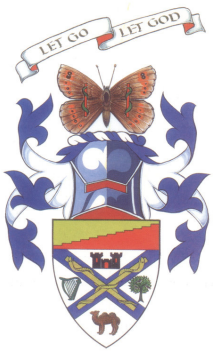
Outcomes for Dutch patients at Castle Craig Hospital



the 2013 evaluation for all Dutch patients admitted between 26.05.10 to 12.12.11

Independent analysis of outcome data
Christo Research Systems

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Summary of findings

- One hundred and one drug and 110 alcohol dependent patients from the Netherlands entered Castle Craig Hospital from 26th May 2010 to 12th December 2011 and stayed in treatment for more than 1 day.

- All 211 patients were Dutch nationals from the Netherlands, 161 males and 50 females.

- Most patients were alcohol or cocaine addicts.

- The patients' average age was 38.5 years (r*ange* = 19 - 67). Females were generally older than the males, drinkers tended to be older and drug users tended to be younger.

- Seventy five of the patients had been formally diagnosed with another Axis I mental health condition in addition to their substance misuse.

- Sixty two patients were diagnosed with Axis II disorders, a disproportionate number of them female.

- One hundred and thirteen patients were diagnosed with Axis III disorders, a disproportionate number of them female and drinkers.

- Nearly all patients (210) were diagnosed with one or more Axis IV factors.

- Most patients (154) came to Castle Craig on their own initiative, 39 were referred from mental health or addictions services, 10 from psychiatrists, 5 by their General practitioner, 2 by their insurance company and 1 by their solicitor.

- The patients' average wait between referral to assessment 2.0 weeks.

- The patients' average wait between assessment to treatment entry was 6.8 weeks.

- Patients' greatest problems were with drug or alcohol use, lack of support, lack of occupation and psychological problems.

- 69% of patients completed treatment, 14% of patients prematurely self-discharged against medical advice, 13% of patients were discharged for rule violations, 2% took a planned premature discharge, and 2% dropped out of treatment.

- 4 of the 211 patients (1.9%) stayed less than 4 weeks which qualifies as 'dropped out'.

- The average treatment duration for patients completing treatment was 18 weeks, and the average treatment duration for prematurely discharged patients was 9 weeks.

- Almost two thirds of patients completing treatment did well, whereas only one third taking premature discharges (for whatever reason) had a good outcome.

- Follow-ups were successfully completed on 162 of the 211 patients (77% response rate). Forty eight patients could not be contacted and 1 patient refused to answer the follow-up questions.

- The average follow-up period was 56 weeks after discharge.

- 77% of followed-up patients improved, 16% remained the same and 7% got worse.

- Good outcome was predicted by
  - Completion of treatment
  - Longer treatment duration
  - Being older
  - Fewer problems with occupation
  - Fewer problems with criminal behaviour

- The average intake CISS score of the 162 followed-up patients was 8.8 and the average follow-up CISS score was 4.6 indicating a highly significant improvement in general functioning.

- Reductions in drug / alcohol use at follow-up were generally accompanied by improvements in most other aspects of the patients' lives.

- Even those who were not totally abstinent at follow-up appeared to have benefited from their experience in treatment, probably by gaining a period of respite during which to recover from the consequences of their excessive drinking or drug use.

- Post treatment '12 step' meeting attendance was associated with good outcomes.

- The following success rates are conservatively based by including all 211 patients on the assumption that the 49 patients not followed-up (response rate = 76.8%) showed no improvement or otherwise had poor outcomes.
  - Being totally abstinent from all drugs or alcohol at follow-up
    47.4% (n = 100)
  - Achieving low problem severity at follow-up (CISS < 6, see appendix)
    50.7% (n = 107)
  - Showing any reduction in measured levels of dysfunction
    59.2% (n = 125)

However the success rates might be higher because some of the missing patients would not have been contactable due to having recovered and being in full time occupation.

- The following success rates are thus more liberally based by excluding the 49 patients not responding to follow-up (*new sample size* = 162).
  - Being totally abstinent from all drugs or alcohol at follow-up
    61.7% (n = 100)
  - Achieving low problem severity at follow-up (CISS < 6, see appendix)
    66.0% (n = 107)
  - Showing any reduction in measured levels of dysfunction
    77.2% (n = 125)

General approach

Castle Craig Hospital provides an abstinence oriented residential treatment for alcohol or drug dependent individuals. It uses an established treatment model developed in the US around 1950 and first imported to the UK in 1974 (Cook, 1988a). Outcomes generated by this approach are very good (Cook, 1988b) and have been shown to be at least equal to and in some cases better than other commonly used treatments for substance misuse (Project MATCH, 1997; Ouimette et al, 1997; Longabaugh et al, 1998).

It is an intensive psychologically oriented approach consisting of regular group work, one to one counselling, lectures and written assignments. Many similar therapeutic communities are well established throughout the UK and their programme facilitates engagement with the independent free after care resource provided by Alcoholics Anonymous and Narcotics Anonymous (AA & NA) groups. Regular attendance of AA and NA has been shown to be associated with reduced drug or alcohol use (Emrick, 1987; McLatchie & Lomp, 1988; Alford et al, 1991; Christo & Franey, 1995; Gossop et al, 2003), improved psychological health (Christo & Sutton, 1994; DeSoto et al, 1989; DeSoto et al, 1985; McCown, 1989; McCown, 1990), and with improved physical health (Mann et al, 1991).

Services offered

Castle Craig Hospital offers detoxification from alcohol, tranquillisers, or opiates. Patients are encouraged to engage with all aspects of the programme during detoxification because it serves as a useful distraction from withdrawal symptoms and assists in their orientation. Patients are also assessed to identify specific medical (e.g. liver dysfunction), psychological (e.g. cognitive deficits, anxiety, abuse or traumatic events), or psychiatric (e.g. dual diagnosis, suicide risk, epilepsy) problems that may need to be addressed in their individual care plans.

The first phase of treatment includes comprehensive assessment, detoxification, stabilisation, treatment planning and intensive individual and group psychotherapy. The duration of this phase is about six weeks. Therapy staff employ a full range of psychotherapeutic approaches depending upon their training and interests (e.g. Twelve Step Facilitation, Rational Emotive Behavioural Therapy, Cognitive Behavioural Therapy, Reality Therapy, and Transactional Analysis).

This phase continues with a second phase of short to medium term treatment with a further duration up to 24 weeks. This additional period of treatment is especially suitable for those patients with co morbid psychiatric disorders such as personality disorder, depressive disorders, phobias, generalised anxiety, poor support networks or social functioning. Addiction complicated by a psychiatric diagnosis is generally associated with worse outcomes. Such patients have more complex needs and need longer in treatment. The treatment in the second phase remains intensive, continuing to address those factors which have an immediate bearing on relapse. As well as using the same elements found in the primary phase of treatment, this second phase of care also assists patients to re-integrate with society by focusing on practical

issues of occupation, and family problems.

Castle Craig Hospital can offer aftercare group therapy held in a number of locations in Scotland and in the Netherlands at Amsterdam and Den Haag. All clients are encouraged to attend one or more of these aftercare sessions weekly for a period of up to two years after completing their residential treatment.

