Validation of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) and Pilot Brief Intervention:

A Technical Report of Phase II Findings of the WHO ASSIST Project

Prepared by Rachel Humeniuk & Robert Ali
on behalf of the WHO ASSIST Phase II Study Group

Management of Substance Abuse
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LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
ASI-Lite	Addiction Severity Index – Lite (shorter version)
ANOVA	Analysis of Variance
ASPD	Anti-Social Personality Disorder
ASSIST	Alcohol, Smoking and Substance Involvement Screening Test
ATS	Amphetamine-Type Stimulant
AUC	Area Under the Curve
AUDIT	Alcohol Use Disorders Identification Test
BI	Brief Intervention
CAGE-AID	Cutdown, Annoyed, Guilty, Eye-opener - Adapted to Include Drugs
CC	Coordinating Centre
CIDI-SAM	Substance Abuse Module of the Composite International Diagnostic Interview
CRU	Clinical Research Unit
DAST	Drug Abuse Screening Test
FRAMES	Feedback, Reinforcement, Advice, Menu of options, Empathy, Self-efficacy
GP	General Practitioner
ICE	Independent Clinical Evaluation
MAP	Maudsley Addiction Profile
MI	Motivational Interviewing
MINI Plus	Mini International Neuropsychiatric Interview (short version)
N,n	sample size
PCA	Principal Components Analysis
PHC	Primary Health Care
RISC	Rating of Injection Site Condition
RCQ-D	Readiness To Change Questionnaire for Drugs
RCT	Randomised Controlled Trial
RTQ – tobacco	Revised Tolerance Questionnaire for Smoking
ROC	Receiver Operating Characteristics
SD	Standard Deviation
SDS	Severity of Dependence Scale
SPSS	Statistical Package for Social Sciences
SSI	Specific Substance Involvement (score)
TNF	True Negative Fraction (specificity)
TPF	True Positive Fraction (sensitivity)
WHO	World Health Organization

EXECUTIVE SUMMARY

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was recently developed for the World Health Organization (WHO) by an international group of substance abuse researchers to screen for problem or risky use of tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, sedatives, hallucinogens, inhalants, opioids and 'other drugs' that do not fall into the previous 9 categories. The objective was to produce a screening instrument that could be used across a range of countries and cultures, for use in primary health care settings. Primary care settings were selected because they have the potential to detect patients with problems associated with drug use, and to provide an intervention, albeit brief, to at-risk patients.

A Phase I test-retest reliability study was conducted in nine different countries between 1997 & 1999. It was found that ASSIST items were reliable, and that the ASSIST screening procedure was feasible in primary care settings. A Phase II validity study commencing in 2000 was conducted with 1047 subjects from seven countries in different parts of the world. One third of the subjects were recruited from specialist drug treatment settings and were substance dependent. The remaining two thirds were recruited from primary care settings. The ASSIST was administered to all subjects who were a wide range of substance users (occasional to heavy use of various substances) along with a battery of diagnostic tests and instruments. A shortened battery was re-administered to subjects 3 months after baseline. Analysis of the data showed the ASSIST had good concurrent, construct, predictive and discriminative validity. Phase II also pilot tested a Brief Intervention linked to ASSIST scores which found that the intervention significantly reduced ASSIST scores and self-reports of drug use at follow-up.

The battery of tests used in Phase II with which the ASSIST was compared included a demographic profile questionnaire, sections of the Addiction Severity Index Lite version (ASI-Lite), the Severity of Dependence Scale (SDS), sections of the Mini International Neuropsychiatric Interview (MINI Plus), the Rating of Injection Site Condition scale (RISC), the Drug Abuse Screening Test (DAST), the Alcohol Use Disorders Identification Test (AUDIT), the Revised Tolerance Questionnaire for Smoking (RTQ-Smoking), the Maudsley Addiction Profile (MAP), the Independent Clinical Evaluation (ICE), the Readiness To Change Questionnaire for Drugs (RCQ-D), the Interviewer Rating of Expected Outcomes and the Brief Intervention Process Rating Form. Interviewers were also trained to take a hair sample from subjects to confirm drug use, and were trained to give a Brief Intervention to subjects following testing.

The ASSIST (v2.0) consists of eight questions or items, covering ten substances: tobacco, alcohol, cannabis, cocaine, amphetamine type stimulants, inhalants, sedatives, hallucinogens, opioids and 'other drugs - specify'. The ASSIST investigates frequency of use and associated problems for each substance. Following Question 1 which concerns lifetime use of substances, the second question asks about frequency of use during the prior three months. Responses for this question are rated on a five point frequency scale ranging from "never" (in the past three months) to "daily or almost daily." This question provides critical information about the substances most relevant to the respondent's current health status. If none of the substances has been used in the past three months, the interviewer can skip to the last three questions about problems and usage patterns prior in their lifetime. If any substance has been used during the past three months, Questions 3, 4 and 5 are asked, before concluding with Questions 6-8. Question 3 asks about compulsion to use substances in the prior three months. This is a measure of psychological dependence. Question 4 asks about personal health, social, financial or legal problems associated with substance use that have occurred within the previous three months. This is a measure of harmful use. Question 5 asks whether participants have failed to meet role obligations. Questions 6 to 8 ask about lifetime and recent problems, including whether concern has been expressed by friends or relatives, prior attempts at controlling drug use, and current or lifetime injection of drugs.

Several ASSIST-derived domains or scores were determined during the Phase I reliability-feasibility study. ASSIST scores reflecting abuse and dependence also were investigated in Phase II, to assess whether the ASSIST does screen for these parameters (concurrent & construct validity) and to determine ASSIST cut-off scores for dependence and abuse (discriminative validity). It is expected that the cut off scores for abuse and dependence will provide primary care clinicians with an indication of which patients require referral to specialist treatment (those who are high risk or dependent) and the subjects for whom a brief intervention is more appropriate (those at moderate risk or considered to 'abuse' substances).

All the domains are relevant for research and descriptive/comparative purposes, however, Specific Substance Involvement Scores are most likely to be used clinically for screening and intervention and reflect risk pertaining to a specific substance.

Where appropriate, the concurrent, construct, discriminative and predictive validity was investigated for each parent and sub-domain that could be derived from ASSIST scores. Each parent domain incorporated all substances (tobacco, alcohol, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids). A sub-domain score also was calculated which incorporated illicit substances only, and excluded alcohol and tobacco. It was not relevant to calculate sub-domain scores for Specific Substance Involvement or specific Current Frequency of Substance Use scores that focussed on each substance separately. The specific ASSIST formulae for each domain are shown in Table 2 (Section 3.0).

The following scores can be derived from the ASSIST:

1) Lifetime Substance Use score (sum of drug classes) that have been used in lifetime according to Question 1);
2) Global Continuum of Substance Risk score (sum of response weights to Questions 1-8 across substance classes);
3) Specific Substance Involvement score (sum of response weights to Questions 2-7 within each of the following drug classes: tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives/sleeping pills, hallucinogens, opioids, other). It is anticipated that this score will be used most often by health care workers and sometimes are simply termed “ASSIST Scores”;
4) Current Frequency of Substance Use Score (current past 3 months) frequency of using substances (*excluding tobacco and ‘other’ drugs) within and across each drug class according to Question 2;
5) Dependence (sum of Questions 1, 2, 3, 6 & 7 across substances). This derivation only was used to determine concurrent and construct validity;
6) Abuse (sum of Questions 1, 2, 4, 5 & 6 across substances). This derivation only was used to determine concurrent and construct validity.

Of the 1047 respondents, 66% were male. The average age of subjects was 30.4 years, ranging between 18 and 45 years. On average, the ASSIST took 9 minutes to administer at baseline. The average highest ASSIST score for any substance was 11.25 (range 1-20) for all subjects. The percentage of subjects who received a positive score on the ASSIST (ie. a score between 1 and 20, or between 1 and 16 for tobacco) by substance was as follows: alcohol 87%; tobacco 75%; cannabis 38%; amphetamines 25%; opioids 22%; sedatives 18%; cocaine 15%; hallucinogens 8% and inhalants 5%.

Internal Consistency (Chronbach’s alpha) was over 0.80 for the majority of domains and ASSIST items correlated well against similarly worded items of other questionnaires.

Concurrent validity of the ASSIST was investigated by statistical comparison with other gold standards and standardised measures of parameters comparable with the ASSIST. The ASSIST showed good concurrent validity as evidenced below.

1) Global continuum of substance use risk had a high internal consistency (α=0.89) and was significantly and positively correlated with the MINI Plus derived score of severity of abuse and dependence (r=0.76, p<0.01).

2) Lifetime substance use was significantly and positively correlated with lifetime use as recorded by the MINI Plus (r=0.93, p<0.01).

3) Specific substance Involvement. There was a significant and positive correlation between ASSIST Scores for tobacco and RTQ-Smoking scores (r=0.78, p<0.001). Similarly, ASSIST alcohol scores were correlated with those recorded by the AUDIT (r=0.82, p<0.001). ASSIST scores for each substance were divided into two groups according to fulfilment of criteria for current or lifetime diagnoses of abuse or dependence for each substance on the MINI Plus. All ASSIST Specific Substance Involvement scores were significant different when classified by these criteria as shown in the summary table below

Summary table showing comparison of ASSIST scores according to MINI Plus diagnoses

ASSIST Scores by Substance type Mean (SD)	**Does subject meet MINI Plus criteria for current or lifetime diagnosis of abuse or dependence for a specific substance?**		**t value, p value**
	YES	*NO*	
Alcohol	7.9 (5.3)	2.4 (2.7)	-17.2 (p<0.001)
Cannabis	7.6 (5.8)	0.9 (2.5)	-25.9 (p<0.001)
Cocaine	8.9 (6.9)	0.3 (1.4)	-32.4 (p<0.001)
ATS	8.9 (6.9)	0.4 (1.6)	-32.6 (p<0.001)
Inhalants	6.7 (7.7)	0.1 (0.6)	-25.1 (p<0.001)
Sedatives	10.0 (6.5)	0.6 (2.2)	-29.3 (p<0.001)
Hallucinogens	2.8 (4.1)	0.1 (0.7)	-12.6 (p<0.001)
Opioids	13.2 (6.2)	0.2 (1.0)	-58.3 (p<0.001)

ATS = amphetamine-type stimulants

4) Current Frequency of use. There was a significant positive correlation between ASSIST Current frequency of use and frequency of use as recorded by the Addiction Severity Index (r=0.84, p<0.001).

Construct validity of the ASSIST was investigated by statistical comparison with other measures that provide circumstantial evidence for the constructs measured by the ASSIST. The ASSIST showed good construct validity for analyses to date.

1) Global Continuum of Substance Use Risk. Subjects diagnosed with Attention Deficit Hyperactivity Disorder had significantly higher ASSIST Global continuum of risk scores than those subjects without the disorder (49.4 (SD=22) vs. 26.2 (SD=18.8), t=-8.8, p<0.01). Similar results were found for subjects with Anti Social Personality Disorder (48.9 (SD=24.2) vs. 24.1 (SD=16.6), t=-15.3, p<0.01). Global continuum of substance use risk was also significantly positively correlated with recent injecting behaviour as measured by the RISC (r=0.48, p<0.01), recent physical and psychological health symptoms as measured by the MAP (r=0.57, p<0.01).

2) Dependence. There was a significant and positive correlation between ASSIST Scores reflecting dependence, and the MINI Plus derived severity of dependence score (r=0.76, p<0.001).

3) Abuse. There was a significant and positive correlation between ASSIST Scores reflecting abuse, and the MINI Plus derived severity of abuse score (r=0.75, p<0.001).

4) Dependence. Subjects diagnosed with Attention Deficit Hyperactivity Disorder had significantly higher ASSIST Dependence scores than those subjects without the disorder (36.9 (SD=15.6) vs. 22.1 (SD=14.2), t=-6.8, p<0.01). Similar results were found for subjects with Anti Social Personality Disorder (38.1 (SD=16.1) vs. 20.5 (SD=12.8), t=-14.4, p<0.01).

5) Abuse. Subjects diagnosed with Attention Deficit Hyperactivity Disorder had significantly higher ASSIST Abuse scores than those subjects without the disorder (34.1 (SD=15.1) vs. 17.6 (SD=12.6), t=-9.3, p<0.01). Similar results were found for subjects with Anti Social Personality Disorder (33.1 (SD=16.8) vs. 16.2 (SD=11.1), t=-15.3, p<0.01).

Discriminative validity of the ASSIST was investigated by comparison of ASSIST scores as grouped by known standards of dependence, abuse and non-problematic use. The dependent group was classified as those subjects who were recruited from specialist drug and alcohol treatment settings and met ICE criteria for current dependence of specific substances. The subjects recruited from Primary Health Care settings were classified as abusers or non-problematic users according to the presence of a diagnosis for current abuse on the MINI Plus. ASSIST Scores for Global continuum of substance use risk, and Specific Substance ASSIST scores for alcohol, cannabis, cocaine, amphetamines, sedatives and opioids were compared for all three groups using ANOVA and ROC curves. The summary tables below show discrimination between Use and Abuse, and Abuse and Dependence respectively. The first data column of the tables shows the ROC area under the curve, columns 2, 3 and 4 show sensitivity, specificity and associated ASSIST cut-off score. The last column shows the results of ANOVA and Scheffe's post hoc test, and the difference between groups and significance is reported. There were significant differences in

ASSIST scores between the groups for all domains with the exception of sedative abuse and dependence. Overall, the results show that the ASSIST can discriminate between the three groups for most of the domains, but that the ASSIST is a better discriminator of use and abuse than for abuse and dependence.

Summary Table showing discrimination between use and abuse using ANOVA and ROC, n=1047

	USE vs. ABUSE				
	ROC AUC Area Under Curve	**ROC Sensitivity**	**ROC Specificity**	**ASSIST Cut-off Score**	**ANOVA Scheffes diff Between groups, p**
Global risk	0.84	80%	71%	14.5	15.5, p<0.001
Alcohol	0.87	83%	79%	5.5	6.2, p<0.001
Cannabis	0.96	91%	90%	1.5	8.1, p<0.001
Cocaine	0.95	92%	94%	0.5	5.4, p<0.001
ATS	0.96	97%	87%	0.5	7.5, p<0.001
Sedatives	0.96	94%	91%	0.5	11.1, p<0.001
Opioids	0.97	94%	96%	0.5	11.9, p<0.001

ATS = amphetamine-type stimulants

Summary table showing discrimination between abuse and dependence using ANOVA and ROC, n=1047

	ABUSE vs. DEPENDENCE				
	ROC AUC Area Under Curve	**ROC Sensitivity**	**ROC Specificity**	**ASSIST Cut-off Score**	**ANOVA Scheffes, diff Between Groups, p**
Global risk	0.73	73%	66%	28.5	14.3, p<0.001
Alcohol	0.70	67%	60%	10.5	3.4, p<0.001
Cannabis	0.62	57%	61%	10.5	2.2, p<0.001
Cocaine	0.84	70%	77%	8.5	7.4, p<0.001
ATS	0.77	72%	68%	11.5	5.7, p<0.001
Sedatives	0.45	54%	50%	10.5	-1.1, p=0.26
Opioids	0.74	76%	65%	14.5	4.2, p<0.001

ATS = amphetamine-type stimulants

Predictive validity of the ASSIST was investigated by comparing ASSIST scores from the same subject at two different time points (3 months apart). This was performed with data from Primary Health Care subjects that did not receive the brief intervention, as an intervention could have affected ASSIST scores at the second time point. Subjects recruited from specialist drug and alcohol treatment settings were also excluded from analysis of predictive validity, as their treatment may have effected their ASSIST scores at follow-up due to changing drug use behaviour.

1) Global Continuum of substance use risk. For predictive validity, Global ASSIST scores were compared excluding the lifetime component of the ASSIST (ie Q1), as Question 1 was not asked at follow-up. A paired groups comparison showed that there was no significant difference in ASSIST scores between baseline and follow-up (10.2 (SD=10.6) vs. 9.9 (SD=9.6), p=0.46). These results indicate that the ASSIST has good predictive validity.

2) Specific Substance Involvement. The summary table below shows mean ASSIST scores at baseline and follow-up for each substance type, and associated t and p values. All substances had similar scores at baseline and follow-up, and no significant differences were recorded. These results indicate that the ASSIST has good predictive validity.

Summary table showing comparison of baseline and follow-up ASSIST scores using paired t-test

	ASSIST Scores by Substance Type. Mean (SD)		**t value, p value**
	BASELINE	*FOLLOW-UP*	
Tobacco	4.5 (5.4)	4.3 (5.3)	t=1.2, p=0.23
Alcohol	2.2 (2.5)	2.5 (2.8)	t=-2.6, p=0.01#
Cannabis	0.9 (2.7)	0.8 (2.3)	t=1.0, p=0.32
Cocaine	0.2 (0.5)	0.2 (0.7)	t=0.9, p=0.34
ATS	0.9 (2.7)	0.8 (2.5)	t=1.2, p=0.24
Inhalants	0.1 (1.0)	0.1 (0.6)	t=0.3, p=0.78
Sedatives	0.9 (3.0)	0.7 (2.6)	t=0.9, p=0.36
Hallucinogens	0.2 (0.8)	0.1 (0.4)	t=1.0, p=0.34
Opioids	0.3 (1.1)	0.3 (1.5)	t=-1.0, p=0.92
Other drugs	0.01 (0.1)	0.01 (0.1)	na

ATS = amphetamine-type stimulants

A 5 to 10 minute brief intervention (BI) based on FRAMES and motivational interviewing was given to subjects who scored in the moderate risk range on the ASSIST. The brief intervention was targeted at the highest scoring substance. Effectiveness of the BI was investigated by comparing ASSIST scores from the same subject at two different time points (3 months apart). Only Primary health care subjects were used for this investigation, and compared subjects who had received an intervention against those who had not received an intervention (controls) over time. The Brief Intervention was associated with a significant decrease in Specific substance Involvement ASSIST and Global Continuum of substance risk scores at follow-up.

These findings were congruent with the feedback from subjects about the effectiveness of the brief intervention. Two thirds of subjects reported that the brief intervention had influenced their health behaviour in a positive way and 76% of subjects had reduced their substance use to some degree.

As an addendum to this study, Principal Components Analysis (PCA) was used to weight and re-code frequency (category) scores on individual questions (items) according to how much they contribute to the risk of the individual. For practical purposes, the resulting version of the ASSIST (V3.0) has established cut-offs that are the same for all substances with the exception of alcohol.

In conclusion the ASSIST shows excellent concurrent, construct, predictive and discriminative validity and can adequately screen for low, moderate and high risk substance use for any substance. A brief intervention linked to ASSIST scores appeared to be effective in reduction of substance use by participants and will be more formally investigated in a Phase III Randomised Controlled Trial.

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1.0 INTRODUCTION

1.1 OVERVIEW

Psychoactive substance abuse problems are prevalent and widespread worldwide, and are associated with significant morbidity and mortality. The World Health Organization (WHO) has identified alcohol, tobacco, and illicit drugs as among the top 20 risk factors for ill-health (World Health Organization, 2002) and has adopted a public health approach to screening for alcohol and drug abuse, and early intervention for such problems (WHO ASSIST Working Group, 2002). Part of such an approach includes the development of a reliable and valid screening instrument that can be used in primary care settings, such as general practitioners' (GP) surgeries and community health care facilities to identify people with both moderate and severe substance use problems.

There is considerable value in devising screening instruments that are capable of detecting risky, hazardous or harmful substance use where the level of risk can determine the most appropriate treatment for the individual. As a consequence, screening has the potential to detect health problems or risk factors early before they have caused serious health and other problems in large numbers of people.

The limitations of using existing screening tests in primary care settings have recently been outlined by McPherson and Hersh (2000) and Babor (2002). Many existing instruments, such as the Addiction Severity Index (ASI) (McLellan et al. 1985), and expanded Substance Abuse Module of the Composite International Diagnostic Interview (CIDI-SAM) (World Health Organization, 2002), although comprehensive, are time consuming to administer in primary care settings. On the other hand, some of the briefer instruments available, such as the CAGE-Adapted to Include Drugs (CAGE-AID) (Brown and Rounds, 1995), have a focus on dependence, which is less useful for detecting problematic or risky drug use in nondependent persons. Moreover, the available self-report screening tests have a number of limitations from a cross-cultural perspective (Babor, 2002). Most were developed in the United States of America and do not have demonstrated sensitivity and specificity for use in other cultures and have not been extensively validated.

In 1982 the World Health Organization initiated a program to develop an international screening test for hazardous and harmful alcohol use (Saunders et al., 1993). The resulting instrument was the Alcohol Use Disorders Identification Test (AUDIT) which has been demonstrated to be a reliable and valid instrument in many studies (Allen et al., 1997). The AUDIT is widely used throughout the world in primary and other health care settings as part of screening and brief intervention programs (Ustun & Sartorius, 1995; Babor & Higgins-Biddle, 2000). The success of the AUDIT and brief intervention for alcohol led the WHO to consider a screening instrument suitable for all psychoactive substances.

Accordingly, the WHO recently sponsored the development of the ASSIST to address the need for a reliable and valid screening test for problematic or risky substance use that is also culturally adaptable (WHO ASSIST Working Group, 2002). Accordingly the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was developed in 1997 by an international group of substance abuse researchers under the auspices of the WHO. A test-retest reliability study was conducted with 236 subjects recruited from ten sites in different parts of the world. The results showed that the ASSIST items were reliable, and that the ASSIST screening procedure was feasible in primary care settings.

The ASSIST (V2.0) has a number of attributes that makes it suitable for use in primary care settings. It is relatively brief, comprising eight questions that are designed to be administered by a health care provider or similar, and answered by respondents in around five to ten minutes. There are questions on cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives, hallucinogens, opioids and other miscellaneous drugs, as well as questions on alcohol and tobacco. Apart from establishing a risk score for tobacco and alcohol use, the inclusion of these two licit substances on the ASSIST questionnaire allows the investigation of the remaining illicit drugs in the context of a more general health and lifestyle-screening interview.

The interview commences with a general screening question that asks about lifetime use; if the respondent reports no psychoactive substance 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. Responses to this question are rated on a five-point frequency scale ranging from 'never' (in the past three months) to 'daily or almost daily'. This question provides critical information about the substances

most relevant to the respondent's current health status. 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 and recency of problematic usage patterns. Question 3 is a measure of psychological dependence and asks about frequency of 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 has 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). Responses to question 2 to 5 on the ASSIST (V2.0) are rated on a five-point Likert frequency scale ranging from 'never' (in the past three months) to 'daily or almost daily'. Question 6 to 8 asks 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 (the questionnaire items are listed in the Appendix). At the completion of the interview a number of domains can be derived for each respondent from their responses to the questions. For example, a Specific Substance Involvement (SSI) Score can be derived for each substance (see Methodology), and can be used as a guide to further intervention. In addition, individuals who indicate that they have injected drugs in the last three months can be provided with information on risks associated with injecting.

The primary aim of the current project was to conduct a cross-cultural evaluation of the construct, concurrent, discriminative and predictive validity of the ASSIST at a number of international sites, and to conduct a pilot study of a brief intervention and/or referral to be used in conjunction with the new screening test. The Phase II study was intended to provide answers to the following questions:

- Does the ASSIST procedure demonstrate adequate validity for use in primary care practice?
- Is the new test appropriate to use in different cultural groups, health care settings and conditions known to affect the validity of self-report information?
- How feasible is it to link drug abuse screening with brief interventions in primary care settings?

The study was conducted in three stages over a period of three years. The first stage was devoted to protocol finalisation and training and certification of interviewers. The second stage of field work involved the pilot testing of the protocol at the collaborating sites, recruitment of subjects for primary interviews and follow-up interviews. Each participating site was to recruit 150 subjects during this time period. During the third stage, quantitative and qualitative data analysis was to be undertaken and reports written.

The project was conducted at a number of collaborating centres, referred to as Clinical Research Units (CRU's), with one Coordinating Centre (CC).

Clinical Research Units
1) Drug & Alcohol Services Council, Adelaide, Australia (also the Coordinating Centre)
2) Universidade Federal de Sao Paulo, Psychobiology Department, Sao Paulo, Brazil
3) All India Institute of Medical Sciences, Department of Psychiatry, New Delhi, India
4) Northern Dependence Treatment Centre, Mae Rim, Chiang Mai, Thailand
5) National Addiction Centre, London, United Kingdom
6) UCLA Integrated Substance Abuse Programs & Friends Research Institute, Los Angeles, USA
7) University of Zimbabwe Medical School, Department of Psychiatry, Harare, Zimbabwe

1.2 WHO ASSIST PHASE I RELIABILITY STUDY

Phase I of this project commenced in 1997, and involved the development of a preliminary screening instrument for psychoactive substance use (the ASSIST V1.0) and the conduct of a test-retest reliability study of the instrument at ten sites in different parts of the world (WHO ASSIST Study Group, 2002). Preliminary results from the Phase I reliability study were sufficiently promising to warrant the initiation of the current Phase II validation study.

The aims of the ASSIST Phase I Reliability Study were:

1) to evaluate the feasibility of using the preliminary screening test items in several countries known to have a wide range of substance-related problems;

2) to determine specific reliability of the preliminary items in order to refine the content of the items, the length of the screening test, and the recommended response categories;

3) to identify possible sources of response error in the instructions and format that required modification before a more systematic validity study was conducted.

With financial and logistical support from WHO, Substance Abuse Department the Phase I Reliability Study was conducted at ten sites chosen for their ability to provide access to culturally diverse samples of individuals with different substance use patterns. The data collection sites were located as follows:

- Drug and Alcohol Services Council in Adelaide, Australia;
- National Addiction Centre in London, United Kingdom;
- University of Puerto Rico Medical School in San Juan, Puerto Rico, USA;
- Trinity College in Dublin, Ireland;
- Universidade Federal de Sao Paulo in Sao Paulo, Brazil;
- Federal University of Parana in Curitiba, Brazil;
- University of Zimbabwe Medical School in Harare, Zimbabwe;
- All India Institute of Medical Sciences in New Delhi, India;
- Department of Social Work at Ben Gurion University in Beer Sheva, Israel;
- Palestine Red Crescent Society in Bethlehem.

Coordination of the Phase I Reliability Study was undertaken by researchers from the Department of Community Medicine, University of Connecticut Health Centre, in Farmington, USA.

The study involved a quantitative analysis of test-retest reliability at the item level and scale level, as well as the collection of qualitative data on feasibility and acceptability. Two-hundred and thirty-six sets of test-retest interviews were completed by the ten sites. Data were examined according to question stem, substance class and data collection setting in order to provide recommendations for improving the instrument. The detailed results of Phase I can be found in WHO ASSIST working Group (2002).

Of the 236 respondents, 63% were male, 34% were married or cohabiting, and 61% were unemployed. The mean age was 34 years, and they had completed, on average, 10 years of education. Over half of the sample (60%) was recruited from alcohol and drug abuse treatment facilities, while the remainder was drawn from primary health care (eg. general medical) settings. Test-retest kappa coefficients of agreement (*K*-values) for both question stem and drug category were computed. A *K*-level of .40 is considered moderate, whereas a coefficient above .60 is considered substantial. On average, *K*-levels ranged from .58 to .90 for the question stems, while the average ranges for substance class were between .61 for sedatives to .78 for opioids. Although site specific kappas could not be calculated owing to the small sample size, the size of the overall kappas suggested that the items were fairly reliable across sites. Qualitative interview data from both the interviewers and respondents were also examined. Questions that were found to be difficult to administer or understand were reviewed in light of their corresponding *K*-values. Revisions were incorporated into the ASSIST instrument and were expected to further improve reliability and validity. The revised version of the ASSIST (V2.0) consists of eight items or questions that can be answered by most subjects in five to ten minutes.

In addition to the revised instrument, the Phase I Reliability Study produced recommendations for several scoring options. The following scores can be derived from the revised ASSIST:

1) Lifetime Substance Use score (sum of drug classes [excluding tobacco and alcohol] that have been used in lifetime);

2) Global Continuum of Risk score or Total Substance Involvement (sum of response weights to questions 2-8 across eight drug classes);

3) Specific Substance Involvement score* (sum of response weights to questions 2-7 within each of the following drug classes: tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives/sleeping pills, hallucinogens, opioids, other);

4) Current Frequency of Substance Use (current [past 3 months] frequency of using substances within each drug class, estimated by multiplying response categories to question 2 by approximate number of days per month [e.g., once or twice = 1.5, Daily or almost daily = 30]).

*The Specific Substance Involvement score for each substance (sometimes termed the alcohol ASSIST score, the cannabis ASSIST score etc.) is the score designed to be used for clinical purposes.

1.3 RATIONALE FOR PHASE II INSTRUMENT VALIDITY ASSESSMENT

There are several types of validity assessment used in psychological and psychiatric research, and in the development of screening tests.

Concurrent or convergent validity refers to the correlation of one measure (e.g. patient's estimate of drug use) with another at the same point in time (e.g. a collateral informant's estimate of patient's drug use). Concurrent validity is a form of *criterion validity*, which involves the comparison of one measure (e.g. patient's verbal report of drug use) with another that is considered to be more objective (e.g. urine or hair drug test) or standardised questionnaire.

Construct validity involves assessment situations in which there is no reasonable criterion and no consensus about the content of a construct. A construct (e.g., drug dependence) is a hypothetical attribute assumed to be reflected in a particular measure, but which has no single, pure criterion or indicator of itself. Evidence for construct validity is generally circumstantial, e.g. the pattern of symptoms or scores seems to conform to the hypothetical construct.

Discriminant validity refers to the ability of a test to discriminate among groups known to have a given characteristic or condition. A good screening test should differentiate not only between dependent and non-dependent drug users, but also between persons at risk of developing drug-related problems and those not at risk.

Finally, ***predictive validity*** refers to the ability of a screening test to indicate future risk or disease development in the absence of a clinical intervention.

