
Outcomes for Dutch patients at Castle Craig Hospital



the 2014 evaluation for all Dutch patients admitted between 17.07.11 to 13.12.12

Independent analysis of outcome data
Christo Research Systems

28th April 2015

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Summary of findings

- 116 drug and 107 alcohol dependent patients from the Netherlands entered Castle Craig Hospital between 17th July 2011 to 13th December 2012 and stayed in treatment for more than 1 day.
- All 223 patients were Dutch nationals from the Netherlands, 176 males and 47 females.
- Most patients were alcohol, cocaine or cannabis addicts.
- The patients' average age was 38.1 years (*range* = 18 - 65). Drinkers tended to be older and drug users tended to be younger.
- 18 patients were re-admitted after previously having treatment at Castle Craig, they were more likely to complete the current treatment episode and go on to have good outcomes at follow-up.
- 108 patients had been formally diagnosed with another Axis I mental health condition in addition to their substance misuse. A disproportionate number of them were female. Axis I diagnoses were also associated with poor outcomes.
- 66 patients were diagnosed with Axis II disorders, a disproportionate number of them were drug users. Axis II disorders were also associated with longer treatment durations.
- 80 patients were diagnosed with Axis III disorders, a disproportionate number of them were drinkers. Axis III disorders were also associated with older age and shorter treatment durations.
- All 223 patients were diagnosed with one or more Axis IV factors. Having a greater number of Axis IV factors was associated with older age and poorer outcomes.
- Most patients (142) came to Castle Craig on their own initiative, 49 were referred by mental health or addictions services, 13 by their General practitioner, 10 by psychiatrists, 5 by Intervention Nederland, 2 by their insurance company, 1 by company doctor and 1 by the department for work and income.
- The patients' average wait between referral to assessment 1.4 weeks. Females tended to take a little longer to get assessed.
- The patients' average wait between assessment to treatment entry was 5.5 weeks and females tended to take a little longer than males to enter treatment. Longer delays were also associated with concurrent mental health conditions, older age, and incomplete treatment stays.
- Patients' greatest problems were with drug or alcohol use, lack of support, lack of occupation, and psychological problems.

- 75.3% of patients completed treatment, 11.7% of patients prematurely self-discharged against medical advice, 6.7% dropped out of treatment and 6.3% of patients were discharged for rule violations,
- 15 of the 223 patients (6.7%) stayed less than 4 weeks which qualifies as 'dropped out'.
- The average treatment duration for patients completing treatment was 16 weeks, and the average treatment duration for prematurely discharged patients was 8 weeks.
- Two thirds of patients completing treatment did well, whereas only one third taking premature discharges (for whatever reason) had a good outcome.
- 34 patients were given additional input by the Castle Craig service: 19 patients received day treatment, 10 patients received outpatient treatment, and 5 patients received re-admission. There was no relationship between post treatment service provision, intake levels of dysfunction, or outcome.

Treatment completion was associated with:

- Lower intake levels of dysfunction (CISS scores)
- Taking less time to get into treatment
- Having prior treatment experience at Castle Craig

Eventual good outcome was predicted by

- Completion of treatment
 - Longer treatment duration
 - Taking less time to get into treatment
 - Having prior treatment experience at Castle Craig
 - Lower intake levels of dysfunction (CISS scores)
 - Absence of Axis I diagnoses
 - Fewer Axis IV problems
- Follow-ups were successfully completed on 158 of the 223 patients (71% response rate). 62 patients could not be contacted, 2 patients refused to answer the follow-up questions, and 1 patient was unable to answer the follow-up questions due to intoxication.
 - The average follow-up period was 55 weeks after discharge.
 - 92% of followed-up patients improved, 6% remained the same and 3% got worse.
 - The average intake CISS score of the 158 followed-up patients was 9.6 and the average follow-up CISS score was 3.4 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 223 patients on the assumption that the 65 patients not followed-up (response rate = 70.9%) showed no improvement or otherwise had poor outcomes.
 - Being totally abstinent from all drugs or alcohol at follow-up
52.0% ($n = 116$)
 - Achieving low problem severity at follow-up (CISS < 6, see appendix)
57.8% ($n = 129$)
 - Showing any reduction in measured levels of dysfunction
65.0% ($n = 145$)

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 65 patients not responding to follow-up (*new sample size = 158*).
 - Being totally abstinent from all drugs or alcohol at follow-up
73.4% ($n = 116$)
 - Achieving low problem severity at follow-up (CISS < 6, see appendix)
81.6% ($n = 129$)
 - Showing any reduction in measured levels of dysfunction
91.8% ($n = 145$)

Treatment Overview

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 16 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 55 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 17th July 2011 to 13th December 2012 and stayed in treatment for more than 1 day. Two hundred and twenty three patients met these criteria, attempts were made to follow up all of them and 158 patients (70.9%) were successfully contacted in order to obtain the detailed information presented below. This evaluation thus details the outcomes for the 158 patients (130 males, 28 females) who were followed-up.

Findings regarding all 223 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

176 males	78.9 %
47 females	21.1 %

There was no association between gender and age or drug of choice.

Nationality and ethnic origins: All 223 patients were Dutch nationals from the Netherlands.

Prior treatment experience

18 of the 223 patients were re-admitted after previously having treatment at Castle Craig and they were more likely to complete the current treatment episode. 94.6% of those previously treated completed this episode whereas only 73.3% completed among those who had not been to Castle Craig before ($\chi^2 [1] = 3.9, p = .05$). Seventeen of the 18 patients previously treated also demonstrated a good outcome at follow-up, and one of the 18 was unobtainable. This indicated that re-admission was associated with good outcome ($\chi^2 [1] = 10.8, p = .001$)*.

* This analysis included all 223 patients and poor outcome was classified as a follow-up CISS score greater than 5 or the patient being missing to follow-up. Re-admission and good outcome remained significantly associated even if only analysing the outcomes for the 158 patients who were followed-up ($\chi^2 [1] = 4.3, p = .04$).

Drugs of choice

107 patients using alcohol	48.0%	Alcohol 48.0%
48 patients using cocaine	21.5%	Drugs 52.0%.
34 patients using cannabis	15.2%	.
11 patients using opiate/oids	4.9 %	.
11 patients using sedatives	4.9 %	.
9 patients using amphetamines	4.0 %	.
2 were polysubstance users	0.9 %	.
1 patient using inhalants	0.4 %	.