Aims of treatment

- Detoxification and stabilisation, abstaining from alcohol and other drugs.
- Creating a therapeutic bond to facilitate engagement with support from staff, peers, and AA or NA.
- Separating from people, places and things that promote substance use and establishing a new social network that supports recovery.
- Identifying recurrent problems, resolving painful / traumatic memories.
- Stopping compulsive self-defeating behaviours that suppress awareness of painful feelings and irrational thoughts.
- Relapse warning sign identification and management strategies. Identifying past causes of lapse and appropriate future coping strategies.
- Learning how to manage feelings and emotions responsibly without resorting to compulsive behaviour or the use of chemicals.
- Identifying and changing dysfunctional core beliefs (about self, others, and the world) that promote the use of irrational thinking and create painful feelings and self-defeating behaviours.
- Learning to change maladaptive behaviour patterns developed during childhood in dysfunctional families of origin.
- Increasing self-esteem by feeling worthwhile to self and helping others, promoting engagement with society, dealing with practical problems and establishing meaningful occupation.

Outcome measures & methods

How outcome was measured

Outcome was measured by the Christo Inventory for Substance-misuse Services (CISS) which is a standardised, validated tool (Christo, Spurrell & Alcorn, 2000, Christo, 2000a) now commonly used in Scotland (Effective Interventions Unit, 2001), England & Wales (Audit Commission, 2002; Christo, 1999a,b,c; Christo, 2000b,c,d,e,f, Christo, 2001), and abroad (Christo & Da Silva, 2002). The CISS is a single page outcome evaluation tool completed by drug / alcohol service workers either from direct client interviews or from personal experience of their client supplemented by existing assessment notes. Its purpose is to elicit workers' impressions of their clients in a quick, quantitative, standardised and reliable way. The 0 to 20 scale consists of 10 items reflecting clients' problems with:

Social functioning	Criminal involvement
General health	Drug / alcohol use
Sexual / injecting risk behaviour	Ongoing support
Psychological functioning	Compliance
Occupation	Working relationships

These outcome areas are scored on a three point scale of problem severity (0 = none, 1 = moderate, 2 = severe), each point is illustrated with relevant examples for guidance. Thus, a CISS score of 0 would indicate no problems and a score of 20 would indicate severe problems in all outcome areas.

Evaluation procedure

CISS is incorporated as a regular part of Castle Craig Hospital's intake and follow-up procedures. Baseline CISS forms were completed by staff from information gathered at the first assessment. They were then completed again during follow-up interviews on average about 62 weeks after discharge from treatment. A table of relevant dates, CISS information and other data for all Dutch patients was created by Suzanne Wagemans MSc and delivered to Christo Research Systems for analysis.

Sample

The sample comprised of all patients from the Netherlands who entered treatment between 26th May 2010 to 12th December 2011 and stayed in treatment for more than 1 day. Two hundred and eleven patients met these criteria, attempts were made to follow up all of them and 162 patients (76.8%) were successfully contacted in order to obtain the detailed information presented below. This evaluation thus details the outcomes for the 162 patients (123 males, 39 females) who were followed-up.

Findings regarding all 211 patients

Statistical information

- ***n*** indicates the number of individuals contributing to each statistical sample.
- ***m*** indicates a mean value, all averages in this report are means.
- ***sd*** indicates a standard deviation, thus giving an idea of the spread of scores around the mean. (In a normal distribution, 68% of all data points lie plus or minus one sd about the mean.)
- ***range*** indicates the total range of values within a measured variable (minimum - maximum).
- ***t , f,*** χ^2 and ***U*** are statistical tests to show if groups are significantly different from each other.
- ***p*** indicates the level of significance of a statistical test, the smaller the better.

Gender

161 males	76.3 %
50 females	23.7 %

Nationality and ethnic origins: All 211 patients were Dutch nationals from the Netherlands.

Treatment experience

25 of the 211 patients had previously had treatment at Castle Craig. Males appeared more likely to have been to Castle Craig before, 14.3% of males but only 4.0% of females (χ^2 [1] = 3.9, $p < .05$). Prior treatment experience was unrelated to treatment completion.

Drugs of choice

110 patients using alcohol	52.1%	Alcohol 52.1%
57 patients using cocaine	27.0%	Drugs 47.9%.
21 patients using cannabis	10.0%	.
11 patients using opiate/oids	5.2 %	.
10 patients using sedatives	4.7 %	
2 patients using amphetamines	0.9 %	.

Secondary drugs of choice

Among the 110 drinkers, 83 of them had a secondary drug recorded as follows:
23 also using polysubstances
20 also using cocaine
17 also using nicotine (although the majority of patients also smoke nicotine)
14 also using cannabis
6 also using sedatives
2 also using amphetamines
1 also using opiate/oids

Among the 101 drug users, 83 of them had a secondary drug recorded as follows:
30 also using polysubstances
21 also using alcohol
9 also using cannabis
8 also using nicotine (although the majority of patients also smoke nicotine)
8 also using cocaine
3 also using sedatives
3 also using opiate/oids
1 also using amphetamines

The above picture of polysubstance use illustrates why interventions targeting single drug types might sometimes prove ineffective. Castle Craig's therapeutic target is total abstinence from all recreational drugs including alcohol (but not including nicotine and caffeine).

Table 1, Gender distribution by drug type

	Alcohol dependent	**Cocaine dependent**	**Other**	Total
Females	34 (68.0%)	5 (10.0%)	11 (22.0%)	50
Males	76 (47.2%)	52 (32.3%)	33 (20.5%)	161
Total	110	57	44	211

Table 1 above illustrates that females were more likely than males to be alcohol dependent and less likely than males to be cocaine dependent in this sample (χ^2 [2] = 10.2, p = .006) .

Table 2, Average Age by Drug type by Gender

The patients' average age was 38.5 years (n = 211, sd = 11.5, *range* = 19 - 67)

	Alcohol dependent	**Cocaine dependent**	**Other drug**	Total
Females	45.7 yrs (n=34)	47.9 yrs (n=5)	31.7 yrs (n=11)	42.8 yrs (n=50)
Males	41.8 yrs (n=76)	34.4 yrs (n=52)	30.7 yrs (n=33)	37.1 yrs (n=161)
Total	43.0 yrs (n=110)	35.6 yrs (n=57)	30.9 yrs (n=44)	38.5 yrs (n=211)

As illustrated in table 2 above, females were generally older than males (t [209] = 3.1, p = .002). Drinkers tended to be older and drug users tended to be younger (f [2] = 24.2, p < .001).

Concurrent Diagnoses

The Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association provides a common language and standard criteria for the classification of mental disorders. The DSM-IV organizes each psychiatric diagnosis into five levels (axes) relating to different aspects of disorder or disability:

- Axis I: clinical disorders, including major mental disorders, as well as developmental and learning disorders
- Axis II: underlying pervasive or personality conditions, as well as mental retardation
- Axis III: Acute medical conditions and Physical disorders.
- Axis IV: psychosocial and environmental factors contributing to the disorder
- Axis V: Global Assessment of Functioning

Axis I (clinical disorders)
All 211 patients had a primary Axis I diagnosis of drug and or alcohol dependence and 75 patients (35.5%) were also diagnosed with additional Axis I conditions:

15	diagnosed with Attention Deficit Hyperactivity Disorder
12	diagnosed with Mood disorder due to a substance
9	diagnosed with Post Traumatic Stress Disorder
8	diagnosed with Depressive Disorder
5	diagnosed with Pathological Gambling
3	diagnosed with Adjustment Disorder
3	diagnosed with Bipolar Disorder
3	diagnosed with Obsessive Compulsive Disorder
3	diagnosed with Eating disorder
2	diagnosed with Anxiety disorder due to a substance
2	diagnosed with Psychotic disorder due to a substance
2	diagnosed with Social Phobia
1	diagnosed with Bereavement
1	diagnosed with Dementia NOS
1	diagnosed with Dysthymic Disorder
1	diagnosed with Generalised Anxiety Disorder
1	diagnosed with Identity Problem
1	diagnosed with Panic Disorder
1	diagnosed with Sleep terror disorder
1	diagnosed with Sexual abuse as an adult

- The patients' gender was not related to the presence of an Axis I diagnosis.
- The patients' drug of choice was not related to the presence of an Axis I diagnosis.
- Treatment completion was not related to the presence of an Axis I diagnosis.

