



# ADAI Research Brief

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## Co-Occurring Substance Abuse and Mental Illness in Adolescents

1. Aarons GA, Brown SA, Hough RL, Garland AF, Wood PA. *Prevalence of adolescent substance use disorders across five sectors of care.* *J Am Acad Child Adolesc Psychiatry.* 2001 Apr; 40(4): 419-26.

**OBJECTIVE:** To examine the prevalence of substance use disorders (SUDs) among adolescents who received services in one or more of the following public sectors of care: alcohol and drug (AD), juvenile justice (JJ), mental health (MH), public school-based services for youths with serious emotional disturbance (SED), and child welfare (CW), in relation to age, gender, and service sector affiliation. **METHODS:** Participants included 1,036 adolescents aged 13 to 18 years, randomly sampled from all youths who were active in at least one of the above five sectors of care (N = 12,662) in San Diego County California. SUDs were assessed through structured diagnostic interviews conducted from October 1997 through January 1999. **RESULTS:** SUDs were found for youths in all sectors of care, with lifetime rates of 82.6% in AD, 62.1% in JJ, 40.8% in MH, 23.6% in SED, and 19.2% in CW. Rates of SUDs were significantly higher among older youths and males. Sector differences held even when accounting for the effects of age and gender. **CONCLUSIONS:** SUDs are highly prevalent among youths receiving care in the AD service sector as well as other sectors, particularly JJ and MH. These findings have implications for assessment, treatment, and service coordination for youths with SUDs in diverse sectors of public care.

2. Andrews G, Wilkinson DD. *The prevention of mental disorders in young people.* *Med J Aust.* 2002 Oct 7; 177 Suppl: S97-S100.

The prevention of some mental disorders in young people appears to be possible. Several small and medium randomised controlled trials show that some anxiety, affective and substance-use disorders can be prevented. These trials show that the interventions are efficacious, but whether they will be effective in routine practice is not known. The evidence is sufficiently good to warrant a large community trial in which the roll-out is staged and school communities evaluated before and after the roll-out.

3. Armstrong TD, Costello EJ. *Community studies on adolescent substance use, abuse, or dependence and psychiatric comorbidity.* *J Consult Clin Psychol.* 2002 Dec; 70(6): 1224-39.

A literature review on community studies of adolescent substance use, abuse, or dependence (SU/AID) and psychiatric comorbidity yielded 22 articles from 15 studies with information on rates, specificity, timing, and differential patterns of comorbidity by gender, race/ethnicity, and other factors. Results revealed that 60% of youths with SU/A/D had a comorbid diagnosis, and conduct disorder (CD) and oppositional defiant disorder (not attention-deficit/hyperactivity disorder) were most commonly associated with SU/A/D, followed by depression. Child psychopathology (particularly CD) was associated with early onset of substance use and abuse in later adolescence. The authors suggest that available data relevant to SU/A/D and psychiatric comorbidity can be used to better address such questions.

4. Barkley RA, Fischer M, Smallish L, Fletcher K. *Does the treatment of attention-deficit/hyperactivity disorder with stimulants contribute to drug use/abuse? A 13-year prospective study.* *Pediatrics.* 2003 Jan; 111(1): 97-109.

**OBJECTIVE:** To examine the impact of stimulant treatment during childhood and high school on risk for substance use, dependence, and abuse by young adulthood. **METHODS:** A total of 147 clinic-referred hyperactive children were followed approximately 13 years into adulthood (mean: 21 years old; range: 19-25). At adolescent (age 15) and adult follow-up, probands were interviewed about their use of various substances and duration of stimulant treatment. **RESULTS:** Duration of stimulant treatment was not significantly associated with frequency of any form of drug use by young adulthood. Stimulant-treated children had no greater risk of ever trying drugs by adolescence or any significantly greater frequency of drug use by young adulthood. Stimulant treatment in high school also did not influence drug use in adulthood except for greater use of cocaine. This difference was no longer significant after controlling for severity of attention-deficit/hyperactivity disorder and conduct disorder in childhood, adolescence, and adulthood. Stimulant treatment in either childhood or high

