

Opiate-dependent adolescents in Ireland: a descriptive study at treatment entry

John Fagan, Leena Naughton, Bobby Smyth

Ir J Psych Med 2008; 25(2): 46-51

Abstract

Objectives: To describe the drug history and co-existing psycho-social problems among under-19 year olds accessing treatment for opiate dependency, including methadone maintenance, and examine for any gender differences.

Method: A descriptive study of under-19 years assessed at the largest drug treatment clinic in Dublin, Ireland, between October 2000 and September 2006. Data was obtained through review of case notes, assessment questionnaires and urine drug screens.

Results: Eighty-six young people were included. Their mean age was 16.8 years. Forty-six (54%) were female. Only 26 (30%) reported an intact family of origin. Twenty-three (27%) had been in care. Mean age for first use of any illicit drug was 12.4 years, and for heroin was 14.8 years. The mean age of leaving school was 14.4 years; 42 (49%) first tried heroin after leaving school. Forty-one (48%) had a history of homelessness. Forty-four (51%) had previously injected; 26 (30%) were currently injecting. Fifty-six (65%) had not been screened for blood-borne diseases; twenty-one (24%) subsequently tested positive for hepatitis C. Thirty-eight (48%) had previous convictions; 33 (38%) were facing charges. Forty-five (52%) had previously seen a psychiatrist; nine (11%) had received inpatient psychiatric treatment. Boys were more likely to leave school early, have a substance-abusing sibling, and to have a past conviction. Girls were more likely to have a partner, and have taken a deliberate overdose.

Conclusions: This study highlights the multiple and complex needs of teenagers abusing opiates. Services seeking to meet their needs will require a broad range of interventions and excellent interagency co-operation.

Key words: Adolescents; Teenagers; Opiate-dependency; Methadone maintenance; Gender differences; Ireland.

Introduction

Internationally, the misuse of heroin by teenagers is a grow-

ing problem. The treatment of these young people poses different challenges compared to the treatment of adults. In contrast to adults, research specific to opiate dependent youth is limited.^{1,2} Hopfer *et al* highlighted the psychiatric comorbidity and poly-substance misuse associated with heroin using youths, and the higher treatment retention in those services using methadone.¹ These teenagers often have problems in other areas such as physical health, family problems, housing issues, criminal behaviour, education deficits, lack of occupational training and unemployment.³⁻⁵

Ireland and Dublin in particular, has a high prevalence of young opiate misusers relative to other European countries.⁶ Kelly *et al* estimated that in Dublin in 2000-2001, about 3% of males and 2% of females' aged 15-24 misused opiates.⁷ Heroin misuse in Dublin increased dramatically during the 1990's, against a backdrop of a rise in the ecstasy associated 'rave' scene.⁸ Smyth and O'Brien reported a 20-fold increase in under-18s seeking treatment for heroin misuse during the 1990s, compared to a five-fold increase in the numbers of adults. Overall, 20% of those presenting to addiction services in Dublin during the 1990s were under 18 years old, and in 48% of these subjects, the main drug of abuse was an opiate.⁹

As the decade progressed, increasing proportions of these teenagers were female, homeless, and injecting re-emerged as a preferred route of heroin use. These trends were also evident in a study of first time attendees to Dublin needle exchange programmes, which showed that the proportion of young injectors, especially females, increased from 13%-27% between 1990 and 1997.¹⁰

Reviewing the UK experience, Burniston *et al* concluded that there was no evidence that the abstinence approach worked with young people, and that a treatment-focus on the immediate goal of abstinence may instead discourage engagement and retention in treatment.¹¹ The American Academy of Child and Adolescent Psychiatry guidelines (1998) acknowledged the priority of engagement and harm reduction, with abstinence as a long-term goal.¹²

For adults, methadone facilitates engagement and retention in treatment and through substitution, promotes and supports abstinence from heroin. Treatment and cost effectiveness is now firmly established.¹³⁻¹⁶ However, even for the treatment of adult opiate dependency, the use of methadone has always been controversial.¹⁷