For the present study, it was proposed that a standard test validation approach would be employed, based on the principles of psychological testing (Cronbach, 1970). A battery of interviewer-administered and self-report assessments and one biochemical measure was administered to groups of drug dependent and non-drug dependent patients in order to test the construct, concurrent, discriminative and predictive validity of the ASSIST screening items. Because the screening instrument was designed for the early identification of harmful substance use as well as dependence, special emphasis was given to the ability of ASSIST to discriminate between non-problematic users, non-dependent users considered to be at some risk for current and future problems, and persons with a diagnosable syndrome of drug dependence. Validity was evaluated at the item level, at the level of individual drug classes, and at the level of a total score derived by combining item scores.

A major premise of the Phase II validation study was that variables measured within the various ASSIST content domains (eg. frequency of drug use) constitute readily identifiable indicators of hazardous and

harmful consumption. It was anticipated that these putative indicators of current risk level would be associated with risk factors (eg. familial substance abuse, attention deficit disorder, antisocial personality traits) because persons with these markers are theoretically at higher risk of developing alcohol- and drug-related problems (Babor, Kranzler & Lauerman, 1989).

1.4 RATIONALE FOR BRIEF INTERVENTION PILOT STUDY

There is substantial evidence of the benefits of screening and Brief Intervention for alcohol problems in Primary Health Care settings (Bien et al., 1993; Heather, 1996; WHO Brief Intervention Study Group, 1996; Senft et al., 1997; Cordoba et al., 1998; Maisto et al., 2001; Miller & Willbourne, 2002). Senft et al. (1997) showed a reduction in frequency of alcohol consumption at 6 and 12 months in hazardous drinkers who had received a 15 minute brief intervention and self-help materials, in a primary care setting. The WHO Brief Intervention Study Group (1996) found that five minutes of simple advice were as effective as 20 minutes of counselling. 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).

Research suggests that brief interventions might be effective in primary care settings for substance users other than alcohol (e.g., cannabis smokers) if culturally appropriate intervention procedures could be developed. Before a full-scale clinical trial of brief interventions could be initiated (as proposed for a future Phase III study), pilot data were needed to develop an appropriate intervention.

It was intended that the proposed pilot study would examine how primary health care patients who screen positive for drug abuse (moderate risk) would respond to advice and brief counselling as well as self-help information. Elements of the WHO AMETHYST project's brief treatment protocol were incorporated into a short one session (15-minute) intervention suitable for use in primary care settings (WHO Brief Intervention Study Group, 1996) and the brief intervention was modelled around the FRAMES components (Feedback, Responsibility, Advice, a Menu of options, Empathy and Self-efficacy) which has been found to be effective in interventions with smokers and problem drinkers (Bien, et al., 1993).

1.5 AIMS

The present study represents the second phase of the development of an instrument for screening for psychoactive substance use through primary health care settings (ASSIST), and has the following broad aims:

- To undertake an international multi-site collaborative project to validate the use of the ASSIST instrument in a variety of primary health care and drug treatment settings, in a number of different cultural contexts;

- To develop a pilot brief intervention and referral procedures for persons who screen positive for non-dependence substance user problems (moderate risk) and to undertake a trial of these procedures with a small sample of drug users, as a preliminary stage in the further development and trialling of culturally appropriate interventions (the subject of a future phase of work).

2.0 METHODOLOGY

2.1 STUDY DESIGN

In psychological testing, validity typically refers to how well an instrument actually measures what it is said to be measuring. For the present study, a standard test validation approach was employed, based on the principles of psychological testing (Chronbach, 1970). A comprehensive test battery was administered to groups of patients from specialised substance-treatment settings and patients from primary health care settings, in order to test the construct, concurrent, discriminative and predictive validity of the ASSIST screening items. A pilot test of the interview battery was conducted on 5 to 10 dependent drug users at each site prior to the study, and the results were used to refine the final protocol. None of the results from the pilot test were included in the data set or analysis.

Because the screening instrument was designed for the early identification of harmful substance use as well as dependence, special emphasis was given to the ability of the ASSIST to discriminate between non-problematic users, problem users (or those abusing drugs considered to be at risk for future problems) and persons with a diagnosable syndrome of substance dependence. Validity was evaluated for each domain (see Section 3.0 on Data Analysis) at the item level, at the level of individual drug classes, and at the level of a total score derived by combining item scores. In addition to assessing the validity of the ASSIST, a pilot investigation of the effectiveness of a brief intervention linked to ASSIST scores was implemented.

The test battery comprised the ASSIST, several interviewer-administered questionnaires and diagnostic tests, self-report assessments and a hair sample to confirm self-report and concurrent validity. The battery is outlined in detail in Section 2.4. 'Baseline Assessment Procedures'. Subjects recruited from specialist drug treatment settings were administered the same test battery as subjects recruited from primary care settings. In addition, specialist drug treatment subjects received an Independent Clinical Evaluation (ICE) of current and lifetime dependence from a specialised clinician who was blind to the scores of the other tests. The degree of motivation, or stage of change, was determined for primary care subjects who scored between 4 and 15 on the ASSIST for either alcohol, cannabis, cocaine, amphetamine-type stimulants or opioids. These subjects also received a brief intervention and related written materials from the interviewer.

All subjects were contacted by telephone three months after the initial assessment. They were re-interviewed over the telephone using a condensed test battery consisting of the ASSIST and two other short instruments which have been detailed in Section 2.5 'Follow-up Assessment'. Primary care subjects who were administered a brief intervention at baseline were asked for feedback on the effects of the brief intervention and written materials using a structured questionnaire.

The Statistical Package for Social Sciences (SPSS) was used to manage the data. To ensure the quality of the data, all data were double entered, cleaned and matched using purpose-written syntax programs to detect discrepancies and typical errors. A procedural manual for data entry, coding, cleaning and editing was developed and disseminated to all sites.

2.2 RECRUITMENT SETTINGS

Project participants were recruited from seven different countries that were considered to represent, with obvious limitations, the broad range of cultures and political and economic systems in which substance-related problems were experienced. Each research centre was responsible for recruiting a total of 150 subjects. Approximately 100 subjects were recruited from clients attending representative primary health care facilities, and the remaining 50 subjects recruited from clients attending a major type of specialised drug treatment facility in that country. The aim of recruiting from two major types of treatment setting was to test the ASSIST on a broad spectrum of substance users. It was intended that the sample should include persons using a variety of different substances and have varied use patterns, ie.

1. Occasional or non-problematic users or current abstainers who had never been treated for a drug or alcohol problem;

2. Current drug users who were using substances more regularly and may have been experiencing problems, some of whom may have been in the early stages of dependence. This group may have received treatment for substance problems in the past, but were not currently in treatment or seeking treatment;

3. High level or dependent users who were in treatment for no longer than one month prior to recruitment.

The projected total sample size for the study was 1050, which was determined from past experience in the development of the AUDIT, as well as from practical considerations and statistical power calculations. The final total sample size obtained from all the sites' data collection combined was 1047.

A variety of ambulatory clinics and primary/secondary care practices served as the locations for recruitment of primary health care patients (n=100 for each site, total N ≈ 700). These locations included patients with a variety of conditions, but it was intended that the patient load of agencies selected would have an over-representation of psychoactive substance users. This was to ensure that the primary health care sample included sufficient numbers of persons who would meet criteria for low to middle level "caseness" for psychoactive substance use disorders. Suitable locations for recruiting the primary health care sample included STD clinics, general medical inpatients and outpatients, psychiatric clinics, community health care centres and general practitioners. A list of the types of primary care facilities employed by each country are shown in Table 1.

Programs that specialised in substance abuse/dependence treatment served as the recruitment base for diagnosed dependent substance users (n=50 for each site, total N ≈ 350). These recruitment sites included inpatient and outpatient drug treatment centres and in one country, psychiatric clinics. Table 1 also lists the type of treatment facility by country.

The recruitment procedure in the majority of the treatment settings involved either advertising with flyers at the treatment setting, or direct canvassing of patients by the interviewer-researcher or treating clinician.

TABLE 1. Type of primary care and specialist treatment settings and sample size recruited by country

Country	Primary care recruitment facilities	Specialist AOD treatment services	TOTAL
Australia	STD clinic, university health centre, community health centres, general practitioners n=100	inpatient drug treatment clinics n=50	**150**
Brazil	general practitioners, general medical inpatients, emergency, psychiatric clinics n=98	inpatient and outpatient drug treatment clinics, n=49	**147**
India	General medical outpatient, psychiatric inpatient and outpatient, community advertisements n=100	De-addiction centre inpatients, outpatients and community outreach n=50	**150**
Thailand	General practitioners, psychiatric outpatient n=100	Inpatient and outpatient drug treatment clinics n=53	**153**
UK	General medical outpatient clinic, general practitioner, university health centre n=99	Inpatient and outpatient drug treatment clinic n=50	**149**
USA	General practitioners n=100	Inpatient and outpatient drug treatment clinics n=48	**148**
Zimbabwe	General practitioners, Community health & day centres, general medical inpatient & outpatient clinics, emergency room, advertisements & drinking establishments (pubs & hotels) n=100	Inpatient and outpatient psychiatric clinics n=50	**150**
TOTAL	**PHC = 697**	**TREATMENT = 350**	**1047**

2.3 PARTICIPANTS

Approximately one hundred and fifty research volunteers between the ages of 18 and 45 years were recruited at each participating site. It was intended that, where possible, the gender ratio should not exceed 2:1. However, it was acknowledged before data collection commenced that some participating research units may have difficulty in recruiting sufficient females, particularly from specialist drug treatment locations, and that in such situations, a higher proportion of males in the sample was acceptable. The total sample recruited were 66% male, thereby fulfilling the desired gender ratio (Australia 50%, Brazil 63%, India 96%, Thailand 69%, UK 67%, USA 43%, Zimbabwe 75%).

A stratified sampling procedure was used to ensure that adequate numbers of subjects within specified age ranges were obtained. The upper limit of the age range (45 years) was based on data from clinical and population studies suggesting that the prevalence of drug dependence is low beyond this age. The lower age limit (18 years) was chosen to avoid the logistical problems connected with obtaining informed consent from adolescents and their parents. To provide age comparability across sites, the sample were stratified into equal numbers within the following groups: 18-25, 26-35, 36-45 years. Most sites were able to recruit equal numbers of subjects within this age group and of the total sample size (N=1047) 35% were aged 18-25, 35% were aged 26-35 and 30% were aged 36-45.

The following exclusion and inclusion criteria were applied in order to recruit appropriate participants: 1) must be between the ages of 18 and 45 years; 2) must be a member of the main ethnic group(s) in the population; 3) must not have severe communication difficulties (eg. language problems, deafness); 4) must not have a severe cognitive impairment or intellectual disability; 5) must not have severe behavioural or mental health disturbances; 6) must be physically well enough to participate in a one and a half hour assessment; 7) must not be intoxicated or going through severe withdrawal from alcohol or drugs; 8) must not have been in treatment or incarceration for any longer than one month (30 days); 9)

must be willing to be re-interviewed three months later and provide contact details for themselves and at least 2 other friends/relatives; 10) must not have tendencies towards aggressive or violent behaviour.

2.4 BASELINE ASSESSMENT PROCEDURES

2.4.1 Overview

Interviews constituted the primary method of obtaining validation data, and questions were asked retrospectively for the period prior to treatment. Most of the instruments, including the ASSIST, focussed on events over the last 3 months, and lifetime experiences, although the MINI Plus also assessed events and behaviour over the last 12 months. The proposed assessments were chosen according to the following guidelines:

- standardised, internationally used assessments to maximise comparability of findings with other studies;
- measurement of multiple assessment domains and outcome criteria;
- linkage to specific validation hypotheses;
- psychometric properties;
- known reliability and validity.

The baseline assessment battery required 60-90 minutes to complete and consisted of the following components below, in the order that they were administered. The assessment battery can be found in the Appendix section of this report.

2.4.1.1 Consent, participant information and locator forms

A number of forms relating to the provision of information, recording of participants' consent for the study, personal contact details and details of potential follow-up locators were completed in the first part of the interview. Depending on local ethical requirements, the consent procedures varied between countries.

2.4.1.2 Interviewer-administered assessments

Demographic Information Form: This form collected basic information on socio-demographic variables including age, gender, marital status, religion, ethnicity, and educational and occupational status.

Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): The ASSIST was the first instrument administered and addressed lifetime and last 3 month substance use issues.

Addiction Severity Index - Lite (ASI-Lite): The ASI-Lite is a condensed version of the ASI, and assessed client functioning in a number of areas including frequency of lifetime and recent (3 month) substance use, problems associated with substance use, and family history of drug, alcohol and psychiatric problems (McLelland et al., 1985).

Severity of Dependence Scale (SDS): The SDS is a short 5-item questionnaire that focused on psychological aspects of substance dependence (Gossop et al., 1995; 1997). The score reflects the severity of dependence.

Mini International Neuropsychiatric Interview (MINI Plus): The MINI Plus is an abbreviated structured diagnostic interview and the drug and alcohol use sections of the MINI Plus (K and L) were used extensively. These sections of the MINI Plus determine the presence or absence of diagnoses of:

- dependence and/or abuse;
- on alcohol;
- on the two most frequently used or most problematic drugs (amphetamine type stimulants, cocaine, opioids, hallucinogens, inhalants, cannabis, benzodiazepines/barbiturates and any "other drug" not included in the above list);
- whether the diagnosis is one that is current (last 12 months) and/or a lifetime diagnosis (anytime in life – may or may not be current).

Accordingly, there are a number of possible diagnoses that can be made as outlined below. It is worth noting that there are several possible diagnoses that can be determined for non-alcohol substances due to current and lifetime use of more than one drug.

- alcohol dependence current
- alcohol dependence lifetime
- alcohol abuse current
- alcohol abuse lifetime
- substance dependence current
- substance dependence lifetime
- substance abuse current
- substance abuse lifetime

According to the MINI Plus, a diagnosis of dependence is made if subjects fulfil at least 3 of the 7 dependence criteria and a diagnosis of abuse is made if subjects fulfil at least 1 of the 4 abuse criteria. While the MINI Plus is a diagnostic tool for "caseness", the severity of abuse or dependence were also obtained in this study by summing the number of criteria fulfilled for the diagnosis.

Other psychiatric dimensions of relevance to substance use problems were diagnosed through the use of the sections W and Q of the MINI Plus relating to the presence of attention deficit hyperactivity disorder (ADHD) and anti-social personality disorder (ASPD). The reliability and validity of the MINI Plus has recently been established (LeCrubier et al., 1997; Sheehan et al., 1998).

Rating of Injection Site Condition (RISC). The RISC assessment was conducted for all drug-treatment site participants and primary care subjects who reported IV drug use. The RISC is a brief assessment of visible injection stigmata and related complications (scarring, abscess, infection, active infection etc.). Severity assessments from the scale are based on observations of the arms, hands, legs and feet of drug users with approximate counts of needle track marks, and ratings of the injection site morbidities. The RISC provided data on recent (last 3 months) injecting status and also on life time status in relation to mode of venous access and other complications arising from long term injecting (Marsden et al., 1998).

Hair sample. Hair samples were used to validate self-report of recent (3 month) use of amphetamines, benzodiazepines, cocaine, and opioids according to Q2 of the ASSIST. It is worth noting that the frequency of use of these substances was not taken into consideration when comparing with presence in hair, only whether or not they were used at during the three month period.

A variety of biological tissues and techniques can be used to detect drug use, and each has pro's and con's for each drug type. Hair was selected for this study because it is a non-invasive method and drugs and their metabolites remain in hair tissue indefinitely after use. Many substances are incorporated into hair cells after use, and will remain until the hair is removed (unlike urine testing, which can only validate a much shorter period of recent drug use). Hair grows from the crown of the head at approximately 1 ± 0.5 cm per month, and the hair closest to the scalp indicates the most recent drug use. A 3 cm hair sample weighing approximately 20 mg (~50-100 strands of hair) was taken from the majority of subjects in five of the seven participating countries (Australia, Brazil, India, Thailand, USA). The time frame over which hair testing was applied (3 cm ≈ 3 months) corresponds with the prior three month period which is the focus of the ASSIST and the majority of questions in the test battery. The ELISA (enzyme linked immunosorbent assay) method was used for determining the presence or absence of drugs in the hair

samples (as distinct from mass chromatography gas spectrometry (GCMS) which determines quantity of drug in hair).

Research staff were trained in correct hair sample collection and storage procedures. All participating clients (from both the primary health care and drug treatment settings) were asked to provide a hair sample, following administration of the baseline assessment instruments. The samples were forwarded to the Coordinating Centre, and 10% of them were selected for analysis by the Forensic Science Laboratories of South Australia resulting in a total sample size of N = 110. Diagnostix™ ELISA plate kits were used to confirm the presence of cocaine, amphetamine-type stimulants, benzodiazepines or opioids in hair according to a standard method (Sweeney et al., 1998). As yet Diagnostix™ ELISA plate kits are not available for substances other than those mentioned above. Detection kits do exist for cannabinoids, but there was some hesitancy on behalf of the staff of the South Australian Forensic Science Laboratories to utilise them due to the increased likelihood of cross-reactivity with other cannabinoids and potential for erroneous results.

Cut-off concentrations for recording a positive result based on 20mg of hair were set down as follows:

Amphetamines: methylamphetamine at 0.4 ng/mg hair
Cocaine and metabolites: cocaine at 0.21 ng/mg hair
Opioids: morphine at 0.14 ng/mg hair
Benzodiazepines: nitrazepam at 0.084 ng/mg hair

2.4.1.3 Self-Administered Assessments

Drug Abuse Screening Test (DAST): The DAST is a self-report assessment consisting of 10 true-false statements describing medical, social, and behavioural events common to the careers of drug users (Skinner, 1982; Gavin et al., 1989). Questions were asked for the prior 3 month period. Although derivation of the DAST was apparently not related to any systematic theory of addiction, factor analytic studies suggest that a broad underlying dimension of dependence may be what is measured by the test. If the patient was not literate, the DAST questions were read by the research assistant.

Alcohol Use Disorders Identification test (AUDIT): The inclusion of the AUDIT self-report questionnaire allowed comparison of the ASSIST alcohol questions with a validated screening test of severity of alcohol problems (Babor et al., 1989b; Saunders et al., 1993). Questions were asked for the prior 3 month period. If the patient was not literate, the AUDIT questions were read by the research interviewer.

Revised Fagerstrom Tolerance Questionnaire –Smoking (RTQ-Smoking): The RTQ-Smoking is a ten item self-report questionnaire designed to measure nicotine dependence, and was used to supplement information on drug use collected via the ASI-Lite (which does not incorporate tobacco use) (Tate & Schmitz, 1993). Questions were asked for the prior 3 month period. If the patient was not literate, the RTQ-Smoking questions were read by the research interviewer.

Maudsley Addiction Profile (MAP): The Maudsley Profile is a self report questionnaire which provides a functional assessment of physical health, anxiety and depression (Marsden et al., 1998). The 10-item physical health symptoms scale assesses the past 3 month frequency of health problems across five functional system domains (general, gastro-intestinal, musculoskeletal, neurological, cardiovascular). The 10-item psychological health scale assesses the past 3 month frequency of generalised anxiety and depression symptoms. Questions were asked for the prior 3 month period. If the patient was not literate, the MAP questions were read by the research interviewer.

2.4.1.4 Independent Clinical Evaluation (ICE) for subjects recruited from drug treatment settings

The concurrent and discriminative validity of ASSIST was evaluated against the diagnoses provided by an expert's independent clinical evaluation (ICE) based on the fulfilment of ICD-10 criteria for dependence. In some sites other sources of information were also employed such as clinical observations, medical records and collateral informant reports to arrive at a final diagnostic determination. This procedure was used only with patients recruited from the specialised drug treatment settings.

2.4.1.5 Brief Intervention for subjects recruited from primary care settings

Readiness to Change Questionnaire – Drugs (RCQ-D): The RCQ-D is a brief 11-item self-report questionnaire that seeks information on views regarding changing drug use behaviours and motivation to change (Hile & Adkins, 1998). It was administered only to primary care subjects who were screened as

being eligible to receive the trial brief intervention procedure and received a score of between 4 and 15 on the ASSIST for alcohol or cannabis or cocaine or amphetamine-type stimulants or opioids. The stage of change rating (pre-contemplation, contemplation or action) was used by the research interviewer to assist with the brief intervention.

The Brief Intervention - FRAMES. The Brief Intervention was given to eligible primary care subjects in Australia, Brazil, India, Thailand and Zimbabwe. The substance for which the brief intervention was targeted (alcohol, cannabis, cocaine, ATS or opioids) was the one which resulted in the highest score on the ASSIST. It was intended that the brief intervention should be given immediately following the assessment phase, and last around 5 to 10 minutes. There was some variation in the way individual countries conducted their brief intervention, with some countries giving a longer intervention of 20 minutes. One site gave a two-session intervention in which subjects were given a 20 minute intervention directly following the assessment, and then a similar length second session a few days later.

The structure of the brief intervention was based on the FRAMES approach to behaviour change incorporating Feedback, personal Responsibility, Advice, a Menu of options, clinician Empathy and promotion of Self efficacy (Bien et al., 1993). A motivational interviewing style was utilised during the intervention employing reflective listening, rolling with resistance and eliciting self-motivating statements from the subject (Miller & Rollnick, 1991). The principle of creating discrepancy was also a predominant feature of the intervention, and interviewers asked subjects to consider the pros and cons of their substance use and their associated level of concern. The session was bolstered by self-help materials that provided specific information about individual drugs and generic skills for reducing drug use.

Interviewer Rating of Expected Outcomes: Following the delivery of the trial brief intervention to the eligible participant, the interviewer completed a schedule that rated their expectations of the 3 month outcome of the intervention for that participant.

2.5 FOLLOW-UP ASSESSMENT

2.5.1 Overview

The follow-up had two objectives – an evaluation of the predictive validity of the ASSIST instrument, and to determine the effectiveness of the pilot brief intervention. It was intended that follow-up should occur three months after the baseline interview, and that interviews could be done over the telephone or face to face. With the exception of the UK site, it was planned that all subjects interviewed at baseline should be followed-up in three months (n=900). However, there was some attrition resulting in an overall follow-up rate of 91% (n=822).

2.5.2 Predictive Validity Follow-up

All subjects were re-administered the ASSIST instrument, with the exception of Q1 which asks about lifetime use of substances. Subjects were also administered the SDS, as well as items from the ASI-Lite which covered the last three months.

2.5.3 Brief Intervention Follow-up

As well as the above questionnaires, primary care subjects who received a brief intervention at baseline were asked for their feedback on the intervention. A questionnaire was designed to capture quantitative and qualitative feedback from subjects. The Brief Intervention Process Rating Form (BIPRF) queried the participant about their perception of the intervention, including influence on health behaviour and reduction in drug use.

2.6 TRANSLATION

Any translation of documents followed WHO guidelines of procedures for translation and adaptation of instruments. The study questionnaires, participant instructions and response scales were translated from English to the local language (Portuguese, Hindi, Thai, Shona) by at least two bi-lingual translators. After the materials were translated from English to the local language, any differences were discussed by the two translators. Corrections were made before the final translation was completed. The pilot test

of the battery in each site was used to facilitate the translation process in non-English speaking countries.

2.7 INTERVIEWERS AND TRAINING

Most sites had between 2 and 5 interviewers, with the exception of the Thailand site which had 10 interviewers. Interviewers were selected on the basis of their familiarity with drugs of abuse, health research and their ability to provide their time for the duration of the study. All interviewers had some level of tertiary education and of the 32 interviewers, just over one half had advanced degrees (Honours 6%; Masters 6%; PhD 25%; Psychiatry 16%; MD 3%) while the remainder were registered nurses (28%), had ordinary degrees (6%) or were university students (9%).

The Project Coordinator in each site was responsible for training of interviewers, with additional oversight and monitoring provided by the Coordinating Centre. Training of interviewers focussed on obtaining informed consent, giving consistent instructions, administering the ASSIST, administering the Brief Intervention, and cleaning and entering data. Role play was used to train many interviewers, as was the pilot testing of the instrument on actual subjects. Interviewers were also trained in effective interview techniques including familiarisation with the interview questions, awareness of incongruent responses, focussing the subject and keeping the interview on track, while also allowing some flexibility with questions, showing empathy, and allowing participants to have a break if required. The Study Manual and a demonstration video served as the key training resources for delivery of the interviewer-administered schedules and Brief Intervention.

2.8 MANAGEMENT OF DATA

Data were double-entered into SPSS files according to the purpose written Procedural Manual on Data Entry, Coding, Cleaning and Editing. The data were checked using three syntax programs which had been specially prepared for the data files. The first of these programs checked that all entries within SPSS cells fell within the appropriate and expected range for the data, while the second ascertained that logical procedures had been followed when administering the questionnaire and calculating total scores. The final program matched the two double-entered data files together to determine whether any operator errors had been made in the entry. Any aberration encountered by any one of these three programs would result in an error message detailing the specifics of the error and instructions for correction.

3.0 DATA ANALYSIS

A summary of the data analysis that was performed can be found below, however, given the size of the study a comprehensive data analysis plan was prepared which can be found in the Appendices of this document or by contacting the first author of this technical report.

3.1 DOMAINS FOR ANALYSIS

Several domains or scores that can be derived from the ASSIST were determined during the Phase I reliability-feasibility study. ASSIST scores reflecting abuse (moderate risk) and dependence (high risk) also were investigated in Phase II, to assess whether the ASSIST does screen for these parameters (concurrent & construct validity) and to determine ASSIST cut-off scores for dependence and abuse (discriminative validity). It is expected that the cut off scores for abuse and dependence will provide primary care clinicians with an indication of which patients require referral to specialist treatment (high risk - dependence) and which subjects require a brief intervention (moderate risk - abuse).

The domains are relevant for research and descriptive/comparative purposes, although Specific Substance Involvement scores for each individual substance are the ASSIST scores most likely to be used clinically for screening and intervention.

Where appropriate, the concurrent, construct, discriminative and predictive validity was investigated for each parent and sub-domain that could be derived from ASSIST scores. Each parent domain generally incorporated all substances (tobacco, alcohol, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids). A sub-domain score also was calculated which incorporated illicit substances only, and excluded alcohol and tobacco. It was not relevant to calculate sub-domain scores for Specific Substance Involvement or specific Current Frequency of Substance Use scores that exclusively focussed on each individual substance. The specific formulae for each domain are shown in Table 2.

The following scores or domains can be derived from the ASSIST:

- Lifetime Substance Use score (sum of the number of different substances ever used according to Question 1);
- Global Continuum of Substance Risk score or Total Substance Involvement (sum of response weights to Questions 1-8 across substance classes);
- Specific Substance Involvement score (sum of response weights to Questions 2-7 within each of the following drug classes: tobacco, alcohol, cannabis, cocaine, amphetamine type stimulants, inhalants, sedatives/sleeping pills, hallucinogens, opioids, other). It is anticipated that this score will be used most often by clinicians and health care workers to estimate risk associated with a specific substance;
- Current Frequency of Substance Use Score (past 3 months). The frequency of substance use in the last 3 months (*excluding tobacco and 'other' drugs) of each individual substance and the sum of all substances combined according to Question 2;
- Dependence (sum of Questions 1, 2, 3, 6 & 7 across substances);
- Abuse (sum of Questions 1, 2, 4, 5 & 6 across substances).

All Domains (with the exception of Domain 3) were split into two major groups – those that included all substances, and those that included illicit substances only (alcohol and tobacco excluded). This was to test the validity of the ASSIST for screening for illicit drugs in the absence of alcohol and tobacco, the use of which may have 'swamped' some of the domains.

Table 2. ASSIST formulae of each Domain

Domain Label	Description of Domain/Score	ASSIST Formula
1A	Lifetime substance use – including alcohol & tobacco	Σ Q1a + 1b + 1c + 1d + 1e + 1f + 1g + 1h + 1i + 1j (Max Score: 10)
1B	Lifetime illicit drug use – excluding alcohol & tobacco	Σ Q1c + 1d + 1e + 1f + 1g + 1h + 1i + 1j (Max Score: 8)
2A	Global continuum of substance risk - including alcohol & tobacco	Σ Q1a – j + 2a – j + 3a – j + 4a – j + 5a – j + 6a – j + 7a – j + 8 (Max Score: 208)
2B	Global continuum of illicit drug risk - excluding alcohol & tobacco	Σ Q1c – j + 2c – j + 3c – j + 4c – j + 5c – j + 6c – j + 7c – j + 8 (Max Score: 170)
3A	Specific Substance Involvement – Tobacco (or ASSIST tobacco score)	Σ 2a + 3a + 4a + 6a + 7a (Max Score: 16)
3B	Specific Substance Involvement – Alcohol (or ASSIST alcohol score)	Σ 2b + 3b + 4b + 5b + 6b + 7b (Max Score: 20)
3C	Specific Substance Involvement – Cannabis (or ASSIST cannabis score)	Σ 2c + 3c + 4c + 5c + 6c + 7c (Max Score: 20)
3D	Specific Substance Involvement – Cocaine (or ASSIST cocaine score)	Σ 2d + 3d + 4d + 5d + 6d + 7d (Max Score: 20)
3E	Specific Substance Involvement -ATS (or ASSIST ATS score)	Σ 2e + 3e + 4e + 5e + 6e + 7e (Max Score: 20)
3F	Specific Substance Involvement – Inhalants (or ASSIST inhalants score)	Σ 2f + 3f + 4f + 5f + 6f + 7f (Max Score: 20)
3G	Specific Substance Involvement – Sedatives (or ASSIST sedatives score)	Σ 2g + 3g + 4g + 5g + 6g + 7g (Max Score: 20)
3H	Specific Substance Involvement – Hallucinogens (or ASSIST hallucinogen score)	Σ 2h + 3h + 4h + 5h + 6h + 7h (Max Score: 20)
3I	Specific Substance Involvement – Opioids (or ASSIST opioid score)	Σ 2i + 3i + 4i + 5i + 6i + 7i (Max Score: 20)
3J	Specific Substance Involvement – Other	Σ 2j + 3j + 4j + 5j + 6j + 7j (Max Score: 20)
4A	Total Current Frequency of Substance Use – including alcohol, *excluding tobacco & 'other drugs'	Σ Q2b – i (Max Score: 32)
4B	Total Current Frequency of Illicit Drug Use - *excluding alcohol, tobacco & 'other drugs'	Σ Q2c – i (Max Score: 28)
4C	Current Frequency alcohol use	Q2b (Max Score: 4)
4D	Current Frequency cannabis use	Q2c (Max Score: 4)
4E	Current Frequency cocaine use	Q2d (Max Score: 4)
4F	Current Frequency amphetamine use	Q2e (Max Score: 4)
4G	Current Frequency inhalant use	Q2f (Max Score: 4)
4H	Current Frequency sedative use	Q2g (Max Score: 4)
4I	Current Frequency hallucinogen use	Q2h (Max Score: 4)
4J	Current Frequency opioid use	Q2i (Max Score: 4)
5A	Dependence – all substances including alcohol & tobacco	Σ Q1a – j + 2a – j + 3a – j + 6a – j + 7a – j (Max Score: 130)
5B	Dependence – illicit drugs excluding alcohol & tobacco	Σ Q1c – j + 2c – j + 3c – j + 6c – j + 7c – j (Max Score: 104)
6A	Abuse – all substances including alcohol & tobacco	Σ Q1a – j + 2a – j + 4a – j + 5a – j + 6a - j (Max Score: 146)
6B	Abuse – illicit drugs, excluding alcohol & tobacco	Σ Q1c – j + 2c – j + 4c – j + 5c – j + 6c - j (Max Score: 120)

*tobacco and 'other drugs' were excluded from this domain because of the lack of independent data available for comparison

3.2 DESCRIPTIVE STATISTICS

Descriptive statistics and frequencies of responses to questionnaires were produced for the pooled sample, and individual site samples where relevant. The analysis focussed on obtaining a description and distribution of ASSIST scores and domains, however, overall scores from the remaining baseline assessments were also described. In addition, internal consistency (coefficient alpha) was calculated for domains, where relevant.