Secondary drugs of choice

Among the 107 drinkers, 73 of them had a secondary drug recorded as follows:

- 37 also using polysubstances
- 13 also using nicotine (although the majority of patients also smoke nicotine)
- 12 also using cocaine
- 5 also using sedatives
- 4 also using cannabis
- 1 also using amphetamines
- 1 also using opiate/oids

Among the 116 drug users, 103 of them had a secondary drug recorded as follows:

- 66 also using polysubstances
- 16 also using alcohol
- 6 also using nicotine (although the majority of patients also smoke nicotine)
- 5 also using sedatives
- 4 also using cannabis
- 3 also using cocaine
- 3 also using opiate/oids

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).

Age

The patients' average age was 38.1 years ($n = 223$, $sd = 11.3$, $range = 18 - 65$)

The average age of drinkers ($m = 43.9$ years) was significantly greater than that ($m = 32.8$ years) of the drug users ($t [221] = 8.5$, $p < .001$).

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 223 patients had a primary Axis I diagnosis of drug and or alcohol dependence and 108 patients (48.4%) were also diagnosed with additional Axis I conditions:

19 with depressive disorder
19 with post traumatic stress disorder
18 with mood disorder due to a substance
9 with attention deficit hyperactivity disorder
9 with pathological gambling
6 with eating disorder
4 with panic disorder
3 with anxiety disorder due to a substance
3 with generalized anxiety disorder
3 with psychotic disorder due to a substance
2 with alcohol induced disorder
2 with anxiety disorder
1 with Asperger's disorder
1 with bipolar disorder
1 with chronic motor or vocal tic disorder
1 with cognitive disorder
1 with cyclothymic disorder
1 with learning disorder
1 with obsessive compulsive disorder
1 with parent-child problems
1 with pervasive developmental disorder
1 with reading disorder
1 with stuttering

- A greater proportion among females (61.7%) were diagnosed with an Axis I disorder than among males (44.9%) in this sample ($\chi^2 [1] = 4.2, p = .04$). This was most evident within eating disorder, depressive disorder, PTSD, and generalised anxiety disorder diagnoses.
- 51.3% of Axis I diagnosed patients had a poor outcome at follow-up, whereas only

32.4% of those without an Axis I diagnosis had a poor outcome ($\chi^2 [1] = 8.2, p = .004$). This analysis included all 223 patients and poor outcome was classified as a follow-up CISS score greater than 5 or the patient being missing to follow-up. Axis I diagnoses and poor outcome remained significantly associated even if only analysing the outcomes for the 158 patients who were followed-up ($\chi^2 [1] = 4.6, p < .04$).

- The patients' age 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, III, and IV disorders were not related to the presence of an Axis I diagnosis.

Axis II (underlying conditions)

66 of the patients (29.6%) were diagnosed with Axis II disorders:

40	diagnosed with Personality Disorder Not Otherwise Specified
10	diagnosed with Borderline Personality Disorder
8	diagnosed with Dependent Personality Disorder
7	diagnosed with Avoidant Personality Disorder
1	diagnosed with Narcissistic Personality Disorder

- A greater proportion among drug users (36.2%) were diagnosed with personality disorders than among alcohol users (22.4%) in this sample ($\chi^2 [1] = 5.1, p < .03$).
- The average treatment duration of those with personality disorders ($m = 15.4$ weeks) was significantly longer than for those ($m = 13.6$ weeks) without personality disorders ($t [221] = 2.1, p < .04$).
- The patients' age or gender was not related to the presence of a personality diagnosis.
- Treatment completion was not related to the presence of a personality diagnosis.
- Outcome was not related to the presence of a personality diagnosis.
- Axis I, III, and IV disorders were not related to the presence of an Axis II diagnosis.

Axis III (acute medical conditions)

88 of the patients (39.5%) 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:

63	diagnosed with 1 medical condition
11	diagnosed with 2 medical conditions
14	diagnosed with 3 medical conditions

- The average age of those with acute medical conditions ($m = 42.8$ years) was significantly greater than for those ($m = 35.0$ years) without ($t [221] = 5.3, p < .001$).
- The average treatment duration of those with acute medical conditions ($m = 12.5$ weeks) was significantly shorter than for those ($m = 15.1$ weeks) without ($t [221] = 2.6, p = .001$).

- A greater proportion among drinkers (48.6%) were diagnosed with one or more acute medical conditions than among drug (31.0%) users in this sample ($\chi^2 [1] = 7.2, p = .007$).
- However, treatment completion or outcome was not related to the presence of an acute medical condition.
- Gender was not related to the presence of an acute medical condition.
- Axis I, II, and IV disorders were not related to the presence of an Axis III diagnosis.

Axis IV (psychosocial and environmental factors)

223 of the patients (100%) were diagnosed with Axis IV factors:

164	diagnosed with 3 problems
35	diagnosed with 2 problems
24	diagnosed with 1 problem

- The average age of those with one ($m = 42.5$ years) or two ($m = 43.3$ years) psychosocial or environmental problems was significantly greater than for those ($m = 36.4$ years) with three problems ($f [2] = 7.9, p = .001$).
- Only 12.5% of patients diagnosed with one Axis IV problem had a poor outcome at follow-up, whereas 42.9% of those with two Axis IV problems had a poor outcome and 46.3% of those with three Axis IV problems had a poor outcome ($\chi^2 [2] = 9.8, p = .007$). This analysis included all 223 patients and poor outcome was classified as a follow-up CISS score greater than 5 or the patient being missing to follow-up.
- The number of psychosocial or environmental factors was unrelated to patients' gender, drug type, treatment duration or completion.
- Axis I, II, and III disorders were not related to the presence of psychosocial or environmental problems.

