brackets at the end of each respective response. Where necessary [square brackets] surround words inserted for purposes of clarity. Responses to each open-ended question were coded using thematic analysis (Braun & Clarke, 2006). Responses in each data set were examined for similarities and/or differences, and themes were identified and coded manually. The analyses of several themes identified are presented below and where applicable, these themes are discussed in conjunction with results from participants' rating scales. The analyses identified several broad themes from the content of the comments made by

participants. It is important to note that very few comments related entirely to one theme and the themes identified below are not necessarily mutually exclusive.

5.2 Participants' general comments on the Information and Feedback provided (Q9.1)

Three hundred and eleven (83.6%) of the 372 participants who were available for follow up at three months commented on their understanding of the purpose of the feedback and information they received on substance use as part of the BI. Eleven (3.5%) participants stated they did not know or could not remember. The analysis of participants' comments identified three 'purpose' related themes: (1) *to help,* (2) *to inform*, and (3) *to raise awareness.* Each of these themes is described below.

5.2.1 *'To Help'*

Participants frequently (n=59, 19%) referred to ways in which the feedback and information they had received been helpful in several ways. For example, some participants directly linked the purpose of the feedback and information to 'helping' them stop:

- *Give me information about my drug use and help me to stop   (9.1: 80)*
- *To help him not use (9.1:347)*
- *To help her quit using marijuana (9.1:320)*
- *To help people stop using (9.1:296)*

or reduce their substance use,

- *Try and help people reduce their use of drugs. Make them aware of the health risks (9.1:36)*
- *To help me reduce my drug use (9.1:64)*
- *Pamphlets helped to realize what he does to his body, helped him cut down (9.1:295)*

Other participants stated that they thought the purpose of the feedback and information provided ASSIST-linked BI was to help them understand their substance use:

- *To help us try and understand the harms associated with drug use (9.1:17)*
- *Try help me to understand the harmful effects on me of using ATS (9.1: 72)*
- *To help me understand risks (9.1:75)*
- *To help him understand what he is doing with regards to drugs and make a better judgment about whether to stop or not (9.1:28)*

Overall, the sentiments expressed under the theme of *'help'* were couched in terms of the benefits gained from taking part in the study.

- *I found it good and it helped me (9.1:131)*
- *Thought we helped her to boost confidence, work through set backs, useful hand outs (9.1:339)*
- *Helpful info, to give options for cutting back/quitting. At this point and time he isn't ready so the info was useful but cannot replace the feeling he is receiving from the drugs (9.1:348)*

5.2.2 *'To Inform'*

A total of 57 (18.3%) participants referred to purpose of the feedback and information on drug use as a way of providing information. Participants talked about 'information' and being 'informed' in a variety of ways. For some participants the purpose of the session was simply a means of providing information:

- *To give people information about drugs I suppose (9.1:40)*
- *To give information about drugs (9.1:120)*

While other participants related the information provided as being purposely driven to inform about the harms or health risks associated with substance use:

- *For informing me that cannabis is harmful for me (9.1: 197)*
- *To give information on drugs and their harm (9.1: 117)*
- *For informing me that cannabis is harmful for me (9.1: 185)*

Participants frequently connected the provision of information about health risks and harms to the benefits of reducing or ceasing substance use:

- *Help inform, to understand why you use something and give info to help stop. Lots of medical info that people don't know about withdrawal is very helpful (9.1:337)*
- *To make me think about cutting back my drug use/to inform me of the health risk of the drugs I use (9.1:20)*
- *For informing me that cannabis is dangerous for my life, I should give up cannabis (9.1:194)*
- *Informing me of long term problems and repercussions of my smoking. At the time it made me question my uses. I have been weak lately but will cut down (9.1:6)*
- *Provide information to people and get people to stop (9.1:65)*
- *For informing me that I should quit drugs (9.1:184)*
- *For informing me that I should give up cannabis (9.1:192)*

- *For informing me that I should give up using cannabis, it will spoil my life (9.1:228)*
- *For informing me that I should give my opioids (9.1:231)*
- *For improvement of my life, I should give my cannabis (9.1:257)*
- *Informative in case he wanted to change his habits (9.1:307)*
- *Smoking so information gave me extra help to stay cut down (9.1:345)*

More than half (63.2%) of the 57 comments that referred to information came from India where it appears that a literal interpretation of 'information' was taken.

5.2.3 *'To Raise Awareness'*

Forty nine (15.8%) of the comments that arose in this theme related to the provision of information and feedback to a creating a raised awareness of the harms, health effects, risks, consequences, problems, implications, dangers of using substances:

- *To make me aware (9.1: 13)*
- *To give overall description of effects of these substances. Makes you aware of the health effects of using these substances (9.1: 25)*
- *To make me aware of effect of drugs on self (9.1: 27)*
- *Create an awareness of risks associated with use (9.1: 29)*
- *To make the user more aware of harmful effects of drugs (9.1: 31)*
- *To make me aware of what substances were doing - of the consequences (9.1: 33)*
- *To make me aware of problems with drug use (9.1: 46)*
- *Made her aware of risks of using drugs (9.1: 49)*
- *Made me aware of risks and how much I had been taking (54).*

    As with the comments in the *'To help'* theme participants made about being more aware were often related to reducing substance use:

- *Try and help people reduce their use of drugs. Make them aware of the health risks (9.1: 36).*
- *To help cut down their drug use-make them aware of the harms involved in using a particular drug (9.1: 73).*
- *To create awareness in me so that I can give up cannabis and other drugs. (9.1: 222).*

Comments from some participants also referred to becoming more aware of their levels of use:

- *To see how much I used; to make me more aware of my drug use and harms associated with my level of drug use (9.1:12).*

- *Increase awareness and to bring to my attention what my intake was (9.1:79).*

And the effects or consequences of using:

- *To make me aware of my drug use/how it effects me and other people/work (9.1: 69).*

- *Makes me aware of risks and dangers associated and think more carefully about actions (9.1: 76).*

- *Awareness of the consequences of drug use (9.1: 283).*

Comments, outlined in the three themes above were representative of the kinds of positive feedback received from participants about the ASSIST-linked BI process and its ability to raise awareness about levels of substance use and subsequent potential health effects of continued use. Evidence of participants' increased awareness of levels of use and possible consequences of continued use suggest that the ASSIST-linked BI facilitated movement from pre-contemplation to contemplation (Prochaska & Di Clemente, 1982; Prochaska *et al.,* 2004), although it is worth noting that this concept was not formally recorded. The overall message participants conveyed about the purpose of the feedback and information they received is perhaps best summed up by a comment made by one participant who said the BI was like a "*Slap in the face it woke me up to realise what I was doing*" (40).

5.3 Influence of ASSIST BI on health behaviour (Q9.2)

Participants (N=315) were asked to rate the influence of the ASSIST-linked BI on their health behaviour on a five point Likert scale (rating scale: 1 = 'no influence', 5 = 'completely influenced'). The bar chart below (see Figure 9) shows the majority of participants (260, 82.5%) rated the influence of the ASSIST-linked BI at two or more and the mean score was 3.1. There was a significant difference between countries with respect to this rating with India having the highest average score (3.6) and Australia the lowest (2.5).