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school was not associated with any greater risk for any formal Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised drug dependence or abuse disorders by adulthood. Treatment with stimulants did not increase the risk of ever having tried most illegal substances by adulthood except for cocaine. Subsequent analyses showed that this elevated risk was primarily mediated by severity of conduct disorder by young adulthood and not by stimulant treatment in childhood. CONCLUSION: This study concurs with 11 previous studies in finding no compelling evidence that stimulant treatment of children with attention-deficit/hyperactivity disorder leads to an increased risk for substance experimentation, use, dependence, or abuse by adulthood.

5. Beitchman JH, Adlaf EM, Douglas L, Atkinson L, Young A, Johnson CJ, Escobar M, Wilson B. Comorbidity of psychiatric and substance use disorders in late adolescence: a cluster analytic approach. *Am J Drug Alcohol Abuse*. 2001 Aug; 27(3): 421-40.

Cluster analysis was used to identify subgroups of youths with past-year substance and/or psychiatric disorders (N = 110, mean age 19.0 years). Data for this study came from a community-based, prospective longitudinal investigation of speech/language (S/L) impaired children and matched controls who participated in extensive diagnostic and psychosocial assessments at entry into the study at 5 years of age and again at follow-up. Clustering variables were based on five DSM diagnostic categories assessed at age 19 with the University of Michigan Composite International Diagnostic Interview. Using Ward's method, the five binary variables were entered into a hierarchical cluster analysis. An iterative clustering method (K-means) was then used to refine the Ward solution. Finally, a series of analyses of variance (ANOVAs) were run to analyze group differences between clusters on measures of Global Assessment of Functioning (GAF), criminal involvement, anxiety and depressive symptomatology, and frequency of drug use and heavy drinking. The analysis yielded eight replicable cluster groups, which were labeled as follows: (a) anxious (20.9%); (b) anxious drinkers (5.5%); (c) depressed (16.4%); (d) depressed drug abusers (10%); (e) antisocial (16.4%); (f) antisocial drinkers (10%); (g) drug abusers (8.2%); (h) problem drinkers (12.7%). These groups were differentiated by external criteria, thus supporting the validity of our cluster solution. Cluster membership was associated with a history of S/L impairment: A large proportion of the depressed drug abusers and the antisocial cluster group had S/L impairment that was identified at age 5. Clarification of the developmental progress of the youths in these cluster groups can inform our approach to early intervention and treatment.

6. Brook JS, Richter L, Rubenstone E. Consequences of adolescent drug use on psychiatric disorders in early adulthood. *Ann Med*. 2000 Sep; 32(6): 401-7.

This article summarizes the existing literature on the relationship between adolescent drug use and abuse and the development of psychiatric disorders in adulthood. In recent years, there has been increased awareness of the co-occurrence of drug abuse and psychiatric disorders in adolescence and young adulthood. Few longitudinal studies, however, have examined specifically the impact of earlier drug use and abuse on later psychiatric disorders. The literature suggests three possible models to explain the relation between drug use and abuse and psychiatric disorders. According to the first model, adolescent psychiatric disorders precede drug use and abuse. A second model postulates that psychiatric disorders and drug use are correlated because they share one or more common aetiological factor(s). The third model posits that drug use and abuse predict or precede certain psychiatric disorders. We present data from a recent longitudinal study to support this latter model. As drug use and abuse have been shown to increase the likelihood of psychiatric disorders, it is clear that medical attention needs to be given to adolescents who use drugs of abuse. It is expected that a decrease in adolescent drug abuse should lead to an accompanying reduction in later psychiatric disorders.

7. Bukstein OG. Disruptive behavior disorders and substance use disorders in adolescents. *J Psychoactive Drugs*. 2000 Jan-Mar; 32(1): 67-79.