Of the 223 patients in this sample:

- 108 patients (48.4%) had an Axis I diagnosis besides dependence
- 137 patients (61.4%) had an Axis I diagnosis and an Axis II diagnosis
- 171 patients (76.7%) had an Axis I diagnosis, an Axis II diagnosis or an Axis III diagnosis

This indicates that 76.7% of the patients had some kind of concurrent physical and/or mental health diagnosis as well as their substance dependence. And only 52 (23.3%) patients presented without complications from mental or physical problems in addition to their substance dependence. All patients were found to have at least one Axis IV problem (psychosocial and environmental factors like no job, social isolation, overburdened family) contributing to their substance dependence. Most of them were also dependent on more than one substance (78.9%). 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 1, Referral sources

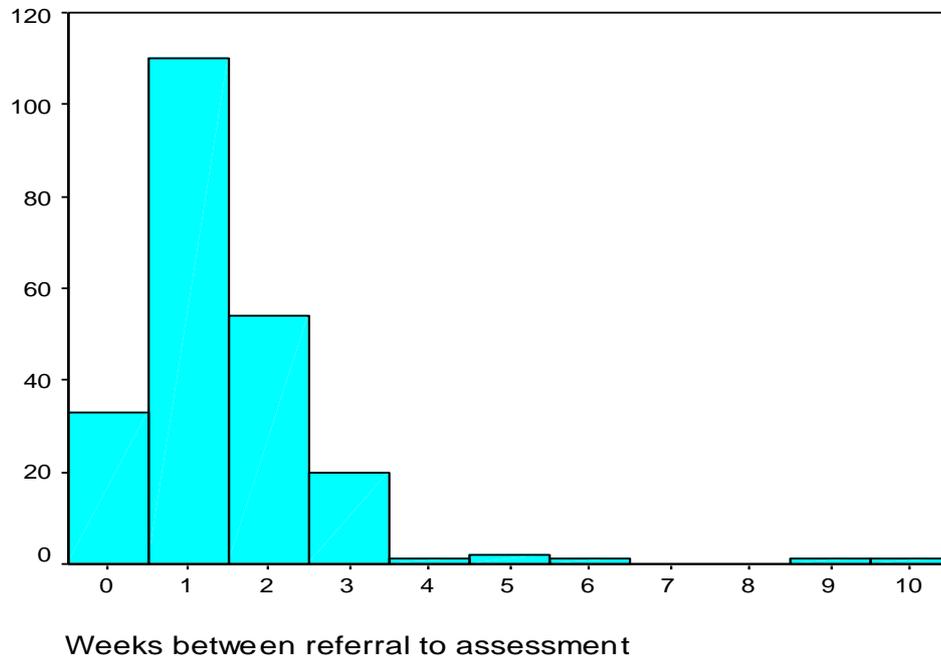
The greatest proportion of patients was self-referred, meaning that they came to Castle Craig on their own initiative (via internet, friends, former patients or AA/NA), followed by those referred by mental health or addictions services, General Practitioners, and then psychiatrists. However all self-referred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

Referral Source	<i>n</i>	%	Mean treatment duration (weeks)	% completed treatment	Mean age (years)	% female
Self-referred	142	63.7	14.0	72.5	37.8	21.1
Mental health or addictions service	49	22.0	14.2	77.6	37.7	26.5
General Practitioner (GP)	13	5.8	11.8	84.6	42.7	7.7
Psychiatrist	10	4.5	17.7	100	42.1	20.0
Intervention Nederland	5	2.2	13.3	40.0	29.1	0
Other: 2 Insurance company, 1 company doctor, 1 department for work and income	4	1.8	17.1	100	39.8	25.0
Total	223	100	14.1	75.3	38.1	21.1

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

Time from referral to assessment

Figure 1 below shows the patients' average time between referral and assessment was 1.4 weeks ($n = 223$, $sd = 1.2$, $range = 0 - 10.4$).



The delays of 4 weeks or more were attributed to the following reasons: Work issues, a lung infection, psychiatric problems, and motivational problems.

The average assessment wait for females ($m = 1.9$ weeks) was significantly longer than for males ($m = 1.3$ weeks), ($t [51.5] = 2.0$, $p = .05$).

The time to assessment was unrelated to, referral source, drug of choice, concurrent mental or physical health problems, treatment duration, premature treatment discharge or eventual outcome.

Time from assessment to treatment entry

Figure 2 below shows the patients' average time between assessment and treatment entry was 5.5 weeks ($n = 223$, $sd = 3.4$, $range = 0.1 - 23.0$).

The average time from assessment to treatment entry for females ($n = 47$, $m = 6.6$ weeks) was significantly longer than for males ($n = 176$, $m = 5.2$ weeks), ($t [221] = 2.3$, $p = .02$).

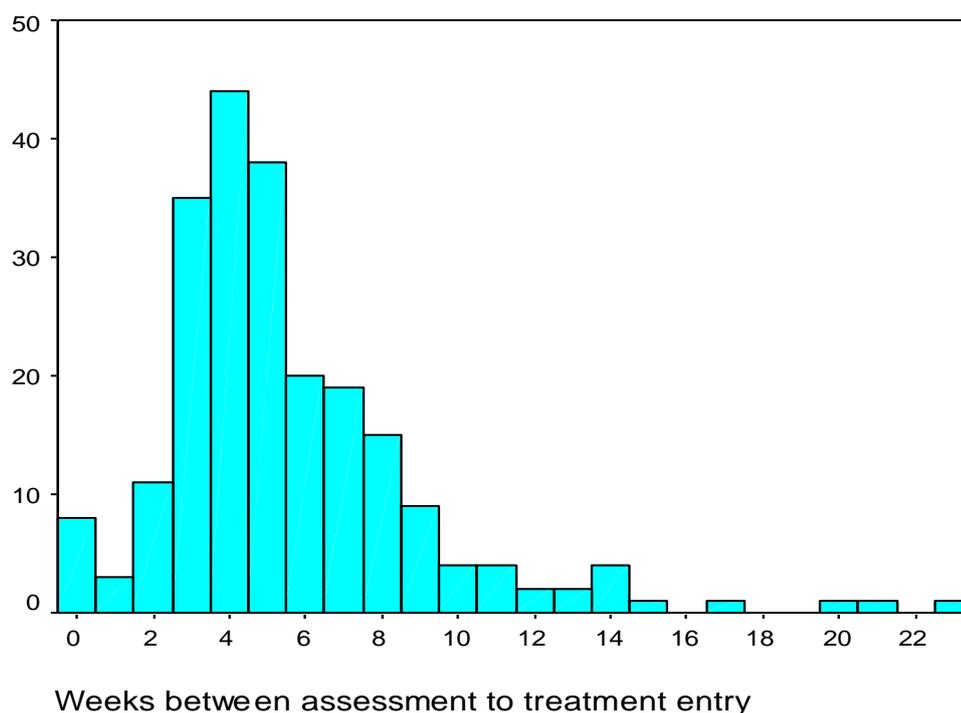
The average time from assessment to treatment entry for patients with a concurrent (Axis I or Axis II) mental health condition ($n = 137$, $m = 5.9$ weeks) was significantly longer than for those without ($n = 86$, $m = 4.8$ weeks), ($t [221] = 2.4$, $p < .02$).