For developmental reasons, opiate dependent teenagers may be exposed to even greater risks because cognitive ability has not fully matured to be able to accurately judge short-term risks and longer-term hazards associated with drug use. It has been firmly established that the younger a person initiates substance use, especially before the age of 15, the greater the risk of serious health consequences and

*John Fagan, MRCPsych, Psychiatric Registrar, The Drug Treatment Centre Board, 30-31 Pearse St, Dublin 2 and YoDA (Youth Drug and Alcohol service), Glen Abbey Building, Belgard Road, Tallaght, Dublin 24, Ireland. Email: johnc.fagan@mailm.hse.ie

Leena Naughton, Psychiatric Registrar, Bobby Smyth, Consultant Child & Adolescent Psychiatrist, The Drug Treatment Centre Board, 30-31 Pearse St, Dublin 2, Ireland.

*Correspondence

SUBMITTED: JANUARY 10, 2008. ACCEPTED: APRIL 21, 2008.

Table 1: Characteristics of 86 opiate dependent teenagers accessing opiate substitution treatment, by gender

	Total Group		Males		Females		p value
	Number	(%)	Number	(%)	Number	(%)	
Total group	86		40	(46)	46	(54)	
Education							
Currently in school	5	(6)	1	(3)	4	(9)	0.22
Accommodation							
Currently living with parents	50	(58)	22	(55)	28	(61)	0.42
Ever homeless	41	(48)	19	(48)	22	(48)	0.98
Homeless in last 30 days	26	(30)	14	(35)	12	(26)	0.37
History of being in care	23	(27)	14	(35)	9	(20)	0.11
Family History							
Parental alcohol abuse	46	(58)	22	(59)	24	(56)	0.74
Parental opiate abuse	11	(13)	6	(16)	5	(11)	0.53
Sibling alcohol abuse	11	(16)	9	(29)	2	(5)	0.007
Sibling opiate abuse	38	(45)	23	(58)	15	(33)	0.025
Relationships							
Has a current partner	44	(52)	10	(25)	34	(76)	< 0.001
Current partner uses opiates	38	(86)	8	(80)	30	(88)	0.50
Main opiate of abuse							
Heroin	66	(77)	29	(73)	37	(80)	0.50
Methadone	1	(1)	1	(3)	0	(0)	0.46
Heroin and methadone	19	(22)	10	(25)	9	(20)	0.54
Secondary drug abuse							
<i>Benzodiazepines</i>							
Lifetime	80	(93)	37	(92)	43	(93)	0.86
Past month	42	(49)	22	(55)	20	(43)	0.29
Baseline urine screen positive	33	(39)	16	(40)	17	(38)	0.83
<i>Methadone</i>							
Lifetime	67	(86)	33	(89)	34	(83)	0.43
Past month	44	(52)	24	(61)	20	(43)	0.10
Baseline urine screen positive	39	(46)	20	(50)	19	(42)	0.47
<i>Cocaine</i>							
Lifetime	57	(73)	27	(75)	30	(73)	0.72
Past month	10	(12)	7	(18)	3	(7)	0.11
Baseline urine screen positive	2	(2)	2	(5)	0	(0)	0.13
Route of heroin Use							
Mainly injecting	26	(30)	14	(35)	12	(26)	0.37
Ever previously Injected	44	(51)	21	(53)	23	(50)	0.82
Criminal Behavior							
Past convictions	41	(48)	25	(63)	16	(35)	0.02
Past imprisonment	25	(29)	15	(38)	10	(22)	0.16
Current charges	33	(38)	17	(43)	16	(35)	0.16
Psychiatric History							
Previous psychiatric contact	45	(52)	23	(58)	22	(48)	0.37
Past inpatient psychiatric treatment	9	(11)	3	(8)	6	(13)	0.40
History of deliberate overdose	17	(21)	3	(8)	14	(32)	0.007
History of other DSH	21	(25)	8	(20)	13	(29)	0.34
Hepatitis C status							
Not tested prior to assessment	56	(65)	26	(30)	30	(35)	0.99
Positive for antibody to HCV	21	(24)	9	(23)	12	(26)	0.90
HCV positive and history of injection	18	(45)	7		11		