Intervention group only (received BI at baseline) Rating of influence on health behaviour Q9.2a

1 = no influence; 5 = completley influenced
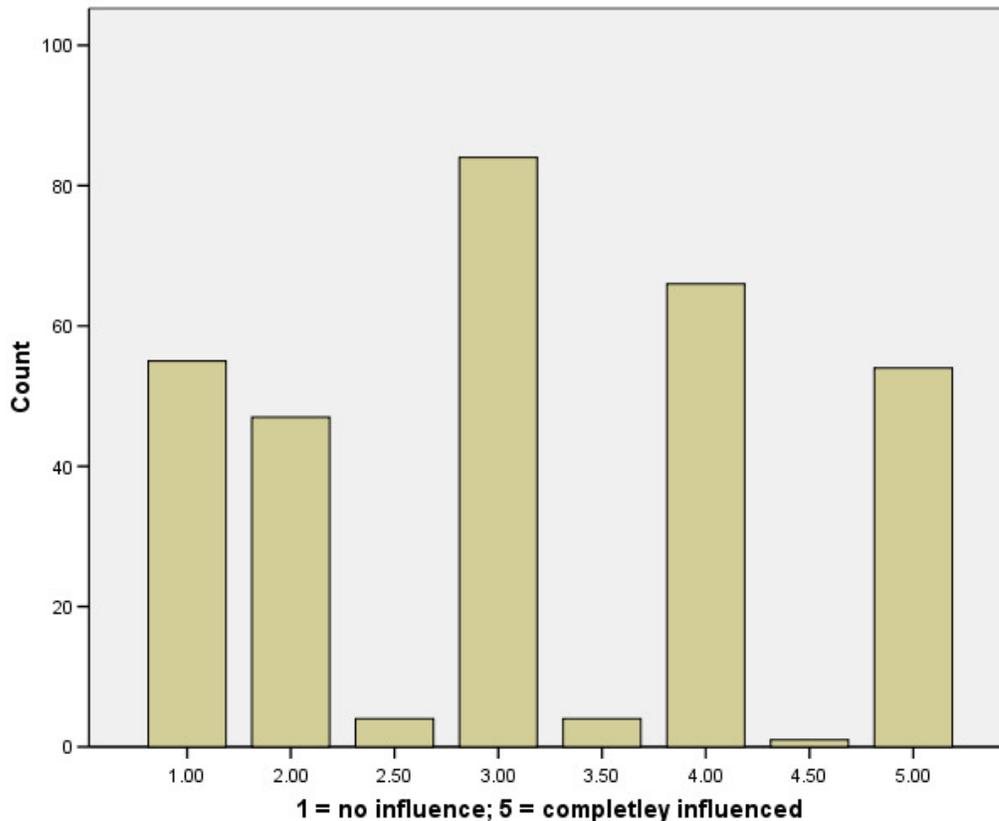
Comments made by participants who rated the influence of the BI at two or more (260, 82.5%) were analysed separately from those who rated the influence at one (55, 17.5%).

5.3.1 Themes identified (Q9.2b)

Four broad themes 'Cutting down', 'Stopping use', 'Thinking about it' and 'Feeling better' were identified from the analysis of comments from the 260 participants who stated the ASSIST BI had influenced their health behaviour (rating 2 or more).

5.3.1.1 'Feeling Better'

Comments identified in this theme occurred only with participants from India (49, 18.5%). All participants from India expressed influence on health behaviour in terms of the resultant outcomes that had been achieved after they had cut down, rather than expressing the influence in terms of the process of reducing their substance use:

- *I feel better (9.2c:188)*
- *My health is better (9.2c:200)*
- *My health is improved (9.2c:202)*

Feeling happy featured strongly and (22, 44.9%) participants mentioned feeling happy:

- *I am happy now (9.2c:255)*
- *I feel energetic and happy (9.2c: 201)*
- *I am healthy and happy now (9.2c: 212)*

Participants also referred to physical improvements such as a gain in appetite (10, 20.4%), or improved sleep (7, 14.3%):

- *My health is improving and my appetite is increased (9.2c: 251)*
- *I am physically better. I sleep well, eat well (9.2c:203)*
- *Now I FEEL PHYSICALLY FIT. My social life is also better (9.2c:224)*

Only three of the Indian participants' actually expressed the influence on their health behaviour in terms of cutting down or reducing their substance use:

- *I am feeling better now after reducing the frequency and quantity of cannabis (9.2c:222)*
- *After reduced using the opioids (frequency & quantity). I feel better (9.2c: 230)*
- *After quitting smack now I am feeling well and lead a normal good life (9.2c: 243)*

Comments made by participants from India, highlighted in the above theme, indicate that these participants either understood the question about the effect of the information and feedback on their health behaviour in a different way to participants from other sites, or the question was interpreted in a way that evoked responses in terms of outcomes, and in particular positive outcomes, rather than processes.

As the above theme was unique to the Indian data set, comments from this cohort do not appear in the three themes that follow

5.3.1.2 'Cutting down'

The most dominant theme identified from the analysis of those who rated the influence of the ASSIST-linked BI on their health behaviour at two or more, centred around issues of 'cutting down'. Participants mentioned they had cut down their substance use and many related this action to a raised awareness of the effects of substance use. For

example, participants stated that the information they received provided the impetus for cutting down:

- *Made me aware of what I was doing to myself. Gave incentive to cut down (9.2c:330)*

- *Realised what damage dope and ecstasy can do and cut down (9.2c:32)*

- *Reminded me of effects of drugs - cut down use (9.2c:31)*

- *Survey made me see how I was using drugs-made me more aware/more conscious of the problems associated with drug use. I did cut down my ATS use (9.2c:37).*

- *Definitely stopped crack after talking, cut down on marijuana by weaning down amount then stopped, also cut down on cigs (amount) (9.2c:332)*

- When talking about cutting down, participants also referred to the booklet:

- *Read about all the drugs I used in the booklet. Knew it already but it gave me a bit more info. I cut down on pills but still smoking dope (9.2c: 47)*

- *Read it and thought about it and it lasted a couple of weeks but didn't last. Cut down on alcohol and ATS.(9.2c: 26),*

and to specific techniques that were outlined in the take home material (Humeniuk *et al.*, 2003) received at the conclusion of the ASSIST-linked brief intervention. These techniques included: increasing physical activity; setting financial goals, and getting a check-up on their health,

- *Cut down smoking dope during the week and increased physical activity (9.2c:24)*

- *Cut down ATS use. Went and got check up by Dr. Found booklet informative and made me aware of harms. (9.2c:55)*

- *Cut down on ATS & alcohol use. Set some financial goals-trying to save money-limited the amount of money I take with me so that I don't buy drugs/focusing in on my health-exercise more (9.2c:60)*

There were frequent comments to the influence of an increased of awareness of the problems and/or side effects of particular illicit substances:

- *Particular with 'e' use-made me aware of problems/side effects and I have cut down using (9.2c: 63)*

- *Thought about side effects and risks and decided to cut down on cigarettes, drinking and amphetamines. Cemented what I already knew. (9.2c: 76)*

- *Cutting down on amphets and dope and become more aware of what was happening in that lifestyle (9.2c: 53)*

- *Cut down on dope - not smoking during the day at all and cut down on amount smoked and frequency (9.2c: 50)*

Participants also noted the influence of friendships and social settings and the impact these have on substance use:

- *Made me more aware and cut down and not go out as much. Also made my friends aware as I spoke with them about it (62)*

- *Mates hassling me and information you gave me cut down on pills (9.2c: 65)*

- *Have cut down on ATS not completely and I probably will have lapses but it has been difficult staying away from drug-using friends. I left Adelaide to get away from drug using friends in part but I have cut down a significant amount (9.2c: 80)*

5.3.1.3 'Stopping use'

Most participants reported that they had reduced their substance use however, there were a few participants who reported that receiving the information and feedback compelled them to stop using illicit substances completely:

- *Gave me self worth-changed my whole life. We changed our entire environment, cut connection with all users. Didn't go to parties and made a decision to stop using. My health has improved and I feel great! (9.2c:82)*

- *I stopped the use of drugs, it was wonderful, I loved your talk (9.2c:163)*

- *Thought I should cut down-weighed up positives & negatives. Last 8 weeks haven't used ATS at all (9.2c:42).*

- *Stopped using and haven't since (9.2c:54)*

- *Whenever I wanted to smoke I remembered what you had said, I saw it was serious (9.2c:143)*

- *It was an encouragement to quit altogether (9.2c:154)*

- *Stopped using everything completely (9.2c:34)*

The comments outlined in the two themes above focused on 'cutting down' and 'stopping' substance use and may reflect at least some resolution in ambivalence by these participants. However, in the following theme '*I'm thinking about it'* participants' comments show a continued ambivalence about drug use.