The average time from assessment to treatment entry for patients who subsequently left

treatment prematurely ($n = 55$, $m = 6.5$ weeks) was significantly longer than for those who did not ($n = 168$, $m = 5.2$ weeks), ($t [79.2] = 2.3$, $p = .03$).

There was also a significant relationship between time from assessment to treatment entry and age (Spearman's $\rho = .15$, $p = .03$), with older patients tending to take a little longer to get into treatment.

Entry time was unrelated to individual DSM Axis diagnoses, referral source, drug of choice, or eventual outcome.



The longer delays between referral to treatment entry were generally recorded as being due to patients' issues such as: psychiatric or medical problems, financial problems, motivational problems, prior commitments, occupational problems, personal problems, problems with the insurance company, or detoxification in the Netherlands before admission.

Patients' problems at intake

The average intake CISS total score (global measure of dysfunction) of the 223 patients was 9.7 ($sd = 2.2$, *range* 4 - 16). Patients' greatest problems were with drug or alcohol use, lack of support, lack of occupation and psychological problems.

For 116 drug dependent patients:

- 1.7 % of patients had low problem severity (CISS score 0 to 5)

- 87.9% of patients had average problem severity (CISS score 6 to 12)
- 10.3% of patients had high problem severity (CISS score 13 to 20)

For 107 alcohol dependent patients:

- 0% of patients had low problem severity (CISS score 0 to 4)
- 78.5% of patients had average problem severity (CISS score 5 to 11)
- 21.5% of patients had high problem severity (CISS score 12 to 20)

Table 2, Intake CISS total scores by drug of choice

Patients' drug of choice	<i>n</i>	Mean intake CISS total score	Standard deviation (<i>sd</i>)
Polysubstance	2	11.5	0.7
Amphetamine	9	11.3	2.2
Opioids	11	10.3	2.0
Alcohol	107	9.9	2.3
Cocaine	48	9.8	2.3
Cannabis	34	8.9	1.7
Sedatives	11	8.8	2.6
Inhalant	1	7	-
Total	223	9.7	2.2

The average intake CISS total scores for patients grouped by drug of choice are presented above in order of increasing problem severity. Polysubstance users scored the highest and the inhalant user scored the lowest. The average problem severities between groups were statistically significant ($f [7] = 2.3, p = .03$) in their differences.

Table 3, Intake CISS total scores by DSM Axis IV factors

Axis IV, the number of contributing psychosocial and environmental factors	<i>n</i>	Mean intake CISS total score	Standard deviation (<i>sd</i>)
Three problems	164	10.0	2.2
Two problems	35	9.3	2.2
One problem	24	8.3	1.7
Total	223	9.7	2.2

The average intake CISS total scores for patients grouped by DSM Axis IV factors (the number of contributing psychosocial and environmental factors) are presented above in order of increasing problem severity. As expected, there is a direct relationship between the number of

contributing problems and CISS total scores ($f[2] = 6.8, p = .001$).

The average intake CISS total score for patients who completed treatment ($n = 168, m = 9.5$) was lower than that ($n = 55, m = 10.3$) for patients leaving treatment prematurely, ($t[221] = 2.4, p = .02$).

The average intake CISS total score for patients who went on to have a good outcome ($n = 129, m = 9.3$) was lower than that ($n = 94, m = 10.3$) for patients with a poor outcome ($t[221] = 3.1, p = .002$). This analysis included all 223 patients and poor outcome was classified as a follow-up CISS score greater than 5 or the patient being missing to follow-up. This relationship remained significant even if only analysing the outcomes for the 158 patients who were followed-up ($t[156] = 2.5, p = .01$).

There was no relationship between intake CISS total scores and gender, age, DSM Axis I, II, or III diagnoses, waiting times or treatment duration.

Figure 3, Baseline CISS item scores by drug type

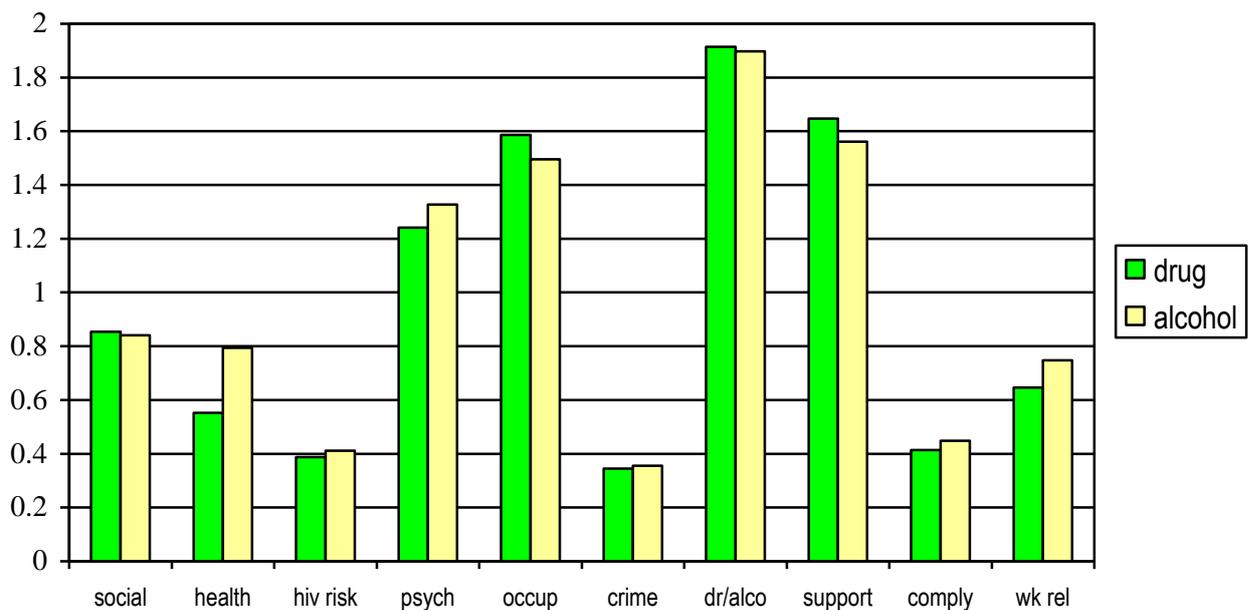


Figure 3 compares the average CISS item scores (0 to 2 scale) as assessed at intake between the 116 drug and 107 alcohol dependent patients. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain.