Axis II (underlying conditions)
62 of the patients (29.4%) were diagnosed with Axis II disorders:

29	diagnosed with Personality Disorder Not Otherwise Specified
21	diagnosed with Borderline Personality Disorder
4	diagnosed with Dependent Personality Disorder
2	diagnosed with Antisocial Personality Disorder
2	diagnosed with Avoidant Personality Disorder
2	diagnosed with Narcissistic Personality Disorder
1	diagnosed with Schizotypal Personality Disorder
1	diagnosed with Histrionic Personality Disorder

- A greater proportion among females (48.0%) were diagnosed with personality disorders than among males (23.6%) in this sample (χ^2 [1] = 10.9, p = .001).
- The patients' drug of choice was not related to the presence of a personality diagnosis.
- Treatment completion was not related to the presence of a personality diagnosis.

Axis III (acute medical conditions)
113 of the patients (53.6%) were diagnosed with Axis III disorders like acute alcohol hepatitis, acute pancreatitis, alcohol liver cirrhosis, hepatitis B or C, HIV infection, lung infection or obesity:

11	diagnosed with 3 medical conditions
17	diagnosed with 2 medical conditions
85	diagnosed with 1 medical condition

- A greater proportion among females (70.0%) were diagnosed with one or more acute medical conditions than among males (48.4%) in this sample (χ^2 [1] = 7.1, p = .008).
- A greater proportion among drinkers (62.7%) were diagnosed with one or more acute medical conditions than among cocaine (45.6%) or other drug (40.9%) users in this sample (χ^2 [2] = 8.0, p = .02).
- However, treatment completion was not related to the presence of an acute medical condition.

Axis IV (psychosocial and environmental factors)
210 of the patients (99.5%) were diagnosed with Axis IV factors:

120	diagnosed with 3 problems
65	diagnosed with 2 problems
25	diagnosed with 1 problem
1	was found to have no factors contributing to his disorder

- The number of psychosocial and environmental factors was unrelated to patients' gender, drug type, or treatment completion.

Of the 211 patients in this sample:

- 75 patients (35.5%) had an Axis I diagnosis besides dependence
- 119 patients (56.4%) had an Axis I diagnosis and an Axis II diagnosis
- 166 patients (78.7%) had an Axis I diagnosis, an Axis II diagnosis and an Axis III diagnosis

This indicates that 78.7% of the patients had some kind of concurrent physical and/or mental health diagnosis as well as their substance dependence. And only 45 (21.3%) patients presented without complications from mental or physical problems in addition to their substance dependence. However all of those remaining 45 patients were found to have Axis IV problems (psychosocial and environmental factors like no job, social isolation, overburdened family) contributing to their substance dependence. Most of them where also dependent on more than one substance (82.2%). This is typical of what may be expected within an inpatient setting and confirms that uncomplicated cases of pure substance dependence rarely attend an intensive inpatient level of intervention.

Table 3, Referral sources

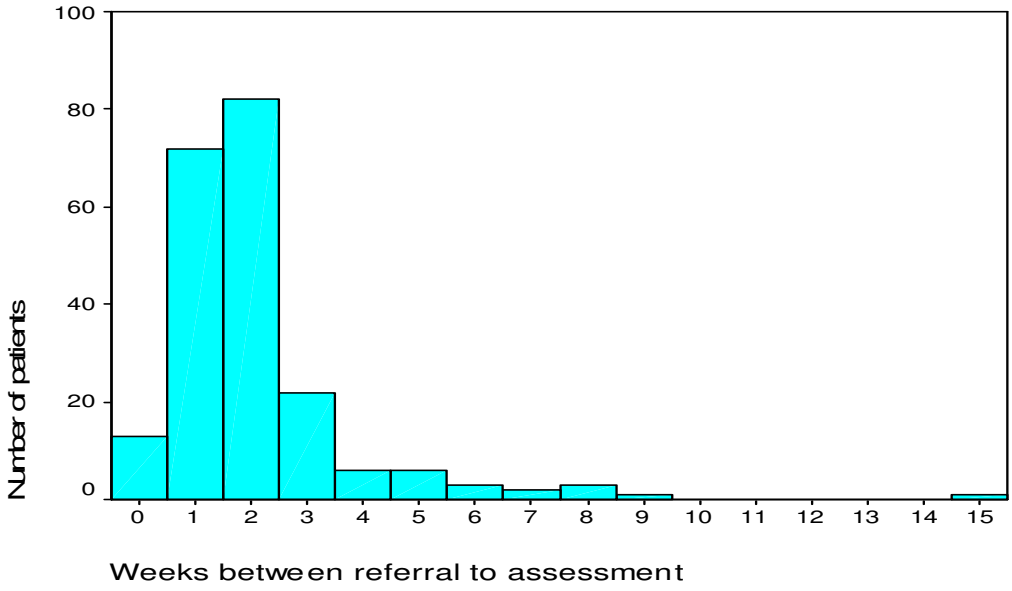
The greatest proportion of patients was self-referred, meaning that they came to Castle Craig on their own initiative (via internet, friends, former patients or AA/NA), followed by those referred by mental health or addictions services, psychiatrists, and then General Practitioners. However all self-referred patients were instructed to get a referral letter from their GP, given that a GP referral is compulsory before treatment can begin.

Referral Source	*n*	%	Mean treatment duration (weeks)	% completed treatment	Mean age (years)	% female
Self-referred	154	73.0	15.7	69.5	37.9	23.4
Mental health or addictions service	39	18.5	14.5	66.7	40.1	23.1
Psychiatrist	10	4.7	16.3	70.0	38.8	20.0
General Practitioner (GP)	5	2.4	13.8	80.0	43.2	40.0
Insurance Company	2	0.9	7.6	50.0	48.1	50.0
Solicitor	1	0.5	11.1	0.0	-	0.0
Total	211	100	15.3	68.7	38.5	23.7

Referral sources were not significantly related to drug type, time taken to enter treatment, treatment duration, treatment completion, age, or gender.