5.3.1.4 'Thinking about it'

Many participants reported that they were making plans to modify their illicit substance use in future. For example, participants commented that the information provided reinforced their understanding that long term illicit substance use is untenable:

- *Hasn't influenced my behaviour so far but has reinforced my belief that smoking can't be a long term habit and that I must cut down. I have plans to cut down over the next few weeks (9.2c:6).*

- *Planning to cut down and still want to but with Xmas/NY it has been difficult (9.2c:59).*

- *Still using weekly to monthly but cut down no. of pills taking at each sitting. Getting to stage where I have had enough and I am thinking about giving up completely (9.2c:72).*

- *Made me more aware of harmful consequences of smoking cannabis. Experiencing depression from my cannabis use. Weighed out pros and cons of use. Still cutting down on use (9.2c: 81.)*

There were clear differences in the way in which individuals took up the information and feedback provided as part of the ASSIST-linked BI. Comments in the section above indicate that many participants were already aware of the dangers of illicit substance use but the process of being presented with the information again actually impacted on their health behaviour, making them rethink, or remember the dangers, risks associated with illicit substance taking.

The comments grouped under the theme '*I'm thinking about it*' are consistent with what would be expected from people who are 'contemplating' change (Prochaska & Di Clemente, 1982). Although these comments indicate that these participants have not yet changed their pattern of substance use, many of these comments show that the BI influenced their thinking about the health implications of their behaviour, and as such they indicate a potential for change in the future.

Comments chosen to illustrate the three themes above (*Cutting down*; *Stopping use* and *Thinking about it*) capture the main ideas put forward by the majority of participants who reported their health behaviours were influenced by the BI.

Many of these comments include instances of self motivated statements that can be seen to be markers of change– these comments indicate an engagement in the processes of change as highlighted by DiClemente (2007):

"Critical change tasks include the creation of concern and interest in change (precontemplation), decisional considerations, and decision making (contemplations), commitment and implementation planning (preparation), initial modification of the behaviour (actions, and sustaining the new behaviour and creating a stable new pattern (maintenance)".

5.3.2 Themes identified (Q9.2b)

Comments from those participants (55, 17.5%) who reported that the feedback and information they had received as part of the ASSIST-linked BI had no influence on their health behaviour (i.e., those who rated question 9.2a at one) identified four themes, '*Heard it all before*', '*Choice', 'It's not an issue'* and *'I can't give up'*, each of which is discussed below:

5.3.2.1 'Heard it all before'

These participants reported already being aware of the information and, as a result, the information had little or not influenced them to change their health behaviour:

- *Heard the stuff before (9.2b: 14)*
- *I already knew about the effects of drugs. I read a lot (9.2b: 99)*
- *I already know everything the use can cause; I have experience; this survey is useless for me (9.2b: 100)*
- *Has heard it all before, gave info to someone else who is a heavy smoker (9.2b:306)*
- *Already aware of dangers (9.2b:7).*

The comments that make up the theme *'It's not an issue'* can be seen to add a slightly different perspective to the theme outlined above. In this theme participants intimate that not only have they heard it before, but it is their previous knowledge about problem drug behaviour that enables them to say that their own substance taking behaviour is not problematic. For example, some participants reported that they were well informed regarding illicit substance use and they positioned their substance use as not being an issue for them:

5.3.2.2 'It's not an issue'

- *As long as you are in control and it doesn't effect anyone else 'why change what is working for you?' (9.2b:307)*
- *I don't think I read the information. I am happy with my level of using and don't think I'm in any danger (9.2b:20)*
- *Never had problems so there was nothing to change. Legalize marijuana (9.2b:305)*

Sometimes the idea that illicit substance use was a 'non issue' was expressed as the result of being informed about the associated risks:

- *Choosing to smoke at the moment. I know the risks associated with it (9.2b:2).*
- *I already 'knew' the info, I make my own choices (9.2b:310).*
- *Class myself as well informed re drugs. I don't believe I am in a hazardous group, i.e. drug use (9.2b:9.)*
- *The drug information was interesting but as I don't have a problem it didn't affect my behaviour. Thought the manual was too general and not relevant (9.2b:19).*

The comments above convey the idea that these participants have previously engaged with information on substance use and their decision not to change their own substance taking behaviour can be seen as an active choice.

5.3.2.3 'I can't give up'

Although not as dominant as the two themes above, the comments below highlight that some participants felt set in their ways, and for some this feeling was expressed in terms of being unable to change:

- *I'm set in my ways (9.2b:15)*
- *I don't know. I guess I'm set in my ways. Was trying to cut down on dope but not because of the information (9.2b:4)*
- *Set in his ways, he enjoys marijuana (9.2b:278)*
- *I don't have it in me, and don't even manage to try to improve (9.2b:94)*
- *I am habituated now, no one can affect my habit (9.2b:254)*
- *I am habituated now, I cannot live without cannabis.(9.2b:183)*
- *I am set in my ways, not changing, marijuana should be legalized. I do like to learn things though.(9.2b:302)*
- *I cannot give up drugs (9.2b:215)*

In order to explore the extent of this influence on their health behaviour participants were asked to indicate whether they actually reduced their substance use and, if they did, how long they maintained this reduction.

5.4 Did you reduce your substance use? (Q9.3a and b)

Two hundred and sixty two (82.8%) participants indicated that they did attempt to reduce their substance use after receiving feedback and information at baseline. India reported the highest proportion of participants attempting to cut down (97%) while Australia reported the lowest (72%). These participants were asked to rate the extent to which they reduced their substance use (1 = 'No Reduction'; 5 = 'Completely Stopped') and the mean response was 3.4 (median = 3). There was a small but significant difference between the sites with Brazil having the highest score and Australia the lowest.

5.5 Length of time of reduction (Q9.3c)

Of the participants who did manage to reduce their substance use (n=224, 60.2%) the average time participants maintained this reduction was 11.2 weeks. The maximum length of time was 49 weeks, and the minimum was 1 week (sd = 5.4 weeks, median = 12 weeks).

5.6 What influenced your health behaviour? (Q9.4)

Participants also were invited to comment on which aspects of the information and feedback most influenced their health behaviour (substance use). A total of 266 (71.5%) of participants responded to this question.

There were two dominant themes identified in the analysis *'Obligations and responsibilities'* and *'Identifying and defining the problem'*. The first theme: *'Obligations and responsibilities'* was identified almost exclusively in comments from participants in India (n= 75, 20.2%). The second theme: *Identifying and defining the problem'* centred around comments relating to three aspects of the information and feedback identified by participants as being most influential: 1) the score, 2) the interview and 3) hearing myself speak. These themes are discussed separately below.