Alcohol users tended to have greater:

- Health problems ($\chi^2[2] = 9.4, p = .009$)

Drug users tended to have greater

- Support problems ($\chi^2[2] = 10.6, p = .005$)

Reasons for discharge from Castle Craig

- 168 Patients completed treatment 75.3 %
- 55 Patients left prematurely (incomplete treatment) 24.7 %
of which...
 - 26 patients prematurely self-discharged against medical advice 11.7 %
 - 15 patients were recorded as “dropped out” (treatment <4 weeks) 6.7%
 - 14 patients were prematurely discharged for rule violations 6.3 %

The average treatment duration for patients completing treatment was 16.1 weeks ($n = 168$, $sd = 4.8$), it was significantly longer than the prematurely discharged patients' average treatment duration of 8.1 weeks ($n = 55$, $sd = 5.0$), ($t [221] = 10.5$, $p < .001$).

As mentioned earlier, treatment completion was associated with lower intake CISS total scores and shorter times required to get into treatment. No other intake variables were associated with treatment completion.

Dropout rate during the first four weeks

Only 15 of the 223 patients (6.7%) stayed less than 4 weeks. The usual duration of primary treatment is 6 weeks. But due to insurance coverage or the time people can stay away from work or young children sometimes it is necessary to admit patients for 4 to 6 weeks.

Outcome

Attempts were made between 05.01.13 and 10.03.14 to contact all 223 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 158 of the 223 patients (70.9%). Of the remaining 65:

- 62 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)
- 2 patients refused to answer the follow-up questions
- 1 patient was unable to answer the follow-up questions due to intoxication

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:

129 had a follow-up CISS score of 5 or less	57.8 %	Good outcome 58%
29 had a follow-up CISS score of 6 or more	13.0 %	Poor outcome 42%
65 were missing to follow-up	29.1 %	.

Table 4, Outcome by treatment completion, and treatment duration

Outcome	% Completed (<i>n</i>)	Mean weeks in treatment	
Good (<i>n</i> = 129)	86.0% (111)	15.1 (<i>sd</i> = 5.3)	
Poor (<i>n</i> = 94)	60.6% (57)	12.8 (<i>sd</i> = 6.5)	
Significance	$\chi^2 [1] = 18.9, p < .001$	$t [175.5] = 2.8, p = .007$	

Table 4 above illustrates that 'good outcome' is experienced by a greater proportion (86%) among those who completed their treatment; 'good outcome' is also associated with a longer stay in treatment.

As mentioned earlier, poor outcome was associated with the presence of a DMS Axis I diagnosis and a greater number of DSM Axis IV problems.

Age, Gender, drug of choice, time taken to enter treatment, DSM Axis II & III diagnoses, or referral sources were unrelated to outcome.

CISS scores at treatment entry and subsequent outcome

The mean CISS score for patients with a good outcome was 9.3 ($n = 129$, $sd = 2.2$), it was significantly lower ($t [221] = 3.1$, $p = .002$) than the poor outcome patients' mean score of 10.3 ($n = 94$, $sd = 2.2$).

Figure 4, Baseline CISS item scores by outcome

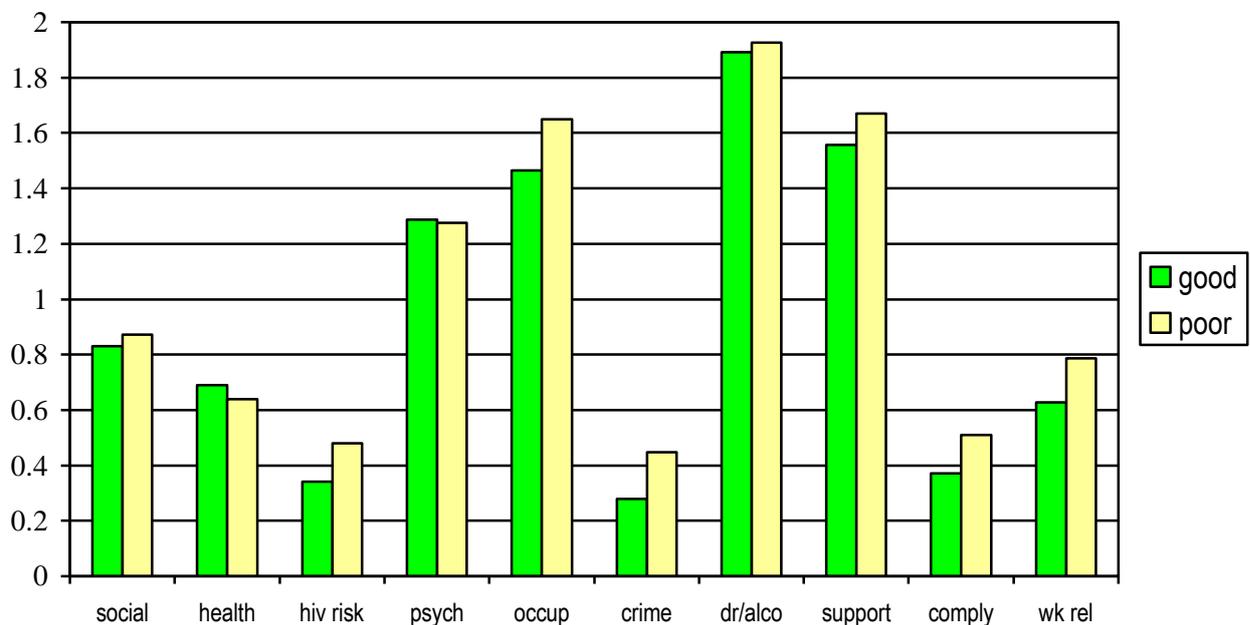


Figure 4 compares the average CISS item scores (0 to 2 scale) as assessed at intake between the 129 good and the 94 poor outcome patients. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain. 'Good outcome' patients tended to have fewer problems with occupation (Mann-Whitney U , $p = .035$) and fewer problems with criminal behaviour (Mann-Whitney U , $p = .017$).

Table 5, Discharge status and outcome

	Completed treatment	Left Against Medical Advice	Discharged for rule violation	Dropped out	Total n
% good	66.1	42.3	35.7	13.3	129
% poor	33.9	57.7	64.3	86.7	94
Total n	168	26	14	15	223

The expected split in table 5 above should be 57.8% good : 42.2% poor for all discharge types. Notable departures from this indicate that two thirds (66.1%) of patients completing treatment do well, whereas only one third (32.7%) taking premature discharges (for whatever reason) have a good outcome. This finding is statistically significant ($\chi^2 [3] = 22.2, p < .001$). Future patients thinking of quitting treatment early should be made aware of this statistic.