3.3 ITEM BY ITEM COMPARISONS

Each individual ASSIST item (question) was compared, where possible, with similar items from other scales and questionnaires as a form of item-by-item validity testing. For analyses with two continuous variables, a Pearson correlation was calculated. For analyses with two dichotomous or categorical variables, a 2x2 table was used to calculate the percentage of True Positives (Sensitivity) and True Negatives (Specificity). A high percentage indicates that responses to the ASSIST item are comparable with the other questionnaire. One hundred percent sensitivity or specificity indicates that items on both questionnaires were responded to in the same way.

The true positive percentage (Sensitivity) is equal to the number of positive responses on the ASSIST and the corresponding questionnaire (eg. MINI plus) as a percentage of total number of positive responses on the MINI Plus. Similarly the true negative percentage (Specificity) is equal to the number of negative responses on the ASSIST and the MINI plus as a percentage of total number of negative responses on the MINI Plus.

3.4 CONCURRENT VALIDITY

The concurrent validity of the ASSIST was investigated by comparing domain scores obtained from the ASSIST (See Table 2) with scores obtained from other measures and instruments that were thought to be valid indicators of what the ASSIST was designed to measure, such as biological indicators of drug use, standardised diagnostic tests and gold standard assessments and questionnaires.

1. The MINI Plus was used extensively to test concurrent validity, and several scores were derived from this diagnostic tool:

    1a. In its simplest form, the presence or absence of a diagnosis of current dependence or abuse for each specific substance including alcohol, was determined. The presence or absence of specific diagnoses were used to categorise ASSIST scores and domains into two groups for independent groups comparison.

    1b. An indication of the cumulative presence of substance problems, regardless of substance type, was derived from the MINI Plus by summing all positive diagnoses of abuse and /or dependence achieved by any one subject. This score was correlated against specific ASSIST domain scores. Variations of the MIN Plus derived score were ascertained for diagnoses of dependence and abuse, and specific substance groups.

    1c. The severity of substance problems was calculated by summing all positive item scores for each possible diagnosis. Variations of the MINI Plus derived score were ascertained for individual substances and specific substance groups. The MINI Plus severity score was correlated against ASSIST scores of Global Continuum of risk and Specific Substance Involvement, where relevant.

    1d. Finally, the sum of the number of substances ever tried as recorded by the MINI Plus was used to reflect lifetime use, for all substances excluding tobacco, and for all drugs excluding tobacco and alcohol. This score was compared with the lifetime domains of the ASSIST, however, it is worth noting that the MINI Plus does not incorporate tobacco products, and records lifetime use as having used the substance more than once for drugs and more than 3 times on 3 separate occasions for alcohol.

2. SDS. The Severity of Dependence Scale was completed for the substance which was the most problematic or had been used most often by the subject, however the substance type was not

recorded. The total score achieved by the Severity of Dependence Scale, regardless of substance, was correlated against various ASSIST Domains where relevant.

3. DAST. The Drug Abuse Screening Test was completed for drugs in general (excluding tobacco and alcohol) and the total score was correlated against the ASSIST Global continuum of risk for illicit drugs.

4. AUDIT. The total score achieved on the Alcohol Use Disorders Identification Test was correlated with ASSIST domains relating exclusively to alcohol use.

5. RTQ-Smoking. The total score achieved on the Revised Tolerance Questionnaire for Smoking was correlated with ASSIST domains relating exclusively to tobacco use.

6. ASI. The frequency of recent substance use section of the Addiction Severity Index was correlated against ASSIST Current Frequency of Use domains. It is worth noting that the ASI classifies substances somewhat differently to the ASSIST and has two questions about alcohol, two concerning sedatives and three concerning opioids. If more than once substance type was reported on the ASI, the most frequently used was incorporated into the comparison score.

7. ICE. The Independent Clinical Evaluation concerned the diagnosis of the presence or absence of dependence on a range of substances. The presence or absence of dependence on specific substances were used to categorise Specific Substance Involvement ASSIST scores into two groups for independent groups comparison.

8. HAIR ANALYSIS. Self report of drug use according to Q2 of the ASSIST in the last 3 months (cocaine, amphetamines, benzodiazepines and opioids) was compared with the presence or absence of the drug in subjects' hair.

   The presence or absence of specific drugs in hair were used to categorise ASSIST scores and domains into two groups for comparison. Chi squared comparisons also were used to determine true positive and true negative fractions.

3.5 CONSTRUCT VALIDITY

The ASSIST constructs of 'injecting behaviour', 'abuse' and 'dependence' were investigated by comparison with other known measures of the same. Questions 1, 2, 3, 6 & 7 of the ASSIST screen for dependence while Questions 1, 2, 4, 5 & 6 screen for abuse. Question 8 of the ASSIST screens for injecting behaviour. The construct validity of an instrument also concerns circumstantial evidence for the constructs it is said to measure. In this case, ASSIST scores were correlated with measures thought to be indirect indicators of substance problems such as physical and psychological health, family history of substance and mental health problems and psychiatric disorders such as ADHD and APSD.

1. The MINI Plus was used to test construct validity, and several scores were derived from this diagnostic tool:

   1a. In its simplest form, the presence or absence of a diagnosis of ADHD and ASPD was determined. The presence or absence of specific diagnoses were used to categorise ASSIST domains into two groups for independent groups comparison.

   1b. An indication of the cumulative presence of substance problems, regardless of substance type, was derived from the MINI Plus by summing all positive diagnoses for abuse and for dependence achieved by any one subject. These scores were correlated with ASSIST global domain scores of abuse and dependence respectively.

   1c. The severity of abuse and dependence was calculated by summing all positive item scores for each possible MINI Plus diagnosis for abuse and for dependence. These scores were correlated against ASSIST global scores of abuse and dependence respectively.

2. SDS. The Severity of Dependence Scale was completed for the substance which was the most problematic or had been used most often, however the substance type was not recorded. The

total score achieved by the Severity of Dependence Scale, regardless of substance, was correlated against the ASSIST domain of dependence.

3. DAST. The Drug Abuse Screening Test was completed for drugs in general (excluding tobacco and alcohol) and the total score was correlated against the ASSIST global score of dependence domain.

4. MAP. The Maudsley Addiction Profile provided measures of physical and psychological health symptoms. These were correlated against ASSIST Global continuum of risk scores.

5. RISC. Several scores were obtained from the Rating of Injection Site Condition scale, including recent and lifetime injection areas, recent injection frequency and injecting area damage. These scores were used to validate injecting behaviour as recorded by the ASSIST using independent groups comparison. The RISC scores were also correlated against Global ASSIST scores as it was expected that recent injectors would score higher on the ASSIST than non-injectors.

6. ASI. The Addiction Severity Index sections concerning family history of psychiatric or substance problems and the amount spent on alcohol and drugs in the past 90 days were correlated against several ASSIST domains as indirect indicators of substance problems as measured by the ASSIST.

7. ICE. The Independent Clinical Evaluation concerned the diagnosis of the presence or absence of dependence on a range of substances. The presence or absence of dependence on specific substances were used to categorise Specific Substance Involvement ASSIST scores into two groups for independent groups comparison.

3.6 DISCRIMINATIVE VALIDITY

The discriminative validity of an instrument concerns its ability to discriminate between known groups. In the case of the ASSIST, the three groups were non-problematic use, abuse and dependence. Clinically these three groups reflect the risk status of clients or patients – that is, low, moderate or high risk. Risk status is proportional to the ASSIST score achieved. Subjects recruited from specialist treatment settings comprised the dependent high risk group. The subjects recruited from primary care settings were classified into two groups according to current MINI Plus diagnoses. Subjects with a current diagnosis of abuse comprised the abuse moderate risk group, and the remaining subjects, having no current diagnosis, comprised the non-problematic use low risk group.

ASSIST Global continuum of risk scores were compared using independent groups ANOVA with Scheffe's post hoc test as classified by the above groupings. The same groupings were also used to perform ROC analysis in order to obtain further information concerning the ability of the ASSIST to discriminate between groups, cut-off scores for abuse (moderate risk) and dependence (high risk) and the sensitivity and specificity of the cut-off scores.

Similar analyses were performed for ASSIST Specific Substance Involvement scores using ICE diagnoses of specific substance dependence to determine membership of the dependent treatment group. If the ASSIST has good discriminative validity then there should be significant differences between the three groups, and Area Under the Curve (AUC) should tend towards 1.0. High sensitivity and specificity values relating to cut-off scores indicate good discriminative validity.

3.7 PREDICTIVE VALIDITY

The predictive validity of an instrument refers to it's ability to predict future scores in the absence of an intervention. Baseline ASSIST scores were compared with 3 month follow-up ASSIST scores in subjects recruited from primary health care settings who had not received any treatment or brief intervention. Comparisons were made using correlative statistics and paired groups comparisons. An instrument with good predictive validity would have similar scores at baseline and follow-up in the absence of any kind of clinical intervention.

3.8 BRIEF INTERVENTION

The effectiveness of the pilot Brief Intervention was investigated by comparing ASSIST scores at baseline and follow-up using a two-way repeated measures ANOVA. The two groups comprised Primary care subjects who did receive the brief intervention, and primary care subjects who did not receive an intervention. The purpose of including the Primary care subjects not receiving an intervention was to control for the effects of time on subjects' ASSIST scores. Brief Interventions were given for either alcohol, cannabis, amphetamine type stimulants, cocaine or opioids. Statistical comparisons were made for the effects of the Brief Intervention on Global continuum of risk scores – regardless of substance, and Specific Substance Involvement scores for alcohol, cannabis, amphetamine type stimulants, cocaine and opioids.

Apart from the ASSIST, other measures were used to assess the effectiveness of the Brief Intervention. The Readiness to Change questionnaire (RTC-Q) provided information about subjects' current state of change – pre-contemplation, contemplation, action. The motivation levels determined by the RTC-Q were correlated against ASSIST scores and self-perceived behaviour change due to the Brief Intervention. Additionally, subjects gave their feedback on the brief intervention they had received using the interviewer-administered "Brief Intervention Process Rating Form" which was summarised using descriptive statistics.

3.9 WEIGHTING OF ASSIST CATEGORY AND ITEM SCORES

For the purposes of Phase I and Phase II, the ASSIST (V1.0, V2.0, V2.1) was scored using simple Likert scoring categories which were identically weighted for similar questions. That is, Q1 (0, 1), Q2, Q3, Q4, Q5 (0, 1, 2, 3, 4), Q6, Q7 & Q8 (0, 1, 2). A secondary aim of the analysis of the data from the Phase II study was to determine if the frequency (category) scores on individual questions (items) could be weighted and re-coded according to how much they contribute to the risk of an individual. If scores could be weighted by frequency (category) for each individual question, then this could offer an improvement to scoring and increased accuracy of the screening procedure. A statistical expert from the National Addiction Centre in London, UK, was consulted about the most appropriate method for weighting the scores and employed to undertake this component of the analysis.

Principal Components Analysis (PCA) was used with all 31 components from within the item pool / questionnaire itself to determine if category-items correlated around a central single factor and the weighting that would best reflect the centrality of each category-item. The resulting weighted scores were based on optimal scaling of the categories using the correlations within the data. Each principal component was a linear combination of the 31 variables incorporated, with coefficients equal to the eigenvectors of the correlation. Eigenvectors are defined as the directional coefficients or numerical values within a matrix (either positive or negative). The principal components are sorted by descending order of the eigenvalues, which are equal to the variances of the components, but are all jointly uncorrelated with each other. PCA was used in this instance to summarise the data available, and to detect the most linear relationship amongst the variables.

The aim of the PCA in this case was to select weights for both the individual items (Q1-Q8) and the individual categories within those items (never, once or twice, monthly, weekly, daily) and (never, yes, but not in the past 3 months, yes in the past 3 months) that maximized the information retention of the resulting score. In general terms this means maximizing the correlation of the variables with the central factor. The central factor was the derived weighted (optimal) score, which explained as much of the overall variation in the original data as possible.

At this stage it was not possible to weight each substance individually (for example, all scores being equal, does heroin use have a greater weighting/risk than cannabis use?) due to sample size constraints for some of the substances. Additionally, the practicality of having different scoring for different substances is something that would need to be considered before taking this kind of analysis further. Thus, the scoring system for each substance is identical (and as per previous versions of the ASSIST, Q5 is excluded for tobacco).

Weighting analysis was performed following all data collection and validity analysis and the resulting ASSIST with weighted scores in V3.0 (See Appendix).

3.10 DETERMINATION OF CUT-OFF SCORES FOR WEIGHTED SCORING

New cut-off scores for low, moderate and high risk were required to be determined given that Specific Substance Involvement Scores were based on the revised weighted item and category scores. The revised version of the ASSIST is V3.0. These cut-off scores were not utilised during Phase II, but will be incorporated in Phase III.

Cut-off scores were determined using Receiver Operating Characteristic (ROC) analysis as per the calculation of discriminative validity of the ASSIST. As for the calculation of discriminative validity, the three groups were non-problematic use, abuse and dependence. Subjects recruited from specialist treatment settings comprised the dependent 'high risk' group and ICE diagnoses were used to determine whether a subject was dependent upon a specific substance. The subjects recruited from primary care settings were classified into two groups according to current MINI Plus diagnoses. Subjects with a current diagnosis of abuse comprised the abuse 'moderate risk' group, and the remaining subjects, having no current diagnosis, comprised the non-problematic use 'low risk' group.

4.0 RESULTS

4.1 DESCRIPTIVE STATISTICS

4.1.1 Demographic Profile of study participants

The mean age of the 1047 subjects was 30.4 (8.2) years, ranging from 18 to 45 years of age. The mean age of subjects across sites was comparable, ranging from 28.1 years in Thailand to 31.6 in the UK. The range of subjects' ages in all countries was between 18-45 years having similar mean standard deviations of between 7.4 in India to 8.8 in the UK. Two thirds (66%) of the sample were male (Australia 50%, Brazil 63%, India 96%, Thailand 69%, UK 67%, USA 43%, Zimbabwe 75%).

Table 3 shows marital status of the entire sample. The majority of the sample were single (had never been married) or were currently married. Australia had the highest percentage of subjects who were single whereas India had the highest married sample. The remaining countries fell in between these two.

Table 3. Relationship status of Sample

Current Marital Status N=1043	%	% Lowest (site)	% Highest (site)
Currently married	31.3	16.7 (Australia)	65.1 (India)
Cohabiting (living together)	10.1	0 (India)	18.1 (UK)
Separated (but still married)	4.8	0.7 (Thailand)	9.4 (UK)
Widowed	1.2	0 (Australia)	3.0 (Zimbabwe)
Divorced	6.1	2.1 (India)	12.8 (USA)
Never been married	46.0	29.5 (India)	60.0 (Australia)

Missing n=4

The majority of subjects interviewed lived in their own/family home (57.7%) or in a rental property (30.9%). The remainder were boarding in a room (6.7%) or had no fixed address (2.3%) and were living on the streets or in a shelter/halfway house. A small percentage (2.4%) lived in some other type of residence not specified here. The subjects interviewed had resided in the specified domains for between less than 1 year up to 45 years. The mean length of time at the same place was 9.1 years (10.3) and the median was 4 years.

Table 4 shows the breakdown of sample by race and the country which had the majority of the race group as a whole. For example, 45.8% of the entire sample were white Caucasian and the largest proportion of the entire sample (29.8%) were found in Australia. Table 5 shows breakdown of the sample by religion and country.

Table 4. Race status of sample

Race N=1047	%	Predominant Country as a % of total
White / Caucasian	45.8	Australia (29.8%)
Indian / Asian / Pacific Islander	16.0	India (89.8%)
Aboriginal / Torres Strait Islander	0.2	Australia (100%)
African	14.3	Zimbabwe (96%)
Hispanic	3.2	USA (100%)
Native American	0.1	USA (100%)
Mulatto	3.3	Brazil (100%)
Lowland Thai	14.5	Thailand (100%)
Highland Thai	1.0	Thailand (100%)
Other	2.5	UK ≡ USA (42.3%)

Table 5. Religious preference of sample by country.

	% All N=1047	% Aust.	% Brazil	% India	% Thailand	% UK	% USA	% Zimbabwe
Protestant	**13.0**	12.0	12.9	0	1.3	23.5	5.4	36.0
Catholic	**20.2**	7.3	69.4	2.0	0.7	18.1	15.5	30.0
Jewish	**0.1**	0	0	0	0	0.7	0	0
Islam	**0.9**	0	0	4.0	1.3	0	0	0.7
Orthodox	**8.6**	7.3	0.7	0	0	4.0	48.0	0.7
Buddhist	**14.5**	0	0	0	96.7	2.7	0	0
Hindu	**13.1**	0	0	90.7	0	0.7	0	0
None	**26.9**	70.0	10.9	0	0	47.7	28.4	32.0
Other	**2.7**	3.3	6.1	3.0	0	2.7	2.7	0.7

Just over half the sample were currently employed (55.1%) in either full-time (40.6%) or part time (14.6%) work. Over the previous year before interview, subjects had worked a median of 9 months out of a possible 12 months (range < 1 month to 12 months).

Subjects had completed a mean of 11.5 (4.0) years of schooling, ranging between less than one year up to 25 years of education. A small proportion of subjects were still receiving formal education (16.4%), but the majority of subjects (81.1%) ceased schooling at a mean age of 18 years (5.0).

Approximately one third of subjects (34.6%) interviewed had received previous inpatient or outpatient treatments for alcohol and/or drug problems at some stage in their life. The median number of treatments ever experienced was 4, ranging between 1 and 118 (mean 7.7 (11.9)).

4.1.2 The ASSIST questionnaire (baseline)

The ASSIST took an average of 8.7 (4.6) minutes to administer to research subjects, but ranged from less than 1 minute up to 30 minutes (N=1023). There were 24 subjects who were excluded from this calculation. The time taken to administer the ASSIST to those subjects was longer than 30 minutes, which was considered to be an outlier in this study. The number of substances used by a subject appeared to be related to the amount of time required to administer the ASSIST in this study. Subjects recruited from PHCs were administered the ASSIST in an average of 8.1 (4.8) minutes while subjects recruited from specialist drug and alcohol treatment settings took an average of 9.9 (4.0) minutes.

Internal consistencies (Cronbach's Alpha), based on the average inter-item correlation, were calculated for all domains to determine the extent to which the items in the ASSIST were related to each other. Chronbach's alpha and descriptive statistics for each of the Domains are shown in Tables 6 – 11.

Table 6. Domain 1 – Lifetime substance use (Q1 of the ASSIST). N=1047 for each domain

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
1A	All substances incl. alcohol & tobacco	3.0	4.0	2.4	1 – 10	0.82
1B	Illicit drugs only	1.0	2.2	2.3	0 – 8	0.83

Table 7. Domain 2 – Global Continuum of substance risk / Total Substance Involvement (Q1-8 of the ASSIST). N=1047 for each domain

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
2A	All substances incl. alcohol & tobacco	23.0	27.3	19.6	1 - 141	0.89
2B	Illicit drugs only	5.0	12.2	15.8	0 - 113	0.91

Table 8. Domain 3 – Specific Substance Involvement (Q2-Q7 of the ASSIST for each substance) showing mean, SD, median, minimum and maximum scores achieved and Cronbach's alpha for each domain. These mean domain scores include subjects who may have scored zero for a particular substance(s). N=1047 for each domain.

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
3A	Tobacco	8.0	7.0	5.3	0 – 16*	0.80
3B	Alcohol	5.0	6.3	5.3	0 - 20	0.84
3C	Cannabis	0	2.6	4.6	0 - 20	0.86
3D	Cocaine	0	0.95	3.3	0 - 20	0.93
3E	ATS**	0	1.8	4.5	0 - 20	0.94
3F	Inhalants	0	0.22	1.5	0 - 20	0.93
3G	Sedatives	0	1.3	3.7	0 - 20	0.89
3H	Hallucinogens	0	0.19	0.9	0 - 17	0.77
3I	Opioids	0	2.4	5.6	0 - 20	0.94
3J	"Other"	0	0.04	0.5	0 - 9	0.77

**A score of 16 is the maximum possible score for tobacco*
***Amphetamine-type stimulants*

Table 9. Domain 4 – Current Frequency of substance use (Q2 of the ASSIST). N=1047 for each domain
Mean score 4 = daily or almost daily use
Mean score 3 = weekly use
Mean score 2 = monthly use
Mean score 1 = once or twice in last 3 months
Mean score 0 = not used in last 3 months

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
4A	All substances excl. tobacco & "other"	4.0	4.85	3.8	0 - 23	0.43
4B	All illicit drugs excl. "other"	0	2.6	3.6	0 - 20	0.53
4C	Alcohol	3	2.2	1.4	0 - 4	NA
4D	Cannabis	0	0.8	1.4	0 - 4	NA
4E	Cocaine	0	0.2	0.7	0 - 4	NA
4F	ATS**	0	0.4	1.0	0 - 4	NA
4G	Inhalants	0	0.05	0.3	0 - 4	NA
4H	Sedatives	0	0.3	1.0	0 - 4	NA
4I	Hallucinogens	0	0.04	0.2	0 - 3	NA
4J	Opioids	0	0.6	1.3	0 - 4	NA

***Amphetamine-type stimulants*

Table 10. Domain 5 – Global substance dependence (Q1, 2, 3, 6 & 7 of the ASSIST). N=1047 for each domain

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
5A	All substances incl. alcohol & tobacco	22	22.84	14.6	1 - 86	0.86
5B	Illicit drugs only	5	9.5	11.5	0 - 66	0.88

Table 11. Domain 6 – Global substance abuse (Q1, 2, 4, 5 & 6 of the ASSIST). N=1047 for each domain

Domain	Description	Median	Mean	SD	Min-Max	Cronbach α
6A	All substances incl. alcohol & tobacco	16	18.4	13.2	1 - 106	0.85
6B	Illicit drugs only	4	8.4	10.8	0 - 86	0.87

Table 12 shows the percent of subjects scoring highest by each individual Specific substance Involvement Score. For example, when all substances were considered, the majority of subjects interviewed were most likely to receive their highest score for alcohol (43.4%). When illicit substances only were considered, subjects were most likely to receive their highest score for cannabis (35.0%) followed by opioids (24.8%)

The mean highest Specific Substance Involvement ASSIST score (Q2-Q7) achieved by the sample was 11.2 (5.3) and ranged between 1 and 20. This score incorporates only subjects who achieved a positive score (ie. between 1 and 20) for at least one of the Specific substance Involvement domains. The resulting sample size was N=1028. The remaining 19 subjects scored zero for all Specific Substance Involvement domains (but scored positive on Q1 regarding lifetime use).

The average maximum Specific Substance Involvement ASSIST score (Q2-Q7) achieved by the specialist treatment sample was 14.9 (4.4) n=350, which was significantly higher than the average maximum score achieved by the primary care sample (mean=9.3 (4.6), n=678; df=1026, t=-18.3 p<0.001).

Table 12. Percentage of subjects achieving their highest Specific Substance Involvement score (ASSIST Q2 – Q7) for each substance

Substance	% All substances incl. alcohol & tobacco	% Illicit drugs only
Tobacco	24.3	NA
Alcohol	43.4	NA
Cannabis	6.8	35.0
Cocaine	2.1	8.3
ATS**	8.1	21.7
Inhalants	0.4	1.5
Sedatives	2.7	8.3
Hallucinogens	0	0.3
Opioids	12.2	24.8
“Other”	0	0

***Amphetamine-type stimulants*

Table 13 shows the percentage of subjects that scored positive (ie. between 1 and 20) for each and every substance by country. Overall alcohol and tobacco were the two most frequently used substances followed by cannabis, then ATS then opioids.

Table 13. Percent of subjects scoring positive for each substance (ie. greater than zero & between 1 and 20 for Specific Substance Involvement Score, ASSIST Q2-Q7) by country.

	% All N=1047	% Aust.	% Brazil	% India	% Thai.	% UK	% USA	% Zim.
Tobacco	**75.3**	85.3	69.4	88.7	75.2	74.5	77.0	56.7
Alcohol	**87.4**	96.0	82.3	76.7	83.0	89.3	85.8	98.7
Cannabis	**38.4**	72.0	37.4	18.0	7.2	58.4	51.4	25.3
Cocaine	**15.3**	12.0	28.6	0	0	38.3	28.4	0.7
ATS**	**24.5**	50.7	6.1	0	40.5	17.4	56.1	0.7
Inhalants	**5.4**	8.7	9.5	0.7	5.9	4.7	7.4	1.3
Sedatives	**17.7**	28.7	8.8	21.3	19.6	23.5	20.9	0.7
Hallucinogens	**7.8**	17.3	5.4	1.3	2.0	8.7	19.6	0.7
Opioids	**21.8**	34.0	1.4	33.3	26.8	32.9	23.0	0.7
"Other"	**1.3**	4.0	2.0	0	0	0.7	2.3	0

***Amphetamine-type stimulants*

Table 14. Percent of subjects scoring positive (ie. greater than zero) for each ASSIST item for any substance

ASSIST Item	% scoring positive
Q1 – Lifetime use	100
Q2 – Frequency of use, last 3 months	96.5
Q3 – Frequency of desire to use, last 3 months	83.6
Q4 – Frequency of problems, last 3 months	57.5
Q5 – Frequency of failed role obligations, last 3 months	43.4
Q6 – Recency of concern by others	77.6
Q7 – Recency of attempts & failures to control use	77.7
Q8 – Recency of injecting behaviour	19.4

4.1.3 Follow-up and the pilot Brief Intervention

Each country involved in the study, with the exception of the UK site, re-interviewed their subjects after three months with a short test battery comprising the ASSIST, the SDS and a shortened version of the ASI. Excluding the UK sample, this left a total of 898 subjects to be re-interviewed after 3 months. Of these 898 subjects, a total of 822 were able to be contacted and re-interviewed, resulting in a follow-up rate of 91.5%. Subjects not re-interviewed were either unable to be contacted, refused follow-up or had died.

Of the seven countries involved in the study, five were involved in the pilot brief intervention study. The UK and USA sites were unable to participate in this aspect of the study, leaving a possible 498 primary health care subjects to receive a brief intervention if they scored with the appropriate range on the ASSIST for either alcohol, cannabis, cocaine, amphetamine-type stimulants or opioids. A total of 376 subjects (75.5%) of primary health care subjects interviewed met the criteria and received a brief intervention.

Tables 15 and 16 show the substances for which subjects received a brief intervention by country. The majority of brief interventions were for alcohol or cannabis.

Table 15. shows the substance for which subjects received a brief intervention and the respective ASSIST cut-off scores for receiving the brief intervention for that substance.

Substance	ASSIST score range	n	%
Alcohol	4–15	280	74.5%
Cannabis	4–15	64	17.0%
Cocaine	4–15	2	0.5%
ATS*	4–15	7	1.9%
Opioids	4–10	23	6.1%
TOTAL		**376**	**100%**

**Amphetamine-type Stimulants*

Table 16. shows sample size for the substance for which subjects received a brief intervention by country

	Australia	Brazil	India	Thailand	Zimbabwe
Alcohol	44	35	66	53	82
Cannabis	29	11	8	1	15
Cocaine	0	2	0	0	0
ATS*	2	0	0	5	0
Opioids	5	0	5	13	0
TOTAL n	**80**	**48**	**79**	**72**	**97**

**Amphetamine-type Stimulants*

4.2 ITEM BY ITEM COMPARISONS

The following show the comparisons for each ASSIST item. Tables 17-19 show the relevant comparisons.

ASSIST Q1 – "*In your life, which of the following substances have you ever used?"* was compared with the MINI Plus items 5K4; "*Have you ever had alcohol on 3 or more occasions? During these occasions did you have 3 or more drinks within a 3 hour period?*" and 5L6a "*Have you ever taken any of these drugs* (listed in 5L6b 1-8) *more than once in your lifetime?"* The results are shown in Table 17 below.