Data missing in one case for 'ever been in care', 'HCV status', 'sibling opiate abuse' and 'other DSH'. Data missing in two cases for 'current partner'. Data missing in three cases for 'current partner uses opiates', 'History of deliberate overdose', 'History of other DSH' and 'Parental Opiate abuse'. Data missing in five cases for 'past imprisonment'. Data missing in six cases for 'past convictions' and 'Parental Alcohol abuse'. Data missing in seven cases for 'Current Charges'. Data missing in 17 cases for 'Sibling Alcohol abuse'. Fourteen cases with no recorded test at the National Virus Reference Laboratory.

Table 2: Quantitative characteristics of 86 opiate dependent teenagers accessing opiate substitution treatment by gender

Characteristic ¹	Total Group IQR	Males IQR	Females IQR	p value
Age (mean)	16.8 (16-17)	16.8 (16-17)	16.8 (16-18)	0.90
Age of school leaving (mean)	14.4 (14-16)	13.9 (13-15)	14.9 (14-16)	0.01
Age first heroin use (mean)	14.8 (14-16)	14.6 (13-16)	15.0 (14-16)	0.16
Age first illegal drug use (Mean)	12.4 (12-14)	12.1 (11-14)	12.7 (12-14)	0.14
Age first injected (mean)	15.9 (15-17)	16.2 (16-17)	15.7 (15-17)	0.12
Months of regular opiate use (median)	12.0 (6-24)	15.0 (6-24)	12.0 (6-24)	0.51
Average number of 'bags' of heroin per day ²	3.5 (2.5-5)	3.5 (2.5-5)	3.5 (2.5-5)	0.63

1 Data missing in one case for 'Months of regular opiate use'. Data missing in two cases for 'Age first illegal drug use'. Data missing in three cases for 'Average number of bags of heroin per day' and months of regular opiate use. Data missing in nine cases for 'Age of school leaving'. 2 one 'bag' = 0.113g.

continued substance use into adulthood.^{18,19} Despite the potential increased risks associated with opiate-dependent teenagers, there is ongoing debate about the use of methadone in teenagers, so that the threshold to use methadone is often higher.

In the USA, methadone maintenance is only a legal option for adolescents with two documented failures of drug-free detoxification.¹ Some European countries specifically prevent doctors from prescribing methadone to those who are under-18 years of age. These practices expose heroin-dependent young people to the risks of continued drug use. In the UK, Illana Chrome adopted a more pragmatic approach, by providing methadone treatment to teenagers on the basis of an established diagnosis of opiate dependency, irrespective of age, using a multidisciplinary approach within an adolescent friendly unit.³ The importance of providing treatment separate to adults and in a youth friendly environment has been highlighted as best practice.^{19,20}

In recognition of these recommendations and the extent of teenage heroin misuse, Ireland's National Drug Strategy 2001-2008 identified the need for a dedicated Adolescent addiction service.²¹ We sought to describe the patterns of substance use and psychosocial problems of under-19 year old opiate-dependent teenagers presenting to a specialist adolescent opiate treatment service in Dublin, Ireland, and to examine for gender differences.

Methods

Study design

This study is a retrospective descriptive study of opiate-dependent young people at treatment entry, who were commenced on opiate substitution treatment between January 2001 and October 2006. The diagnosis of opiate-dependency was made by a psychiatrist using ICD-10 criteria, supported by review of three supervised urine drug screens taken at intervals during the assessment period.

Sociodemographic data was obtained from review of semi-structured screening questionnaires and the doctor's case notes. The results of the urine drug screens were also recorded. Actual hepatitis C status was later confirmed through the records of the National Virus Reference Laboratory.

Participants

To be included, subjects had to be under-19 and to have commenced methadone treatment. Subjects were identified from the Central Treatment List, a national register of all people prescribed methadone for the treatment of opiate-dependency.