Post-treatment support

All patients receive aftercare after admission to Castle Craig Hospital, usually consisting of 7 appointments and 3 evaluations. Thirty four patients were also given additional input by the Castle Craig service.

- 19 patients received day treatment
- 10 patients received outpatient treatment
- 5 patients received re-admission

There was no relationship between outcome and post treatment service provision. There was no relationship between intake levels of dysfunction (intake CISS scores) and post treatment service provision.

Summary, predictors of planned discharge and good outcome

Treatment completion was associated with:

- Lower intake levels of dysfunction (CISS scores)
- Taking less time to get into treatment
- Having prior treatment experience at Castle Craig

Eventual good outcome was predicted by

- Completion of treatment
- Longer treatment duration
- Taking less time to get into treatment
- Having prior treatment experience at Castle Craig
- Lower intake levels of dysfunction (CISS scores)
- Absence of Axis I diagnoses
- Fewer Axis IV problems

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, 42.3% of patients taking a premature discharge against medical advice went on to have a good outcome anyway.

Findings regarding 158 patients followed-up

Attempts were made between 05.01.13 and 10.03.14 to contact all 223 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 158 of the 223 patients (70.9%). The following analyses only use this sub group of 158 patients.

Figure 5, follow-up periods

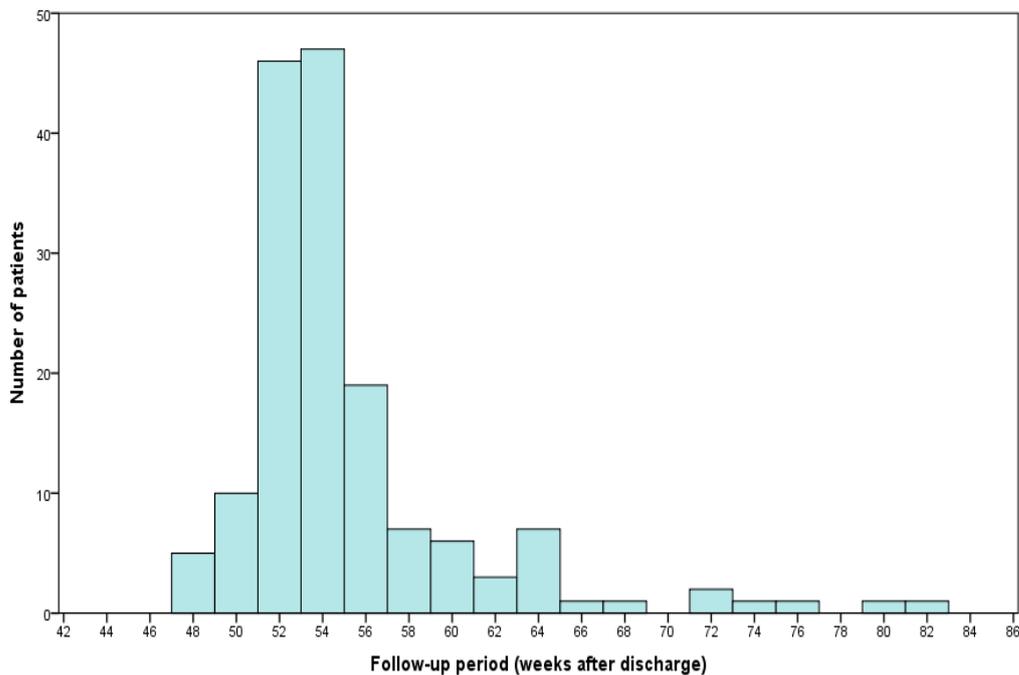


Figure 5 indicates the number of patients falling within each follow-up period. The majority of patients were followed-up after 52 weeks and the distribution is skewed to the longer follow-up periods on the right.

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 17.07.11 to 13.12.12
- Follow-up interviews took place between 05.01.13 and 10.03.14

The average follow-up period was...

- From treatment entry: 69.6 weeks ($n = 158$, $sd = 8.1$, $range = 53.3 - 100.4$)
- From treatment discharge: 55.1 weeks ($n = 158$, $sd = 5.6$, $range = 47.4 - 82.4$)