Time from referral to assessment

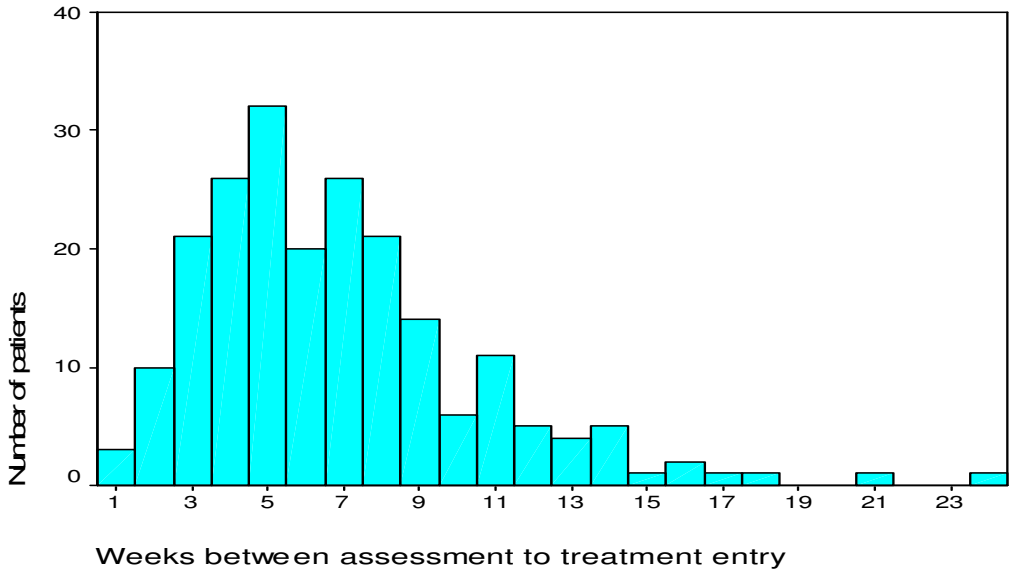
Figure 1 below shows the patients' average time between referral and assessment was 2.0 weeks (*n* = 211, *sd* = 1.7, *range* = 0 – 14.9). Entry time was unrelated to gender, referral source, drug of choice, premature treatment discharge or eventual outcome.



The delay of 15 weeks was due to the patient having to resolve work and financial problems

Time from assessment to treatment entry

Figure 2 below shows the patients' average time between assessment and treatment entry was 6.8 weeks (*n* = 211, *sd* = 3.6, *range* = 0.7 – 24.0). Entry time was unrelated to gender, referral source, drug of choice, premature treatment discharge or eventual outcome.



The longer delays between referral to treatment entry were generally due to patients' issues such as: psychiatric or medical problems, financial problems, personal problems or detoxification in the Netherlands before admission.

Patients' problems at intake

The average intake CISS total score of the 211 patients was 9.1 (*sd* = 2.4, *range* 4 - 16). Patients' greatest problems were with drug or alcohol use, lack of support, lack of occupation and psychological problems.

For 101 drug dependent patients:

- 3.0 % of patients had low problem severity (CISS score 0 to 5)
- 86.1% of patients had average problem severity (CISS score 6 to 12)
- 10.9% of patients had high problem severity (CISS score 13 to 20)

For 110 alcohol dependent patients:

- 2.7% of patients had low problem severity (CISS score 0 to 4)
- 85.5% of patients had average problem severity (CISS score 5 to 11)
- 11.8% of patients had high problem severity (CISS score 12 to 20)

There was no significant relationship between gender and average total score. However the mean CISS total score (*m* = 10.4, *sd* = 2.2) of the 44 'other drug' users was higher than for the 57 cocaine (*m* = 8.8, *sd* = 2.5) or 110 alcohol users (*m* = 8.8, *sd* = 2.2). This elevation was statistically significant (f [2] = 8.3, $p < .001$).

Figure 3, Baseline CISS item scores by drug type

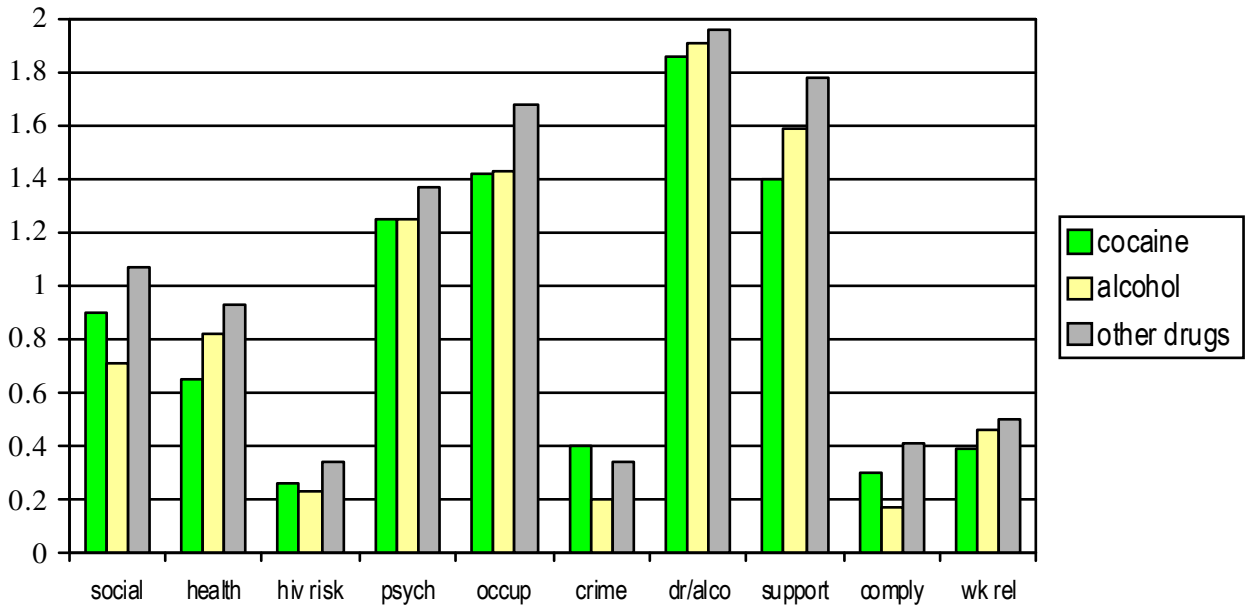


Figure 3 compares the average CISS item scores (0 to 2 scale) as assessed at intake between the 57 cocaine, 95 alcohol, and 44 'other drug' dependent patients. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain. 'Other drug' users tended to have greater:

- Social functioning problems (χ^2 [2] = 8.7, p = .013)
- Support problems (χ^2 [2] = 8.5, p = .014)
- Compliance problems (χ^2 [2] = 9.4, p = .009)

Reasons for discharge from Castle Craig

- 145 Patients completed treatment 68.7 %

- 66 Patients left prematurely (incomplete treatment) 31.3 %
- of which…
  - 30 patients prematurely self-discharged against medical advice 14.2 %
  - 27 patients were prematurely discharged for rule violations 12.8 %
  - 5 patients had a "planned" premature discharge 2.3%
  - 4 patients were recorded as "dropped out" (treatment <4 weeks) 1.9%

The average treatment duration for patients completing treatment was 18.4 weeks (n = 145, sd = 5.7), it was significantly longer than the prematurely discharged patients' average treatment duration of 8.7 weeks (n = 66, sd = 5.6), (t [209] = 11.5, p < .001).

The average age of patients completing treatment was 40.1 years (n = 145, sd = 11.7), it was significantly older than the prematurely discharged patients' average age of 34.9 years (n = 66, sd = 10.2), (t [209] = 3.1, p = .002).

No other intake variables were associated with treatment completion.

Dropout rate during the first four weeks

Only 4 of the 211 patients (1.9%) stayed less than 4 weeks.

Outcome

Attempts were made between 30.01.12 and 08.02.13 to contact all 211 patients via telephone, e-mail and post. Those who could be contacted were interviewed using the CISS outcome measure. Follow-ups were successfully completed on 162 of the 211 patients (76.8%). Of the remaining 49:

- 48 patients could not be contacted by telephone, e-mail or letter (they either moved, changed their telephone number or e-mail address and didn't leave a forwarding address or give their new number. Or they didn't want contact or they didn't have the time)
- 1 patient refused to answer the follow-up questions

In treatment outcome follow-up studies such as this one it is not unreasonable to assume that the majority of patients not accessible, will have relapsed.