Setting

The Young Persons Programme (YPP) is a treatment service set up for under-19 year old young people with serious drug problems. It is located within the Drug Treatment Central Board (DTCB), on a separate floor to the adult services. The DTCB is a tertiary referral service and is the largest and longest established addiction treatment clinic in Ireland. The YPP grew out of an initiative started in March 2001, when a nurse and two project workers were appointed specifically to identify, engage and support increasing numbers of young people attending for treatment with the adult services.

The multidisciplinary team gradually expanded to include input from a social worker, a family therapist, a senior trainee psychiatric doctor and a clinical Psychologist. The team is lead by consultant child and adolescent psychiatrists. Methadone is dispensed within this unit by staff of the YPP, as part of an extensive care-plan that seeks to address the biological, psychological and social needs of the young person, in collaboration with external agencies.

In recognition of the demonstrated effectiveness of family-based interventions on engagement, retention and treatment outcome,^{22,23} family therapy is an important part of the treatment approach of the YPP. Each teenager is also encouraged to attend individual counselling, utilising strategies from supportive psychotherapy, solution focused therapy, CBT or insight orientated psychotherapy at various stages of treatment.

In addition, all staff members within the team receive training in motivational enhancement therapy. Urine drug screens are done twice weekly. Based upon results of urine screens, contingency management approaches are utilised, including provision of methadone 'takeaways' and provision of vouchers.

Statistics

Statistical analysis was undertaken using SPSS version 14. In order to explore for gender differences, dichotomous variables were examined via the Pearson Chi Square test. Where cells had an expected count of less than five, the Fisher's Exact Test was utilised. Normally distributed quantitative variables were examined by the Independent t-test. Other quantitative variables were examined using the Mann Whitney U-test. The P value was set at 0.05.

Results

Eighty-six teenagers were commenced on opiate substitution treatment during the study period. Some of the characteristics of the group are outlined in *Tables 1* and *2*.

School and occupation history

Only one teenager reported completion of the full secondary school program. The rest of these teenagers left school early. Among those with a recorded reason for school leaving (68 cases), 11 (13%) transferred to alternative youth education and training schemes, 12 (14%) were expelled, whilst 43 (50%) simply dropped out. Forty-nine (57%) said they had never worked after leaving school.

Family history

Many of these teenagers came from a dysfunctional family background as suggested by childhood involvement with social services (including foster care) in 45 cases (52%; unknown = 8). When asked to describe their primary support family, 26 (30%) said both biological parents were together; 34 cases (40%) came from a single-parent household (28 cases single-mother), and 19 (22%) from a parent-partner household. Three sought support from another relative, two from their adopted family; one young person had no contact with any family member. A family history of alcohol and substance abuse was common (see *Table 1*). Both parents had a history of alcohol misuse in 10 cases, and a history of opiate abuse in four cases.

Current social circumstances

Although half were living with their parent(s), three each were living with either another relative, a foster family or in a squat; eight were living with a partner, six with friends and 13 in hostel accommodation. Thirty-eight young people had a partner who also used heroin; gender did not predict a heroin-using partner. Five girls and one boy had parented a child prior to entering treatment.

Psychiatric and forensic history

Just over half of the treatment entrants had previously had contact with mental health services, for a reason other than substance misuse. Most also had past contact with the criminal justice system.

Drug history

The median age of first use of an illicit drug was 12 years (range 8-17) and in 83% of cases this was cannabis. Thirty-four (40%) first used heroin before their 15th birthday (see *Table 2*). Nearly half first tried heroin after leaving the education system. The mean time from first heroin use to treatment was two years (SD = 1.3 yrs). Among those with a history of

injecting, the median duration of injecting prior to assessment was one year. The majority had used 'street' methadone, and this was recent in half of all treatment entrants.

Serology

At assessment, 19 (22%) of these young people reported that they were hepatitis C virus (HCV) negative, two (2%) that they were HCV-positive, 56 (65%) that they had never been tested before, and nine (10%) did not know if they had ever been screened for blood borne diseases. Fifteen of those young people currently injecting, and 24 with a history of injection, had not been tested for blood-borne diseases. When their actual HCV status was checked as part of their assessment, 21 (24%) were HCV antibody-positive. Of concern, 14 had declined testing. No young person tested positive for HIV.