Table 17. Q1 ASSIST item comparison with Mini Plus item

Q1 ASSIST	n	ASSIST true positive % compared with MINI Plus	ASSIST true negative % compared with MINI Plus
a. tobacco	na	na	na
b. alcohol	1046	98.2%	9.3%
c. cannabis	1047	98.8%	81.2%
d. cocaine	1047	97.9%	93.6%
e. ATS*	1047	96.8%	92.3%
f. inhalants	1047	94.6%	95.1%
g. sedatives	1047	95.3%	89.7%
h. hallucinogens	1047	95.4%	93.4%
i. opioids	1047	99.1%	95.1%
j. other drug	1047	na	na

** Amphetamine-Type Stimulants*
na – not available to compare because not measured by MINI Plus

ASSIST Q2 – "*In the past three months, how often have you used the substances you mentioned (in Q1)?*" was compared with SDI items 3.1a to 3.12a; "*In the past 90 days, how many days would you have used (drug name)?*". Frequency of use for each substance was compared using Pearson 2-tailed correlations. In situations where SDI asked about more than one type of substance in the same group of drugs (eg. methadone and heroin) the most frequently used substance was used for comparison with opioids. Results are shown in Table 18.

Table 18. Q2 ASSIST Comparison with SDI item

Q2 ASSIST	n	Pearson's correlation with SDI questionnaire item	p
a. tobacco	na	na	na
b. alcohol	1047	r=0.76	p<0.001
c. cannabis	1047	r=0.85	p<0.001
d. cocaine	1047	r=0.80	p<0.001
e. ATS*	1047	r=0.85	p<0.001
f. inhalants	1047	r=0.70	p<0.001
g. sedatives	1047	r=0.76	p<0.001
h. hallucinogens	1047	r=0.57	p<0.001
i. opioids	1047	r=0.88	p<0.001
j. other drug	na	na	na

** Amphetamine-Type Stimulants*
na – not available to compare because not measured by SDI

ASSIST Q3 – *"During the past three months, how often have you had a strong desire or urge to use (substance)?".* There were no corresponding questions that could directly be compared with this ASSIST item.

ASSIST Q4 – *"During the past three months, how often has your use of (substance) led to health, social, legal or financial problems?"* There were no corresponding questions that could directly be compared with this ASSIST item.

ASSIST Q5 – *"During the past three months, how often have you failed to do what was normally expected of you because of your use of (substance)?".* There were no corresponding questions that could directly be compared with this ASSIST item.

ASSIST Q6 – *"Has a friend or relative or anyone else ever expressed concern about your use of (substance)?".* There were no corresponding questions that could directly be compared with this ASSIST item.

ASSIST Q7 – *"Have you ever tried to control, cut down or stop using (substance)?"* was compared with MINI Plus questions 5k2d, 5L2d or 5L4d -: *"Have you tried to reduce or stop taking (substance) but failed?"* ASSIST positive responses were collapsed into one single item and compared with positive responses on the MINI plus using a 2x2 table. The results are shown in Table 19 below.

Table 19. Q7 ASSIST item with Mini Plus item

Q7 ASSIST	n	ASSIST true positive % compared with Mini Plus	ASSIST true negative % compared with Mini Plus
a. tobacco	na	na	na
b. alcohol	1047	81.4%	69.9%
c. cannabis	1047	81.3%	85.2%
d. cocaine	1045	89.1%	93.4%
e. ATS*	1047	94.0%	90.2%
f. inhalants	1047	72.7%	97.3%
g. sedatives	1046	74.3%	92.3%
h. hallucinogens	1047	66.6%	95.6%
i. opioids	1043	86.3%	93.7%
j. other drug	1047	na	na

**Amphetamine-type Stimulants*
na=not applicable because not measured by MINI Plus

ASSIST Q8 – *"Have you ever used any drug by injection?"* was compared with the RISC questions 6.1m or 6.2m – "*In your life/last 3 months, which of the following areas of the body have you used to inject drugs?"*. Any response to RISC questions 6.1 and 6.2m that nominated a particular body area were taken as a positive response. ASSIST positive responses (either injected ever or in the last three months) were collapsed into one single item and compared with positive responses on the RISC using a 2x2 table. The results showed that 96.5% of participants who reported injecting a drug on the RISC

questionnaire also reported injecting a drug on the ASSIST questionnaire. Similarly, 99% of participants who reported never having injected a drug on the RISC questionnaire also reported a negative response on the ASSIST questionnaire.

4.3 CONCURRENT VALIDITY

4.3.1 Lifetime substance use – Domain 1A and 1B

Domain 1A was significantly correlated against the sum of all substances recorded by the lifetime section of MINI Plus which included alcohol (Two-tailed Pearson's r=0.93, n=1047, p<0.001). While tobacco is included in Domain1A, it was not included in the MINI Plus calculation.

Domain 1B was significantly correlated against the sum of all substances recorded by the lifetime section of MINI Plus which excluded alcohol (Two-tailed Pearson's r=0.95, n=1047, p<0.001).

4.3.2 Global Continuum of Risk (Total Substance Involvement) – Domain 2A and 2B

Domain 2A was significantly correlated against the MINI Plus derived score which was achieved by summing responses to individual items on abuse and dependence questions for either current or lifetime behaviour (Two-tailed Pearson's r=0.76, n=1047, p<0.001). This derivation takes into account alcohol and the four most problematic drugs other than alcohol (if relevant). While tobacco is included in Domain2A, it was not included in the MINI Plus calculation.

Domain 2A also was significantly correlated against MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus (Two-tailed Pearson's r=0.76, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of abuse and dependence for alcohol and a maximum of four drugs. While tobacco is included in Domain2A, it was not included in the MINI Plus calculation.

Domain 2A also was significantly correlated against total SDS scores (Two-tailed Pearson's r=0.59, n=1045, p<0.001).

Domain 2B was significantly correlated against the MINI Plus derived score which was achieved by summing responses to individual items on abuse and dependence questions for either current or lifetime behaviour (Two-tailed Pearson's r=0.79, n=1047, p<0.001). This derivation takes into account the four most problematic drugs (if relevant) excluding alcohol.

Domain 2B also was significantly correlated against the MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus (Two-tailed Pearson's r=0.83, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of abuse and dependence for a maximum of four drugs excluding alcohol.

Domain 2B also was significantly correlated against total SDS scores (Two-tailed Pearson's r=0.52, n=1045, p<0.001) and against total DAST scores (Two-tailed Pearson's r=0.81, n=1047, p<0.001).

4.3.3 Specific Substance Involvement – Domain 3A to 3J

There was a significant and positive correlation between ASSIST Scores for tobacco (Domain 3A) and RTQ-Smoking scores (Two-tailed Pearson's r=0.78, n=1040, p<0.001). Similarly, ASSIST alcohol scores (Domain 3B) were correlated with those recorded by the AUDIT (Two-tailed Pearson's r=0.82, n=1047, p<0.001).

4.3.3.1 Comparison with MINI Plus diagnoses

ASSIST scores for each substance (Domains 3A to 3J) were classified into two groups according to fulfilment of criteria for current or lifetime diagnoses of abuse or dependence for each substance on the MINI Plus. Table 20 shows that ASSIST scores for those subjects with a MINI Plus diagnosis of abuse or dependence were significantly higher than those subject without a diagnosis.

Table 20. Comparison of ASSIST scores according to MINI Plus diagnoses

Domain 3A-3J (Specific Substance Involv.)	Does subject meet MINI Plus criteria for current or lifetime diagnosis of abuse or dependence for the specific substance? Mean ASSIST scores		t value, p value
(n=1047 for all)	***YES*** Mean (SD)	***NO*** Mean (SD)	
3A - Tobacco	na	na	na
3B - Alcohol	7.9 (5.3)	2.4 (2.7)	-17.2 (p<0.001)
3C - Cannabis	7.6 (5.8)	0.9 (2.5)	-25.9 (p<0.001)
3D - Cocaine	8.9 (6.9)	0.3 (1.4)	-32.4 (p<0.001)
3E - ATS*	8.9 (6.9)	0.4 (1.6)	-32.6 (p<0.001)
3F - Inhalants	6.7 (7.7)	0.1 (0.6)	-25.1 (p<0.001)
3G - Sedatives	10.0 (6.5)	0.6 (2.2)	-29.3 (p<0.001)
3H - Hallucinogens	2.8 (4.1)	0.1 (0.7)	-12.6 (p<0.001)
3I - Opioids	13.2 (6.2)	0.2 (1.0)	-58.3 (p<0.001)
3J - Other	2.2 (3.5)	0.03 (0.4)	-9.9 (p<0.001)

** Amphetamine-type Stimulants, na=not applicable because not measured by MINI Plus*

ASSIST scores for each substance (Domains 3A to 3J) were correlated against the MINI Plus derived *severity of use* score which was achieved by summing responses to individual items on abuse and dependence questions for either current or lifetime behaviour for each individual substance recorded on the MINI Plus. Table 21 shows results from Pearson's two-tailed correlation with this derived MINI Plus score.

ASSIST scores for each substance (Domains 3A to 3J) also were significantly correlated against the MINI Plus derived score reflecting the total *number of diagnoses* that an individual can achieve on the MINI Plus for any one substance. This derivation considers both current and lifetime diagnoses of abuse and dependence for individual substances. Table 21 also shows results from Pearson's two-tailed correlation with this derived MINI Plus score.

Table 21. Correlation between Domains 3A to 3J and MINI Plus derived scores (Severity of use and Number of diagnoses)

Domains	Pearson's r MINI Plus Severity of use	p<0.05?	Pearson's r MINI Plus No. diagnoses	p<0.05?
(n=1047 for all)				
3A - Tobacco	na	na	na	na
3B - Alcohol	r = 0.63	y	r = 0.65	y
3C - Cannabis	r = 0.68	y	r = 0.73	y
3D - Cocaine	r = 0.69	y	r = 0.76	y
3E - ATS*	r = 0.78	y	r = 0.82	y
3F - Inhalants	r = 0.73	y	r = 0.71	y
3G - Sedatives	r = 0.62	y	r = 0.71	y
3H - Hallucinogens	r = 0.44	y	r = 0.40	y
3I - Opioids	r = 0.81	y	r = 0.89	y
3J - Other	r = 0.27	y	r = 0.32	y

** Amphetamine-type Stimulants, na=not applicable because not measured by MINI Plus*

4.3.3.2 Comparison with ICE

The Independent Clinical Evaluation (ICE) diagnosis of current dependence on a specific substance was used to group subjects into two groups – dependent or non-dependent on any one particular substance. Domains or Specific Substance Involvement ASSIST scores were compared by these groupings using an independent groups comparison. Independent Clinical Evaluations were conducted on subjects recruited from specialised treatment settings only, hence the smaller sample size. Table 22 shows that ASSIST scores for those with an ICE diagnosis of current dependence were significantly higher than those subjects without a diagnosis.

Table 22. Comparison of ASSIST scores according to ICE diagnoses

Domain 3A-3J (Specific Substance Involv.)	ICE diagnosis for current dependence?		t value, (p value)
(n=350 for all)	***YES*** Mean (SD)	***NO*** Mean (SD)	
3A - Tobacco	11.8 (2.5)	7.9 (4.7)	-7.5 (p<0.001)
3B - Alcohol	12.8 (5.0)	4.0 (4.9)	-15.6 (p<0.001)
3C - Cannabis	10.9 (5.9)	2.1 (3.9)	-15.0 (p<0.001)
3D - Cocaine	12.9 (5.8)	1.6 (4.2)	-13.0 (p<0.001)
3E - ATS*	13.6 (5.6)	0.9 (2.9)	-27.7 (p<0.001)
3F - Inhalants	na	na	na
3G - Sedatives	10.4 (6.7)	1.7 (4.0)	-11.3 (p<0.001)
3H - Hallucinogens	na	na	na
3I - Opioids	16.2 (3.8)	2.9 (5.8)	-19.2 (p<0.001)
3J - Other	na	na	na

** Amphetamine-type Stimulants, na=not applicable because not measured by ICE*

4.3.3.3 Hair Analysis

Self reported use of cocaine, amphetamine-type stimulants, benzodiazepines and opioids over the three month period according to Q2 on the ASSIST were compared with the findings of the analysis of hair as shown in table 23 below. The True Positive Fraction (TPF) indicated the percentage of subjects who were identified as having the substance in their hair and also reported using the substance in the last 3 months. The True Negative Fraction (TNF) indicated the percentage of subjects in whose hair the substance was not found and also did not report using the substance in the last three months.

Table 23. Comparison of hair analysis with self-reported use of substances over the last 3 months.

	Cocaine	ATS*	Benzodiazepines	Opioids
TPF %	82%	66%	73%	91%
TNF %	91%	73%	75%	80%

N=110 for each substance group
**Amphetamine-type stimulants*

4.3.4 Current Frequency of Substance Use – Domain 4A to 4J

Domain 4A – the sum of frequency of substance use for all substances excluding tobacco and 'other drugs' on the ASSIST was significantly correlated with the sum of frequency of use of substances as recorded by the SDI (Two-tailed Pearson's r = 0.84, n=1047, p<0.001). Similarly ***Domain 4B*** which considers only illicit drugs was significantly correlated with the SDI frequency of use of illicit drugs (Two-tailed Pearson's r = 0.88, n=1047, p<0.001). The comparison of individual substances (Domains 4C to 4J) against specific substance frequency as recorded by the SDI is shown in Table 24 below. These results are the same as the item by item comparison for ASSIST Q2.

Table 24. ASSIST frequency of specific substance use compared with SDI frequency of specific substance use

Domain 4C to 4J	n	Pearson's correlation with SDI frequency of use by substance	p
4C - Alcohol	1047	r=0.76	p<0.001
4D - Cannabis	1047	r=0.85	p<0.001
4E - Cocaine	1047	r=0.80	p<0.001
4F - ATS*	1047	r=0.85	p<0.001
4G - Inhalants	1047	r=0.70	p<0.001
4H - Sedatives	1047	r=0.76	p<0.001
4I - Hallucinogens	1047	r=0.57	p<0.001
4J - Opioids	1047	r=0.88	p<0.001

**Amphetamine-type Stimulants*

4.4 CONSTRUCT VALIDITY

4.4.1 Lifetime substance use – Domain 1A and 1B

Domain 1A showed a modest but significant positive correlation with the sum of SDI questions "*How many times in your life have you been treated for alcohol abuse / drug abuse?"* (Two-tailed Pearson's r = 0.36, n=1046, p<0.05). Similarly ***Domain 1B*** showed a correlation with the SDI item that enquired about the number of lifetime treatment events of drug abuse only (Two-tailed Pearson's r = 0.41, n=1046, p<0.05). Domain 1B (Lifetime illicit drug use) also correlated with lifetime injection behaviour as recorded by the RISC item 6.1m; *"In your life, which if the following areas of the body have you used to inject drugs?"* (Two-tailed Pearson's r = 0.49, n=1046, p<0.05).

4.4.2 Global Continuum of Risk (Total Substance Involvement) – Domain 2A and 2B

Domain 2A. Subjects diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) by the MINI Plus had significantly higher mean Domain 2A scores than those subjects without the disorder (49.4 (SD=22) vs. 26.2 (SD=18.8), two-tailed t=-8.8, n=1047, p<0.01). Similar results were found for subjects diagnosed with Anti Social Personality Disorder (48.9 (SD=24.2) vs. 24.1 (SD=16.6), two-tailed t=-15.3, n=1047, p<0.01).

Domain2A showed a significant positive correlation with; frequency of recent injecting behaviour as measured by the RISC (Two tailed Pearson's r=0.48, n=1045, p<0.01), recent physical and psychological health symptoms as measured by the MAP (Two tailed Pearson's r=0.57, n=1044, p<0.01), financial burden of alcohol and drug use over the last 3 months as recorded by the ASI (Two tailed Pearson's r=0.25, n=1046, p<0.01) and a family history of psychiatric, alcohol or drug problems as measured by the ASI (Two tailed Pearson's r=0.18, n=1047, p<0.01).

Domain 2B. Subjects diagnosed with Attention Deficit Hyperactivity Disorder by the MINI Plus had significantly higher mean Domain 2B scores than those subjects without the disorder (29.5 (SD=19.7) vs. 11.2 (SD=15.0), two-tailed t=-8.6, n=1047, p<0.01). Similar results were found for subjects diagnosed with Anti Social Personality Disorder (29.6 (SD=20.9) vs. 9.6 (SD=13.0), two-tailed t=-15.2, n=1047, p<0.01).

Domain 2B showed a significant positive correlation with; frequency of recent injecting behaviour as measured by the RISC (Two tailed Pearson's r=0.56, n=1045, p<0.01), recent physical and psychological health symptoms as measured by the MAP (Two tailed Pearson's r=0.57, n=1044, p<0.01), financial burden of drug use over the last 3 months as recorded by the ASI (Two tailed Pearson's r=0.31, n=1046, p<0.01) and a family history of psychiatric, alcohol or drug problems as measured by the ASI (Two tailed Pearson's r=0.18, n=1047, p<0.01).

4.4.3 Dependence - Domain 5A and 5B

Domain 5A was significantly correlated against the MINI Plus derived score from summing responses to individual items considering current or lifetime dependence (Two-tailed Pearson's r=0.76, n=1047, p<0.001). This derivation takes into account alcohol and the four most problematic drugs other than

alcohol (if relevant). While tobacco is included in Domain 5A, it was not included in the MINI Plus calculation.

Domain 5A also was significantly correlated against MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus for dependence (Two tailed-Pearson's r=0.75, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of dependence for alcohol and a maximum of four drugs. While tobacco is included in Domain 5A, it was not included in the MINI Plus calculation.

Domain 5B was significantly correlated against the MINI Plus derived score from summing responses to individual items considering current or lifetime dependence (Two-tailed Pearson's r=0.82, n=1047, p<0.001). This derivation takes into account the four most problematic drugs (if relevant) excluding alcohol.

Domain 5B also was significantly correlated against the MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus for dependence on drugs (Two-tailed Pearson's r=0.72, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of dependence for a maximum of four drugs excluding alcohol.

4.4.4 Abuse - Domain 6A and 6B

Domain 6A was significantly correlated against the MINI Plus derived score from summing responses to individual items considering current or lifetime abuse (Two-tailed Pearson's r=0.75, n=1047, p<0.001). This derivation takes into account alcohol and the four most problematic drugs other than alcohol (if relevant). While tobacco is included in Domain 6A, it was not included in the MINI Plus calculation.

Domain 6A also was significantly correlated against MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus for abuse (Two tailed-Pearson's r=0.75, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of abuse for alcohol and a maximum of four drugs. While tobacco is included in Domain 6A, it was not included in the MINI Plus calculation.

Domain 6B was significantly correlated against the MINI Plus derived score from summing responses to individual items considering current or lifetime abuse (Two-tailed Pearson's r=0.79, n=1047, p<0.001). This derivation takes into account the four most problematic drugs (if relevant) excluding alcohol.

Domain 6B also was significantly correlated against the MINI Plus derived score reflecting the total number of diagnoses that an individual can achieve on the MINI Plus for abuse on drugs (Two-tailed Pearson's r=0.79, n=1047, p<0.001). This derivation considers both current and lifetime diagnoses of abuse for a maximum of four drugs excluding alcohol.

Domain 6B significantly correlated with the total score achieved on the DAST, regardless of the drug (excluding alcohol) for which the DAST was completed (Two-tailed Pearson's r=0.80, n=1047, p<0.001).

4.5 DISCRIMINATIVE VALIDITY

Table 25 below shows Global Continuum of Risk scores and Specific Substance Involvement scores grouped by diagnoses for non-problematic 'use' (low risk), 'abuse' (moderate risk) or 'dependence' (high risk). The first column, 'use', shows ASSIST domain scores for those subjects without a current diagnoses for abuse or dependence. The last column shows the results of ANOVA between all the three groups and significance is reported. Where analysis was able to be performed, there were significant differences between ASSIST scores for abuse and use, and abuse and dependence between the groups for all domains with the exception of sedative abuse and dependence. Overall, the results indicate that the ASSIST does discriminate between groups for most of the domains.

Table 25. Comparison of ASSIST domain scores using ANOVA and Scheffe's post hoc test as grouped by diagnoses for non-problematic 'use', 'abuse' and 'dependence'.

Domain	Use (low risk)	Abuse (moderate risk)	Dependence (high risk)	F value, p
	Mean (sd) *n*	**Mean (sd) *n***	**Mean (sd) *n***	
2A - Global	11.3 (8.2) *251*	26.8 † # (15.1) *396*	41.1 (29.0) *350*	248.4, p<0.001
2B – Global illicit	2.1 (3.9) *495*	18.1 † # (13.0) *188*	29.0 (16.1) *200*	553.0, p<0.001
3A - Tobacco	na	na	na	na
3B - Alcohol	3.2 (3.0) *325*	9.4 † # (4.3) *273*	12.8 (5.0) *114*	332.9, p<0.001
3C - Cannabis	0.5 (1.6) *565*	8.6 † # (5.0) *123*	10.9 (5.9) *67*	650.8, p<0.001
3D - Cocaine	0.1 (0.5) *684*	5.5 † # (4.4) *13*	12.9 (5.8) *27*	1302.0, p<0.001
3E – ATS*	0.4 (1.3) *658*	7.9 † # (5.7) *34*	13.6 (5.6) *85*	1157.8, p<0.001
3F – Inhalants	0.1 (0.6) *1034*	11.0 ** (na) *1*	10.8 (7.5) *12*	**
3G – Sedatives	0.4 (1.8) *676*	11.5 † (6.2) *18*	10.4 (6.7) *35*	448.6, p<0.001
3H - Hallucinogens	0.2 (0.9) *1042*	2.5** (2.1) *2*	4.7 (1.2) *3*	**
3I – Opioids	0.1 (0.8) *659*	12 † # (5.6) *34*	16.2 (3.8) *80*	3275.3, p<0.001
3J – Other drugs	na	na	na	na

**ATS – Amphetamine Type Stimulants*
† Significant difference between ASSIST Score for Use and ASSIST Score for Abuse at p<0.05
 # Significant difference between ASSIST Score for Dependence and ASSIST Score for Abuse at p<0.05
na – not applicable because information not available from questionnaires
*** unable to perform post hoc test because sample size too small*

Tables 26 and 27 below show discrimination between 'Use and Abuse' (low vs. moderate risk), and 'Abuse and Dependence' (moderate vs. high risk) respectively. The first data column of the tables shows the ROC area under the curve, columns 2, 3 and 4 show sensitivity, specificity and associated ASSIST cut-off score. Overall, the results show that the ASSIST can discriminate between groups for most of the domains, but that the ASSIST is a better discriminator of use vs. abuse than for abuse vs dependence.

Table 26. Discrimination between 'use' and 'abuse' (low and moderate risk) using ANOVA and ROC, n=1047

	ROC AUC Area Under Curve	ROC Sensitivity	ROC Specificity	ASSIST Cut-off Score
2A - Global	0.84	80%	71%	14.5
2B – Global illicit	0.95	88%	89%	6.5
3A - Tobacco	na	na	na	na
3B - Alcohol	0.87	83%	79%	5.5
3C - Cannabis	0.96	91%	90%	1.5
3D - Cocaine	0.95	92%	94%	0.5
3E – ATS*	0.96	97%	87%	0.5
3F – Inhalants	na	na	na	na
3G – Sedatives	0.96	94%	91%	0.5
3H - Hallucinogens	na	na	na	na
3I – Opioids	0.97	94%	96%	0.5
3J - Other drugs	na	na	na	na

Table 27. Discrimination between 'abuse' and 'dependence' (moderate vs. high risk) using ANOVA and ROC

	ROC AUC Area Under Curve	ROC Sensitivity	ROC Specificity	ASSIST Cut-off Score
2A - Global	0.73	73%	66%	28.5
2B – Global illicit	0.74	70%	68%	19.5
3A - Tobacco	na	na	na	na
3B - Alcohol	0.70	67%	60%	10.5
3C - Cannabis	0.62	57%	61%	10.5
3D - Cocaine	0.84	70%	77%	8.5
3E – ATS*	0.77	72%	68%	11.5
3F – Inhalants	na	na	na	na
3G – Sedatives	0.45	54%	50%	10.5
3H - Hallucinogens	na	na	na	na
3I – Opioids	0.74	76%	65%	14.5
3J – Other drugs	na	na	na	na

**ATS – Amphetamine Type Stimulants*
na – not applicable because information not available from questionnaires or sample too small

4.6 PREDICTIVE VALIDITY

Predictive validity of the ASSIST was investigated by comparing ASSIST scores from the same subject at two different time points (3 months apart). This was calculated only for Primary Health Care subjects that did not receive the brief intervention, as an intervention could have affected ASSIST scores at the second time point. Subjects recruited from specialist drug and alcohol treatment settings were also excluded from analysis of predictive validity, as their treatment may have effected their ASSIST scores at follow-up due to changing drug use behaviour.

Results show that there was a modest to strong positive and significant correlation between baseline and follow-up Global Risk Scores (***Domains 2A and 2B***) and Specific Substance Involvement Scores (***Domains 3A to 3J***) respectively as shown in Table 28. Similarly, paired t-tests show that there was no significant difference between baseline and follow-up scores of the domains, with the exception of domain 3B alcohol, as shown in Table 29. The similarity between baseline and follow-up scores as shown here indicates the ASSIST has high predictive validity.

Table 28. Pearson's correlation between baseline and follow-up scores of the same domain

Domain	n	Pearson's correlation between Baseline & Follow-up scores	p
2A – Global**	205	r=0.85	p<0.001
2B – Global illicit**	205	r=0.81	p<0.001
3A - Tobacco	206	r=0.84	p<0.001
3B - Alcohol	206	r=0.70	p<0.001
3C - Cannabis	206	r=0.91	p<0.001
3D - Cocaine	206	r=0.74	p<0.001
3E – ATS*	206	r=0.88	p<0.001
3F – Inhalants	206	r=0.31	p<0.001
3G – Sedatives	206	r=0.66	p<0.001
3H - Hallucinogens	206	r=0.65	p<0.001
3I – Opioids	205	r=0.41	p<0.001
3J – Other drugs	206	r=1.00	p<0.001

**ATS – Amphetamine Type Stimulants*
*** Excludes Q1 concerning lifetime substance use*

Table 29. Comparison of baseline and follow-up ASSIST scores using paired t-test

	ASSIST Scores by Substance Type. Mean (SD)		t value, p value
	BASELINE	**FOLLOW-UP**	
2A – Global**	10.2 (10.6)	9.9 (9.6)	t=0.7, p=0.46
2B – Global illicit**	3.5 (7.2)	3.5 (6.3)	t=0.05, p=0.96
3A - Tobacco	4.5 (5.4)	4.3 (5.3)	t=1.2, p=0.23
3B - Alcohol	2.2 (2.5)	2.5 (2.8)	t=-2.6, p=0.01
3C - Cannabis	0.9 (2.7)	0.8 (2.3)	t=1.0, p=0.32
3D - Cocaine	0.2 (0.5)	0.2 (0.7)	t=0.9, p=0.34
3E – ATS*	0.9 (2.7)	0.8 (2.5)	t=1.2, p=0.24
3F – Inhalants	0.1 (1.0)	0.1 (0.6)	t=0.3, p=0.78
3G – Sedatives	0.9 (3.0)	0.7 (2.6)	t=0.9, p=0.36
3H - Hallucinogens	0.2 (0.8)	0.1 (0.4)	t=1.0, p=0.34
3I – Opioids	0.3 (1.1)	0.3 (1.5)	t=-1.0, p=0.92
3J – Other drugs	0.01 (0.1)	0.01 (0.1)	na

**ATS – Amphetamine Type Stimulants*
*** Excludes Q1 concerning lifetime substance use*

The ASI and SDS were administered with the ASSIST at follow-up. Follow-up ***Domain 4A*** scores were positively correlated with follow-up SDS scores (Two-tailed Pearson's r, n=206, r=0.64, p<0.001).

Domain 4A - Current Frequency of use, was significantly correlated with the follow-up score of the same domain (Two-tailed Pearson's r, n=206, r=0.80, p<0.001) and baseline and follow-up scores of this domain were not significantly different (2.0 (2.5) vs. 1.9 (2.4), n=206, t=0.95, p=0.35). Similarly, ***Domain 4B*** correlated positively with the follow-up score of the same domain (Two-tailed Pearson's r, n=206, r=0.79, p<0.001) and baseline and follow-up scores of this domain were not significantly different (0.9 (2.1) vs. 0.8 (1.6), n=206, t=1.3, p=0.19).

Follow-up score ***Domain 4A*** – the sum of frequency of substance use for all substances excluding tobacco and 'other drugs' on the ASSIST was significantly correlated with the sum of frequency of use of substances as recorded by the SDI at follow-up (Two-tailed Pearson's r = 0.85, n=206, p<0.001). Similarly Follow-up ***Domain 4B*** which considers only illicit drugs was significantly correlated with the SDI frequency of use of illicit drugs (Two-tailed Pearson's r = 0.87, n=206, p<0.001).

4.7 EFFECTIVENESS OF THE BRIEF INTERVENTION – PILOT RESULTS

4.7.1 Change in ASSIST Scores between baseline and follow-up

Of the 376 primary health care subjects who received a brief intervention at baseline, 352 were followed up after three months with the ASSIST battery, which included a feedback form concerning the brief intervention they received at baseline. The majority of subjects received a brief intervention for alcohol (76%) followed by cannabis (16%), opioids (6% and ATS (2%). Results of the self-perceived effects of the brief intervention are shown below in section 4.7.3.

A 2-way repeated ANOVA (or General Linear Model) was used to compare ASSIST scores at baseline and follow-up for both groups of subjects (those who received a BI and those who did not). The results show a significant decrease in ASSIST scores of PHC subjects who received a BI at follow-up when controlled for by the ASSIST scores of PHC subjects who did not receive a BI for the particular substance of concern. Table 30 shows grouped Specific Substance Involvement Scores, table 31 shows Specific Alcohol Involvement Scores, table 32 shows Specific Cannabis Involvement Scores, table 33 shows Specific Opioid Involvement Scores, and tables 34 & 35 show Global Continuum of Risk Scores.