Christo, Spurrell & Alcorn (2000) found a CISS cut-off score of 6 or less can be used to indicate "good outcome" for abstinence based treatment among drug users. This correctly identified 88% of outcomes where drug use was assessed only in month before follow-up, and 84% of outcomes where drug use was assessed over their entire six-month follow-up period. Alcoholics are generally expected to score one CISS point less than drug addicts.

So due to the large number of alcoholics in this sample, a conservative cut-off score of 5 or less was used to indicate "good outcome" for abstinence based treatment among the Castle Craig Patients.

The patients could thus be categorised under the following outcomes:

107 had a follow-up CISS score of 5 or less	50.7 %	Good outcome 51 %
55 had a follow-up CISS score of 6 or more	26.1 %	Poor outcome 49%
49 could not be contacted	23.2 %	.

Table 4, Outcome by treatment completion, and treatment duration

Outcome	**% Completed (*n*)**	**Mean weeks in treatment**
Good (*n* = 107)	82.2% (88)	16.4 (*sd* = 6.8)
Poor (*n* = 104)	54.8% (57)	14.3 (*sd* = 7.5)
Significance	χ^2 [1] = 18.5, $p < .001$	t [209] = 2.2, $p = .03$

Table 4 above illustrates that 'good outcome' is experienced by a greater proportion of those who completed their treatment; 'good outcome' is also associated with a longer stay in treatment.

The average age of patients with good outcome 40.4 years (n = 107, sd = 11.7), it was significantly older than the poor outcome patients' average age of 36.6 years (n = 104, sd = 11.0), (t [209] = 2.4, p = .02).

Patients' referral source was not significantly related to outcome, although all 5 referrals from GPs had good outcomes.

Gender, drug of choice, mental health diagnoses, or time taken to enter treatment, were unrelated to outcome.

CISS scores at treatment entry and subsequent outcome

The mean CISS score for patients with a good outcome was 8.6 (n = 107, sd = 2.2), it was significantly lower (t [209] = 3.4, p = .001) than the poor outcome patients' mean score of 9.7 (n = 104, sd = 2.4).

Figure 4, Baseline CISS item scores by outcome

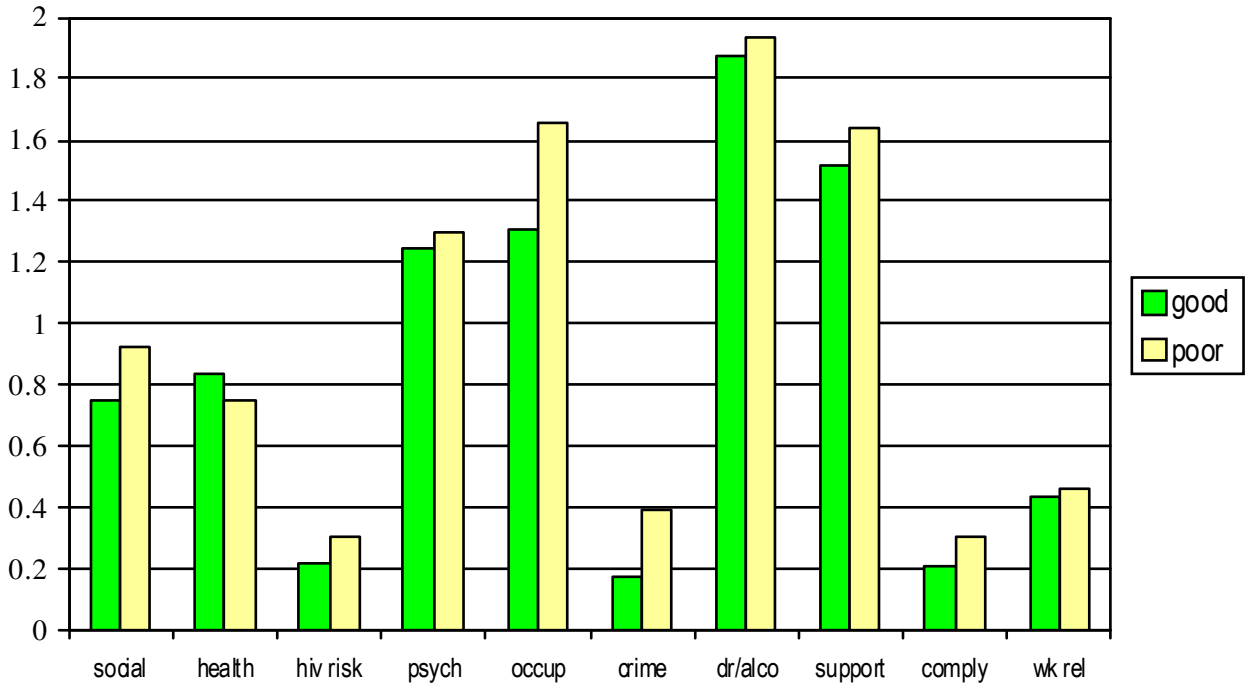


Figure 4 compares the average CISS item scores (0 to 2 scale) as assessed at intake between the 107 good and the 104 poor outcome patients. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain. 'Good outcome' patients tended to have fewer problems with occupation (U = 4395, p = .002) and fewer problems with criminal behaviour (U = 4515, p = .002).

Table 5, Discharge status and outcome

	Completed treatment	Left Against Medical Advice	Discharged for rule violation	Planned premature discharge	Dropped out	total
% good	60.7	43.3	18.5	20.0	0	107
% poor	39.3	56.7	81.5	80.0	100	104
Total *n*	145	30	27	5	4	211

The expected split in table 5 above should be 50.7% good : 49.3% poor for all discharge types. Notable departures from this indicate that almost two thirds (60.7%) of patients completing treatment do well, whereas only one third taking premature discharges (for whatever reason) have a good outcome. This finding is statistically significant (χ^2 [4] = 23.6, p < .001). Future patients thinking of quitting treatment early should be made aware of this statistic.

Summary, predictors of planned discharge and good outcome

Premature discharge from treatment was associated with shorter treatment durations and poorer outcomes. But there were few predictors of premature discharge, only a tendency for personality disordered patients and those referred from mental health or addictions services to leave prematurely. However these factors did not predict eventual treatment outcome.

Eventual good outcome was predicted by

- Completion of treatment
- Longer treatment duration
- Being older
- Fewer problems with occupation
- Fewer problems with criminal behaviour

However, it should be remembered that these are only statistical trends and many clients without the above qualities will have good outcomes in any case. For example, 43% of patients taking a premature discharge against medical advice went on to have a good outcome anyway.

Findings regarding 162 patients followed-up

Attempts were made between 30.01.12 and 08.02.13 to contact all 211 patients via telephone, e-mail and post. Those who could be contacted were interviewed using the CISS outcome measure. Follow-ups were successfully completed on 162 of the 211 patients (76.8%). The following analyses only use this sub group of 162 patients.