Significant finding by gender

Boys demonstrated significantly earlier school leaving. Boys were also more likely have a past conviction, and to report sibling opiate abuse and sibling alcohol abuse. Girls were more likely to have a current partner and a history of taking a deliberate overdose.

Discussion

As far as the authors are aware, this is the largest cohort of opiate dependent teenagers described in the international literature. This study highlights the significant levels of psychosocial adversity in the background of these opiate-dependant youths. This includes early onset of drug experimentation, polysubstance misuse, non-intact family of origin, family history of drug and alcohol misuse, mental health problems, involvement of social services, early school leaving, lack of training and unemployment, criminality and a history of homelessness.

These opiate-dependent teenagers in Dublin are comparable to those described in the North-west of England by Chrome.³ However, the Dublin teenagers demonstrated earlier initiation into drug use (12.4 versus 13.3 years), and earlier first use of heroin (14.8 versus 15.8 years). However, fewer of the Dublin teenagers were currently injecting (28% v 62.5%) or had a histories of ever injecting (46% v 70.8%), and the time from first use of heroin to assessment was longer in Dublin (24 v 16 months).

In Ireland, early school leaving is common among young substance misusers.²⁴ Cannabis was the first drug used by 83% of these young people at a mean age 12.4 years. Research has clearly demonstrated an association between cannabis use and poor educational outcomes, especially early school leaving.^{25,26} Though drugs may have contributed to poor academic performance and early school leaving, an unexpected finding of this study was that 49% of these young people first tried heroin after leaving school. This highlights a missed opportunity to intervene before some of these early school-leavers have progressed to heroin use. Early school leavers have been identified as being at high-risk of problematic drug use.²⁷ Those early school leavers not employed or attending alternative education services are particularly vulnerable, as well as marginalised and difficult to access. In this study, forty-nine cases (57%) never worked after leaving school. Mayock²⁸ looked in detail at adolescents

living in a deprived inner-city community in Dublin. She concluded that there is a need to target these young people using innovative approaches such as outreach services and young people trained as peer educators to establish and maintain contact with these adolescents at the earliest stage of this critical juncture in their lives.

Such strategies may prevent some of these early school leavers from progressing further in their drug use to heroin experimentation and dependency, and engage those already using heroin into treatment at an earlier stage. Instead these early school-leavers may be socialising with other teenagers not going to school, and older unemployed youths, in an unsupervised environment of drug use.

Homelessness and drug misuse are interrelated and often create a vicious cycle. In a recent Irish study on homelessness,²⁹ family conflict was the most common reason for becoming homeless, and drug abuse the second most common reason for continued homelessness, after lack of access to alternative housing. Many of these young people said they were homeless in the month before assessment (29%), or had a history of homelessness (45%). A teenager faced with intolerable home circumstances cannot easily leave the family home through renting alternative accommodation. Instead their only option may be to make themselves homeless. This exposes the young person to a marginalised group, many of whom are older, using drugs and/or engaged in crime, through which they may accumulate further harm, including progression to injection. By engaging these young people in treatment, present housing issues can be stabilised, future homelessness prevented, thus hopefully reducing risk exposure.

Poly substance issues

The majority of these teenagers have used a variety of different drugs and most have used methadone. Tackling polydrug misuse increases the treatment challenges in this group. Research on adult populations indicates that heroin dependent patients use diverted methadone generally as a strategy to manage withdrawal symptoms, and also for hedonic effects occasionally. These factors are likely to underpin the methadone misuse reported by this young population.

Gender issues

In contrast to adult addiction services, in this study more females than males entered treatment. This suggests a continuation of previously demonstrated trends, with females gradually accounting for an increased proportion of the under-18 opiate misusing treatment attendees in Dublin during the 1990s.⁹ Whereas a decade ago males were more at risk of opiate abuse, now male and female teenagers are equally at risk. This has implications for service provision.

The males and females presented generally with a similar profile of needs. However, males were more likely to report a background of familial drug and alcohol abuse and greater forensic problems.