Table 30. Comparison of baseline and follow-up ASSIST Specific Substance Involvement Scores for PHC subjects receiving BI for any substance compared with PHC subjects who did not receive a BI

Group	Highest* Score Baseline	Highest* Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No BI	2.9 (3.7)	3.0 (3.5)	206	+3.3%	F=99.8, p<0.001
Received BI for any substance**	9.8 (4.1)	6.6 (4.3)	352	-32.7%	

***for alcohol or cannabis or cocaine or amphetamine-type stimulants or opioids*
**highest score out of alcohol, cannabis, cocaine, amphetamine-type stimulants or opioids, or score for the substance for which subject received BI*

Table 31. Comparison of baseline and follow-up ASSIST Specific Alcohol Involvement Scores for PHC subjects receiving BI for alcohol compared with PHC subjects who did not receive a BI for alcohol

Group	Alcohol Score Baseline	Alcohol Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No alcohol BI	3.0 (3.6)	2.9 (2.8)	290	-3.3%	F=99.5, p<0.001
Received BI for alcohol	9.2 (3.8)	6.1 (3.9)	268	-33.7%	

Table 32. Comparison of baseline and follow-up ASSIST Specific Cannabis Involvement Scores for PHC subjects receiving BI for cannabis compared with PHC subjects who did not receive a BI for cannabis

Group	Cannabis Score Baseline	Cannabis Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No cannabis BI	0.9 (2.6)	0.8 (2.3)	56	-11.1%	F=153.8, p<0.001
Received BI for cannabis	10.7 (4.2)	6.6 (4.6)	502	-38.3%	

Table 33. Comparison of baseline and follow-up ASSIST Specific Opioid Involvement Scores for PHC subjects receiving BI for opioids compared with PHC subjects who did not receive a BI for opioids

Group	Opioids Score Baseline	Opioids Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No opioids BI	0.3 (1.5)	0.3 (1.6)	536	0%	F=77.1, p<0.001
Received BI for opioids	15.1 (3.7)	11.8 (5.3)	22	-21.9%	

Table 34. Comparison of baseline and follow-up Global Continuum of Risk Scores for PHC subjects receiving BI for any substance compared with PHC subjects who did not receive a BI

Group	Domain 2A* Score Baseline	Domain 2A* Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No BI	10.2 (10.9)	9.9 (9.6)	205	-2.9%	F=41.2, p<0.001
Received BI for any substance**	21.1 (13.0)	16.0 (11.2)	352	-24.2%	

**global score incorporates all substances including alcohol and tobacco, but does not include lifetime use (Q1) in this instance because lifetime use was not recorded at follow-up*
***alcohol or cannabis or cocaine or amphetamine-type stimulants or opioids*

Table 35. comparison of baseline and follow-up Global Continuum of Risk Scores for illicit drugs for PHC subjects receiving BI for any drug compared with PHC subjects who did not receive a BI for a drug

Group	Domain 2B* Score Baseline	Domain 2B* Score Follow-up	n	% change	Interaction effect
	Mean (SD)	Mean (SD)			F value, p value
No drug* BI	2.5 (6.0)	2.8 (5.3)	473	+10.7%	F=54.9, p<0.001
Received BI for any drug**	18.2 (12.0)	13.9 (11.4)	84	-23.6%	

**global score incorporates all substances excluding alcohol and tobacco, and does not include lifetime use (Q1) in this instance because lifetime use was not recorded at follow-up*
***cannabis or cocaine or amphetamine-type stimulants or opioids*

4.7.2 Readiness to Change

Readiness to change was assessed in all primary health care subjects who met the criteria for receipt of a brief intervention. Predominantly readiness to change was determined to help the interviewer understand the level at which the brief intervention should be focussed for each subject.

Of the 374 subjects who received a brief intervention, 90 subjects (24.1%) were pre-contemplators, 122 subjects (32.6%) were in contemplation and the remaining majority of 162 subjects (43.3%) felt ready to take action concerning their substance use.

4.7.3 Subject Feedback concerning the Brief Intervention

Subjects' feedback concerning the brief intervention was generally positive, and it seemed that the majority of subjects' health behaviour was influenced in some way by the brief intervention (table 36). However, it is not known how the subjects who did not answer this question were influenced.

Table 36. Degree of influence of Brief Intervention on subject's health behaviour

Degree of influence	n	%	% (excluding missing)
No Influence	90	25.6%	34.3%
Some Influence	121	34.3%	46.2%
Large Influence	51	14.5%	19.5%
Missing	90	25.6%	na

Of the subjects who did answer this questionnaire, more than half reduced their substance use (76.7%) by some degree. That is one third of the subjects (31.2%) said they had reduced their substance use by a small amount, 18.3% by a moderate amount and 27.2% said that they had reduced their substance use a great deal because of the brief intervention.

The average length of time that the subjects managed to maintain a change in their substance use behaviour was 7.8 weeks (SD=4.5 weeks), median = 10 weeks, mode = 12 weeks. The number of weeks that the behaviour change persisted ranged from 1 to 14 (while it was intended that subjects should be followed up at 12 weeks, some were unable to be contacted until this time).

4.7.4 Weighting of ASSIST Scores using Principal Components Analysis

Table 37 below shows the exact eigenvalues of the derived scaling system using PCA. For practical purposes, all weights were adjusted equally by multiplying by 1000 to remove the decimal point and dividing by a factor of 2 to obtain the simplest possible scoring regime. Scores were rounded for practical use and some very minor adjustments were made to the resulting approximate values to preserve monotonicity. Table 38 shows the adjusted values which form the basis for scoring the ASSIST V3.0.

The weighted contributions of responses to Q2 (frequency) are smaller than those for Q3 (desire to use). Responses to Q5 (failed obligations) and Q4 (problems) are scored similarly, with a significant increase in weighting between 'never' and the second category (once or twice) and only small increments across the remaining answer categories (monthly, weekly, daily or almost daily). That is, it is experiencing the problem at all that makes the difference, and how frequently is of less importance. Responses to Q3 (desire to use) are scaled in a similar manner to Q5 and Q4, but with less weighting. That is, it is still experiencing craving that matters most, and note the most frequent category makes approximately the same score contribution for the respondent as the *lowest* positive answer to Q5 and Q4. Finally, category weights for Q7 (failed control) and Q6 (others' concern) span a similar range as the 5-category answers, (Q2-Q5).

Table 37. Eigenvalues of PCA correlation matrix by ASSIST category (non-weighted linear categories as per ASSIST V2.1) and item.

	non-weighted linear categories				
ASSIST ITEM	0	1	2	3	4
Q1	0.000	0.007			
Q2	0.000	0.004	0.006	0.009	0.011
Q3	0.000	0.007	0.008	0.010	0.011
Q4	0.000	0.010	0.011	0.012	0.014
Q5	0.000	0.011	0.013	0.013	0.015
Q6	0.000	0.006	0.012		
Q7	0.000	0.006	0.012		
Q8	0.000	0.002	0.004		

Table 38. Rounded scores of ASSIST V3.0 for practical use by category (non-weighted linear categories as per ASSIST V2.1) and item.

	non-weighted Linear categories				
ASSIST ITEM	0	1	2	3	4
Q1	0	3			
Q2	0	2	3	4	6
Q3	0	3	4	5	6
Q4	0	4	5	6	7
Q5	0	5	6	7	8
Q6	0	3	6		
Q7	0	3	6		
Q8	0	1	2		

4.8 DETERMINATION OF CUT-OFF SCORES FOR WEIGHTED SCORING

Tables 39 and 40 below show discrimination between Use and Abuse, and Abuse and Dependence respectively for the weighted scores of ASSIST V3.0. The first data column of the tables shows the ROC Area Under the Curve (AUC), columns 2, 3 and 4 show sensitivity, specificity and associated ASSIST cut-off score. Overall, the results show that the ASSIST can discriminate between low, moderate and high risk use for most of the domains, but that the ASSIST better discriminates between abuse (moderate risk) and use (low risk) than between abuse (moderate risk) and dependence (high risk).

Table 39. Discrimination between Use and Abuse of weighted scores using ROC, n=1047

	ROC AUC Area Under Curve	ROC Sensitivity	ROC Specificity	ASSIST Cut-off Score
3A - Tobacco	na	na	na	na
3B - Alcohol	0.88	83%	81%	11.5
3C - Cannabis	0.89	80%	90%	2.5
3D - Cocaine	0.95	92%	94%	1.0
3E – ATS*	0.96	88%	89%	2.5
3F – Inhalants	na	na	na	na
3G – Sedatives	0.96	94%	91%	2.5
3H - Hallucinogens	na	na	na	na
3I – Opioids	0.97	94%	97%	3.5
3J - Other drugs	na	na	na	na

**ATS – Amphetamine Type Stimulants*
na – not applicable because information not available from questionnaires or sample too small

Table 40. Discrimination between Abuse and Dependence of weighted scores using ROC

	ROC AUC Area Under Curve	ROC Sensitivity	ROC Specificity	ASSIST Cut-off Score
3A - Tobacco	na	na	na	na
3B - Alcohol	0.69	66%	63%	24.5
3C - Cannabis	0.61	58%	60%	17.5
3D - Cocaine	0.85	78%	77%	21.5
3E – ATS*	0.78	74%	77%	26.5
3F – Inhalants	na	na	na	na
3G – Sedatives	0.50	63%	56%	19.0
3H - Hallucinogens	na	na	na	na
3I – Opioids	0.74	84%	62%	27.0
3J – Other drugs	na	na	na	na

**ATS – Amphetamine Type Stimulants*
na – not applicable because information not available from questionnaires or sample too small

For practical purposes, cut off scores for all substances could be rounded off as shown in Table 41

Table 41. Rounded cut-off scores for all substances for weighted ASSIST V3.0

	SCORE		
	Low Risk	Moderate risk (Abuse)	High risk (dependence)
Alcohol	0-10	11-26	27+
All other substances	0-3	4-26	27+

5.0 DISCUSSION

In psychological testing, validity typically refers to how well an instrument, such as the ASSIST measures what it is designed to measure (Cronbach, 1970). Ensuring that an instrument is valid is an important step in its development and subsequent acceptance, as health care workers need to be confident of its output before administering a therapeutic intervention and/or referral procedure. The results of this study indicate that the ASSIST is a valid screening test for psychoactive substances in individuals who use a number of different substances and have varying degrees of substance involvement in the countries in which it was tested (Australia, Brazil, India, Thailand, UK, USA and Zimbabwe). In addition the current study found preliminary evidence for the effectiveness of a brief intervention procedure linked to scores obtained on the ASSIST.

While this report presents the pooled or combined data sets from all countries involved in the study, individual countries have prepared reports detailing the results from their sites (eg. Newcombe et al., 2003). These reports can be obtained where appropriate, and contact details are given in the front of this technical report. The sites were identical with regards to the experimental protocol and had similar methods of recruitment, with the exception of Zimbabwe who also utilised drinking establishments to recruit some of their subjects. Of course it was expected that there would be some differences between the sites with regards to demographic profile and drug use patterns. For example, there was some variation between the sites with regards to the gender of subjects recruited to the study, race, religious preferences, and with the type of substance most commonly consumed (apart from alcohol and tobacco which were the two most frequently consumed substances). In most countries cannabis or amphetamine-type stimulants were the illicit substances most frequently consumed with the exception of India where opioids were consumed most frequently. The diversity with regards to substance use was an important part of recruiting a wide range of substance users to the study.

The results show, except for some minor discrepancies, the substantial validity of the ASSIST. Chronbach's alpha calculated for each domain shows good internal validity and in most cases alpha levels were above 0.80. The comparison of ASSIST items with items from other questionnaires also indicated the ASSIST had good item validity, although lifetime consumption of alcohol on the ASSIST showed a high false positive reading (low true negative). This is likely due to the difference in wording between the ASSIST questionnaire and the MINI Plus, given that the latter characterises 'lifetime use' as having drunk alcohol at least three times with 3 or more drinks consumed in a 3 hour session, whereas the ASSIST defines 'lifetime use' as any alcohol use, even if only once.

The high concurrent validity of the ASSIST is evident from the significant correlations obtained between ASSIST scores (Global Continuum of Risk and Specific Substance Involvement score) and the scores from a range of instruments that provide collateral validation of substance use, abuse and dependence such as the MINI-Plus, ASI, SDS, AUDIT and DAST. Notably participants diagnosed with substance dependence or abuse by the MINI plus could be differentiated on the basis of their ASSIST Specific Substance Involvement score, thus indicating that this score reflects the underlying diagnosis of dependence or abuse. Analysis of hair samples to verify self-report was also indicative of the concurrent validity of the ASSIST.

Similarly there is substantial evidence for the construct validity of the ASSIST. As expected, the relationships between ASSIST scores and other measures were not as strong as those found with concurrent validity as the constructs under comparison were related theoretically to each other. Nevertheless, there were significant positive correlations between ASSIST scores and a number of measures that are considered risk factors for the development of substance use disorders or are associated with substance use, including recent injecting behaviour and scores reflecting physical, psychological or social problems. Furthermore, the significant correlations between ASSIST scores and severity of ADHD and ASPD derived from the MINI Plus, and the finding that participants diagnosed with either disorder had higher ASSIST scores than those without the disorder is further evidence for the construct validity of the ASSIST.

Evidence for the predictive validity of the ASSIST is also good, particularly with respect to paired group comparison between baseline and follow-up Specific Substance Involvement Scores and Global Continuum of Risk scores, and the significant correlations between Frequency of Use scores and corresponding ASI-lite scores. A test with good predictive validity should not show any significant change in scores over time in the absence of any intervention, as was observed here. It is not clear

why there was a small significant increase in Specific Alcohol Involvement Scores at follow-up compared with baseline {2.2 (2.5) vs. 2.5 (2.8)} particularly given the stability of the remainder of substance scores, however this may reflect the variable nature of alcohol consumption in general rather than a lack of predictive validity.

It was demonstrated that the ASSIST can discriminate between substance use, abuse, and dependence for Global Continuum of Risk and Specific Drug Involvement scores, and thus has good discriminative validity, particularly for alcohol, cannabis, ATS, opioids and cocaine Specific Substance Involvement for which samples were the largest. This is evidenced by both ROC analysis and ANOVA with post hoc testing. The ANOVA indicated significant differences between all three groups for all substances with the exception of sedatives for which no difference was found between abuse and dependence groups. Overall, it appears that the ASSIST better discriminates between use and abuse than between abuse and dependence. ROC curve analysis demonstrated that the Area Under the Curve (AUC) was modest to strong and also was able to provide a series of cut-off scores with acceptable sensitivities and specificities for most substance types, with the exception of inhalants, hallucinogens and “other drugs” for which the sample size was too small, and tobacco for which groupings could not be obtained.

It is intended that use, abuse and dependence be interpreted by health care workers as low, moderate and high risk. The cut-off scores discriminate between low and moderate risk, and moderate and high risk, although clinical judgement should also be exercised by health care workers, particularly with regards to discriminating between moderate and high risk for which the discriminative validity evidence is less strong.

The weighting of ASSIST V2.0 item and category scores has resulted in a more accurate screening instrument and consequently the ASSIST V3.0 - which contains the weighted scoring - will be utilised in Phase III, and any subsequent clinical work resulting from the Phase II analysis. A copy of V3.0 can be found in the appendices (along with V2.0) and electronic copies are available from the first author of this report. The discriminative validity analysis was repeated on the weighted scores, and as expected, similar discrimination power was found. While ROC analysis revealed slightly different cut-off scores for individual substances, for practical purposes the average score for all drugs was selected for moderate risk (score = 4) and high risk (score = 27) for all substances, with the exception of alcohol which has a higher cut-off point for low to moderate risk (score = 11) than the illicit drugs and tobacco.

Results show preliminary evidence for the effectiveness of a brief intervention that was linked to the scores of the ASSIST. Follow up Specific Substance Involvement scores for any one of the targeted brief intervention substances (alcohol, cannabis, cocaine, amphetamines, and opioids) and Global Substance Involvement, were significantly reduced from baseline. These results are consistent with participant’s feedback on the effectiveness of the brief intervention. Approximately two thirds of the subjects reported that they believed that the brief intervention had led them to modify their behaviour in a positive way. It is also worth noting that the brief intervention appeared to be a timely event given that a significant proportion of the group were either in contemplation of behaviour change (33%) or were ready to take action with regards to their substance use (43%).

A ‘quasi’ control group, comprising those participants in the primary health care group who had not receive a brief intervention, was included in the analysis to control for time. However, participants were not randomly allocated to groups and were not equivalent at baseline, as reflected in the different mean ASSIST scores for both groups at baseline (participants not receiving the BI had lower scores overall). A larger controlled study, such as a RCT, where participants who are eligible to receive a brief intervention are randomly allocated to different treatment groups is warranted to confirm that the changes seen in ASSIST scores at follow-up are due to the effects of a brief intervention. This will be the intention of a Phase III study.

The impact of a brief intervention on drug and alcohol use, as reflected in the change in Specific Substance Involvement for alcohol seen in this study, is consistent with effectiveness found in previous studies (Senft et al., 1997: WHO Brief Intervention Study Group, 1996). The WHO Brief Intervention Study Group (1996) showed that patients in simple advice and brief counselling groups reduced their daily alcohol consumption by approximately 27% and 21% respectively from baseline to follow-up. In the present Phase II study, ASSIST Specific Substance Involvement scorers for alcohol were significantly reduced by 34% from baseline to follow-up. These changes should also be considered in terms of the impact such changes in alcohol consumption can have on public health.

Indeed, in the context of screening, primary health care clinicians need to be assured that their intervention will likely have long standing impact on patients' health. The Phase III study intends to focus on the effectiveness of a Brief Intervention on illicit drug use (cannabis, cocaine, ATS and opioids) and it will be of great interest to observe whether the effectiveness of the brief intervention on illicit drug use noted in this study also can be demonstrated in Phase III.

The WHO Intervention Group (1996) also demonstrated that 5 minutes of brief advice, was equally as effective as brief counselling (15 minutes) and extended counselling (up to 3 sessions) on the amount of alcohol consumed per session and the average amount consumed in male drinkers. The effect was less pronounced with female drinkers. The brief intervention for alcohol provided in this study took an average of 5 minutes (range 3 to 10 minutes) to deliver. Given that the combined time to administer both the alcohol brief intervention (approximately 5 minutes) and the baseline ASSIST (approximately 9 minutes) was less than 15 minutes, it is expected that primary health care professionals may be able to incorporate this combination brief treatment into busy PHC settings.

There are major caveats to this study and certainly there is a need for further research in this area. The current study reports on data obtained from 1047 participants from seven countries. As previously mentioned sample sizes of certain drug categories were too small to undertake many of the analyses required (ie, for hallucinogens, inhalants, and sedatives). In particular it was not possible to determine scores that could be used to discriminate between use and abuse, and abuse and dependence for these drugs. Furthermore, there is a need to test participants who use a range of illicit substances so that the efficacy of using a brief intervention for such drug use can be more thoroughly examined.

The use of a reliable and valid screening instrument is considered a key aspect of a public health approach to early intervention for drug related problems (WHO ASSIST Working Group, 2002) and an appropriate response to the overwhelming burden of disease created by substance use worldwide. Previous work has already established that the scores derived from the ASSIST are reliable and that it is feasible to use the ASSIST in a variety of settings and cultures, and to screen for a variety of drug use (WHO ASSIST Working Group, 2002). The current study provides extensive evidence of the validity of the ASSIST in a cross-cultural context and provides preliminary evidence of linking a brief intervention, both for alcohol and illicit drugs, to the results of the ASSIST. These findings would suggest, with few minor discrepancies, that the ASSIST is capable of obtaining accurate information concerning the use of a number of substances and the level of risk associated with that substance use.

6.0 REFERENCES

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7.0 APPENDICES

7.1 ASSIST (V2.0)

7.2 ASSIST (V3.0)

7.3 DATA ANALYSIS PLAN

7.4 TEST BATTERY (BASELINE)

APPENDIX 7.1. ASSIST (V2.0)

ASSIST v2.0

PARTICIPANT ID: ___ /___ /___ /___ /___

INTERVIEWER ID: ___ /___ /___ /___

CRU: ___ /___

DATE: DAY / MO / YR

Record Start Time: _____ *SESSION:* ___ *(0) baseline*

INTRODUCTION:

Thank you for agreeing to take part in this brief interview about alcohol, tobacco products and other drugs. I am going to ask you some questions about your experience of using these substances 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 not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other 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 Drug Cards to participant

Question 2.1

In your life, which of the following substances have you ever used? *(NON-MEDICAL USE ONLY)*	**NO**	**YES**
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1
d. Cocaine (coke, crack, etc.)	0	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	1
j. Other - specify:	0	1

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 2.2 for each substance ever used.

Note: For all questions, if participant is currently in treatment, ensure they consider the three month period prior to inpatient care.

Question 2.2

In the past three months, 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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

If "Never" to all items in Question 2.2, skip to Question 2.6.
If any substances in Question 2.2 used in the previous three months, continue with Questions 2.3, 2.4 & 2.5 for <u>each substance</u> used.

Question 2.3

During the past three months, 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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Question 2.4

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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Question 2.5

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	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Ask Questions 2.6 & 2.7 for all substances ever used (ie. those endorsed in Question 2.1)

Question 2.6

Has a friend or relative or anyone else ever expressed concern about your use of *(FIRST DRUG, SECOND DRUG, ETC.)?*	**Never No,**	**Yes, in the past 3 months**	**Yes, but not in the past 3 months**
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	1
d. Cocaine (coke, crack, etc.)	0	2	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	1
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	1
j. Other – specify:	0	2	1

Question 2.7

Have you ever tried 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	2	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	1
d. Cocaine (coke, crack, etc.)	0	2	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	1
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	1
j. Other – specify:	0	2	1

Question 2.8

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

Record End Time: _____

Record relevant comments below:

Part 2.9:

Scoring Q2.2-Q2.7

	Aggregate Score? (Q2.2 – 2.7)	No intervention Or referral	Receive brief intervention	Referred for specialist treatment
a. Alcohol		0–3	4–15	16–20
b. Cannabis		0–3	4–15	16–20
c. Cocaine		0–3	4–15	16–20
d. ATS*		0–3	4–15	16–20
e. Opioids		0–3	4–10	11–20

*Amphetamine Type stimulants

Scoring Q2.8

Score of 2 → Specialist treatment

APPENDIX 7.2. WHO - ASSIST V3.0

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

INTRODUCTION ***(Please read to patient. Can be adapted for local circumstances)***

(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 not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other 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 ever used? *(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 past three months, 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 each substance used.

Question 3

During the past three months, 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

Ask Questions 6 & 7 for all substances ever used (i.e. those endorsed in Question 1)

Question 6

Has a friend or relative or anyone else <u>ever</u> 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 <u>ever</u> 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	*INTERVENTION GUIDELINES*
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**

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 RESPONSE CARD FOR PATIENTS

Response Card - substances

a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)
b. Alcoholic beverages (beer, wine, spirits, etc.)
c. Cannabis (marijuana, pot, grass, hash, etc.)
d. Cocaine (coke, crack, etc.)
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)
i. Opioids (heroin, morphine, methadone, codeine, etc.)
j. Other - specify:

Response Card (ASSIST Questions 2 – 5)

Never: not used in the last 3 months

Once or twice: 1 to 2 times in the last 3 months.

Monthly: 1 to 3 times in one month.

Weekly: 1 to 4 times per week.

Daily or almost daily: 5 to 7 days per week.

Response Card (ASSIST Questions 6 to 8)

No, Never

Yes, but not in the past 3 months

Yes, in the past 3 months

APPENDIX 7.3. DATA ANALYSIS PLAN PHASE II:

Testing the Validity of the ASSIST V2.0;
Analysis of the Effectiveness of the pilot Brief Intervention

This the specific statistical analysis plan to test the validity of the ASSIST using the data that all sites have collected. The methodology of this plan is based on ASSIST Phase I analysis and findings, validity testing of the AUDIT, literature reviews of other validity analysis of drug and alcohol instruments and standard procedural statistical texts.

Each type of validity will be tested according to the Phase II protocol, that is concurrent validity, construct validity, discriminative validity and predictive validity. A brief description of each type of validity is given in this draft. This plan also includes assessment of our pilot data on the effectiveness of the brief intervention (for Phase III of this study).

The planned data analysis will be performed on the pooled data (N=~1050), and also on each individual site to assess cultural variations in validity, and any effects on the pooled analysis (N=~150).

1. DOMAINS FOR ANALYSIS

Several domains to be assessed for validity analysis phase II and feasibility analysis Phase III have been determined. These have been grouped into major domains and sub-domains, and numbered for clarity, and should be named and labelled as such in the data files for consistency. The domains will be investigated for all types of validity where relevant. These domains were ascertained during Phase I reliability testing and during the Brazil meeting of researchers in March 2002. The domains essentially form the basis for the dependent variables that will be investigated, which will be reported in the phase II final report and preliminary analysis for Phase III. There are two ways of determining the Global Continuum of Risk Score – one that includes all substances, and one that includes all illicit drugs (not tobacco and alcohol). Table 1 below shows all possible domains and their components.

It appears that there is probably some over lap between some domains – for example the validity of sub-domains of specific substance dependence and abuse will be have already been investigated in part by the domains of specific substance involvement. The rationale behind including the domains of dependence and abuse in the analysis is to assess whether the ASSIST does screen for these parameters (concurrent & construct validity), and to determine ASSIST cut-off scores for brief intervention or specialist referral (discriminative validity). However, it is more likely that cut-off scores based on low risk, moderate risk and high risk will be determined (rather than non-problematic use, abuse and dependence).

Table 1 – Domains and sub domains for analysis (to be labelled accordingly in data file)

Domain Number **Baseline = DomainXY** **Follow-up = FUDomXY**	**Description of Domain**	**ASSIST Formula (all ASSIST questions are preceded by a 2. in SPSS baseline data files and by a 14. In Follow-up files)**
1A	Lifetime substance use – including alcohol & tobacco	Σ Q1a + 1b + 1c + 1d + 1e + 1f + 1g + 1h + 1i + 1j (Max Score: 10)
1B	Lifetime illicit drug use – excluding alcohol & tobacco	Σ Q1c + 1d + 1e + 1f + 1g + 1h + 1i + 1j (Max Score: 8)
2A	**Global continuum substance risk score -** including alcohol & tobacco including lifetime prevalence including injecting behaviour AKA Current substance involvement	Σ Q1a – j + 2a – j + 3a – j + 4a – j + 5b – j + 6a – j + 7a – j + 8 (Max Score: 208)
2B (was termed 2E in old versions of this document)	**Global continuum illicit drug risk score -** excluding alcohol & tobacco including lifetime prevalence including injecting behaviour AKA Current drug involvement	Σ Q1c – j + 2c – j + 3c – j + 4c – j + 5c – j + 6c – j + 7c – j + 8 (Max Score: 170)
3A	**Specific Current Drug Involvement – Tobacco**	Σ 2a + 3a + 4a + 6a + 7a (Max Score: 16)
3B	**Specific Current Drug Involvement – Alcohol**	Σ 2b + 3b + 4b + 5b + 6b + 7b (Max Score: 20)
3C	**Specific Current Drug Involvement – Cannabis**	Σ 2c + 3c + 4c + 5c + 6c + 7c (Max Score: 20)
3D	**Specific Current Drug Involvement – Cocaine**	Σ 2d + 3d + 4d + 5d + 6d + 7d (Max Score: 20)
3E	**Specific Current Drug Involvement – ATS**	Σ 2e + 3e + 4e + 5e + 6e + 7e (Max Score: 20)
3F	**Specific Current Drug Involvement – Inhalants**	Σ 2f + 3f + 4f + 5f + 6f + 7f (Max Score: 20)
3G	**Specific Current Drug Involvement – Sedatives**	Σ 2g + 3g + 4g + 5g + 6g + 7g (Max Score: 20)
3H	**Specific Current Drug Involvement – Hallucinogens**	Σ 2h + 3h + 4h + 5h + 6h + 7h (Max Score: 20)
3I	**Specific Current Drug Involvement – Opioids**	Σ 2i + 3i+ 4i + 5i + 6i + 7i (Max Score: 20)
3J	**Specific Current Drug Involvement – Other**	Σ 2j + 3j + 4j + 5j + 6j + 7j (Max Score: 20)

4A (2D)	Current Frequency of Substance Use - total including alcohol excluding tobacco & 'j other drugs'	Σ Q2b – i (Max Score: 32)
4X	**Current Frequency of drug Use -** total Including alcohol and tobacco excluding other drugs	Σ Q2a – i (Max Score: 36)
4B (2H)	Current Frequency of drug Use - total excluding alcohol, tobacco & 'j other drugs'	Σ Q2c – i (Max Score: 28)
4C	**Current Frequency alcohol use**	Q2b (Max Score: 4)
4D	**Current Frequency cannabis use**	Q2c (Max Score: 4)
4E	**Current Frequency cocaine use**	Q2d (Max Score: 4)
4F	**Current Frequency amphet. use**	Q2e (Max Score: 4)
4G	**Current Frequency inhalant use**	Q2f (Max Score: 4)
4H	**Current Frequency sedative use**	Q2g (Max Score: 4)
4I	**Current Frequency halluc. use**	Q2h (Max Score: 4)
4J	**Current Frequency opioid use**	Q2i (Max Score: 4)
5A	**Dependence – global substance** including alcohol & tobacco	Σ Q1a – j + 2a – j + 3a – j + 6a – j + 7a – j (Max Score: 130)
5B	**Dependence – global illicit drugs** excluding alcohol & tobacco	Σ Q1c – j + 2c – j + 3c – j + 6c – j + 7c – j (Max Score: 104)
6A	**Abuse – global substance** including alcohol & tobacco	Σ Q1a – j + 2a – j + 4a – j + 5b – j + 6a - j (Max Score: 146)
6B	**Abuse – global illicit drugs** excluding alcohol & tobacco	Σ Q1c – j + 2c – j + 4c – j + 5c – j + 6c - j (Max Score: 120)

2. DATA CLEANING

The first step of the data analysis process will be to clean the data. A data checking program has been used throughout the data entry process and so missing variables and outliers have been accounted for, but further hand checking will occur to ensure that the data is logical and clean. The data from all sites will be pooled resulting in a total size of approximately 1050 individual cases. There are approximately 600 variables for each case. New variables, including the above domain calculations, will be created for each case. All new variables are to be named and labelled according to this plan. Any new variables created not already described should be described and included in the appendix of this document.