5.6.1 *'Obligations and responsibilities'*

Participants' comments in this theme expressed notions of obligations and responsibilities. These issues were frequently framed in terms of the impact of substance use on family (59 of 62 occasions):

- *Cannabis is harmful for my health, family and future of my children (9.4:2).*

- *I should avoid using cannabis for welfare of my family and my future. (9.4:4)*

- *I should engage myself in family and immediately give up cannabis (9.4:19),*

Family was also mentioned three times in the comments from participants in Brazil:

- *That health was being impaired by the use of drug and alcohol, that I could ask my family for help (9.4:107).*

- *Health, money (I was spending a lot on the drug and disregarding home and family things) (9.4:145).*

- *How much crack was harming the pocket, the family and the health (9.4:160).*

It was also notable that 'family' was not mentioned by Australian or American participants. Expressions in terms of obligations were made frequently and exclusively by Indian and Brazilian (to a lesser degree) participants. For example the word 'should' arose 63 times in comments from Indian participants:

- *My future is in my hand. I should immediately give up cannabis for my future and health (9.4:22)*

- *For improving my social, economic and physical condition, I should give up cannabis (9.4:37)*

- *I should involve myself in family cannabis will spoil my life. I am responsible for quitting cannabis (9.4:47)*

- *I should involve myself in family. I can save my future be quitting drugs (9.4:47)*

and twice in comments from Brazilian participants:

- *That I should cut down on the use (9.4:91).*

- *Hints on how to stop, places and friends I should stay away from, health problems it could cause, (9.4:148).*

It is also of interest that expressions of personal responsibility for substance taking behaviour only arose in comments from participants in India:

- *I am responsible for avoiding cannabis, I should avoid meeting my friends (who use cannabis) (9.4:75)*

- *If I avoid cannabis, my family will be happy and I AM RESPONSIBLE FOR IT. (9.4:76)*
- *I am responsible for quitting cannabis as I STARTED IT (9.4:7)*
- *I am responsible for quitting cannabis as I MYSELF STARTED IT I should immediately quit cannabis (9.4:15)*
- *I am responsible for quitting cannabis. I should involve myself in family (9.4:16)*

Overall, participants from India framed their answers to this question in terms of the general influence of the ASSIST-linked brief intervention, and their answers focussed on stopping substance use and the benefits that would be obtained when this was achieved.

5.6.2 Identifying and defining 'the problem'

5.6.2.1 'The problem'

Several participants spoke specifically about the way in which receiving a 'score' highlighted the problem of illicit substance use and the influence of that on their health behaviour. For example, for quite a few participants having a score made 'it' (their substance taking behaviour) more real:

- *The score for alcohol and cannabis (9.4:7)*
- *The score put it into perspective, it made it more definite – more objective (9.4:43).*
- *Seeing it on paper and the risk score (9.4:44).*
- *The score on the form more than anything was pertinent to me as a number. I take more notice of numbers than words (9.4:42).*
- *The score (54).*
- *The numbers frightened me, made me think a lot   (9.4:152)*

Participants also commented on the way in which they were influenced by the information they received about the impact of illicit substance use on their health:

- *The information about health impairment caused by drugs (9.4:129)*
- *Refreshed information about marijuana use that I had learned in past, made me think about those things again (9.4:312)*
- *Information about permanency of damage regarding ATS (9.4:32)*

- *Read pamphlets. Interesting information re side effects most useful.(9.4:38)*
- *Receiving booklet information. (9.4:42)*
- *Information and feedback, i.e. side effects of drugs, and the information book.(9.4:51)*
- *Having the information and my drug use put down in front of me (9.4:70)*
- *The information about adverse effects of drugs (9.4:121)*

Participants' comments in relation to this question again highlighted the way in which the information and feedback they received had increased their awareness. Some participants mentioned that taking part in the survey had made them think about or realise the effects of illicit substance use:

- *Doing survey helped convince him, made him think about doing something (9.4:286)*
- *Refreshed information about marijuana use that I had learned in past, made me think about those things again (9.4:312)*
- *Health risks, asthma, and future risks to kids made me try to cut down. (9.4:324)*
- *It made me realise how much I was doing and how much it costs (9.4:333)*
- *A bunch of the things, the questions made him aware (9.4:342)*
- *Nothing in particular. Overall package made an impact (including self-help strategy booklet) (9.4:25)*
- *Made me check about potential harms. Particularly of e's in SA. I received feedback about the drugs I was taking (9.4:30)*
- *Feedback on how much I was using. Being made aware of my drug use. (9.4:37)*
- *Made me realise that it wasn't a normal part of my life.(54)*
- *Asking me how much I use made me realise what I'm putting my body through (9.4:58)*
- *Risks and dangers on that pamphlet (feedback form) made me aware and opened my eyes up (9.4:74)*
- *The whole lot made me pull my head out of the sand and cut down on pills (9.4:78)*

5.6.2.2 'Hearing myself speak'
Participants' comments identified in this theme suggest that it was during the process of actually verbalising answers to questions about their substance use that they came to

appreciate the significance of their substance taking behaviour. The comments below were chosen to highlight some of the more common realizations participants mentioned they came to in the process of answering the BI questions and talking about their substance use:

- *Answering the questions made me realise how much I was using. The talk afterwards was also helpful and I was able to weigh up the good and bad (9.4:82)*

- *I had never talked to a psychologist and liked it a lot, but it's hard to stop right away (9.4:115)*

- *Talking about her use (9.4:284)*

- *Talking in general; after session went home and talked to mom about it (9.4:285)*

- *If no talking happened the booklet was not useful (9.7:167)*:

- *Talking about it (9.4:292)*

- *Just addressing the issue in general and talking about it (9.4:306)*

- *Talking and getting literature about dealing with the stress (9.4:315)*

- *Good pros & cons, opened my eyes. Helped me motivate to try even though not successful. You caught me when I wanted to stop so it gave me someone to talk to (9.4:325)*

- *Just talking - he became aware of what he was doing (9.4:328)*

- *Learning about emotional and physical side effects, plus the confidentiality of the talk, I trusted her (9.4:331)*

- *First time I really talked to anyone and admitted that I used drugs and it was problem. Felt like she listened to me and gave me helpful literature and advice. Couldn't believe how drugs affected my teeth too (9.4:332)*

- *Didn't treat like research, felt like real counselling. Opportunity for me to talk out loud about things (9.4:339)*

- *Talking about my drug use put it in my thoughts.(9.4:6)*

The practice of providing people with the opportunity to weigh up the pros and cons of their behaviour in a non-confrontational manner is a key factor in motivational interviewing (Miller & Rollnick, 2002). Although MI is considered a client centred approach, it is not applied entirely without direction and one important intention of MI is to ensure that it is the client who voices the arguments for change (Miller & Rollnick, 2002). Integral to the success of brief motivational interviewing is the ability to elicit 'change talk' from participants and this is fundamentally linked to the interviewers'

ability to empathise and listen reflectively (Miller & Rollnick, 2002). These ideas have there foundations in social psychology, and in particular self-perception theory which posits that as one argues on behalf of a particular position he or she becomes more committed to that position:

"In the language of self-perception theory, "As I hear myself talk, I learn what I believe." In everyday language we can literally *talk* ourselves into (or out of) things (Bem, 1967, 1972, cited in Miller, 2002, p. 21).

The success of incorporating motivational interviewing techniques into the ASSIST-linked BI is evident in the comments outlined above, which illustrate some of the ways in which participants' valued the opportunity to hear themselves talk about the effects of their substance use more fully. These comments also indicate that the opportunity to generate such 'change-talk' played an integral role in positively influencing their health behaviour. As one participant put it, they were influenced by *thinking, and thinking objectively about drug use, rather than rationalizing your use to your self* (61). Moreover, research suggests that people who generate self-motivated behaviour for change are more likely and more willing to maintain that change (Deci & Ryan, 1985; Ryan, 1995).