Females reported greater past suicidal behaviour and they were also much more likely to be in a current relationship, and these relationships were invariably with other opiate users. These differences may reflect different aetiological pathways into opiate dependence between the genders. The large number of young girls in relationships with older male heroin

users presents a significant treatment challenge.

Jessor and Jessor have argued that from the teenager's perspective, substance use can be functional by assisting the young person to solve developmental challenges and stresses.³⁰ As heroin in particular induces euphoria and relieves anxiety, it may for some, provide a maladaptive solution to the difficulties of growing up in adverse circumstances. A young person already struggling with the challenges of adolescence may find that heroin provides relief from stress at a time when more healthy coping mechanisms have not fully developed. Cognitively these adolescents may not fully appreciate the longer-term disadvantages to heroin use. Their immediate concern and reason for seeking treatment may be to control negative aspects of drug use as they see it, such as the daily withdrawal symptoms, while not being particularly focussed on the goal of abstinence *per se*.

In motivational terms,³¹ they may be in the action stage of change with regard to problem areas such as homelessness, but are at the pre-contemplative stage with regard to drug use. Jessor and Jessor argue that unless a young person is provided with alternative ways of relieving stress and achieving personal goals, substance use will persist.

Modern aetiological theories on teenage drug use are multisystemic, involving a complex interplay of risk and protective factors operating at various levels – individual, family, neighbourhood, school and peer group – to create pathways toward problematic substance use.

As described by Carr, such problematic behaviour is more likely to arise “in vulnerable youngsters who are involved in problematic family relationships, problematic peer group relationships, and within communities where drugs are available and other pathways towards self-fulfilment are blocked”.³² The associations described in this study represent a snapshot of this complex multisystemic system.

Conclusion

These young people come from a background of major disadvantage, family dysfunction and psychiatric co-morbidity. Complete abstinence may not be their priority in seeking treatment. Instead, they may be seeking relief from the overall chaos and instability in their lives.

In order to move these teenagers towards change in their use of drugs, treatment services need to be multidisciplinary and flexibly employ a wide range of bio-psycho-social interventions including methadone. All of this needs to take place against a background of efficient interagency co-operation.

Acknowledgements

This study was conducted as part of the job description of the trainee post in Child and Adolescent Psychiatry. The authors would like to express their appreciation and gratitude to the staff of the YPP, Fionnula Rafferty of the Central Treatment List, and Jeanne Long of the Virus Reference Laboratory.

Declaration of Interest: None.

References

1. Hopfer CJ, Khuri E, Crowley TJ, Hooks S. Adolescent heroin use: A review of descriptive and treatment literature. *J Substance Abuse Treat* 2002; 23: 231-37.
2. Rowan AB, Fudala PJ, Mulligan J. The medical management of adolescent heroin dependence. *Curr Psychiatry Rep* 2000; 2(6): 527-30.
3. Chrome I, Chistian J, Green C. The development of a unique designed community