3. DESCRIPTIVE STATISTICS

Descriptive statistics and frequencies will be produced for the pooled and individual data sets. Specifically, frequency distributions of instrument scores, mean, median, standard deviation, range and Confidence Intervals will be calculated for all scales, as well as determining whether data sets should be investigated using parametric or non-parametric statistics. Norms and psychometrics for scales that have been validated in the past should be included as footnotes, and also be used to describe the nature of the current group of subjects (eg. X% of subjects scored over 4 on the SDS indicating dependence etc.). Demographics such as the nature of the recruitment locations, number of participants recruited from each site and administration time will also be included in this section. In summary, percentages, descriptives and frequencies (where relevant) for the below variables should be calculated for the pooled data and site data, and presented in table format and graphical format where necessary. Where relevant, the summaries for treatment and PHC samples should also be presented.

BASELINE DATA

- Demographics as per Q1
- Timing for ASSIST administration
- All domains as per Table 1 of this document
- Highest ASSIST scores (with and without alcohol and tobacco) and % drug type
- ASSIST Percentage positive responses per substance type
- ASSIST Items Q1 to 8 including positive responses
- ASI descriptives as per Q3
- SDS descriptives (average overall score and by substance type if labelled) as per Q4
- MINI Plus descriptives (including those new variables described below in Concurrent & Construct validity) as per Q5
- Injecting behaviour RISC as per Q6
- DAST descriptives (average overall score and by substance type if labelled) as per Q7
- AUDIT alcohol behaviour as per Q8 including percentages in each of 4 categories (see AUDIT manual)
- Smoking behaviour as per Q9
- MAP, physical and psychological symptoms as per Q10
- Readiness to change of PHC subjects receiving BI as per Q11
- Interviewer rating of expected outcomes as per Q12
- ICE for treatment subjects as per Q13 (by diagnoses and number of diagnoses)
- Drug type by Brief Intervention and any other relevant BI descriptives

FOLLOW-UP DATA

- All domains as per Table 1 of this document
- Q14 Highest ASSIST scores (with and without alcohol and tobacco) and % drug type
- Q14 ASSIST Percentage positive responses per substance type
- Q14 ASSIST Items Q1 to 8 including positive responses
- ASI descriptives as per Q15
- SDS descriptives (average overall score and by substance type if labelled) as per Q16
- Brief Intervention process rating form for PHC subjects receiving BI

4. INTERNAL CONSISTENCY

The internal consistency/reliability of ASSIST items and domains will be calculated by measuring their coefficient alpha and item by item correlations. Statistical significance of correlations also will be calculated.

5. ITEM x ITEM COMPARISONS

Each individual ASSIST item can be correlated with similar items from other scales, as a form of **item-by-item validity testing**. For analyses with two dichotomous or categorical variables, a Chi Square analysis will be used. For analyses with two continuous variables, a correlation will be calculated. See the table below for the corresponding items from the other scales.

ASSIST question	Corresponding questions from other scale
2.1a to 2.1j	5K4, 5L6b1 to 5L6b8 – MINI Plus: "Have you ever taken any of these dr more than once in your lifetime?" 2.1a tobacco – no appropriate MINI plus item 2.1b alcohol – 5K4 (independent groups comparison - igc) 2.1c cannabis – 5L6b6 (igc) **mplifeca** 2.1d cocaine – 5L6b2 (igc) **mplifeco** 2.1e ATS - 5L6b1 (igc) **mplifeam** 2.1f inhalants - 5L6b5 (igc) **mplifein** 2.1g sedatives - 5L6b7 (igc) **mplifese** 2.1h hallucinogens - 5L6b4 (igc) **mplifeha** 2.1i opioids - 5L6b3 (igc) **mplifeop** 2.1j other - 5L6b8 (igc) **mplifeot**
2.2a to 2.2j	3.1a to 3.12a – SDI: "In the past 90 days, how many days would you have used (drug name)?" 2.2a tobacco – no appropriate ASI item 2.2b alcohol – 3.1a (correlation) 2.2c cannabis – 3.10a (correlation) 2.2d cocaine – 3.8a (correlation) 2.2e ATS – 3.9a (correlation) 2.2f inhalants – 3.12a (correlation) 2.2g sedatives – 3.6a or 3.7a (which ever is highest) (correlation) 2.2h hallucinogens – 3.11a (correlation) 2.2i opioids – 3.3a or 3.4a or 3.5a (which ever is highest) (correlation) 2.2j other – no appropriate ASI item
2.3a to 2.3j	No corresponding questions
2.4a to 2.4j	No corresponding questions
2.5b to 2.5j	5k3a, 5L3a, 5L5a – MINI Plus: "Have you been intoxicated, high or hungover more than once when you had other responsibilities at school/work/home and it caused problems?" 2.5b alcohol – 5K3a (igc) **alcresp** 2.5c
2.6a to 2.6j	No corresponding questions
2.7a to 2.7j **mpquital** **mpquitca** **mpquitco** **mpquitam** **mpquitha** **mpquitse** **mpquitha** **mpquitop** **mpquitot**	5k2d, 5L2d, 5L4d - MINI Plus: "Have you tried to reduce or stop taking (substance) but failed?" Collapse all ASSIST items and use chi squared) 2.7b alcohol – 5K2d or 5K5d **quitalco** 2.7c cannabis – 5L2d or 5L4d or 5L6d or 5L9d **quitcann** 2.7d cocaine – 5L3a or 5L5a **quitcoca** 2.7e ATS - 5L3a or 5L5a **quitamph** 2.7f inhalants - 5L3a or 5L5a **quitinha** 2.7g sedatives - 5L3a or 5L5a **quitseda** 2.7h hallucinogens - 5L3a or 5L5a **quithall** 2.7i opioids - 5L3a or 5L5a **quitopia** 2.7j other - 5L3a or 5L5a **quitoth**
2.8 **a6inject**	6.1m, 6.2m – RISC: "In your life/last 3 months, which of the following areas of the body have you used to inject drugs?" 2.8 collapse against any positive response in either 6.1m or 6.2m (chi squared) **a2inject**

6. CONCURRENT VALIDITY

The concurrent validity of the ASSIST will be assessed by comparing domain scores obtained from the ASSIST with scores obtained from other measures that are thought to be valid indicators of what the instrument is designed to measure, such as standardised tests, gold standards or objective biological tests. Instruments assessing dependence and abuse directly (eg. SDS, DAST, MINI Sections L and K) will be used to assess concurrent validity. This is comparable with validity testing of the AUDIT in which the MAST was used to assess concurrent validity of the AUDIT.

The following tests will be used in the concurrent validity testing, as they are all either standardised instruments/assessments of hazardous/harmful use, abuse and dependence based on gold standards (eg. DSM-IV or ICD-10 criteria) or objective biological tests:

- Addiction Severity Index (ASI)
- Severity Dependence Scale (SDS)
- MINI Plus Alcohol Abuse and Dependence section
- MINI Plus Non-Alcohol Psychoactive Substance Use Disorders section
- Drug Abuse Screening Test (DAST)
- Alcohol Use Disorders Identification Test (AUDIT)
- Revised Fagerstrom Tolerance Questionnaire (RTQ) for Smoking
- Independent Clinical Evaluation (ICE)
- Analysis of hair samples (will also be used to confirm self-report)

6.1 Concurrent validity - Lifetime Use (Domains 1A & 1B).

Certain questions from the MINI Plus Lifetime Alcohol Abuse and Dependence section and the Lifetime Non-Alcohol Psychoactive Substance Use Disorders sections will be used in these analyses. Where '*or*' appears, include the highest score only.

6.1.1 Domain 1A correlated against:

VAR01 Σ {(5K1, *or*, 5K4) + (5L1b1, *or*, 5L6b1) + (5L1b2, *or*, 5L6b2) + (5L1b3, *or*, 5L6b3) + (5L1b4, *or*, 5L6b4)+ (5L1b5, *or*, 5L6b5) + (5L1b6, *or*, 5L6b6)+ (5L1b7, *or*, 5L6b7) + (5L1b8, *or*, 5L6b8)}.

6.1.2 Domain 1B correlated against:

VAR02 Σ {(5L1b1, *or*, 5L6b1) + (5L1b2, *or*, 5L6b2) + (5L1b3, *or*, 5L6b3) + (5L1b4, *or*, 5L6b4)+ (5L1b5, *or*, 5L6b5) + (5L1b6, *or*, 5L6b6)+ (5L1b7, *or*, 5L6b7) + (5L1b8, *or*, 5L6b8)}.

The above MINI plus calculations are taken from the lifetime sections of the MINI Plus. Inclusion in these equations assume that the lifetime sections have been completed, even if the diagnoses for lifetime dependence/abuse have already been made in the Current sections. *VAR01 has a maximum possible score of 9* and *VAR02 has a max score of 8.* The limitations of this equation are that the criteria for inclusion of drug type slightly differ between the ASSIST questions and the MINI Plus questions (in the ASSIST, a drug is included even if it has only been used once, while in the MINI Plus the drug is only included if it has been used twice or more). Furthermore, tobacco is not included in the MINI Plus equation, and barbiturates are included within the sedatives/tranquillisers section of the MINI Plus while they are included in the sedatives section in the ASSIST. However these issues should not overtly affect the chance of finding a positive correlation between the two measures.

6.2 Concurrent validity – Global continuum risk score (Domains 2A, 2B)

6.2.1 Domain 2A correlated against:

- **VAR03** MINI Plus – derived score from summing responses to individual items considering use, abuse and dependence for either current or lifetime behaviour. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR03 score takes into account alcohol and the four most problematic drugs other than alcohol or tobacco (if relevant). *This derivation has a maximum score of 64* (alcohol use, dependence and abuse = 12, drug use = 8, drug dependence and abuse = 44 (11 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

VAR03 *The total sum of:*
{Alcohol use (5K1, *or*, 5K4) +
Alcohol dependence Σ (5K2 a – g, *or*, 5K5 a – g) +
Alcohol abuse Σ (5K3 a – d, *or*, 5K6 a – d) +
Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
Stimulant dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Stimulant abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Cocaine dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Cocaine abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Narcotics/opioids dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Narcotics/opioids abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Hallucinogens dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Hallucinogens abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Inhalants dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Inhalants abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Cannabis dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Cannabis abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Tranquillisers/BZD dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Tranquillisers/BZD abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Misc/other dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Misc/other abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}

- **VAR04** MINI Plus – score reflecting the total number of diagnoses that an individual can achieve on this instrument. This VAR04 score takes into account alcohol and a maximum of four drugs, both current and lifetime diagnoses of abuse and dependence. *The maximum achievable VAR04 score is 16*. Each drug is only considered once and a score of 4 is the maximum that can be achieved for alcohol or any one drug (current dependence, current abuse, lifetime dependence, lifetime abuse). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once for abuse and dependence.

  VAR04 Σ {5K2h + (5K2j, *or*, 5K5h) + 5K3e + (5K3g, *or,* 5K6e) + 5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}

- SDS – total score out of 15 regardless of substance

6.2.2 Domain 2B correlated against:

- **VAR09** MINI Plus – derived score from summing responses to individual items considering use, abuse and dependence for either current or lifetime behaviour. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR09 score takes into account the four most problematic drugs (if relevant)other than alcohol or tobacco. *This derivation has a maximum score of 52* (drug use = 8, drug dependence and abuse = 44 (11 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

  VAR09 *The total sum of:*
  {Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
  Stimulant dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Stimulant abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Cocaine dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Cocaine abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Narcotics/opioids dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Narcotics/opioids abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Hallucinogens dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Hallucinogens abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Inhalants dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Inhalants abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Cannabis dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+

Cannabis abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Tranquillisers/BZD dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Tranquillisers/BZD abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Misc/other dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
Misc/other abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}

- **VAR10** MINI Plus – score reflecting the total number of diagnoses that an individual can achieve on this instrument. This VAR10 score takes into account a maximum of four drugs, both current and lifetime diagnoses of abuse and dependence. Alcohol and tobacco are not included in this derivation. *The maximum achievable score is 12.* Each drug is only considered once and a score of 4 is the maximum that can be achieved for any one drug (current dependence, current abuse, lifetime dependence, lifetime abuse). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once for abuse and dependence.

  VAR10 Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}

- SDS – total score out of 15 regardless of substance

- DAST – total score of 10

6.3 Concurrent validity - Specific Current Drug Involvement. Domains 3A, 3B, 3C, 3D, 3E. 3F, 3G, 3H, 3I, 3J

6.3.1 Domain 3A Tobacco

- The RTQ score (max 50) can be compared to the score for Specific Drug Involvement: Tobacco in a correlation.
- The ICE score (presence versus absence of a current diagnosis of tobacco dependence) can be compared to the score for Specific current Tobacco Involvement using independent groups comparison.

6.3.2 Domain 3B Alcohol

- The AUDIT score can be compared to the score for Specific current alcohol Involvement: in a correlation. Max AUDIT score is 40
- The ICE score (presence versus absence of a current diagnosis for alcohol dependence) can be compared to the score for Specific current alcohol Involvement using independent groups comparison.
- The MINI Plus Alcohol diagnoses (presence versus absence of a current or lifetime diagnosis of either dependence or abuse, can be compared to the score for Specific current alcohol Involvement using independent groups comparison.
- **VAR15** The MINI Plus sum of number of possible diagnoses for alcohol *(max 4)* correlated against Specific current alcohol involvement ie. **VAR15** Σ {5K2h + (5K2j, *or*, 5K5h) + 5K3e + (5K3g, *or,* 5K6e)}.
- **VAR16** MINI plus derived score of severity of use, abuse and dependence (incorporating either current or lifetime use), ie. **VAR16** Σ {(5K1, *or*, 5K4) +Σ (5K2 a – g, *or*, 5K5 a – g) + Σ (5K3 a – d, *or*, 5K6 a – d)} *Maximum score = 12*

6.3.3 Domain 3C Cannabis

- The hair analysis results **HAIRcan** (presence versus absence of cannabis) can be compared to Specific current Cannabis Involvement using independent groups comparison.
- The ICE score (presence versus absence of a current diagnosis for cannabis dependence) can be compared to the score for Specific current Cannabis Involvement using independent groups comparison.
- The MINI Plus cannabis diagnoses (presence versus absence of a current or lifetime diagnosis of either cannabis dependence or abuse, can be compared to the score for Specific current cannabis Involvement using independent groups comparison.
- **VAR17** The MINI Plus sum of number of possible diagnoses for cannabis *(max score 4)* correlated against Specific current cannabis involvement ie. **VAR17** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR18** MINI plus derived score of severity of abuse and dependence for cannabis (incorporating either current or lifetime use), ie. **VAR18** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.4 Domain 3D Cocaine

- The hair analysis results **HAIRcoke** (presence versus absence of cocaine) can be compared to Specific current Cocaine Involvement using independent groups comparison.
- The ICE score (presence versus absence of a current diagnosis for cocaine dependence) can be compared to the score for Specific current Cocaine Involvement using independent groups comparison.
- The MINI Plus cocaine diagnoses (presence versus absence of a current or lifetime diagnosis of either cocaine dependence or abuse, can be compared to the score for Specific current cocaine Involvement using independent groups comparison.
- **VAR19** The MINI Plus sum of number of possible diagnoses for cocaine *(max score 4)* correlated against Specific current cocaine involvement ie. **VAR19** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR 20** MINI plus derived score of severity of abuse and dependence for cocaine (incorporating either current or lifetime use), ie. **VAR20** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *(Maximum score = 11).*

6.3.5 Domain 3E Amphetamine Type Stimulants

- The hair analysis results **HAIRamp** (presence versus absence of amphetamine) can be compared to Specific current Amphetamine Involvement using independent groups comparison.
- The ICE score (presence versus absence of a current diagnosis for amphetamine dependence) can be compared to the score for Specific current Amphetamine Involvement using independent groups comparison.
- The MINI Plus amphetamine diagnoses (presence versus absence of a current or lifetime diagnosis of either amphetamine dependence or abuse, can be compared to the score for Specific current amphetamine Involvement using independent groups comparison.
- **VAR21** The MINI Plus sum of number of possible diagnoses for *amphetamine (max score 4)* correlated against Specific current amphetamine involvement ie. **VAR21** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR22** MINI plus derived score of severity of abuse and dependence for amphetamine (incorporating either current or lifetime use), ie. **VAR22** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.6 Domain 3F Inhalants (if sample size is sufficient)

- The MINI Plus inhalants diagnoses (presence versus absence of a current or lifetime diagnosis of either inhalants dependence or abuse, can be compared to the score for Specific current inhalants Involvement using independent groups comparison.
- **VAR23** The MINI Plus sum of number of possible diagnoses for inhalants *(max score 4)* correlated against Specific current inhalants involvement ie. **VAR23** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR24** MINI plus derived score of severity of abuse and dependence for inhalants (incorporating either current or lifetime use), ie. **VAR24** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.7 Domain 3G Sedatives Type Substances

- The hair analysis results **HAIRbzd** (presence versus absence of sedatives) can be compared to Specific current Sedative Involvement using independent groups comparison.
- The ICE score (presence versus absence of a current diagnosis for sedative dependence) can be compared to the score for Specific current Sedative Involvement using independent groups comparison.
- The MINI Plus sedative diagnoses (presence versus absence of a current or lifetime diagnosis of either sedative dependence or abuse, can be compared to the score for Specific current sedative Involvement using independent groups comparison.
- **VAR25** The MINI Plus sum of number of possible diagnoses for sedatives *(max score 4)* correlated against Specific current sedative involvement ie. **VAR25** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR26** MINI plus derived score of severity of abuse and dependence for sedatives (incorporating either current or lifetime use), ie. **VAR26** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.8 Domain 3H Hallucinogens (if sample size is sufficient)

- The MINI Plus hallucinogen diagnoses (presence versus absence of a current or lifetime diagnosis of either hallucinogen dependence or abuse, can be compared to the score for Specific current hallucinogen Involvement using independent groups comparison.
- **VAR27** The MINI Plus sum of number of possible diagnoses for hallucinogen *(max score 4)* correlated against Specific current hallucinogen involvement ie. **VAR27** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR28** MINI plus derived score of severity of abuse and dependence for hallucinogen (incorporating either current or lifetime use), ie. **VAR28** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.9 Domain 3I Opioids

- The hair analysis results **HAIRopi** (presence versus absence of opioids) can be compared to Specific current Opioid Involvement using independent groups comparison.
- The ICE score (presence versus absence of a current diagnosis for opioid dependence) can be compared to the score for Specific current Opioid Involvement using independent groups comparison.
- The MINI Plus opioid diagnoses (presence versus absence of a current or lifetime diagnosis of either opioid dependence or abuse, can be compared to the score for Specific current opioid Involvement using independent groups comparison.
- **VAR29** The MINI Plus sum of number of possible diagnoses for opioid *(max score 4)* correlated against Specific current opioid involvement ie. **VAR29** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR30** MINI plus derived score of severity of abuse and dependence for opioids (incorporating either current or lifetime use), ie. **VAR30** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}. *Maximum score = 11.*

6.3.10 Domain 3J Other drugs (if sample size is sufficient)

- The MINI Plus other drug diagnoses (presence versus absence of a current or lifetime diagnosis of either other drug dependence or abuse, can be compared to the score for Specific current other drug Involvement using independent groups comparison.
- **VAR31** The MINI Plus sum of number of possible diagnoses for other drugs *(max score 4)* correlated against Specific current other drugs involvement ie. **VAR31** Σ {5L2h +5L2k + 5L3e + 5L3h + 5L4h + 5L4k + 5L5e + 5L5h + 5L7h +5L8e + 5L9h + 5L10e}.
- **VAR32** MINI plus derived score of severity of abuse and dependence for other drugs (incorporating either current or lifetime use), ie. **VAR32** Σ {Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or,* 5L9 a - g) + Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d, *or*, 5L10 a – d)}. *Maximum score = 11.*

6.4 Concurrent validity – Current frequency of use. Domains 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4I, 4J.

Q2.2 ASSIST categories will be left as a rank scale (0 to 4). Multiplying the frequencies out would result in a range (eg weekly could range from 12 to 48) which could not be used for data analysis. Conversely, collapsing the ASI into rank scores may also result in range restriction of scores and an overall loss of information. Parts of the ASI have more than one category (eg for opioids). In these cases, the highest value will be incorporated.

6.4.1 Domain 4A correlated against **VAR08** Σ {3.1a + 3.10a + 3.8a + 3.9a + 3.12a + (3.6a, *or*, 3.7a) + 3.11a + (3.3a, *or,* 3.4a, *or*, 3.5a)}

6.4.2 Domain 4B correlated against **VAR14** Σ {3.10a + 3.8a + 3.9a + 3.12a + (3.6a, *or*, 3.7a) + 3.11a + (3.3a, *or,* 3.4a, *or*, 3.5a)}
6.4.3 Domain 4C frequency alcohol use correlated against 3.1a
6.4.4 Domain 4D frequency cannabis use correlated against 3.10a.
6.4.5 Domain 4E frequency cocaine use correlated against 3.8a. .
6.4.6 Domain 4F frequency amphetamine use correlated against 3.9a.
6.4.7 Domain 4G frequency inhalant use correlated against 3.12a
6.4.8 Domain 4H frequency sedative use correlated against **VAR33** (3.6a, *or*, 3.7a) *(maximum score = 90).*
6.4.9 Domain 4I frequency hallucinogen use correlated against 3.11a
6.4.10 Domain 4J frequency opioid use correlated against **VAR34** (3.3a, *or*, 3.4a, *or*, 3.5a) (*maximum score = 90).*

7. CONSTRUCT VALIDITY

Construct validity involves determining circumstantial evidence of a construct (eg. dependence – evidence for dependence may be ascertained by increases in measures of legal or financial problems, increased physical and psychological symptomatology, presentations to drug and alcohol treatment units etc.).
Instruments used to test for construct validity are:

- MINI Plus – Sections on ADHD and ASPD
- ASI – Section on Family History (Q3.22 to 3.30) and other sections relating to financial burden (Q3.15), prior drug or alcohol treatment (Q3.14), current drug or alcohol treatment (Q3.16) and current drug problems (Q3.18 to 3.19)
- Rating of Injection Site Condition scale
- Maudsley Addiction Profile

7.1. Construct validity - Lifetime Use (Domains 1A & 1B)

7.1.1. Domain 1A correlated against:
- **VAR61** (3.14b + 3.14a) *(no maximum score)*

7.1.2. Domain 1B correlated against
- 3.14b

- RISC 6.1m score (In your life, which if the following areas of the body have you used to inject drugs?) Pearson's correlation

7.2. Construct validity – Global Continuum risk Score (Domains 2A-2H)

7.2.1. Domain 2A

- *MINI Plus Diagnosis for ADHD – Presence or absence compared using independent groups comparison*

- *MINI Plus diagnosis for ASPD – Presence or absence compared using independent groups comparison*

- **VAR64** ASI Section on family history – 3.22 +3.23 + 3.24 + 3.25 + 3.26 + 3.27 + 3.28 + 3.29 + 3.30 sum of all scores of 1 (max = 42) as a fraction of sum of all 1 and 0 (max 42) using a correlation

- Correlation with **VAR65** - MAP – Sum of Physical health symptoms and Psychological health symptoms (10.1k + 10.2k)

- Correlation with **VAR66 -** financial burden of drug and alcohol use - Sum of ASI (3.15c + 3.15d - how much would you say you spent on the last 90 days on alcohol and drugs?)

- Correlation with RISC scores on 6.3a – frequency of injection in the last 3 months

7.2.2. Domain 2B

- *MINI Plus Diagnosis for ADHD – Presence or absence compared using independent groups comparison*

- *MINI Plus diagnosis for ASPD – Presence or absence compared using independent groups comparison*

- **VAR64** ASI Section on family history – 3.22 +3.23 + 3.24 + 3.25 + 3.26 + 3.27 + 3.28 + 3.29 + 3.30 sum of all scores of 1 (max = 42) as a fraction of sum of all 1 and 0 (max 42) using a correlation

- Correlation with **VAR65** - MAP – Sum of Physical health symptoms and Psychological health symptoms (10.1k + 10.2k)

- Correlation with ASI 3.15d **-** financial burden of drug use last 90 days

- Correlation with RISC scores on 6.3a – frequency of injection

7.3. Construct validity – Specific drug Involvement (Domains 3A-3J)

The specific substances appear to be unable to be tested for construct validity.

7.4. Construct validity – Current frequency of substance use (4A-4J)

Unable to test this with the data we have available.

7.5. Construct validity – Dependence (5A, 5B)

7.5.1. Domain 5A correlated against:

- **VAR35** MINI Plus – derived score from summing responses to individual items considering use and dependence for either current or lifetime behaviour. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR35 score takes into account alcohol and the four most problematic drugs other than alcohol or tobacco (if relevant). *This derivation has a maximum score of 44* (alcohol use and dependence = 8, drug use = 8, drug dependence = 28 (7 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

  VAR35 *The total sum of:*
  {Alcohol use (5K1, *or*, 5K4) +
  Alcohol dependence Σ (5K2 a – g, *or*, 5K5 a – g) +
  Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
  Stimulant dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Cocaine dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Narcotics/opioids dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Hallucinogens dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Inhalants dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Cannabis dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Tranquillisers/BZD dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Misc/other dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)}

- **VAR36** MINI Plus – score reflecting the total number of diagnoses for dependence that an individual can achieve on this instrument. This score takes into account alcohol and a maximum of four drugs, both current and lifetime diagnoses of dependence. *The maximum achievable score is 8.* Each drug is only considered once and a score of 2 is the maximum that can be achieved for alcohol or any one drug (current dependence, lifetime dependence). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once.

  VAR36 Σ {5K2h + (5K2j, *or*, 5K5h) + 5L2h +5L2k + 5L4h + 5L4k + 5L7h +5L9h}

7.5.2. Domain 5B correlated against:

- **VAR37** MINI Plus – derived score from summing responses to individual items considering use and dependence for either current or lifetime behaviour of illicit drugs. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR37 score takes into account the four most problematic drugs(if relevant) other than alcohol or tobacco. *This derivation has a maximum score of 36* (drug use = 8, drug dependence = 28 (7 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

  VAR37 *The total sum of:*
  {Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
  Stimulant dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Cocaine dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Narcotics/opioids dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Hallucinogens dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Inhalants dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Cannabis dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Tranquillisers/BZD dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)+
  Misc/other dependence Σ (5L2 a – g, *or*, 5L4 a – g, *or*, 5L7 a – g, *or* 5L9 a - g)}

- **VAR 38** MINI Plus – score reflecting the total number of diagnoses of dependence on illicit drugs that an individual can achieve on this instrument. This VAR38 score takes into account a maximum of four drugs, both current and lifetime diagnoses of dependence. Alcohol and tobacco are not included in this derivation. *The maximum achievable score is 6.* Each drug is only considered once and a score of 2 is the maximum that can be achieved for any one drug (current dependence, lifetime dependence). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once for dependence.

7.6. Construct validity – Abuse (Domains 6A-6L)

7.6.1. Domain 6A correlated against:

- **VAR48** MINI Plus – derived score from summing responses to individual items considering use and abuse for either current or lifetime behaviour. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR48 score takes into account alcohol and the four most problematic drugs other than alcohol or tobacco (if relevant). *This derivation has a maximum score of 29* (alcohol use and abuse = 5, drug use = 8, drug abuse = 16 (4 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

VAR48 *The total sum of:*
{Alcohol use (5K1, *or*, 5K4) +
Alcohol abuse Σ (5K3 a – d, *or*, 5K6 a – d) +
Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
Stimulant abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Cocaine abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Narcotics/opioids abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Hallucinogens abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Inhalants abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Cannabis abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Tranquillisers/BZD abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
Misc/other abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}

- **VAR49** MINI Plus – score reflecting the total number of diagnoses that an individual can achieve on this instrument. This VAR49 score takes into account alcohol and a maximum of four drugs, both current and lifetime diagnoses of abuse. *The maximum achievable score is 8.* Each drug is only considered once and a score of 2 is the maximum that can be achieved for alcohol or any one drug (current abuse, lifetime abuse). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once.

  VAR49 Σ {5K3e + (5K3g, *or,* 5K6e) + 5L3e + 5L3h + 5L5e + 5L5h + 5L8e + 5L10e}

Alternative indicators of concurrent validity for the domain of abuse are those analyses calculated for Domain 2A.

7.6.2. Domain 6B correlated against:

- **VAR50** MINI Plus – derived score from summing responses to individual items considering use and abuse for either current or lifetime behaviour. Lifetime and current use are weighed equally in this derivation and the highest scoring of the two will be included in the equation (where '*or*' appears in equation, include highest score only). This VAR50 score takes into account the four most problematic drugs other than alcohol or tobacco (if relevant). *This derivation has a maximum score of 24* (drug use = 8, drug abuse = 16 (4 x 4)). Even if an individual has been using more than 4 drugs, the severity of 4 types only can be determined.

  VAR50 *The total sum of:*
  {Drug use Σ (5L1b1 – 8, *or*, 5L6b1 – 8) +
  Stimulant abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Cocaine abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Narcotics/opioids abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Hallucinogens abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Inhalants abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Cannabis abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Tranquillisers/BZD abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)+
  Misc/other abuse Σ (5L3 a – d, *or,* 5L5 a – d, *or*, 5L8 a – d *or*, 5L10 a – d)}

- **VAR51** MINI Plus – score reflecting the total number of diagnoses that an individual can achieve on this instrument. This VAR51 score takes into account a maximum of four drugs, both current and lifetime diagnoses of abuse. Alcohol and tobacco are not included in this derivation. *The maximum achievable score is 6.* Each drug is only considered once and a score of 2 is the maximum that can be achieved for any one drug (current abuse, lifetime abuse). Even if an individual has been using more than 4 drugs, the diagnosis from 4 types only can be determined. Each drug type can only be counted once for abuse and dependence.