Figure 5, follow-up periods

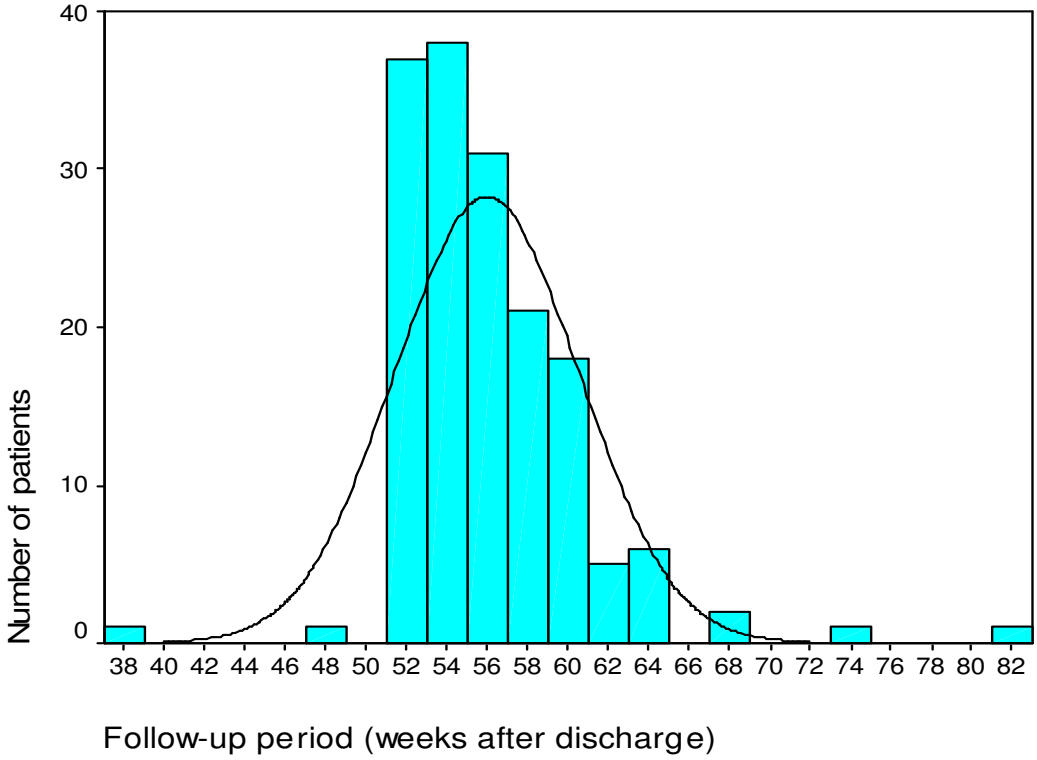


Figure 5 indicates the number of patients falling within each follow-up period. The majority of patients were followed-up after 52 weeks and the distribution is skewed to the longer follow-up periods on the right.

Standard follow-up times were hard to implement due to the long sampling period required to capture all the Dutch patients' treatment entry dates.

- Treatment entry took place between 26.05.10 to 12.12.11
- Follow-up interviews took place between 30.01.12 and 08.02.13

The average follow-up period was…

- From treatment entry: 72.1 weeks (*n* = 162, *sd* = 8.6, *range* = 45.1 – 100.7)
- From treatment discharge: 56.0 weeks (*n* = 162, *sd* = 4.6, *range* = 37.0 – 82.6)

Changes in patient dysfunction at follow-up

Figure 6, reductions of patient dysfunction

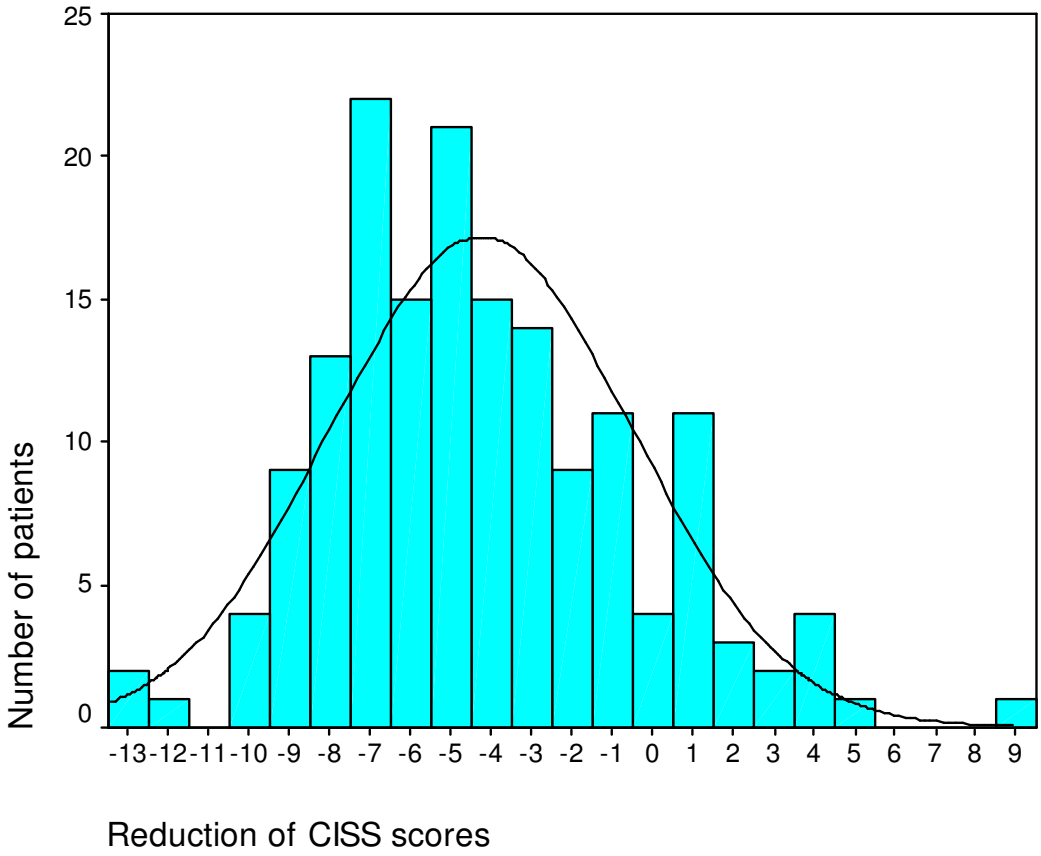


Figure 6 illustrates the reductions in CISS total scores achieved by the 162 patients who were followed-up. The inter-rater reliability of the CISS (Christo et al., 2000) would indicate that a score fluctuation of plus or minus one point is attributable to variations of CISS interpretation between raters. As such, only changes of 2 or more points are recognised as 'genuine' and on that basis:

- 77.2% of patients improved
- 16.0% of patients remained the same
- 6.8% of patients got worse

Seven patients achieved reductions of 10 CISS points or more. Changes of this magnitude are not uncommon among those who achieve total abstinence but would likely be perceived by the patients and their significant others as nothing short of miraculous.