5.7 Analysis and discussion of feedback on 'Self-help' material (Q9.5)

At completion of the BI at baseline participants (n = 372) were given a self-help booklet containing material designed to reinforce information discussed during the brief intervention (Humeniuk *et al.,* 2003). At the three month follow-up each participant was asked whether they recalled receiving the booklet, how much of it they read, and how useful they found it. Analysis and discussion of participant responses to these questions is presented below.

5.7.1 *How much of the 'Self-help' booklet did you read? (Q9.5a)*

Each of the 242 participants (64.8%) who responded 'yes' to receiving the self-help strategies booklet at baseline were asked to rate how much of it they had read (1 = none, and 5 = read all). One hundred and ninety nine participants (82.2%) reported reading some of the book (rating 1.5 or more) and of those 85 (35.1%) reported having read it all (rating 5).

There were differences between countries in the median rating of how much of the booklet had been read: Australia = 2.75, Brazil = 3.0, India = 5.0, USA =3.0.

Those participants who reported having read little or none (rated '2' or less) of the self-help booklet were asked "what stopped you from reading through all of the booklet?" (82, 33.9%). Only one participant in the Indian cohort reported not reading the booklet, and the reason given was illiteracy. Four other participants mentioned that the reason they did not read the booklet was because they do not like to read. However, the most common response (53, 64.6%) given for not reading the booklet related to lack of time or interest:

- *Went in my glove box and I just forgot about it (9.5c:4)*
- *Lack of interest/time (9.5c:11)*
- *No time to read it (9.5c:23)*
- *Partly did not have time, couldn't be bothered, didn't want to hear what it was telling me, sort of know some of it already (9.5c:33)*
- *Couldn't be bothered-time issue (9.5c:40)*

There were a few participants (12, 14.6%) who commented that they did not need the booklet because they already knew the information or it was not relevant to them:
- *Not relevant to me (9.5c:10)*
- *Felt like I did not need the information (9.5c:20)*
- *Did not need strategies because already intended to stop (9.5c:34)*
- *Wasn't that concerned with my usage of ATS or BZD (9.5c:41)*
- *Felt like she knew most of it already and didn't need it (9.5c:54)*

Confidentially was an issue for one participant who mentioned that they did not take the booklet because they were afraid of parents seeing information:
- *Taking it home and parents seeing (9.5c:45)*

5.7.2 How useful did you find the booklet for…? (Q9.6)

Those participants who indicated that they had read some or all the self-help booklet (rating 2 or more) were asked to rate the usefulness of this material (193, 75.8%). Five areas of 'usefulness' were explored:

1. helping them understand their level of risk;

2. weighing up the positive and negatives of using (drug);

3. understanding options concerning changing their drug use;

4. providing realistic strategies and guidelines for change, and

5. whether it actually helped them cut down or stop using.

Four responses were available for the five areas of usefulness ('Not at all useful', 'Somewhat useful', 'Very useful' or 'Don't know'). The majority of participants found the information in the self-booklet useful (combining the middle categories 'somewhat useful' and 'very useful') for understanding their level of risk, weighing up their drug use, and understanding options about changing drug use. Providing realistic strategies and guidelines and helping cut down on drug use were also rated positively, but less so than the previous three categories (see Table 36 below).

Table 36 *How useful was the booklet for ...? n(%)*

How useful was the booklet?	Not at all useful	Somewhat useful	Very useful	Don't know	Total N (%)
Understanding level of risk?	8 (4.4)	54 (29.5)	109 (59.6)	12 (6.6)	183 (100)
Weighing up your drug use?	14 (7.7)	58 (31.7)	103 (56.3)	8 (4.1)	183 (100)
Understanding your options about changing drug use?	18 (10.0)	70 (38.9)	82 (45.6)	10 (5.6)	180 (100)
Providing realistic strategies & guidelines?	21 (11.6)	75 (41.4)	74 (40.9)	11 (6.1)	181 (100)
Helping you cut down on use?	33 (18.1)	59 (32.4)	84 (46.2)	6 (3.3)	182 (100)

5.8 Participants' final comments

At the conclusion of the follow-up interview, participants were asked whether there was anything else they would like to say about their participation in this project and a total of 164 (44.1%) participants took the opportunity to comment: Australia (56, 65.1%); Brazil (43, 45.7%); India (5, 5.6%); and USA (60, 58.2%). Analysis revealed the majority of comments were positive with participants frequently expressing, in a variety of ways, the benefits they gained from taking part in the study. Many of these comments echoed the positive statements made earlier in the interview. For example, several participants stated that the ASSIST-linked BI was a 'good program' and that it had made them think about their substance use:

- *Good to have the personal feedback-makes it more meaningful (9.7:37)*
- *Liked a lot because there was feedback and referral to help him, thanked a lot (9.7: 94)*
- *Not really-I was thinking about cutting down & your info just cemented this. The interview was good-the info useful-self help book really helped me (9.7:73)*

- *Just what I needed-came at right time. Have since thought about the baseline interview at least once a week (9.7:83)*
- *I don't like to read anything, so the interview was more interesting   (9.7:165)*
- *No, except that interviewer is a good coach, can't talk about this with other people (9.7:335)*

Several participants took the opportunity to make comment about the project itself and provide feedback about issues that were not able to be raised previously. For example, while participants talked about the benefits of having the opportunity to talk about their substance use, they also raised the issue of confidentiality, which is of particular importance when dealing with illicit substance use. While the specifics of confidentiality issues varied, the general message participants gave was one of having been unable to talk about their substance use with others because they did not feel safe.

- *Afraid to talk to doctors b/c not surgery candidate for surgery, back pain (9.7:289)*
- *First time I ever talked to anyone about marijuana besides my grandmother or smoking friends (9.7:293)*
- *Very good because when you hide it even though you know you have problems and talk about it, it feels good for a change. I was in fear of the habit, afraid of drugs I used   (9.7:332)*
- *No, except that interviewer is a good coach, can't talk about this with other people (9.7:335)*
- *Common sense, easy to talk to, he likes it because confidential (9.7:333)*
- *One on one session good. Comfortable & easygoing session. Very discreet. Not too long. (9.7:77)*
- *Glad this doesn't go in medical record, bad for insurance (9.7:313)*
- *Like the realistic approach, people need to get this information but they need to feel safe when they talk about it (9.7:331)*
- *Should stay in touch with people, don't forget to check on them. Good to have another person to talk about marijuana with.(9.7:337)*
- *Good to have someone to talk about drugs with (9.7:346)*
- *Appreciate us helping him have somebody to talk to besides sister who is good support (9.7:345)*

These comments identify that many illicit substances users have a need to talk confidentially about their substance use. These comments also indicate that the ASSIST-linked BI was able to meet that need.

Others comments drew attention to participants' need to make contact and talk about their substance use, and several participants raised the issue of keeping in touch or having more sessions:

- *It was very good and I'd like to talk to you more times, if it's possible (9.7:115)*
- *There could be more meetings to help reduce or quit the use, more sessions (9.7:162)*
- *That booklet and information packet was really helpful. Maybe you could add reminders or emails about 1/2 way through, 3 months is long (9.7:323)*
- *It's hard to do the exercise in the manual alone, you need follow-up of a specialist (9.7:142)*

6. CONCLUDING COMMENTS

The findings from the qualitative analysis above are commensurate with the inferential analysis of the effectiveness of the brief intervention. While there did appear to be some cultural differences in interpretation of the questions and expression of how the brief intervention had impacted on them, participants' comments point to the successful and appropriate incorporation of ASSIST scores within a motivational interviewing context. The personal feedback given to participants through their ASSIST scores provided a non-confrontational way of drawing attention to the less positive aspects (risks) of continued substance use in ways that elicit the person's own reasons for and advantages of change. The overall results of this study show that participants allocated to the Brief Intervention Group did change their substance taking behaviour when compared to the Control group. While stage of change was not formally recorded these findings do suggest that the implementation of the ASSIST-linked BI facilitated participants' 'readiness to change', and the many positive comments from participants regarding the feedback and information provided indicate that participants responded well to this opportunity for change.