VAR51 Σ {5L3e + 5L3h + 5L5e + 5L5h + 5L8e + 5L10e}

- DAST – total score of 10 regardless of drug type

8. DISCRIMINATIVE VALIDITY

Discriminant validity refers to the ability of a test to discriminate amongst groups known to have a given characteristic or condition. While tests mentioned above have investigated whether or not dependence and abuse as assessed by the ASSIST are correlated with other standardised tests of abuse and dependence (eg. MINI Plus, SDS etc.) we need to know if the ASSIST can discriminate between dependence, abuse and non-problematic use from ASSIST scores for Global continuum of risk, and also for specific substances.

ANOVA (independent groups- unequal n's) followed by post hoc tests (Scheffe's.) will be used to compare three groups of ASSIST scores. A significant difference between the groups indicates that the ASSIST is able to discriminate between those groups. There are several different ways in which we can discriminate between groups and all will be investigated as outlined below.

In addition, ROC curves will be used to determine the most appropriate cut-off scores for Global risk and specific substances, and the relative sensitivity and specificity values will also be determined. ROC analysis will utilise the same groupings as for ANOVA. (While all three groups can be simultaneously compared for ANOVA, the ROC analysis must be done in two stages – comparing non-problematic use to abuse, and then abuse to dependence).

Tests and parameters used to test discriminative validity will be treatment setting (specialist treatment vs. PHC), the MINI Plus, the DAST and the AUDIT.

8.1. Discriminative validity – Global continuum risk score (Domains 2A, 2E)

8.1.1. Domain 2A– including alcohol/tobacco

ANOVA + post hoc tests and ROC's for the following groupings:

VAR101

1. Treatment group (dependence)
2. PHC group, diagnosis of current abuse on the MINI Plus for any substance including alcohol (this group may or may not have a current diagnosis of substance dependence on the MINI Plus)
3. PHC group, no diagnosis for either current abuse or current dependence for any substance on the MINI Plus (but can have a lifetime diagnosis)
9. Not applicable

8.1.2. Domain 2B – excluding alcohol/tobacco

ANOVA + post hoc tests and ROC's for the following groupings:

NB. The groupings which use the treatment groups to denote dependence are likely to be of a smaller sample size because not all treatment people will have an ICE diagnosis for drugs other than alcohol or tobacco.

VAR105

1. Treatment group (with current ICE diagnosis for dependence on any substance except alcohol or tobacco)
2. PHC group, diagnosis of current abuse on the MINI Plus for any drug excluding alcohol & tobacco (this group may or may not have a current diagnosis of drug dependence on the MINI Plus)
3. PHC group, no diagnosis for either current abuse or current dependence for any drug on the MINI Plus (but can have a lifetime diagnosis or diagnosis for alcohol/tobacco)
9. Not applicable

8.2. Discriminative validity – Specific substance involvement (Domains 3B-3I).
NB Can't do tobacco, because no test for abuse (RFT is for dependence)

8.2.1. Domain 3B alcohol

ANOVA + post hoc tests and ROC's for the following groupings:

VAR113

1. Treatment group (with current ICE diagnosis for dependence on alcohol, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current alcohol abuse on the MINI Plus (this group may or may not have a current diagnosis of alcohol dependence on the MINI Plus)
3. PHC group, no diagnosis for either current alcohol abuse or current alcohol dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.2. Domain 3C cannabis

ANOVA + post hoc tests and ROC's for the following groupings:

VAR121

1. Treatment group (with current ICE diagnosis for dependence on cannabis, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current cannabis abuse on the MINI Plus (this group may or may not have a current diagnosis of cannabis dependence on the MINI Plus)
3. PHC group, no diagnosis for either current cannabis abuse or current cannabis dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.3. Domain 3D cocaine

ANOVA + post hoc tests and ROC's for the following groupings:

VAR125

1. Treatment group (with current ICE diagnosis for dependence on cocaine, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current cocaine abuse on the MINI Plus (this group may or may not have a current diagnosis of cocaine dependence on the MINI Plus)
3. PHC group, no diagnosis for either current cocaine abuse or current cocaine dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.4. Domain 3E amphetamines

ANOVA + post hoc tests and ROC's for the following groupings:

VAR129

1. Treatment group (with current ICE diagnosis for dependence on amphetamines, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current amphetamine abuse on the MINI Plus (this group may or may not have a current diagnosis of amphetamine dependence on the MINI Plus)
3. PHC group, no diagnosis for either current amphetamine abuse or current amphetamine dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.5. Domain 3F inhalants

ANOVA + post hoc tests and ROC's for the following groupings:

Note: No ICE diagnosis is made for inhalant dependence, therefore groupings involving ICE diagnoses cannot be made.

VAR133

1. A current dependence diagnosis on the MINI Plus for inhalants (this group may or may not have an abuse diagnosis)
2. A current abuse diagnosis on the MINI Plus for inhalants, but not a diagnosis of current dependence
3. No diagnosis for either current abuse or current dependence for inhalants on the MINI Plus (can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.6. Domain 3G sedatives

ANOVA + post hoc tests and ROC's for the following groupings:

VAR135

1. Treatment group (with current ICE diagnosis for dependence on sedatives, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current sedative abuse on the MINI Plus (this group may or may not have a current diagnosis of sedative dependence on the MINI Plus)
3. PHC group, no diagnosis for either current sedative abuse or current sedative dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.7. Domain 3H hallucinogen

ANOVA + post hoc tests and ROC's for the following groupings:

Note: No ICE diagnosis is made for hallucinogen dependence, therefore groupings involving ICE diagnoses cannot be made.

VAR139

1. A current dependence diagnosis on the MINI Plus for hallucinogens (this group may or may not have an abuse diagnosis)
2. A current abuse diagnosis on the MINI Plus for hallucinogens, but not a diagnosis of current dependence
3. No diagnosis for either current abuse or current dependence for hallucinogens on the MINI Plus (can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.8. Domain 3I opioids

ANOVA + post hoc tests and ROC's for the following groupings:

VAR141

1. Treatment group (with current ICE diagnosis for dependence on opioids, can also have ICE diagnosis for other substances)
2. PHC group, diagnosis of current opioid abuse on the MINI Plus (this group may or may not have a current diagnosis of opioid dependence on the MINI Plus)
3. PHC group, no diagnosis for either current opioid abuse or current opioid dependence on the MINI Plus (but can have a lifetime diagnosis or diagnosis for other drugs)
9. Not applicable

8.2.9. Domain 3J Other drugs

Unable to perform any analyses because data not available from other sources

9. PREDICTIVE VALIDITY

Predictive validity refers to the ability of a screening test to indicate future risk or development or maintenance of a condition in the absence of a clinical intervention. There are several ways of assessing predictive validity but will only be computed for PHC subjects only who did not receive the BI (because those in the treatment groups may have reduced their drug use due to treatment).

Tests and parameters that may be used to assess predictive validity will be:

- baseline ASSIST
- Follow-up instruments of the SDS and ASI-Lite.
- Covariates Age and gender
- Covariate country

In the first instance, a simple paired groups comparison will be made between baseline and follow-up ASSIST scores for all domains (paired-t test or non-parametric equivalent). It is expected that if the ASSIST has good predictive validity then the baseline and follow-up groups should not be significantly different.

For all domains, correlation will be used to compare the follow-up score from the ASSIST at 3 months with the baseline ASSIST score. It is expected that if the ASSIST has good predictive validity then there should be a significant positive correlation between the two groups.

As another indicator of predictive validity, frequency of use on the follow-up ASSIST (Q14.2) will be correlated with follow-up ASI frequency of use (Q15.1 to 15.12) for Global frequency of use and for each substance type. Similarly, follow-up ASSIST measures of Global risk will also be correlated with the follow-up SDS.

Finally, multiple regression equations may also be used to predict follow-up ASSIST scores (Global risk and specific drugs) in the presence of other parameters. The first parameter will be the baseline ASSIST score followed by any other factors that could influence the follow-up ASSIST score ie., treatment group, gender, age and country.

Note: Predictive validity of Lifetime use is not possible as follow-up questionnaire does not ask about lifetime use.

9.1. Predictive validity – Domain 2A & 2B for all ASSIST subjects not receiving BI, and all PHC subjects not receiving BI

9.1.1. FUDOM2A (no lifetime component)

- Baseline correlated with Domain2A follow-up
- Paired groups comparison of Domain2A at baseline and Domain2A at follow-up
- Follow-up Domain2A correlated against follow-up SDS q16.6

9.1.2. FUDOM2B (no 2B lifetime component)

- Baseline correlated with Domain2B follow-up
- Paired groups comparison of Domain2B at baseline and Domain2B at follow-up
- Follow-up Domain2B correlated against follow-up SDS q16.6

9.2. Predictive validity – Specific Drug Involvement (Domains3A to 3J) for all PHC subjects not receiving BI

9.2.1. Domain3A

- Baseline correlated with Domain3A follow-up
- Paired groups comparison of Domain3A at baseline and Domain3A at follow-up

9.2.2. Domain3B

- Baseline correlated with Domain3B follow-up
- Paired groups comparison of Domain3B at baseline and Domain3B at follow-up

9.2.3. Domain3C

- Baseline correlated with Domain3C follow-up
- Paired groups comparison of Domain3C at baseline and Domain3C at follow-up

9.2.4. Domain3D

- Baseline correlated with Domain3D follow-up
- Paired groups comparison of Domain3D at baseline and Domain3D at follow-up

9.2.5. Domain3E

- Baseline correlated with Domain3E follow-up
- Paired groups comparison of Domain3E at baseline and Domain3E at follow-up

9.2.6. Domain3F

- Baseline correlated with Domain3F follow-up
- Paired groups comparison of Domain3F at baseline and Domain3F at follow-up

9.2.7. Domain3G

- Baseline correlated with Domain3G follow-up
- Paired groups comparison of Domain3G at baseline and Domain3G at follow-up

9.2.8. Domain3H

- Baseline correlated with Domain3H follow-up
- Paired groups comparison of Domain3H at baseline and Domain3H at follow-up

9.2.9. Domain3I

- Baseline correlated with Domain3I follow-up
- Paired groups comparison of Domain3I at baseline and Domain3I at follow-up

9.2.10. Domain3J

- Baseline correlated with Domain3J follow-up
- Paired groups comparison of Domain3J at baseline and Domain3J at follow-up

9.3. Predictive validity – Current frequency of use (Domains4A to 4J) for all PHC subjects not receiving BI

9.3.1. Domain4A

- Baseline correlated with Domain4A follow-up
- Paired groups comparison of Domain4A at baseline and Domain4A at follow-up
- Follow-up Domain 4A correlated against **FUVAR08** Σ {15.1a + 15.10a + 15.8a + 15.9a + 15.12a + (15.6a, *or*, 15.7a) + 15.11a + (15.3a, *or,* 15.4a, *or*, 15.5a)}

9.3.2. Domain4B

- Baseline correlated with Domain4B follow-up
- Paired groups comparison of Domain4B at baseline and Domain4B at follow-up
- Follow-up **Domain 4B** correlated against **FUVAR14** Σ {15.10a + 15.8a + 15.9a + 15.12a + (15.6a, *or*, 15.7a) + 15.11a + (15.3a, *or,* 15.4a, *or*, 15.5a)}

10. ASSESSMENT OF EFFECTIVENESS OF BRIEF INTERVENTION – PILOT PHASE

There are several ways that the effectiveness of the BI can be assessed. In the first instance ASSIST scores will be compared between baseline and follow-up using a two-way repeated measures ANOVA to see if the BI had an effect. Control subjects who did not receive the BI will also be included in the analysis to control for the effects of time as per the table below. The analysis should be done for:

<u>PHC subjects only</u>

- Highest ASSIST score (all substances)
- Highest ASSIST score alcohol only
- Highest ASSIST score cannabis, cocaine, opioids, amphetamine only
- Global domains 2B, 2F

	Baseline ASSIST	Follow-up ASSIST
Control group (no BI)		
BI group		

Subject self-report on the effectiveness of the BI will be ascertained from the BI Process Rating form and presented as frequencies and descriptive statistics. Themes will be drawn and grouped from the qualitative aspects of this questionnaire. General descriptive statistics will also be presented including length of BI, number of BIs by substance, readiness to change, relationship between readiness to change and BI ASSIST score.

Predictors of the effectiveness of the BI may also be assessed using multiple regression. The dependent variable will be follow-up ASSIST score. The independent variables will be baseline ASSIST score, whether or not the subject received a BI, stage of readiness to change, interviewer process rating form score and country.

Part 1:
Demographic Information Form

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID: ___ /___ /___ /___
CRU: ___ /___
DATE: *DAY / MO / YR*
SESSION: ___ *(0) baseline*

INTRODUCTION:

I'd now like to ask you some general questions. I also want to remind you that the information you give to me is completely confidential and will be used for research purposes only.

1.1 RECRUITMENT SETTING *(do not ask participant)*

1 – Alcohol/Drug Outpatient Clinic
2 – Alcohol/Drug Inpatient Ward
3 – Alcohol/Drug Non-Medical Services
4 – General Medical Outpatient Clinic
5 – General Medical Inpatient Ward
6 – General Medical Practitioner's Office
7 – Emergency Room
8 – Psychiatric Outpatient Clinic
9 – Psychiatric Inpatient Ward
10 – Community Mental Health Centre
11 – Prison
12 – Rehabilitation Institution
13 – Advertisement
14 – Other:_____ ____

1.2 RECORD SEX AS OBSERVED
1 – Male
2 – Female ____

1.3 How old are you? *(record age in years)*
___ /___ Years

1.4 What is your **most current** marital status?

1 - Currently married
2 - Cohabiting (living together)
3 – Separated (but still married)
4 - Widowed (not currently married)
5 - Divorced (not currently married)
6 - Never been married
____

1.5 Do you live in *(read all response categories to the participant)*?

1 – Your own home (or home owned by your family)
2 – Rented Apartment/House
3 – Room
4 – Shelter
5 – Halfway house
6 – No fixed address
7 – Other (Specify:) _____ ____

1.6 How long have you lived at your present address?

___ /___ ___ /___
YEARS *MONTHS*

1.7 What do you consider your race to be?

1 – White (Not of Hispanic Origin)
2 – African American (Not of Hispanic Origin)
3 – Asian or Pacific Islander
4 – Hispanic

____

1.8 What is your current religious preference*?*

1 – Protestant	4 – Islamic/Muslim	7 – Hindu
2 – Catholic	5 – Orthodox (Christian)	8 – Other, Specify _____
3 – Jewish	6 – Buddhist	9 – None

____

1.9 Have you been in a controlled environment in the past 30 days? That is a living situation in which you were not able to come and go as you pleased, such as inpatient treatment, jail, etc.

1 – No	4 – Medical Treatment
2 – Jail	5 – Psychiatric Treatment
3 – Alcohol or Drug Tx	6 – Other, Specify _____

____

1.10 How many days were you there?
(Not Applicable=99) ___ /___ Days

1.11 How many *times* in your life have you been treated as an *outpatient* for:

a. Alcohol problems ___ /___
b. Drug problems ___ /___

(b. Drug Problems includes therapy for nicotine/tobacco dependence)

1.12 How many *times* in your life have you been treated as an *inpatient* for:

a. Alcohol problems ___ /___
b. Drug problems ___ /___

1.13 Now I want to ask you about work. In the last 12 months, how many months have you been employed? *(Count self-employment or salaried. If none, code "00" and skip to Question 15. If less than 1 month, code "01")*

___ /___ Months

1.14 A. Are you employed now?

1 – No *(Skip to Question 15)*
2 – Yes ____

B. Do you work full-time or part-time?

1 – Full-time
2 – Part-time ____

C. What kind of work do you do?

RECORD: _____

D. In what kind of business or industry are you working?

RECORD: _____

1.15 How many years of schooling have you completed?

___ /___ Years

1.16 A. Are you still in school?

1 – No
2 – Yes *(End)* ____

B. How old were you when you stopped being a full-time student? ___ /___ Years

1.17 Did you (graduate from / complete) the last school you attended?

1 – No
2 – Yes ____

Part 2:
ASSIST v2.0

PARTICIPANT ID: ___ /___ /___ /___ /___

INTERVIEWER ID: ___ /___ /___ /___

CRU: ___ /___

DATE: *DAY / MO / YR*

Record Start Time: _____ *SESSION:* ___ *(0) baseline*

INTRODUCTION:

Thank you for agreeing to take part in this brief interview about alcohol, tobacco products and other drugs. I am going to ask you some questions about your experience of using these substances 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 not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other 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 Drug Cards to participant

Question 2.1

In your life, which of the following substances have you ever used? ***(NON-MEDICAL USE ONLY)***	**NO**	**YES**
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1
d. Cocaine (coke, crack, etc.)	0	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	1
j. Other - specify:	0	1

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 2.2 for each substance ever used.

Note: For all questions, if participant is currently in treatment, ensure they consider the three month period prior to inpatient care.

Question 2.2

In the past three months, 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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

If "Never" to all items in Question 2.2, skip to Question 2.6.
If any substances in Question 2.2 used in the previous three months, continue with Questions 2.3, 2.4 & 2.5 for each substance used.

Question 2.3

During the past three months, 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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Question 2.4

During the past three months, 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	1	2	3	4
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Question 2.5

During the past three months, 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	1	2	3	4
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	1	2	3	4
d. Cocaine (coke, crack, etc.)	0	1	2	3	4
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	1	2	3	4
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3	4
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	1	2	3	4
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3	4
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	1	2	3	4
j. Other - specify:	0	1	2	3	4

Ask Questions 2.6 & 2.7 for all substances ever used (ie. those endorsed in Question 2.1)

Question 2.6

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	2	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	1
d. Cocaine (coke, crack, etc.)	0	2	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	1
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	2	1
j. Other – specify:	0	2	1

Question 2.7

Have you ever tried 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	2	1
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	1
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	1
d. Cocaine (coke, crack, etc.)	0	2	1
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	1
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	1
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	1
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	1
i. Opiates (heroin, morphine, methadone, codeine, etc.)	0	2	1
j. Other – specify:	0	2	1

Question 2.8

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

Record End Time: _____

Record relevant comments below:

Part 2.9:

Scoring Q2.2-Q2.7

	Aggregate Score? (Q2.2 – 2.7)	No intervention Or referral	Receive brief intervention	Referred for specialist treatment
a. Alcohol		0–3	4–15	16–20
b. Cannabis		0–3	4–15	16–20
c. Cocaine		0–3	4–15	16–20
d. ATS*		0–3	4–15	16–20
e. Opioids		0–3	4–10	11–20

*Amphetamine Type stimulants

Scoring Q2.8

Score of 2 → Specialist treatment

Part 3:
ASI

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID: ___ /___ /___ /___
CRU: ___ /___
DATE: *DAY / MO / YR*
SESSION: ___ *(0) baseline*

DRUG AND ALCOHOL USE

INTRODUCTION:

This questionnaire asks questions about your alcohol and other drug use, and any problems you may have had in these areas. I would like to remind you that the information you give me is confidential, and will only be used for research purposes. The following questions may sound similar to those you have just answered, but the time frames will be for two different periods; for the ***past 90 days (3 months)*** *and* ***in your lifetime****.*

INSTRUCTIONS:

Give ASI Drug List to participant and Participant Rating Scale Response Card. Explain and offer example of their use. For subjects in treatment arm, ask them to consider 3 month period prior to treatment entry. For drug use grid, ask for the past 90 days first, then for lifetime. Lifetime use is defined as the number of years using 3 or more times per week or bingeing for 2 or more days. If a drug was never used (coded as "0"), the route of administration is coded as "9"

- *In the past* ***90 days****, how many days would you have used…..(insert drug name)?*
- *In your lifetime, how many* ***years*** *would you have used…..(insert drug name)*
- *How have you most commonly used…(insert drug name)* ***in the last 90 days****? For example, have you used orally, nasally, by smoking, by non-intravenous injection or by intravenous injection?*

	PAST 90 DAYS Days	***LIFETIME USE Years***	***Route of Administration**
3.1 Alcohol – Any use at all	___ /___(a)	___ /___(b)	____(c)
3.2 Alcohol – To Intoxication	___ /___(a)	___ /___(b)	____(c)
3.3 Heroin	___ /___(a)	___ /___(b)	____(c)
3.4 Methadone	___ /___(a)	___ /___(b)	____(c)
3.5 Other opiates/analgesics	___ /___(a)	___ /___(b)	____(c)
3.6 Barbiturates	___ /___(a)	___ /___(b)	____(c)
3.7 Other sedatives, hypnotics, tranquillisers	___ /___(a)	___ /___(b)	____(c)
3.8 Cocaine	___ /___(a)	___ /___(b)	____(c)
3.9 Amphetamines	___ /___(a)	___ /___(b)	____(c)
3.10 Cannabis	___ /___(a)	___ /___(b)	____(c)
3.11 Hallucinogens	___ /___(a)	___ /___(b)	____(c)
3.12 Inhalants	___ /___(a)	___ /___(b)	____(c)
3.13 More than one substance per day *(Include alcohol)*	___ /___(a)	___ /___(b)	

*Route of Administration:1=Oral, 2=Nasal, 3=Smoking, 4=Non IV injection, 5=IV inj.,9=N/A

3.14 How many times in your life have you been treated for:

a. Alcohol Abuse ___ /___

b. Drug Abuse ___ /___

Please note: Include current situation in calculation if participant is currently receiving treatment.

3.15 How much would you say you spent **during the past 90 days on:**

a. Alcohol (site currency) ___ /___ /___ /___ c. Alcohol AUD $ ___ /___ /___ /___

b. Drugs (site currency) ___ /___ /___ /___ d. Drugs AUD $ ___ /___ /___ /___

(b. Drugs includes cigarettes and tobacco)

3.16 How many days have you been treated in an outpatient setting for alcohol or drug problems **in the past 90 days?** *(Include NA, AA)* ___ /___

DAYS

3.17 How many days **in the past 90,** have you experienced:

a. Alcohol Problems ___ /___

b. Drug Problems ___ /___

DAYS

Please note: "Problems" include those still "pending" even if participant has been abstinent (e.g., a drunk driving arrest that is still causing issues, difficulties with cravings or remaining sober, etc.).

FOR QUESTIONS 18 & 19 PLEASE ASK PARTICIPANT TO USE THE PARTICIPANT'S RATING SCALE:

Code: (0) Not at all
(1) Slightly
(2) Moderately
(3) Considerably
(4) Extremely

3.18 How troubled or bothered have you been in the past 90 days by these: (List problems)

a. Alcohol Problems ____

b. Drug Problems ____

3.19 How important to you now is treatment for these:

a. Alcohol Problems ____

b. Drug Problems ____

Please note: appraise importance of current treatment if subject is currently receiving treatment for drug dependence

CONFIDENCE RATINGS:

Is the above information significantly distorted by:

3.20 Participant's misrepresentation? *(0 - No, 1 - Yes)* ____

3.21 Participant's inability to understand? *(0 - No, 1 - Yes)* ____

FAMILY HISTORY

Have any of your relatives had what you would call a significant drinking, drug use, or psychiatric problem – one that did or should have lead to treatment?

To improve ease of administration, ask subject to focus on one side of their family at a time, commencing with their mothers side. First ask them about their mother, their mother's mother, their mother's father, their mother's sisters and their mother's brothers. Repeat the same for the subject's father's side, and lastly focus on the subject's siblings.

	MOTHER'S SIDE			**FATHER'S SIDE**		
	ALC.	**DRUG**	**PSYCH.**	**ALC.**	**DRUG**	**PSYCH.**
3.22 Grandmother	____(a)	____(b)	____(c)	____(d)	____(e)	____(f)
3.23 Grandfather	____(a)	____(b)	____(c)	____(d)	____(e)	____(f)
3.24 Mother	____(a)	____(b)	____(c)	XXX	XXX	XXX
Father	XXX	XXX	XXX	____(d)	____(e)	____(f)
3.25 Aunt	____(a)	____(b)	____(c)	____(d)	____(e)	____(f)
3.26 Uncle	____(a)	____(b)	____(c)	____(d)	____(e)	____(f)

	SIBLINGS		
	ALC.	**DRUG**	**PSYCH.**
3.27 Brother #1	____(a)	____(b)	____(c)
3.28 Brother #2	____(a)	____(b)	____(c)
3.29 Sister #1	____(a)	____(b)	____(c)
3.30 Sister #2	____(a)	____(b)	____(c)

CODING:

0 = In a category where the answer is clearly NO for <u>all</u> relatives in the category.

1 = In a category where the answer is clearly YES for <u>any</u> relative in that category.

8 = In a category where there answer is clearly "I don't know".

9 = In a category where there was never a relative from that category.

Code the most problematic relative in cases of multiple members per category.

Part 4:
SDS

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID: ___ /___ /___ /___
CRU: ___ /___
DATE: DAY / MO / YR
SESSION: ___ (0) baseline

INTRODUCTION:
I now have a few brief questions which ask you to rate the effect that your drug use has had in your life. Please note that for these questions, we are interested in the main drug that you have been using, or the drug that might have been causing problems for you.

INSTRUCTIONS:

Where the questions refer to "MAIN DRUG", substitute the name for the principle drug or drug class that has caused problems for the participant.

4.1 Did you ever think your (MAIN DRUG) use was out of control?	0 Never or almost never	1 Sometimes	2 Often	3 Always or nearly always
4.2 Did the prospect of not taking any (MAIN DRUG) make you anxious or worried?	0 Never or almost never	1 Sometimes	2 Often	3 Always or nearly always
4.3 Did you worry about your (MAIN DRUG) use?	0 Never or almost never	1 Sometimes	2 Often	3 Always or nearly always
4.4 Did you wish you could stop using (MAIN DRUG)?	0 Never or almost never	1 Sometimes	2 Often	3 Always or nearly always
4.5 How difficult would you find it to stop or go without (MAIN DRUG)?	0 Easy	1 Quite difficult	2 Very difficult	3 Impossible

4.6 AGGREGATE SCORE:

To be scored following interview and intervention

Part 5:
MINI Plus

PARTICIPANT ID:	___ /___ /___ /___ /___
INTERVIEWER ID:	___ /___ /___ /___
CRU:	___ /___
DATE:	*DAY / MO / YR*
SESSION:	___ *(0) baseline*

INTRODUCTION:

This section of the interview asks about past and recent use of alcohol and other substances in detail. There are also questions about your personal history and behaviour. Most of the questions are simple yes or no questions.

The substance use section asks details about the one or two drug types that you have used most or experienced most problems with. Some questions on past history and behaviour may make you feel a little uncomfortable, and you are free to refuse to answer any questions.

As with all other questions we are using in this survey, your answers will remain completely confidential.

INTERVIEWER NOTE: IF PARTICIPANT IS CURRENTLY IN A CONTROLLED ENVIRONMENT SUCH AS INPATIENT CARE, ASK THEM TO CONSIDER 12 MONTH PERIOD PRIOR TO ENTRY.

K. CURRENT ALCOHOL ABUSE AND DEPENDENCE

		0	1
5.K1	**In the past 12 months**, have you had alcohol on 3 or more occasions? During those times did you have 3 or more drinks within a 3 hour period? *IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOXES FOR **ALCOHOL DEPENDENCE CURRENT** AND **ALCOHOL ABUSE CURRENT** (NEXT PAGE) AND MOVE TO MODUI K 'LIFETIME ALCOHOL ABUSE AND DEPENDENCE'.*	NO	YES

5.K2 **In the past 12 months:**

a. Did you need to drink more in order to get the same effect that you got when you first started drinking?	NO	YES
b. When you cut down on drinking, did your hands shake, did you sweat or feel agitated? Did you drink to avoid these symptoms or to avoid being hungover, for example, "the shakes", sweating or agitation? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
c. During the times when you drank alcohol, did you end up drinking more than you planned when you started?	NO	YES
d. Have you tried to reduce or stop drinking alcohol but failed?	NO	YES
e. On the days that you drank, did you spend substantial time in obtaining alcohol, drinking, or in recovering from the effects of alcohol?	NO	YES
f. Did you spend less time working, enjoying hobbies, or being with others because of your drinking?	NO	YES
g. Have you continued to drink even though you knew that the drinking caused you health or mental problems?	NO	YES

h. ARE **3** OR MORE **K2** ANSWERS CODED **YES**?

NO	*YES*
ALCOHOL DEPENDENCE CURRENT	

IF 'NO' TO ALCOHOL DEPENDENCE CURRENT, MOVE TO NEXT PAGE:
IF 'YES' TO ALCOHOL DEPENDENCE CURRENT, ASK:

i. How old were you when you first started experiencing these problems? [ ] Age

j. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***ALCOHOL DEPENDENCE*** LIFETIME)?

NO	*YES*
ALCOHOL DEPENDENCE LIFETIME	

5.K3	**In the past 12 months:**	0	1
a.	Have you been intoxicated, high, or hungover more than once when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
b.	Were you intoxicated in any situation where you were physically at risk for example using machinery, boating, etc.?	NO	YES
c.	Did you have any legal problems because of your drinking, for example, an arrest or disorderly conduct?	NO	YES
d	Did you continue to drink even though your drinking caused problems with your family or other people?	NO	YES

e. ARE **1** OR MORE **K3** ANSWERS CODED **YES**?

NO	*YES*
ALCOHOL ABUSE CURRENT	

IF 'NO' TO ALCOHOL ABUSE CURRENT, MOVE TO NEXT PAGE.
IF 'YES' TO ALCOHOL ABUSE CURRENT, ASK:

f. How old were you when you first started experiencing these problems? ☐ Age

g. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***ALCOHOL ABUSE*** LIFETIME)?

NO	*YES*
ALCOHOL ABUSE LIFETIME	

INTERVIEWER NOTE: IF 'YES' IS MARKED IN BOTH DIAGNOSTIC BOXES FOR ***ALCOHOL DEPENDENCE*** CURRENT AND ***ALCOHOL ABUSE*** CURRENT, MOVE TO MODULE L. 'CURRENT NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS'.