Changes in patient dysfunction at follow-up

Figure 6, reductions of patient dysfunction

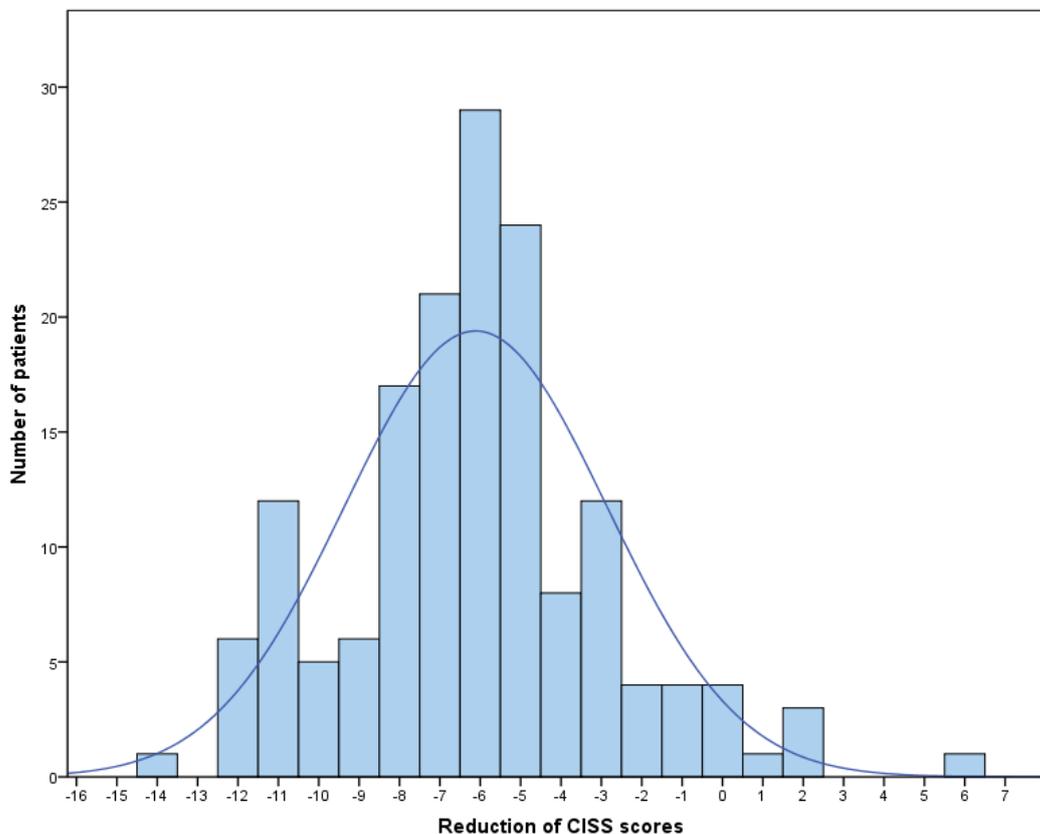


Figure 6 illustrates the reductions in CISS total scores achieved by the 158 patients who were followed-up. The inter-rater reliability of the CISS (Christo et al., 2000) would indicate that a score fluctuation of plus or minus one point is attributable to variations of CISS interpretation between raters. As such, only changes of 2 or more points are recognised as 'genuine' and on that basis:

- 91.8% of patients improved
- 5.7% of patients remained the same
- 2.5% of patients got worse

Twenty four 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

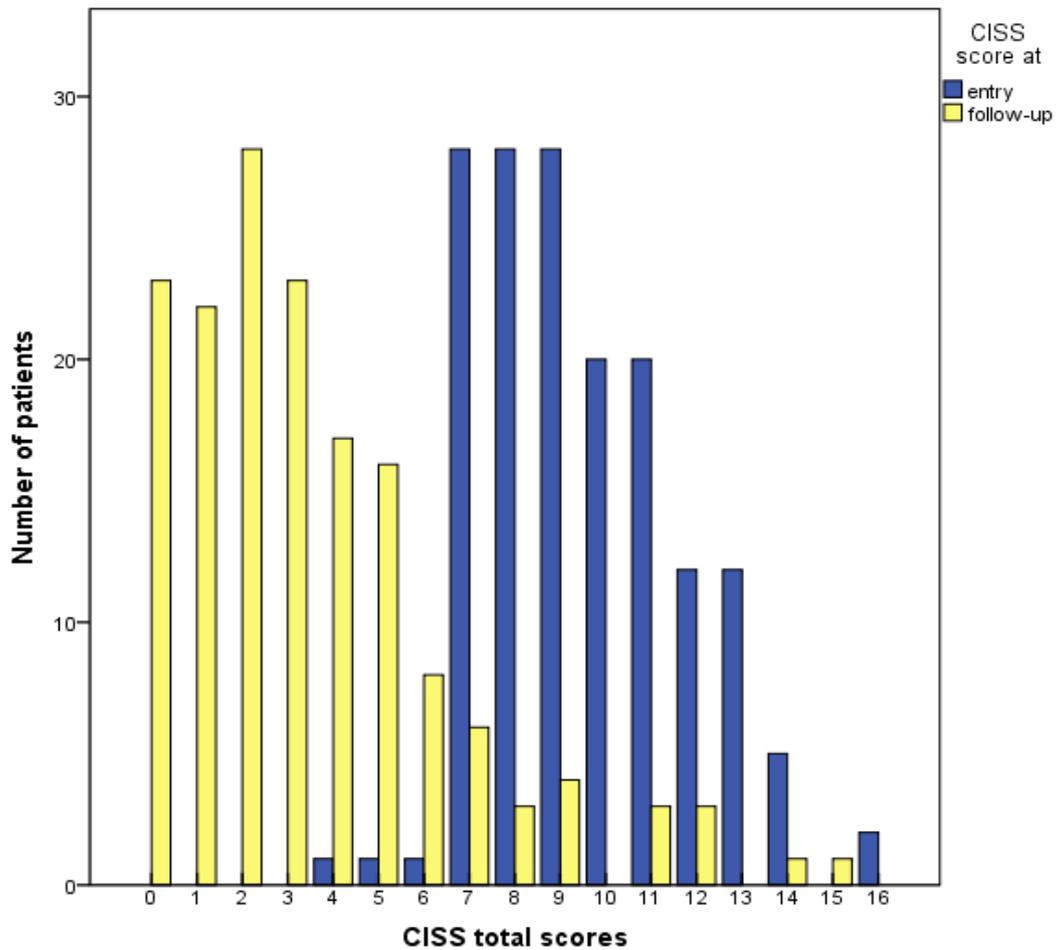


Figure 7 displays how CISS total scores are distributed among the 158 patients. Dark bars indicate the score distributions at intake and the light bars indicate score distributions at follow-up.

The average intake CISS total score of the 158 patients was 9.6 ($sd = 2.2$, range 4 - 16)
The average follow-up CISS total score of the 158 patients was 3.4 ($sd = 3.1$, range 0 - 15)
A paired sample t-test indicates this reduction to be highly significant ($t [157] = 23.6$, $p < .001$)