- drug service for adolescents. *Drugs – Education, Prevention, and Policy* 2000; 7: 87-108.
4. Bukstein OG. Influences on the risk and course of substance use and abuse in adolescents. *Curr Op Psychiatry* 1985; 8: 218-221.
 5. Spooner C, Mattick RP, Noffs W. A study of the patterns and correlates of substance use among adolescents applying for drug treatment. *Aust NZ J Public Health* 2000 Oct; 24(5): 492-502.
 6. European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). 2002 Annual report on the state of the drugs problem in the European Union and Norway. Luxembourg: Office for Official Publications of the European Communities, 2002.
 7. Kelly A, Carvalho M, Teljeur C. Prevalence of opiate use in Ireland 2000-2001. A 3-source Capture Recapture study, NACD, Dublin, 2003, .
 8. Gervin M, Hughes R, Banford L, Smyth BP, Keenan E. Heroin smoking by "chasing the dragon" in young opiate users in Ireland: stability and associations with use to "come down" off "Ecstasy". *J Subst Abuse Treat* 2001; 20(4): 297-300.
 9. Smyth BP, O'Brien M. Children Attending Addiction Treatment Services in Dublin 1990-1999. *Eur Addict Res* 2004; 10: 68-74.
 10. Mullen L, Barry J. An Analysis of 15-19-year-old first attenders at the Dublin Needle Exchange, 1990-97. *Addiction* 2001; 96: 251-58.
 11. Burniston S, Dodd M, Elliot L, Orr L, Watson L. Drug Treatment Services for Young People. Scottish Executive Office: Edinburgh, 2002
 12. American Academy of Child and Adolescent Psychiatry. Practice parameters for assessment and treatment of children and adolescents with substance use disorders. *J Am Acad Child Adolesc Psychiatry* 1997 (suppl); 36: 140S-56S.
 13. Marsch L. The Efficacy of methadone maintenance intervention in reducing illicit opiate use, HIV risk behaviour and criminality: a meta-analysis. *Addiction* 1998; 93: 515-32.
 14. Gossop M, Marsden J, Duncan S, Tara K. The National Treatment Outcome Research Study (NTORS): 4-5 year follow-up results. *Addiction* 2003; 98(3): 291-303.
 15. Godfrey C, Stewart D, Gossop M. Economic analysis of costs and consequences of the treatment of drug misuse: two-year outcome data from the National Treatment Outcome Research Study (NTORS). *Addiction* 2004; 99: 696-707.
 16. Van Beusekom, Iguchi. A review of recent advances in knowledge about methadone maintenance treatment. RAND, Geneva, 2001.
 17. Farrell M et al. Methadone maintenance treatment in opiate dependence: a review. *BMJ*; 1994; 309: 997-1001.
 18. Robins LN, Przybeck TR. Age of onset of drug use as a factor in drug and other disorders. *NIDA Res Monogr* 1985; 56: 178-92.
 19. Health Advisory Service. Report. Children and Young People Substance Misuse Services – The Substance of Young Needs. HMSO: London, 1996.
 20. Carrick PA. Key components of drug treatment provision for young people: a Delphi approach. *J Subs Use* 2004; 9(1): 20-3
 21. Ireland's National Drug Strategy, 2001-2008. Dublin: Government Stationary Office, 2001.
 22. Copello AG, Templeton L, Velleman R. Family interventions for drug and alcohol misuse: is there a best practice? *Curr Opin Psych* 2006; 19: 271-76.
 23. Stanton MD, Shadish WR. Outcome, attrition, and family-couples treatment for drug abuse: a meta-analysis and review of the controlled, comparative studies. *Psychol Bull* 1997; 122: 170-91.
 24. Long J, Lynn E, Felly F. Trends in treated problem drug use in Ireland, 1998 to 2002. Occasional Paper 17. Dublin: Health Research Board, 2005.
 25. Grube JW, Morgan M. Smoking, drinking and other drug use among Dublin post-primary school pupils. Dublin: ESRI General Publications, 1986.
 26. Lynskey M, Hall W. The effects of adolescent cannabis use on educational attainment: A review. *Addiction* 2000; 95: 1621-30.
 27. Lloyd C. Risk factors for problem drug use: Identifying vulnerable groups. *Drugs: Education, Prevention and Policy* 1998; 5(3) :217-232.
 28. Mayock P. Choosers or Losers: Influences on Young peoples choices about Drugs in Inner-city Dublin. The Children's Research Centre, University of Dublin Trinity College, 2000. ISBN 1-902230-07-8.
 29. Lawless M, Corr C. Drug Use among the Homeless Population in Ireland. National Advisory Committee on Drugs; Dublin Stationary Office, 2005: 54-55.
 30. Jessor R, Jessor SL. Problem behavior and psychosocial development: A Longitudinal study of youth. New York: Academic press, 1977: 281.
 31. Prochaska JO, DiClemente CC. The Transtheoretical Approach: Crossing the traditional boundaries of therapy. Malabar, FL: Krieger, 1984.
 32. Carr A. In: Family Therapy – Concepts, Process and Practice. 2nd Ed. Chichester: The Wiley series in clinical psychology; 2006: 386.