IF ONE OR BOTH OF THE DIAGNOSTIC BOXES FOR ***ALCOHOL DEPENDENCE*** CURRENT AND ***ALCOHOL ABUSE*** CURRENT HAVE BEEN MARKED 'NO', MOVE TO THE NEXT PAGE AND COMMENCE MODULE K ' LIFETIME ALCOHOL ABUSE AND DEPENDENCE'.

K. LIFETIME ALCOHOL ABUSE AND DEPENDENCE

		0	1
5.K4	**Have you ever** had alcohol on 3 or more occasions? During these occasions did you have 3 or more drinks within a 3 hour period? IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOXES FOR **ALCOHOL DEPENDENCE LIFETIME** AND **ALCOHOL ABUSE LIFETIME** AND MOVE TO MODULE L 'CURRENT NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS'	NO	YES

5.K5 **In your lifetime:**

a. Did you need to drink more in order to get the same effect that you did when you first started drinking?	NO	YES
b. When you cut down on drinking, did your hands shake, did you sweat or feel agitated? Did you drink to avoid these symptoms or to avoid being hungover, for example, "the shakes", sweating or agitation? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
c. During the times when you drank alcohol, did you end up drinking more than you planned when you started?	NO	YES
d. Have you tried to reduce or stop drinking alcohol but failed?	NO	YES
e. On the days that you drank, did you spend substantial time in obtaining alcohol, drinking, or in recovering from the effects of alcohol?	NO	YES
f. Did you spend less time working, enjoying hobbies, or being with others because of your drinking?	NO	YES
g. Have you continued to drink even though you knew that the drinking caused you health or mental problems?	NO	YES

	NO	YES
h. ARE **3** OR MORE **K5** ANSWERS CODED **YES**?	***ALCOHOL DEPENDENCE LIFETIME***	

5.K6	**In your lifetime:**	0	1
a.	Have you been intoxicated, high, or hungover more than once when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
b.	Were you intoxicated in any situation where you were at risk, for example, driving a car, riding a motorbike, using machinery, boating, etc.?	NO	YES
c.	Did you have any legal problems because of your drinking, for example, an arrest or disorderly conduct?	NO	YES
d	Did you continue to drink even though your drinking caused proble	NO	YES

e. ARE **1** OR MORE **K6** ANSWERS CODED **YES**?

NO	**YES**
ALCOHOL ABUSE LIFETIME	

MOVE TO NEXT PAGE

L. CURRENT NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS

Now I am going to show you/read to you a list of street drugs or medicines.

		0	1
5.L1	a **Have you taken** any of these drugs more than once to get high, to feel better, or to change your mood in the last 12 months? IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOXES FOR **SUBSTANCE DEPENDENCE CURRENT** AND **SUBSTANCE ABUSE** CURRENT, AND MOVE TO MODULE L '**LIFETIME** NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS'.	NO	YES

b **CIRCLE EACH DRUG TAKEN:** *(FOR CODING: 0 = no, 1 = yes)*

1. Stimulants: amphetamines, "speed", crystal meth, diet pills, ecstasy or MDMA..

2. Cocaine: coke, freebase, crack, "speedball".

3. Narcotics: heroin, morphine, methadone, codeine, other opiates.

4. Hallucinogens: LSD ("acid"), mescaline, peyote, PCP ("Angel Dust"), psilocybin, "magic mushrooms".

5. Inhalants: glue, petrol, nitrous oxide ("laughing gas"), amyl or butyl nitrate ("poppers").

6. Marijuana: cannabis, hashish ("hash"), THC, "pot", "grass", "weed", "reefer".

7. Tranquilizers: Quaaludes, barbiturates, Valium, Serepax, Rohypnol, etc.

8. Miscellaneous: steroids, other non-prescription pills. Any others?

Specify MOST USED Drug(s): _____

CHECK ONE BOX

c ONLY ONE DRUG / DRUG CLASS HAS BEEN USED ☐ 1

OR

TWO MOST FREQUENTLY USED DRUG CLASSES EXAMINED SEPARATELY (L2 AND L3 COMPLETED FOR FIRST DRUG, L4 & L5 COMPLETED FOR SECOND DRUG) ☐ 2

d SPECIFY WHICH DRUGS / DRUG CLASSES WILL BE EXPLORED IN THE INTERVIEW BELOW IF THERE IS CONCURRENT OR SEQUENTIAL POLYSUBSTANCE USE: _____

(FOR CODING: ENTER NUMBER(S) NEXT TO DRUG TYPE(S) ☐ (a) ☐ (b) *)*

QUESTIONS L2 ON THIS PAGE APPLY TO THE MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT IN THE LAST 12 MONTHS:

5.L2 **Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in the last 12 months:**	0	1
a. Have you found that you needed to use more (NAME OF DRUG / DRUG CLASS SELECTED) to get the same effect that you did when you first started taking it?	NO	YES
b When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (eg. aches, shaking, fever, weakness, diarrhoea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
c Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?	NO	YES
d Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED), but failed?	NO	YES
e On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (> 2 hours) in obtaining, using or in recovering from drug(s), or thinking about drug(s)?	NO	YES
f Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?	NO	YES
g Have you continued to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused you health or mental problems?	NO	YES

h. ARE **3** OR MORE **L2** ANSWERS CODED **YES**?

NO	*YES*
SUBSTANCE DEPENDENCE CURRENT	

SPECIFY DRUG(S):

i. SPECIFY DRUG CODE: [ ] (SEE PREVIOUS PAGE)

IF 'NO' TO SUBSTANCE DEPENDENCE CURRENT, MOVE TO NEXT PAGE: IF 'YES' TO SUBSTANCE DEPENDENCE CURRENT, ASK:

j. How old were you when you first started experiencing these problems? [ ] Age

k. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***SUBSTANCE DEPENDENCE*** LIFETIME)?

NO	*YES*
SUBSTANCE DEPENDENCE LIFETIME	

QUESTION L3 ON THIS PAGE APPLIES TO THE MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT IN THE LAST 12 MONTHS

5.L3	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in the past 12 months:**	0	1
	a. Have you been intoxicated, high, or hungover FROM (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
	b Have you been high or intoxicated from (NAME OF DRUG / DRUG CLASS SELECTED) in any situation where you were physically at risk, (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?	NO	YES
	c Did you have any legal problems because of your drug use, for example, an arrest or disorderly conduct?	NO	YES
	d Did you continue to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused problems with your family or other people?	NO	YES

e. ARE **1** OR MORE **L3** ANSWERS CODED **YES**?

NO	*YES*
SUBSTANCE ABUSE CURRENT	

SPECIFY DRUG(S):

f. SPECIFY DRUG CODE: ☐

IF 'NO' TO SUBSTANCE ABUSE CURRENT, MOVE TO NEXT PAGE.

IF 'YES' TO SUBSTANCE ABUSE CURRENT, ASK:

g. How old were you when you first started experiencing these problems? ☐ Age

h. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***SUBSTANCE ABUSE*** LIFETIME)?

NO	*YES*
SUBSTANCE ABUSE LIFETIME	

QUESTIONS L4 ON THIS PAGE APPLY TO THE SECOND MOST FREQUENTLY USED DRUG OR DRUG CLASS IN THE LAST 12 MONTHS (OMIT IF ONLY ONE DRUG OR DRUG CLASS IS REPORTED):

5.L4	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in the last 12 months:**	0	1
	a. Have you found that you needed to use more (NAME OF DRUG / DRUG	NO	YES
	b When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (eg. aches, shaking, fever, weakness, diarrhoea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
	c Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?	NO	YES
	d Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED), but failed?	NO	YES
	e On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (> 2 hours) in obtaining, using or in recovering from drug(s), or thinking about drug(s)?	NO	YES
	f Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?	NO	YES
	g Have you continued to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused you health or mental problems?	NO	YES

h. ARE **3** OR MORE **L4** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

i. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE DEPENDENCE CURRENT	

IF 'NO' TO SUBSTANCE DEPENDENCE CURRENT, MOVE TO NEXT PAGE. IF 'YES' TO SUBSTANCE DEPENDENCE CURRENT, ASK:

j. How old were you when you first started experiencing these problems? ☐ Age

k. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***SUBSTANCE DEPENDENCE*** LIFETIME)?

NO	*YES*
SUBSTANCE DEPENDENCE LIFETIME	

QUESTION L5 ON THIS PAGE APPLIES TO THE SECOND MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT:

		0	1
5.L5	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in the past 12 months:**		
a.	Have you been intoxicated, high, or hungover FROM (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
b	Have you been high or intoxicated from (NAME OF DRUG / DRUG CL at risk, (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?	NO	YES
c	Did you have any legal problems because of your drug use, for example, an arrest or disorderly conduct?	NO	YES
d	Did you continue to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused problems with your family or other people?	NO	YES

e. ARE **1** OR MORE **L5** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

f. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE ABUSE CURRENT	

IF 'NO' TO SUBSTANCE ABUSE CURRENT, MOVE TO NEXT PAGE
IF 'YES' TO SUBSTANCE ABUSE CURRENT, ASK:

g. How old were you when you first started experiencing these problems? ☐ Age

h. INTERVIEWER NOTE: DOES AGE INDICATE THAT PROBLEMS HAVE BEEN OCCURING FOR LONGER THAN 12 MONTHS (IE. ***SUBSTANCE ABUSE*** LIFETIME)?

NO	*YES*
SUBSTANCE ABUSE LIFETIME	

L. LIFETIME NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS

We've talked about drugs you have taken in the last 12 months. Now I am going to show you/read to you the same list of street drugs or medicines and ask about your lifetime use.

		0	1
5.L6	a **Have you ever taken** any of these drugs more than once in your lifetime to get high, to feel better, or to change your mood? IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOXES FOR ***SUBSTANCE DEPENDENCE*** LIFETIME AND ***SUBSTANCE ABUSE*** LIFETIME AND MOVE TO MODULE W 'ATTENTION DEFICIT/HYPERACTIVITY DISORDER'	NO	YES

b **CIRCLE EACH DRUG TAKEN:** *(FOR CODING: 0 = no, 1 = yes)*

1. Stimulants: amphetamines, "speed", crystal meth, diet pills, ecstasy or MDMA.

2. Cocaine: coke, freebase, crack, "speedball".

3. Narcotics: heroin, morphine, methadone, codeine, other opiates.

4. Hallucinogens: LSD ("acid"), mescaline, peyote, PCP ("Angel Dust"), psilocybin, "magic mushrooms".

5. Inhalants: glue, petrol, nitrous oxide ("laughing gas"), amyl or butyl nitrate ("poppers").

6. Marijuana: cannabis, hashish ("hash"), THC, "pot", "grass", "weed", "reefer".

7. Tranquilizers: Quaaludes, barbiturates, Valium, Serepax, Rohypnol, etc.

8. Miscellaneous: steroids, other non-prescription pills. Any others?

Specify MOST USED Drug(s): _____

CHECK ONE BOX

c ONLY ONE DRUG / DRUG CLASS HAS BEEN USED ☐ 1

OR

TWO MOST FREQUENTLY USED DRUG CLASSES EXAMINED SEPARATELY (L7 AND L8 COMPLETED FOR FIRST DRUG, L9 AND L10 COMPLETED FOR SECOND DRUG) ☐ 2

INTERVIEWER NOTE: IF MOST USED DRUG(S) FOR LIFETIME USE ARE THE SAME AS MOST USED
DRUG(S) FOR CURRENT USE, DO NOT PROCEED WITH THIS MODULE, BUT MOVE TO MODULE W
d'ATTENTION DEFICIT / HYPERACTIVITY DISORDER'. IF ONE OR BOTH DRUG(S) ARE DIFFERENT,
TO CURRENT USE, INTERVIEW FOR LIFETIME SUBSTANCE USE DISORDERS FOR THOSE DRUG(S).

SPECIFY WHICH DRUGS / DRUG CLASSES WILL BE EXPLORED IN THE INTERVIEW FOR LIFETIME SUBSTANCE USE DISORDERS BELOW IF THERE IS CONCURRENT OR SEQUENTIAL POLYSUBSTANCE USE:_____

(FOR CODING: ENTER NUMBER(S) NEXT TO DRUG TYPE(S) (a) (b) *)*

QUESTIONS L7 ON THIS PAGE APPLY TO THE MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT:

5.L7	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in your lifetime:**	0	1
	a. Have you found that you needed to use more (NAME OF DRUG / DRUG	NO	YES
	b When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (eg. aches, shaking, fever, weakness, diarrhoea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
	c Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?	NO	YES
	d Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED), but failed?	NO	YES
	e On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (> 2 hours) in obtaining, using or in recovering from drug(s), or thinking about drug(s)?	NO	YES
	f Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?	NO	YES
	g Have you continued to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused you health or mental problems?	NO	YES

h. ARE **3** OR MORE **L7** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

i. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE DEPENDENCE LIFETIME	

QUESTION L8 ON THIS PAGE APPLIES TO THE MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT:

5.L8	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in your lifetime:**	0	1
	a. Have you been intoxicated, high, or hungover FROM (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
	b Have you been high or intoxicated from (NAME OF DRUG / DRUG CLASS SELECTED) in any situation where you were physically at risk, (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?	NO	YES
	c Did you have any legal problems because of your drug use, for example, an arrest or disorderly conduct?	NO	YES
	d Did you continue to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused problems with your family or other people?	NO	YES

e. ARE **1** OR MORE **L8** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

f. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE ABUSE LIFETIME	

QUESTIONS L9 ON THIS PAGE APPLY TO THE SECOND MOST FREQUENTLY USED DRUG OR DRUG CLASS (OMIT IF ONLY ONE DRUG OR DRUG CLASS IS REPORTED):

5.L9	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in your lifetime:**	0	1
	a. Have you found that you needed to use more (NAME OF DRUG / DRUG	NO	YES
	b When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (eg. aches, shaking, fever, weakness, diarrhoea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better? IF **YES** TO EITHER QUESTION, CODE **YES**.	NO	YES
	c Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?	NO	YES
	d Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED), but failed?	NO	YES
	e On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (> 2 hours) in obtaining, using or in recovering from drug(s), or thinking about drug(s)?	NO	YES
	f Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?	NO	YES
	g Have you continued to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused you health or mental problems?	NO	YES

h. ARE **3** OR MORE **L9** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

i. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE DEPENDENCE LIFETIME	

QUESTION L10 ON THIS PAGE APPLIES TO THE SECOND MOST FREQUENTLY USED DRUG OR DRUG CLASS, OR THE MAIN SUBSTANCE FOR WHICH ASSISTANCE HAS BEEN SOUGHT:

5.L10	**Considering your use of (NAME OF DRUG / DRUG CLASS SELECTED), in your lifetime:**	0	1
	a Have you been intoxicated, high, or hungover FROM (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
	b Have you been high or intoxicated from (NAME OF DRUG / DRUG CLASS SELECTED) in any situation where you were physically at risk, (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?	NO	YES
	c Did you have any legal problems because of your drug use, for example, an arrest or disorderly conduct?	NO	YES
	d Did you continue to use (NAME OF DRUG / DRUG CLASS SELECTED) even though it caused problems with your family or other people?	NO	YES

e. ARE **1** OR MORE **L10** ANSWERS CODED **YES**?

SPECIFY DRUG(S):

f. SPECIFY DRUG CODE: ☐

NO	*YES*
SUBSTANCE ABUSE LIFETIME	

W. ATTENTION DEFICIT/HYPERACTIVITY DISORDER (Adult)

INTERVIEWER NOTE: FOLLOWING EACH QUESTION ADD "MORE SO THAN OTHER CHILDREN?" FOR EXAMPLE, Q5.W5 a WILL BE "AS A CHILD, WERE YOU ACTIVE, FIDGETY, RESTLESS AND ALWAYS ON THE GO – MORE SO THAN OTHER CHILDREN?"

			0	1
5.W5	**As a child:**			
	a	Were you active, fidgety, restless, always on the go?	NO	YES
	b	Were you inattentive and easily distractible?	NO	YES
	c	Were you unable to concentrate at school or while doing your homework?	NO	YES
	d	Did you fail to finish things, such as school work, projects, etc.?	NO	YES
	e	Were you short tempered, irritable, or did you have a "short fuse", or tend to explode?	NO	YES
	f	Did things have to be repeated to you many times before you did them?	NO	YES
	g	Did you tend to be impulsive without thinking of the consequences?	NO	YES
	h	Did you have difficulty waiting for your turn, frequently needing to be first?	NO	YES
	i	Did you get into fights and/or bother other children?	NO	YES
	j	Did your school complain about your behaviour?	NO	YES
	k.	**W5 (SUMMARY):** ARE **6** OR MORE **W5** ANSWERS CODED **YES**?	NO	YES

IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOX FOR ADULT ATTENTION DEFICIT/HYPERACTIVITY DISORDER, AND MOVE TO MODULE Q 'ANTISOCIAL PERSONALITY DISORDER'.

5.W6	Did you have some of these symptoms before you were 7 years old?	NO	YES

IF 'NO', CIRCLE 'NO' IN DIAGNOSTIC BOX FOR ADULT ATTENTION DEFICIT/HYPERACTIVITY DISORDER, AND MOVE TO MODULE Q 'ANTISOCIAL PERSONALITY DISORDER'.

INTERVIEWER NOTE: ADD "MORE – SO THAN OTHER PEOPLE?" TO THE END OF EACH Qu.

			0	1
5.W7	**As an adult:**			
	a	Are you still distractible?	NO	YES
	b.	Are you intrusive, or do you butt in, or say things that you later regret either to friends, at work, or home?	NO	YES
	c	Are you impulsive, even if you have better control than when you were a child?	NO	YES
	d	Are you still fidgety, restless, always on the go, even if you have better control than when you were a child?	NO	YES
	e	Are you still irritable and get angrier than you need to?	NO	YES
	f	Are you still impulsive? For example, do you tend to spend more money than you really should?	NO	YES
	g	Do you have difficulty getting work organized?	NO	YES
	h	Do you have difficulty getting organized even outside of work?	NO	YES
	i	Are you under-employed or do you work below your capacity?	NO	YES
	j	Are you not achieving according to people's expectations of your ability?	NO	YES
	k	Have you changed jobs or have been asked to leave jobs more frequently than other people?	NO	YES
	l	Does your spouse complain about your inattentiveness or lack of interest in him/her and/or the family?	NO	YES
	m	Have you gone through two or more divorces, or changed partners more than others?	NO	YES
	n	Do you sometimes feel like you are in a fog, like a snowy television or out of focus?	NO	YES
	o.	**W7 (SUMMARY):** ARE **9** OR MORE **W7** ANSWERS CODED **YES**?	NO	YES
5.W8	a.	Have some of these symptoms caused significant problems in two or more of the following situations: at school, at work, at home, or with family or friends?	NO	YES

	NO	*YES*
b. ARE **W7** <u>AND</u> **W8** CODED **YES**?	ADULT ATTENTION DEFICT/HYPERACTIVITY DISORDER	

Q. ANTISOCIAL PERSONALITY DISORDER

NOTE: ADD "MORE – SO THAN OTHER PEOPLE?" TO THE END OF EACH QU. WHERE NECESSARY

5.Q1	**Before you were 15 years old, did you:**	0	1
	a. repeatedly skip school or run away from home overnight?	NO	YES
	b repeatedly lie, cheat, "con" others, or steal?	NO	YES
	c start fights or bully, threaten, or intimidate others?	NO	YES
	d deliberately destroy things or start fires?	NO	YES
	e deliberately hurt animals or people?	NO	YES
	f force someone to have sex with you?	NO	YES
	g. ARE **2** OR MORE Q1 ANSWERS CODED **YES**?	NO	YES

IF 'NO' CIRCLE 'NO' IN DIAGNOSTIC BOX FOR ANTISOCIAL PERSONALITY DISORDER AND END MINI PLUS INTERVIEW.

DO NOT CODE **YES** TO THE BEHAVIORS BELOW IF THEY ARE EXCLUSIVELY POLITICALLY OR RELIGIOUSLY

5.Q2	**Since you were 15 years old, have you:**		
	a repeatedly behaved in a way that others would consider irresponsible, being impulsive or deliberately not working to support yourself?	NO	YES
	b done things that are illegal even if you didn't get caught (for example, destroying property, shoplifting, stealing, selling drugs, or committing a felony)?	NO	YES
	c been in physical fights repeatedly (including physical fights with your spouse or children)?	NO	YES
	d often lied or "conned" other people to get money or pleasure, or lied just for fun?	NO	YES
	e exposed others to danger without caring?	NO	YES
	f felt no guilt after hurting, mistreating, lying to, or stealing from others, or after damaging property?	NO	YES
	g. ARE **3** OR MORE **Q2** ANSWERS CODED **YES**?		

NO	*YES*
ANTISOCIAL PERSONALITY DISORDER LIFETIME	

PART 7: DAST

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID ___ /___ /___ /___
CRU: ___ /___
DATE: DAY / MO. / YR
SESSION: ___ *(0) baseline*

The following questions concern information about your possible involvement with drugs not including alcoholic beverages during the **past 3 months**. Carefully read each statement and decide if your answer is "Yes" or "No". Then, circle the appropriate response beside the question. If you are currently in treatment for drug dependency, please consider the **three month period prior** to your treatment entry.

In the statements "drug use" refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs.

The various classes of drugs may include: cannabis (marijuana, hashish), solvents, tranquillisers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions do not include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

These questions refer to the past 3 months…		**Circle your response**	
		1	**0**
1	Have you used drugs other than those required for medical reasons?	**Y**	**N**
2	Do you use more than one drug at a time?	**Y**	**N**
3	Are you always able to stop using drugs when you want to?	**Y**	**N**
4	Have you had "blackouts" or "flashbacks" as a result of drug use?	**Y**	**N**
5	Do you ever feel bad or guilty about your drug use?	**Y**	**N**
6	Does your spouse (or parents) ever complain about your involvement with drugs?	**Y**	**N**
7	Have you neglected your family because of your use of drugs?	**Y**	**N**
8	Have you engaged in illegal activities in order to obtain drugs?	**Y**	**N**
9	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	**Y**	**N**
10	Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	**Y**	**N**

7.11 SCORE *(Office use only)* [ ]

PART 8: AUDIT

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID ___ /___ /___ /___
CRU: ___ /___
DATE: *DAY / MO / YR*
SESSION: ___ *(0) baseline*

The following questions ask about your use of alcoholic beverages during the **last 3 months**. Please read the questions carefully and circle the response that best describes your use of alcoholic beverages during the **last 3 months**. If you are currently in treatment for drug dependency, please consider the **three month period prior** to your treatment entry. **You only complete these questions of you have consumed alcohol in the last 3 months.**

		Please circle your answer				
		0	**1**	**2**	**3**	**4**
8.1	How often do you have a drink containing alcohol?	**Never**	**Monthly or less**	**2-4 times a month**	**2-3 times a week**	**4 or more times a week**
8.2	How many drinks containing alcohol do you have on a typical day when you are drinking?	**1 or 2**	**3 or 4**	**5 or 6**	**7 to 9**	**10 or more**
8.3	How often do you have 6 or more drinks on one occasion?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.4	How often during the last 3 months have you found that you were not able to stop drinking once you had started?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.5	How often during the last 3 months have you failed to do what was normally expected from you because of drinking?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.6	How often during the last 3 months have you needed a first drink in the morning to get yourself going after a heavy drinking session?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.7	How often during the last 3 months have you had a feeling of guilt or remorse after drinking?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.8	How often during the last 3 months have you been unable to remember what happened the night before because you had been drinking?	**Never**	**Less than monthly**	**Monthly**	**Weekly**	**Daily or almost daily**
8.9	Have you or someone else been injured as a result of your drinking?	**No**		**Yes, but not in the last 3 months**		**Yes, during the last 3 mo.**
8.10	Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?	**No**		**Yes, but not in the last 3 months**		**Yes, during the last 3 mo.**

8.11 SCORE *(Office use only)* [ ]

PART 9: RTQ - SMOKING

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID: ___ /___ /___ /___
CRU: ___ /___
DATE: *DAY / MO / YR*
SESSION: ___ *(0) baseline*

INSTRUCTIONS:

The following questionnaire is about your use of cigarettes. Please read each statement carefully, and then circle the appropriate answer. Please circle only one answer for each question. **You only complete this questionnaire if you have smoked at all in the past 3 months**.

9.1 How many cigarettes a day do you smoke?	10 or less	11 – 15	16 – 20	21 – 25	26 or more
9.2 How deeply do you inhale?	1 I do not inhale	2	3 Moderately	4	5 Very Deeply
9.3 How often do you smoke more in the morning than during the rest of day?	1 Never	2	3 About half the time	4	5 Always
9.4 How often do you smoke your first cigarette of the day within 30 minutes of waking?	1 Never	2	3 About half the time	4	5 Always
9.5 How difficult would it be for you to give up your usual first cigarette of the day?	1 Not Difficult	2	3 Somewhat Difficult	4	5 Extremely Difficult
9.6 How difficult do you find it to refrain from smoking in places where it is prohibited (eg. in church, at the library, cinema, etc.)	1 Not Difficult	2	3 Somewhat Difficult	4	5 Extremely Difficult
9.7 How often do you smoke when you are sick with a cold, the flu, or are so ill that you are in bed most of the day?	1 Never	2	3 About half the time	4	5 Always
9.8 On average, about how much of each cigarette do you smoke?	1/3 or less	½	2/3	¾	All
9.9 On average, how often do you inhale?	1 Never	2	3 About half the time	4	5 Always
9.10 On average, how often do you hold cigarette smoke in your lungs for a moment or two before exhaling?	1 Never	2	3 About half the time	4	5 Always

9.11 TOTAL SCORE *Office Use Only*	**9.12 MEAN SCORE** *Office use only*

PART 10: MAP

PARTICIPANT ID:	___ /___ /___ /___ /___
INTERVIEWER ID:	___ /___ /___ /___
CRU:	___ /___
DATE:	*DAY / MO / YR*
SESSION:	___ *(0) baseline*

INSTRUCTIONS:

The following questions measure problems relating to physical and psychological health over the past **3 months**. These may include problems that you have had because of drug use or withdrawal. Please answer all questions (2 sets of 10 questions) by circling ONE number that best corresponds to your answer. If you are currently in treatment for drug dependency, please consider the **three month period prior** to your treatment entry.

Please leave the box marked "SCORE" at the bottom of each set of questions for the interviewer to complete.

10.1 PHYSICAL HEALTH SYMPTOMS

In the past **3 months**, how often have you experienced the following physical health symptoms?

	Never	Rarely	Sometimes	Often	Always
a. Poor appetite	**0**	**1**	**2**	**3**	**4**
b. Tiredness/fatigue	**0**	**1**	**2**	**3**	**4**
c. Nausea (feeling sick)	**0**	**1**	**2**	**3**	**4**
d. Stomach pains	**0**	**1**	**2**	**3**	**4**
e. Difficulty breathing	**0**	**1**	**2**	**3**	**4**
f. Chest pains	**0**	**1**	**2**	**3**	**4**
g. Joint/bone pains	**0**	**1**	**2**	**3**	**4**
h. Muscle pains	**0**	**1**	**2**	**3**	**4**
i. Numbness/tingling	**0**	**1**	**2**	**3**	**4**
j. Tremors/shakes	**0**	**1**	**2**	**3**	**4**

k. *(SCORE)* ***SCORE:*** ☐ *(Office use only)*

10.2 PSYCHOLOGICAL HEALTH SYMPTOMS

In the past **3 months**, how often have you experienced the following emotional or psychological symptoms?

	Never	Rarely	Sometimes	Often	Always
a. Feeling tense	**0**	**1**	**2**	**3**	**4**
b. Suddenly scared for no reason	**0**	**1**	**2**	**3**	**4**
c. Feeling fearful	**0**	**1**	**2**	**3**	**4**
d. Nervousness or shakiness inside	**0**	**1**	**2**	**3**	**4**
e. Spells of terror or panic	**0**	**1**	**2**	**3**	**4**
f. Feeling hopeless about the future	**0**	**1**	**2**	**3**	**4**
g. Feelings of worthlessness	**0**	**1**	**2**	**3**	**4**
h. Feeling no interest in things	**0**	**1**	**2**	**3**	**4**
i. Feeling lonely	**0**	**1**	**2**	**3**	**4**
j. Thoughts of ending your life	**0**	**1**	**2**	**3**	**4**

k. ***(SCORE)*** ***SCORE:*** ☐

PART 11: RCQ-D FORM

PARTICIPANT ID: ___ /___ /___ /___ /___
INTERVIEWER ID: ___ /___ /___ /___
CRU: ___ /___
DATE: *DAY / MO / YR*
SESSION: ___ *(0) baseline*

INSTRUCTIONS:

The following questionnaire is designed to identify how you personally feel about the drugs you use right now. Please read each statement carefully, and decide whether you agree or disagree with the statements. Please tick only one box in answer to each question.

Please Note that "drugs" in this questionnaire refers to drugs and/or alcohol

		1 Strongly Disagree	2 Disagree	3 Unsure	4 Agree	5 Strongly Agree
11.1	I don't think I use drugs too much.	☐	☐	☐	☐	☐
11.2	I am trying to use drugs less than I used to.	☐	☐	☐	☐	☐
11.3	I enjoy my drug use, but sometime I use them too much.	☐	☐	☐	☐	☐
11.4	Sometimes I think I should cut down on my drug use.	☐	☐	☐	☐	☐
11.5	It's a waste of time thinking about my drug use.	☐	☐	☐	☐	☐
11.6	I have just recently changed my drug use habits.	☐	☐	☐	☐	☐
11.7	Anyone can talk about wanting to do something about drug use, but I am actually doing something about it.	☐	☐	☐	☐	☐
11.8	I am at the stage where I should think about using drugs less.	☐	☐	☐	☐	☐
11.9	My drug use is a problem sometimes.	☐	☐	☐	☐	☐
11.10	There is no need for me to think about changing my drug use.	☐	☐	☐	☐	☐
11.11	I am actually changing my drug use habits right now.	☐	☐	☐	☐	☐
11.12	Using drugs less would be pointless for me.	☐	☐	☐	☐	☐