Figure 7, the process of change

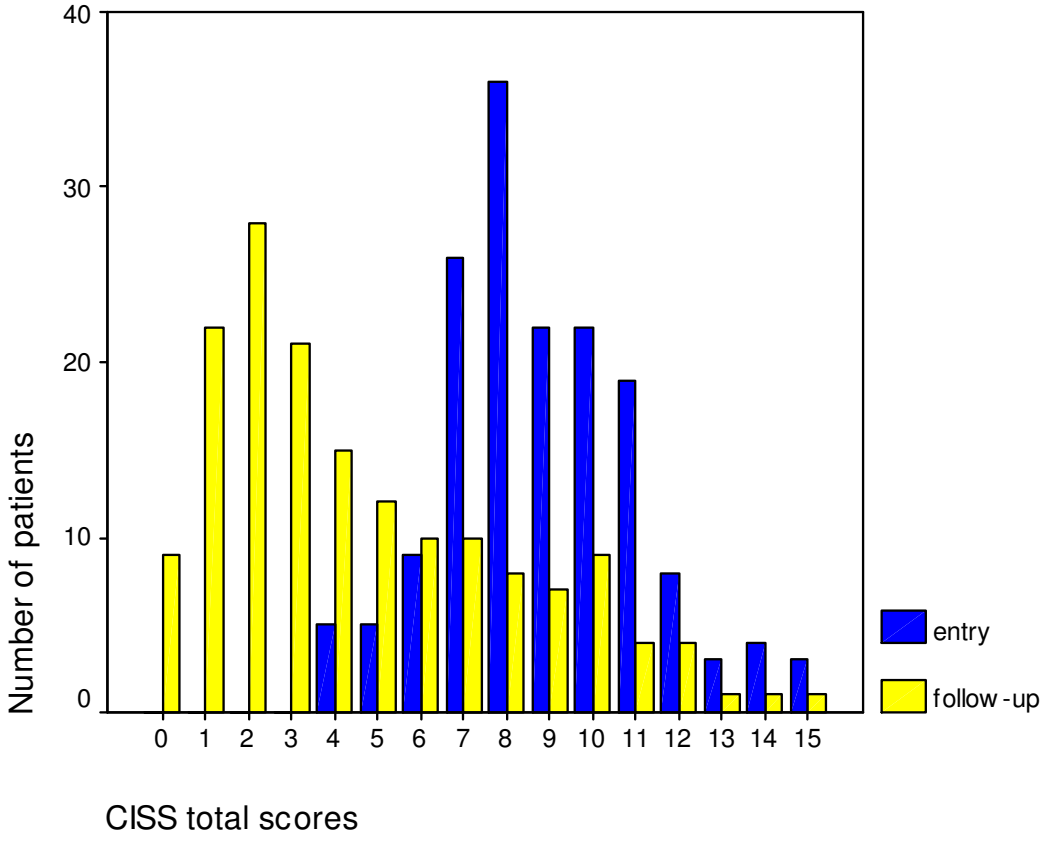


Figure 7 displays how CISS total scores are distributed among the 162 patients. Dark bars indicate the score distributions at intake and the light bars indicate score distributions at follow-up.

The average intake CISS total score of the 162 patients was 8.8 (*sd* = 2.3, *range* 4 - 15)
The average follow-up CISS total score of the 162 patients was 4.6 (*sd* = 3.5, *range* 0 - 15)
A paired sample t-test indicates this reduction to be highly significant (t [161] = 14.4, $p < .001$)

Figure 8, Changes in individual CISS item scores

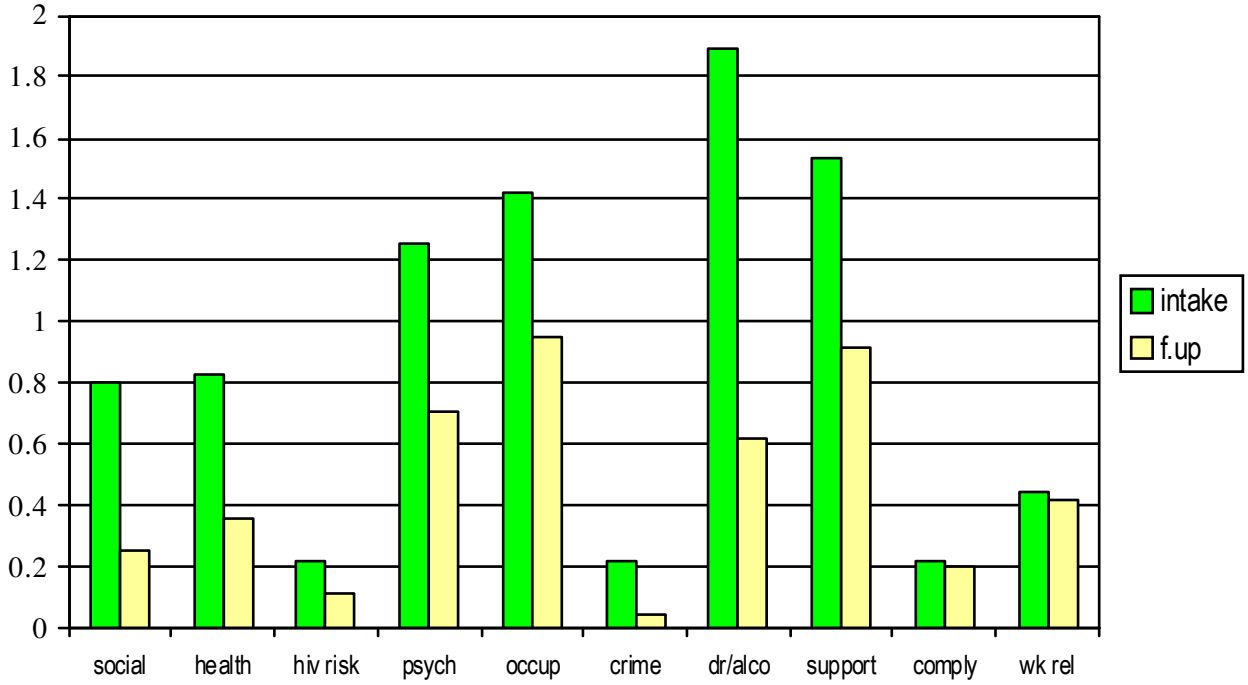


Figure 8 compares the average CISS item scores (0 to 2 scale) as assessed at intake and then again at follow-up. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain. As can also be seen in figure 2, the greatest problems at intake were with drug or alcohol use, lack of support, lack of occupation, and psychological problems.

Ten Wilcoxon Signed Ranks statistical tests indicated that the reductions in all CISS outcome domains were highly significant, except for 'compliance' and 'working relationships'. Thus indicating that reductions in drug / alcohol use were generally accompanied by improvements in most other aspects of the patients' lives.

Table 6, Outcome and '12 step' meeting attendance reported at follow-up

Outcome	**% Attenders (*n*)**	**% Non-attenders (*n*)**
Good (*n* = 107)	80.7% (71)	48.6% (36)
Poor (*n* = 55)	19.3% (17)	51.4% (38)
Total *n* = 162	100% (88)	100% (74)

Table 6 above illustrates that '12 step' meeting attendance (e.g. Alcoholics Anonymous, Narcotics Anonymous, Cocaine Anonymous, etc.), 80.7% of attenders and 48.6% of non-attenders were recorded as having a good treatment outcome. '12 step' meeting attendance is thus associated with good outcomes (χ^2 [1] = 18.4, $p < .001$). Among the 88 attenders (mean attendance = 2.2 meetings per week, *sd* = 1.9, *range* = 0.1 to 11). There was a positive relationship between outcome and frequency of attendance (Spearman's rho [*n*=88] = .28, *p* =

.009). There was a negative relationship between follow-up CISS total scores and frequency of attendance (Spearman's rho [*n*=88] = .27, *p* = .01).

This would indicate that those attending 12 step meetings at follow-up were more likely to have had a 'good outcome'. And among those who attend meetings, the more meetings attended per week the lower the CISS scores tended to be at follow-up.

Detailed outcomes and what they mean for the patients

The CISS form is a rough indicator of professional impression of recent drug / alcohol related problems in the past month. Specific situations / behaviours are listed only as guiding examples and may not reflect the exact situations / behaviours of the patient. The CISS wording has been left intact in the following tables to give an idea of the actual type of dysfunction an item score of 0, 1, or 2 might indicate within each domain. The tables below illustrate the percentage of 109 patients rated as having none, moderate or severe problems within each CISS domain at intake and then again at follow-up.