It was interesting to note that participants from the USA provided feedback on their experiences which was comparable with the other sites. That is, despite not seeing a statistical interaction effect, USA participants still appeared to change their behaviour as a result of receiving the ASSIST-linked brief intervention. However, this conclusion is somewhat limited because it is not known how or why the Control participants changed their behaviour.

Generally, participants' comments, outlined in the analyses above, showed an awareness of substance taking behaviour occurs on a continuum of time (which is their life) and reveal participants' understanding that this behaviour can have a past, a present and a future. These comments also confirm that participants recognise that their substance taking behaviour is not a feature of their personality or a static character trait, and thus (especially for those who have not yet changed) there always remains the possibility of changing behaviour in the future. The 'not ready yet' quality evidenced in many of the comments confirms that the most participants understand that substance taking behaviour is a non-static behaviour that is amenable to change, and

many of these comments did allude to the possibility of change at some future time – just not now.

Evidence for the efficacy and successful implementation of brief interventions for illicit drugs within primary health care settings is limited. Brief intervention studies reported in the literature most frequently target at-risk populations of alcohol users, while a small proportion focus on targeting illicit drug use. Methodologies in these studies are varied and range from various forms of counselling and feedback, to more formal structured therapy (Barry *et al.,* 2004). This study was concerned with treatment efficacy, and the results demonstrate that the ASSIST-linked BI is effective in reducing illicit drug use as measured by ASSIST scores after a three month period within Primary Health Care settings across different cultures.

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8. APPENDICES

8.1 WHO ASSIST V3.0 Questionnaire

8.2 WHO ASSIST Feedback Report Card

8.3 WHO ASSIST Brief Intervention Record

8.4 WHO ASSIST Brief Intervention Process Rating Form

WHO ASSIST V3.0 Questionnaire

CLINICIAN ID		**CLINIC**	
PATIENT ID		**DATE**	

(Many drugs & medications can affect your health. It is important for your health care provider to have accurate information about your use of various substances, in order to provide the best possible care.)

The following questions ask about your experience of using alcohol, tobacco produces and other drugs across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled, injected or taken in the form of pills (show drug card).

Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will <u>not</u> record medications that are used <u>as prescribed</u> by your doctor. However, if you have taken such medications for reasons <u>other</u> than prescription, or taken them more frequently or at higher doses than prescribed, please let me know. While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

NOTE: BEFORE ASKING QUESTIONS, GIVE ASSIST RESPONSE CARD TO PATIENT

Question 1

In your life, which of the following substances have you <u>ever used</u>? *(NON-MEDICAL USE ONLY)*	**No**	**Yes**
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3
d. Cocaine (coke, crack, etc.)	0	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3
j. Other - specify:	0	3

Probe if all answers are negative:
"Not even when you were in school?"

If "No" to all items, stop interview.

If "Yes" to any of these items, ask Question 2 for each substance ever used.

Question 2

In the <u>past three months</u>, how often have you used the substances you mentioned *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	3	4	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	3	4	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	3	4	6
d. Cocaine (coke, crack, etc.)	0	2	3	4	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	3	4	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	3	4	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	3	4	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	3	4	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	3	4	6
j. Other - specify:	0	2	3	4	6

If "Never" to all items in Question 2, skip to Question 6.

If any substances in Question 2 were used in the previous three months, continue with Questions 3, 4 & 5 for <u>each substance</u> used.

Question 3

During the <u>past three months</u>, how often have you had a strong desire or urge to use *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3	4	5	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3	4	5	6
d. Cocaine (coke, crack, etc.)	0	3	4	5	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3	4	5	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3	4	5	6
j. Other - specify:	0	3	4	5	6

Question 4

During the <u>past three months</u>, how often has your use of *(FIRST DRUG, SECOND DRUG, ETC)* led to health, social, legal or financial problems?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	4	5	6	7
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	4	5	6	7
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	4	5	6	7
d. Cocaine (coke, crack, etc.)	0	4	5	6	7
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	4	5	6	7
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	4	5	6	7
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	4	5	6	7
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	4	5	6	7
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	4	5	6	7
j. Other - specify:	0	4	5	6	7

Question 5

During the <u>past three months</u>, how often have you failed to do what was normally expected of you because of your use of *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products					
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	5	6	7	8
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	5	6	7	8
d. Cocaine (coke, crack, etc.)	0	5	6	7	8
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	5	6	7	8
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	5	6	7	8
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	5	6	7	8
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	5	6	7	8
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	5	6	7	8
j. Other - specify:	0	5	6	7	8

Question 6

Has a friend or relative or anyone else __ever__ expressed concern about your use of *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 7

Have you __ever__ tried and failed to control, cut down or stop using *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 8

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
Have you <u>ever</u> used any drug by injection? *(NON-MEDICAL USE ONLY)*	0	2	1

IMPORTANT NOTE:

Patients who have injected drugs in the last 3 months should be asked about their pattern of injecting during this period, to determine their risk levels and the best course of intervention.

PATTERN OF INJECTING

| **Once weekly or less** *or* **Fewer than 3 days in a row** | → | **Brief Intervention including "risks associated with injecting" card** |

| **More than once per week** *or* **3 or more days in a row** | → | **Further assessment and more intensive treatment*** |

INTERVENTION GUIDELINES

HOW TO CALCULATE A SPECIFIC SUBSTANCE INVOLVEMENT SCORE.

For each substance (labelled a. to j.) add up the scores received for questions 2 through 7 inclusive. Do not include the results from either Q1 or Q8 in this score. For example, a score for cannabis would be calculated as: **Q2c + Q3c + Q4c + Q5c + Q6c + Q7c**

Note that Q5 for tobacco is not coded, and is calculated as: **Q2a + Q3a + Q4a + Q6a + Q7a**

THE TYPE OF INTERVENTION IS DETERMINED BY THE PATIENT'S SPECIFIC SUBSTANCE INVOLVEMENT SCORE

	Record specific substance score	no intervention	receive brief intervention	more intensive treatment *
a. tobacco		0 - 3	4 - 26	27+
b. alcohol		0 - 10	11 - 26	27+
c. cannabis		0 - 3	4 - 26	27+
d. cocaine		0 - 3	4 - 26	27+
e. amphetamine		0 - 3	4 - 26	27+
f. inhalants		0 - 3	4 - 26	27+
g. sedatives		0 - 3	4 - 26	27+
h. hallucinogens		0 - 3	4 - 26	27+
i. opioids		0 - 3	4 - 26	27+
j. other drugs		0 - 3	4 - 26	27+

NOTE: *FURTHER ASSESSMENT AND MORE INTENSIVE TREATMENT may be provided by the health professional(s) within your primary care setting, or, by a specialist drug and alcohol treatment service when available.

WHO ASSIST Feedback Report Card

Name_____ Test Date _____

Specific Substance Involvement Scores

Substance	Score	Risk Level
a. Tobacco products		0-3 Low 4-26 Moderate 27+ High
b. Alcoholic Beverages		0-10 Low 11-26 Moderate 27+ High
c. Cannabis		0-3 Low 4-26 Moderate 27+ High
d. Cocaine		0-3 Low 4-26 Moderate 27+ High
e. Amphetamine type stimulants		0-3 Low 4-26 Moderate 27+ High
f. Inhalants		0-3 Low 4-26 Moderate 27+ High
g. Sedatives or Sleeping Pills		0-3 Low 4-26 Moderate 27+ High
h. Hallucinogens		0-3 Low 4-26 Moderate 27+ High
i. Opioids		0-3 Low 4-26 Moderate 27+ High
j. Other - specify		0-3 Low 4-26 Moderate 27+ High

What do your scores mean?