Figure 8, Changes in individual CISS item scores

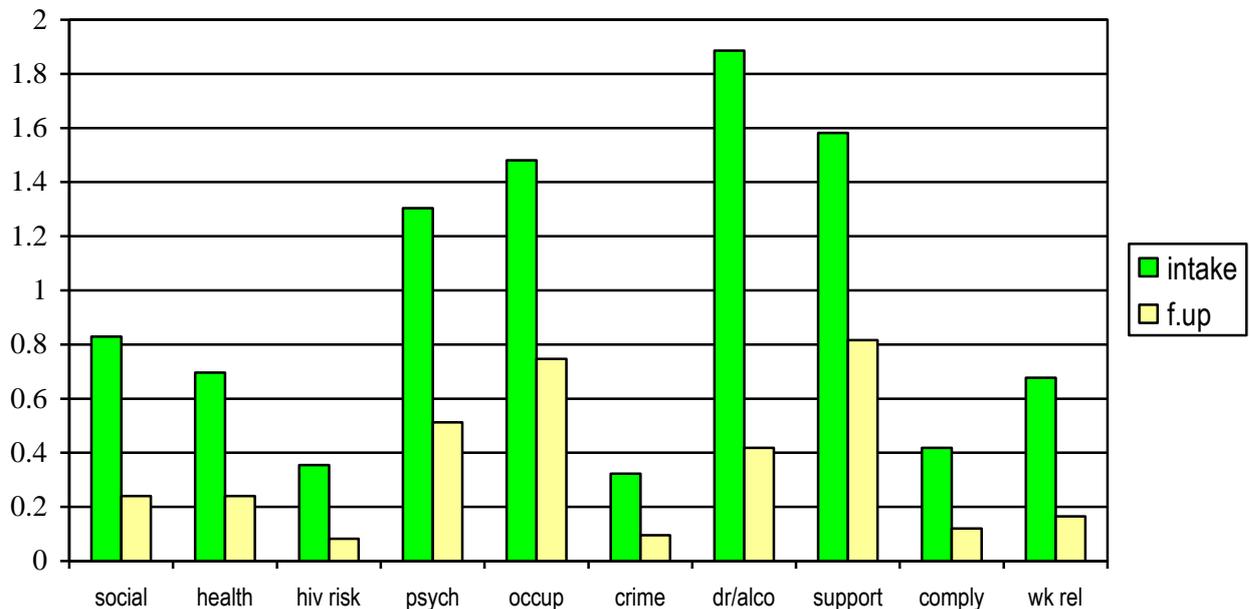


Figure 8 compares the average CISS item scores (0 to 2 scale) as assessed at intake and then again at follow-up. The taller the bars in the figure, the greater the average degree of problem within the relevant CISS domain. As can also be seen in figure 2, the greatest problems at intake were with drug 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. 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 = 129)	93.1% (81)	67.6% (48)
Poor (n = 29)	6.9% (6)	32.4% (23)
Total n = 158	100% (87)	100% (71)

Table 6 above illustrates that '12 step' meeting attendance (e.g. Alcoholics Anonymous, Narcotics Anonymous, Cocaine Anonymous, etc.), 93.1% of attenders and 67.6% of non-attenders were recorded as having a good treatment outcome. '12 step' meeting attendance is thus associated with good outcomes ($\chi^2 [1] = 16.9, p < .001$). Among the 87 attenders (mean attendance = 2.2 meetings per week, $sd = 2.2$, $range = 0.1$ to 14).

There was a strong negative relationship between follow-up CISS total scores and frequency of attendance (Spearman's rho [$n=87$] = $-0.45, p < .001$). This would indicate that, 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 158 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	27.2%	77.2%
Moderate problem	client's living situation may not be stable, or they may associate with drug users / heavy drinkers	62.7%	21.5%
Severe problem	living situation not stable, and they either claim to have no friends or their friends are drug users / heavy drinkers	10.1%	1.3%

General health	e.g.	Intake	Follow-up
No problem	client has reported no significant health problems	36.7%	77.8%
Moderate problem	teeth/sleep problems, occasional stomach pain, collapsed vein, asymptomatic hep B / C / HIV	57.0%	20.3%
Severe problem	extreme weight loss, jaundice, abscesses / infections, coughing up blood, fever, overdoses, blackouts, seizures, significant memory loss, neurological damage, HIV symptoms	6.3%	1.9%

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)	67.7%	91.8%
Moderate problem	may admit to occasional "unsafe" sexual encounters, or suspected to be injecting but denies sharing injecting equipment	29.1%	8.2%
Severe problem	client may admit to regular "unsafe" sexual encounters, or has recently been injecting and sharing injecting equipment	3.2%	0%

Psychological	e.g.	Intake	Follow-up
No problem	client appears well adjusted and relatively satisfied with the way their life is going	0%	55.1%
Moderate problem	client may have low self-esteem, general anxiety, poor sleep, may be unhappy or dissatisfied with their lot	69.6%	38.6%
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)	30.4%	6.3%

Occupation	e.g.	Intake	Follow-up
No problem	client is in full time occupation e.g., homemaker, parent, employed, or student	13.9%	46.8%
Moderate problem	client has some part time parenting, occupation or voluntary work	24.1%	31.6%
Severe problem	client is largely unoccupied with any socially acceptable pastime	62.0%	21.5%

Criminal involvement	e.g.	Intake	Follow-up
No problem	no criminal involvement (apart from possible possession of illicit drugs for personal use)	70.3%	91.1%
Moderate problem	client suspected of irregular criminal involvement, perhaps petty fraud, petty theft, drunk driving, small scale dealing	27.2%	8.2%
Severe problem	suspected of regular criminal involvement, or breaking and entering, car theft, robbery, violence, assault	2.5%	0.6%

Drug / alcohol use	e.g.	Intake	Follow-up
No problem	no recent drug / alcohol use	3.2%	73.4%
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	5.1%	11.4%
Severe problem	client suspected of bingeing or regular drug / alcohol use	91.8%	15.2%

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	7.0%	51.3%
Moderate problem	patchy attendance i.e., less than once a week contact with at least one of the above	27.8%	15.8%
Severe problem	client not known to be using any type of structured support	65.2%	32.9%

Compliance	e.g.	Intake	Follow-up
No problem	attends all appointments and meetings on time, follows suggestions, or complies with treatment requirements	60.8%	88.6%
Moderate problem	not very reliable, or may have been reported as having an "attitude" problem or other difficulty with staff	36.7%	10.8%
Severe problem	chaotic, may have left treatment against staff advice or been ejected for non-compliance e.g. drug use, attitude problem	2.5%	0.6%

Working Relationship	e.g.	Intake	Follow-up
No problem	relatively easy going e.g., interviews easily, not time consuming or stressful to work with	39.9%	85.4%
Moderate problem	moderately challenging e.g., a bit demanding or time consuming, but not excessively so	52.5%	12.7%
Severe problem	quite challenging e.g., very demanding, hard work, time consuming, emotionally draining or stressful to see	7.6%	1.9%

Conclusions

- The following success rates are conservatively based by including all 223 patients on the assumption that the 65 patients not followed-up (response rate = 70.9%) showed no improvement or otherwise had poor outcomes.
 - Being totally abstinent from all drugs or alcohol at follow-up
52.0% ($n = 116$)
 - Achieving low problem severity at follow-up (CISS < 6, see appendix)
57.8% ($n = 129$)
 - Showing any reduction in measured levels of dysfunction
65.0% ($n = 145$)

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 65 patients not responding to follow-up (*new sample size = 158*).
 - Being totally abstinent from all drugs or alcohol at follow-up
73.4% ($n = 116$)
 - Achieving low problem severity at follow-up (CISS < 6, see appendix)
81.6% ($n = 129$)
 - Showing any reduction in measured levels of dysfunction
91.8% ($n = 145$)

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