Social functioning	e.g.	Intake	Follow-up
No problem	client has a stable place to live and supportive friends or relatives who are drug / alcohol free	38.3%	79.6%
Moderate problem	client's living situation may not be stable, or they may associate with drug users / heavy drinkers	43.2%	15.4%
Severe problem	living situation not stable, and they either claim to have no friends or their friends are drug users / heavy drinkers	18.5%	4.9%

General health	e.g.	Intake	Follow-up
No problem	client has reported no significant health problems	29.6%	67.9%
Moderate problem	teeth/sleep problems, occasional stomach pain, collapsed vein, asymptomatic hep B / C / HIV	58.0%	28.4%
Severe problem	extreme weight loss, jaundice, abscesses / infections, coughing up blood, fever, overdoses, blackouts, seizures, significant memory loss, neurological damage, HIV symptoms	12.3%	3.7%

Sexual or injecting risk behaviour	e.g.	Intake	Follow-up
No problem	client claims not to inject, or have unsafe sex (except in monogamous relationship with longstanding partner, spouse)	80.9%	89.5%
Moderate problem	may admit to occasional "unsafe" sexual encounters, or suspected to be injecting but denies sharing injecting equipment	16.7%	9.3%
Severe problem	client may admit to regular "unsafe" sexual encounters, or has recently been injecting and sharing injecting equipment	2.5%	1.2%

Psychological	e.g.	Intake	Follow-up
No problem	client appears well adjusted and relatively satisfied with the way their life is going	0%	43.2%
Moderate problem	client may have low self-esteem, general anxiety, poor sleep, may be unhappy or dissatisfied with their lot	74.1%	43.2%
Severe problem	client has a neurotic disorder e.g., panic attacks, phobias, OCD, bulimia, recently attempted or seriously considered suicide, self-harm, overdose or may be clinically depressed. Or client may have psychotic disorders, paranoia (e.g., everybody is plotting against them), deluded beliefs or hallucinations (e.g. hearing voices)	25.9%	13.6%

Occupation	e.g.	Intake	Follow-up
No problem	client is in full time occupation e.g., homemaker, parent, employed, or student	19.1%	34.0%
Moderate problem	client has some part time parenting, occupation or voluntary work	19.8%	37.0%
Severe problem	client is largely unoccupied with any socially acceptable pastime	61.1%	29.0%

Criminal involvement	e.g.	Intake	Follow-up
No problem	no criminal involvement (apart from possible possession of illicit drugs for personal use)	79.6%	95.7%
Moderate problem	client suspected of irregular criminal involvement, perhaps petty fraud, petty theft, drunk driving, small scale dealing	19.1%	4.3%
Severe problem	suspected of regular criminal involvement, or breaking and entering, car theft, robbery, violence, assault	1.2%	0%

Drug / alcohol use	e.g.	Intake	Follow-up
No problem	no recent drug / alcohol use	1.9%	61.7%
Moderate problem	client suspected of periodic drug / alcohol use, or else may be socially using drugs that are not considered a problem, or may be on prescribed drugs but not supplementing from other sources	6.8%	14.8%
Severe problem	client suspected of bingeing or regular drug / alcohol use	91.4%	23.5%

Ongoing support	e.g.	Intake	Follow-up
No problem	regular attendance of AA / NA, drug free drop in centre, day centre, counselling, or treatment aftercare	9.3%	43.8%
Moderate problem	patchy attendance i.e., less than once a week contact with at least one of the above	27.8%	21.0%
Severe problem	client not known to be using any type of structured support	63.0%	35.2%

Compliance	e.g.	Intake	Follow-up
No problem	attends all appointments and meetings on time, follows suggestions, or complies with treatment requirements	78.4%	80.9%
Moderate problem	not very reliable, or may have been reported as having an "attitude" problem or other difficulty with staff	21.0%	17.9%
Severe problem	chaotic, may have left treatment against staff advice or been ejected for non-compliance e.g. drug use, attitude problem	0.6	1.2%

Working Relationship	e.g.	Intake	Follow-up
No problem	relatively easy going e.g., interviews easily, not time consuming or stressful to work with	58.6%	61.7%
Moderate problem	moderately challenging e.g., a bit demanding or time consuming, but not excessively so	38.3%	34.6%
Severe problem	quite challenging e.g., very demanding, hard work, time consuming, emotionally draining or stressful to see	3.1%	3.7%

Conclusions

- **The following success rates are conservatively based by including all 211 patients on the assumption that the 49 patients not followed-up (response rate = 76.8%) showed no improvement or otherwise had poor outcomes.**
    - **Being totally abstinent from all drugs or alcohol at follow-up**
      47.4% (*n* = 100)
    - **Achieving low problem severity at follow-up (CISS < 6, see appendix)**
      50.7% (*n* = 107)
    - **Showing any reduction in measured levels of dysfunction**
      59.2% (*n* = 125)

However the success rates might be higher because some of the missing patients would not have been contactable due to having recovered and being in full time occupation.

- **The following success rates are thus more liberally based by excluding the 49 patients not responding to follow-up (*new sample size* = 162).**
    - **Being totally abstinent from all drugs or alcohol at follow-up**
      61.7% (*n* = 100)
    - **Achieving low problem severity at follow-up (CISS < 6, see appendix)**
      66.0% (*n* = 107)
    - **Showing any reduction in measured levels of dysfunction**
      77.2% (*n* = 125)

Discussion

Castle Craig Hospital provides a service to people with a range of addiction severity. Those in this group are drug or alcohol dependent people who often have the additional complications of varying degrees of co-morbidity, lack of support, poor health, and psychological problems. However, good outcomes are achieved, despite overall high levels of associated problems at intake. Although the goal of Castle Craig's treatment is abstinence, it should be noted that many who fail to achieve that goal still report reduced levels of problem severity at follow-up. Thus, even the treatment 'failures' appeared to have benefited from their experience in treatment, possibly by gaining a period of respite during which to recover from the consequences of their excessive drinking or drug use.

Castle Craig Hospital continues to demonstrate their ability to produce high quality research within the limitations of a busy service setting. The notion of evidence led practice is frequently discussed, but it could be argued that experienced practitioners already make best use of their resources. Thus, the purpose of such research could only be to illustrate that the experts know what they are doing (e.g., practice led evidence). This view may well be partially justified, as many of the findings in this study are obvious to those who are familiar with the field. However, some findings here are obvious only with the benefit of hindsight and others may yet inform better practice and commissioning.

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Appendix, CISS comparison scores

Comparisons for interpreting CISS total score (sum of item scores)

Abstinence based treatment outcomes: Six-month outcomes for 90 treated drug users from abstinence based treatment centres

In the month before follow-up:	Good outcome: 48 were abstinent	and average CISS score was 2.9 (sd = 1.9)
	Poor outcome: 42 had used drugs	and average CISS score was 10.6 (sd = 4.3)
Over entire six month period:	Good outcome: 33 remained abstinent*	and average CISS score was 2.9 (sd = 2.0)
	Good outcome: 22 had a lapse*	and average CISS score was 4.5 (sd = 2.9)
	Poor outcome: 35 had a relapse*	and average CISS score was 11.2 (sd = 4.5)

* Lapse status was assessed using an eight-level scaling of lapse / relapse outcomes (as defined by Walton et al., 1994). Drug use over the entire six-month follow-up period was assessed using the principle of Timeline Follow Back (Sobell et al., 1988), as adapted for drug use by Walton et al. (1994).

N.B. a CISS cut-off score of 6 or less can be used to indicate "good outcome" for abstinence based treatment. This correctly identified 88% of outcomes where drug use was assessed only in month before follow-up, and 84% of outcomes where drug use was assessed over the entire six-month follow-up period.

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