Low: You are at low risk of health and other problems from your current pattern of use.

Moderate: You are at risk of health and other problems from your current pattern of substance use.

High: You are at high risk of experiencing severe problems (health, social, financial, legal, relationship) as a result of your current pattern of use and are likely to be dependent

Are you concerned about your substance use?

a. tobacco	Your risk of experiencing these harms is:……… **Low** ☐ **Moderate** ☐ **High** ☐ (tick one)
	Regular tobacco smoking is associated with:

	Premature ageing, wrinkling of the skin
	Respiratory infections and asthma
	High blood pressure, diabetes
	Respiratory infections, allergies and asthma in children of smokers
	Miscarriage, premature labour and low birth weight babies for pregnant women
	Kidney disease
	Chronic obstructive airways disease
	Heart disease, stroke, vascular disease
	Cancers

b. alcohol	Your risk of experiencing these harms is:……… **Low** ☐ **Moderate** ☐ **High** ☐ (tick one)
	Regular excessive alcohol use is associated with:

	Hangovers, aggressive and violent behaviour, accidents and injury
	Reduced sexual performance, premature ageing
	Digestive problems, ulcers, inflammation of the pancreas, high blood pressure
	Anxiety and depression, relationship difficulties, financial and work problems
	Difficulty remembering things and solving problems
	Deformities and brain damage in babies of pregnant women
	Stroke, permanent brain injury, muscle and nerve damage
	Liver disease, pancreas disease
	Cancers, suicide

c. cannabis	Your risk of experiencing these harms is:……. **Low** ☐ **Moderate** ☐ **High** ☐ (tick one)
	Regular use of cannabis is associated with:

	Problems with attention and motivation
	Anxiety, paranoia, panic, depression
	Decreased memory and problem solving ability
	High blood pressure
	Asthma, bronchitis
	Psychosis in those with a personal or family history of schizophrenia
	Heart disease and chronic obstructive airways disease
	Cancers

d. cocaine	Your risk of experiencing these harms is:….	Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of cocaine is associated with:	

Difficulty sleeping, heart racing, headaches, weight loss

Numbness, tingling, clammy skin, skin scratching or picking

Accidents and injury, financial problems

Irrational thoughts

Mood swings - anxiety, depression, mania

Aggression and paranoia

Intense craving, stress from the lifestyle

Psychosis after repeated use of high doses

Sudden death from heart problems

e. amphetamine type stimulants	Your risk of experiencing these harms is:…….	Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of amphetamine type stimulants is associated with:	

Difficulty sleeping, loss of appetite and weight loss, dehydration

jaw clenching, headaches, muscle pain

Mood swings –anxiety, depression, agitation, mania, panic, paranoia

Tremors, irregular heartbeat, shortness of breath

Aggressive and violent behaviour

Psychosis after repeated use of high doses

Permanent damage to brain cells

Liver damage, brain haemorrhage, sudden death (from ecstasy) in rare situations

f. inhalants	Your risk of experiencing these harms is:……….	Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of inhalants is associated with:	

Dizziness and hallucinations, drowsiness, disorientation, blurred vision

Flu like symptoms, sinusitis, nosebleeds

Indigestion, stomach ulcers

Accidents and injury

Memory loss, confusion, depression, aggression

Coordination difficulties, slowed reactions, hypoxia

Delirium, seizures, coma, organ damage (heart, lungs, liver, kidneys)

Death from heart failure

g. sedatives	Your risk of experiencing these harms is: Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of sedatives is associated with:

Drowsiness, dizziness and confusion

Difficulty concentrating and remembering things

Nausea, headaches, unsteady gait

Sleeping problems

Anxiety and depression

Tolerance and dependence after a short period of use.

Severe withdrawal symptoms

Overdose and death if used with alcohol, opioids or other depressant drugs.

h. hallucinogens	Your risk of experiencing these harms is:……….. Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of hallucinogens is associated with:

Hallucinations (pleasant or unpleasant) – visual, auditory, tactile, olfactory

Difficulty sleeping

Nausea and vomiting

Increased heart rate and blood pressure

Mood swings

Anxiety, panic, paranoia

Flash-backs

Increase the effects of mental illnesses such as schizophrenia

i. opioids	Your risk of experiencing these harms is: Low ☐ Moderate ☐ High ☐ (tick one)
	Regular use of opioids is associated with:

Itching, nausea and vomiting

Drowsiness, constipation, tooth decay

Difficulty concentrating and remembering things

Emotional problems and social problems

Reduced sexual desire and sexual performance

Relationship difficulties

Financial and work problems, violations of law

Tolerance and dependence, withdrawal symptoms

Overdose and death from respiratory failure

WHO ASSIST BRIEF INTERVENTION RECORD

Please fill in a Brief Intervention Record for each study participant (NB. This form is not administered to participants, but rather filled in by the interviewer concerning the BI session)

INTERVIEWER ID					COUNTRY			CLINIC	

SUBJECT ID						

DATE TODAY						

Part 1 – General Information about the Brief Intervention

- **Column A** should be completed for participants randomised to the Brief Intervention group who received their Brief Intervention at **baseline**.

- **Column B** should be completed for participants randomised to the Wait-list Control group who received their Brief Intervention at **follow-up**.

Part 2 – Detailed Information about the Brief Intervention

- Same questions for both groups

ANY FURTHER COMMENTS ON EITHER PART 1 OR PART 2 OF THE BRIEF INTERVENTION RECORD CAN BE MADE IN THE TEXT BOX BELOW.

PART 1. General Information about the Brief Intervention

7.1 TO WHICH GROUP HAS THE PARTICIPANT BEEN RANDOMISED? (PLEASE FILL IN ONE COLUMN ONLY)

COLUMN A (Baseline BI)	COLUMN B (Follow-up BI)
a. Brief Intervention group (tick) ☐	**b. Weight List Control group (tick)** ☐
7.2a DATE BASELINE INTERVIEW ☐☐☐☐☐☐	**7.2b DATE FOLLOW-UP INTERVIEW** ☐☐☐☐☐☐
7.3a RECORD BASELINE ASSIST SCORES	**7.3b RECORD FOLLOW-UP ASSIST SCORES**
(i) Cannabis ☐ (ii) Cocaine ☐ (iii) Amphetamine-type stimulants ☐ (iv) Opioids ☐	(i) Cannabis ☐ (ii) Cocaine ☐ (iii) Amphetamine-type stimulants ☐ (iv) Opioids ☐
7.4a Which drug is the focus of the BI?…………………………..	**7.4b Which drug is the focus of the BI?**………………………..
7.5a START TIME OF BI AT BASELINE? ☐☐ : ☐☐ 24 hour clock	**7.5b START TIME OF BI AT FOLLOW-UP?** ☐☐ : ☐☐ 24 hour clock
7.6a END TIME OF BI AT BASELINE? ☐☐ : ☐☐ 24 hour clock	**7.6b END TIME OF BI AT FOLLOW-UP?** ☐☐ : ☐☐ 24 hour clock
7.7a LENGTH OF BI (MINUTES) ☐	**7.7b LENGTH OF BI (MINUTES)** ☐

PART 2. DETAILED INFORMATION ABOUT THE BRIEF INTERVENTION
(TO BE COMPLETED IMMEDIATELY AFTER BRIEF INTERVENTION)

7.8a WHAT MATERIALS WERE GIVEN TO PARTICIPANT TO ACCOMPANY BRIEF INT.? (TICK ALL THAT APPLY)

(i) Substance Users Guide to cutting down or stopping	
(ii) Specific Information Cannabis	
(iii) Specific Information Cocaine	
(iv) Specific Information Amphetamine-type stimulants	
(v) Specific Information Opioids	
(vii) Other (specify)	
(viii) Other (specify)	
(ix) Other (specify)	

7.9 This section is designed to rate the session engagement and expected outcome following the brief intervention. Immediately after the brief intervention, please complete the following rating scale. To what extent to you consider the client was: (please circle)?

	Not at all						A Great deal
a. Easy to talk to and co-operative during the session	1	2	3	4	5	6	7
b. Resistant to talking about their substance use	7	6	5	4	3	2	1
c. Appeared to have insight into the ways they use substances & potential or actual problems arising	1	2	3	4	5	6	7
d. Committed to reducing the frequency of their substance use	1	2	3	4	5	6	7
e. Committed to reducing the amount they consume of one or more substances	1	2	3	4	5	6	7
f. Appeared to be confident that they could avoid future substance-related problems	1	2	3	4	5	6	7

7.9g. Total score is derived through cumulation of Questions a. through f. A high score indicates greater session engagement & greater likelihood of positive change through BI.

7.9g. Total score

WHO ASSIST Brief Intervention Process Rating Form - Follow-up

To be administered to participants at **follow-up** concerning the Brief Intervention that they received at baseline (participants from Wait-List Control are **not** administered this form). There are three main parts to this form:

Part 1 General Information about the feedback and information

Part 2 Specific questions concerning the information and feedback received during the session with the interviewer

Part 3 Specific questions concerning the written information (Substance Users Guide)

Please administer to participants at the follow-up interview <u>AFTER</u> you have administered the ASSIST

| INTERVIEWER ID | | | | | COUNTRY | | | CLINIC | |

| SUBJECT ID | | | | | | | |

| DATE TODAY | | | | | | |

What drug was the focus of the BI for this participant? (refer to 7.4a) → Use this information where term (drug) is found in this form

How many weeks ago was the baseline interview for this participant? (refer to 7.2a) [ ][ ]

---

PLEASE READ TO PARTICIPANT

You may remember that after you completed the questionnaire three months ago, the interviewer gave you feedback & information on your (insert drug name) use, & may have discussed with you the positive & negative aspects of your (drug) use. The interviewer also may have given you some written information to take home & read. This questionnaire aims to find out what you honestly thought of the feedback & information you received in general (Part 1), and also your thoughts on the specific aspects of the session with the interviewer (Part 2), and the written information that you were given to take home (Part 3).

Part 1. General

9.1 Could you please briefly describe what you thought was the purpose of the feedback and information you received on (drug) use?

| |
| |
| |
| |

9.2a ON A SCALE OF **1** TO **5,** HOW DID THE INFORMATION AND FEEDBACK INFLUENCE YOUR HEALTH BEHAVIOUR? - where **1** equals "no influence whatsoever", and 5 equals "completely changed my behaviour" (Please circle)

No Influence   Completely Influenced

| 1 | 2 | 3 | 4 | 5 |
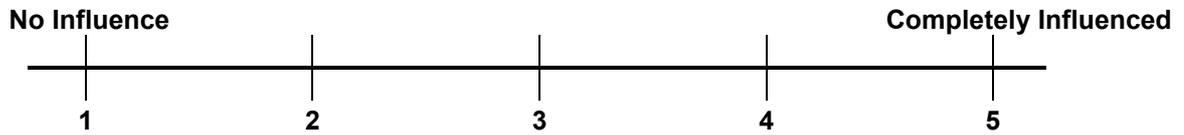
9.2b. If '1' was circled ask, *"Why was there no influence on your behaviour?"* (If participant is having problems giving a full answer, you can prompt with questions like; *"was there anything particular that you didn't like about the session with the interviewer?"* or *"what do you think it would take to influence your health behaviour?"*)

| |
| |
| |
| |
| |
| |

9.2c.. If '2' or greater was circled ask, *"If it did have some effect, how did it influence your health behaviour?"*
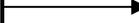
| |
| |
| |
| |
| |
| |

9.3a DID YOU ATTEMPT TO CUT DOWN ON YOUR (DRUG) USE AFTER RECEIVING THE FEEDBACK & INFORMATION?
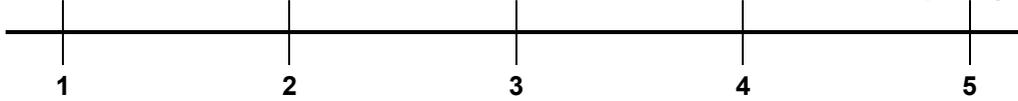
No [ ] → Go to <u>Part 3</u> (Q9.5)

Yes [ ] → Go to Q9.3b

9.3b ON A SCALE OF 1 TO 5, TO WHAT EXTENT DID YOU ACTUALLY REDUCE YOUR (DRUG) USE? - where 1 equals "did not reduce my (drug) use whatsoever", and 5 equals "completely stopped (drug) use after the last interview" (Please circle)

No reduction   Completely Stopped

```
|--------|--------|--------|--------|--------|
1        2        3        4        5
```

9.3c. If circled '2' or greater ask, *"How long did this last?"* (Code in weeks. Remind participant of how many weeks it has been since their first interview as per 7.2a)

[ ][ ]

Part 2. Information and feedback session with interviewer

9.4 WHAT PARTICULAR ASPECT OF THE FEEDBACK AND INFORMATION SESSION WITH THE INTERVIEWER WAS IT THAT INFLUENCED YOUR HEALTH BEHAVIOUR AND (DRUG) USE? (If the participant is having problems giving a full answer, you can prompt with questions like; *"what do you remember most about the session with the interviewer?"* or *"what struck you the most?"*)

| |
| |
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| |

Part 3. Written Information (See 7.8a for this participant)

9.5a. DO YOU REMEMBER RECEIVING THE BOOKLET "THE SUBSTANCE USERS GUIDE TO CUTTING DOWN OR STOPPING"? (Show participant a copy)	**No** ☐ ⟶	Go to Q9.7
	Yes ☐ ⟶	Go to Q9.5b.

9.5b ON A SCALE OF 1 TO 5, HOW MUCH OF THE BOOKLET DID YOU READ? - where 1 equals "none of the booklet whatsoever", & 5 equals "read all of booklet cover to cover" (Please circle)

Read None   **Read All**

```
|———————|———————|———————|———————|
1       2       3       4       5
```
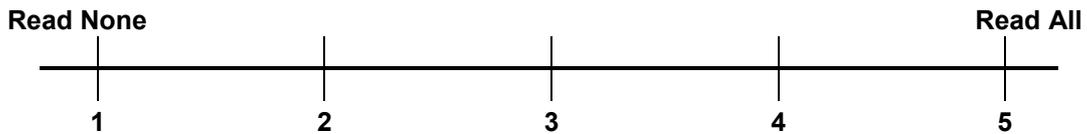
9.5c. If circled '2' or less ask, *"What stopped you from reading through all of the booklet?"*

9.6. If circled '2' or more ask, *"How useful did you find the booklet for……….." (circle one number for each row)*	Not useful	Some-what useful	Very useful	Don't know
a. helping you to understand your level of risk	1	2	3	9
b. helping you to weigh up the positive & negatives of using (drug)	1	2	3	9
c. understanding your options concerning changing your (drug) use	1	2	3	9
d. providing you with realistic strategies & guidelines for change	1	2	3	9
e. actually helping you to cut down or stop using (drug)	1	2	3	9

9.7 IS THERE ANYTHING ELSE YOU WOULD LIKE TO TELL US ABOUT YOUR PARTICIPATION IN THIS PROJECT?
For example, how could the feedback and information be improved?