Disruptive behaviors disorders in the form of conduct disorder, oppositional defiant disorder and/or attention-deficit hyperactivity disorder are found in a majority of adolescents with substance use disorders. These disorders influence the risk for and the course of substance use disorders in adolescents and potentially provide important targets for intervention. Interventions such as family therapy and multisystemic therapy can focus on important environmental factors that help to produce and sustain substance use, related problems and disruptive/deviant social behavior. Researchers and clinicians are increasingly utilizing multimodal approaches that use several psychosocial approaches in addition to medication, if indicated. This article reviews our current understanding of the relationship between disruptive behavior disorders and substance use disorders in adolescents and the importance of this understanding in the prevention, assessment and treatment of adolescents with substance use disorders.

8. Bukstein OG. Comorbidity and adolescent substance abuse. In: Estroff TW (ed.). *MANUAL OF ADOLESCENT SUBSTANCE ABUSE TREATMENT*. Washington, D.C. : American Psychiatric Publishing, Inc., 2001, pp. 69-89.

This chapter discusses the relationship between comorbidity and adolescent substance abuse. Main topics discussed in this chapter include the following: (1) relationship between coexisting substance abuse and psychopathology; (2) common comorbid psychiatric disorders; (3) comorbidity and the development of substance

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abuse disorders; (4) assessment and comorbidity; and (5) clinical implications of comorbidity

9. Cicchetti D, Rogosch FA. *Psychopathology as risk for adolescent substance use disorders: a developmental psychopathology perspective. J Clin Child Psychol. 1999 Sep;28(3):355-65.*

Examines several issues on psychiatric diagnoses as risk factors for adolescent drug use and substance use disorders. The articles in this special section are discussed in terms of dynamic models of risk and protective factors, stages of research needed for establishing causal mechanisms in the etiology of drug use disorders, conceptualizing drug use and abuse in the context of the developmental organization of the individual, equifinality and multifinality in developmental pathways to drug use and abuse, and issues in conceptualizing drug use problems as mental disorders. Future directions for research on the etiology of problem drug use, guided by principles of developmental psychopathology and prevention science, are provided.

10. Clark DB, Scheid J. *Comorbid mental disorders in adolescents with substance use disorders. IN: Hubbard JR, Martin PR (eds.) SUBSTANCE ABUSE IN THE MENTALLY AND PHYSICALLY DISABLED. New York: Marcel Dekker, 2001. pp. 133-167.*

The chapter is presented in 5 sections (1) antisocial behavior and related disorders, including conduct disorders and oppositional defiant disorder, (2) attention deficit hyperactivity disorders, (3) mood disorders (4) posttraumatic stress disorder, and (5) other anxiety disorders. Each section briefly defines the considered mental disorder, describes findings on the association between the area of psychopathology and adolescent substance use disorder (SUD), considered possible causal relationships, and discusses the implications the form of psychopathology has on adolescent SUD treatment. It is noted that adolescents with SUD often have comorbid mental disorders. The relationships among reviewed disorders, as well as recommendations for the assessment, treatment, and future research directions, are discussed in a concluding section.

11. Dakof GA. *Understanding gender differences in adolescent drug abuse: issues of comorbidity and family functioning. J Psychoactive Drugs 2000 32(1):25-32.*

Female adolescent drug use has increased dramatically in the last 30 years, and there is a growing consensus that the syndrome of female adolescent substance abuse is different from the well-recognized male pattern. Gender differences in patterns of comorbidity and family functioning were investigated in a sample of 95 youths (42 girls and 53 boys) referred for substance abuse treatment. The findings indicate that male and female adolescent substance users differ in several clinically meaningful ways. The results from a discriminant function analysis indicate that substance-using adolescents referred to treatment are distinguished especially by the greater degree to which girls have internalizing symptoms and family dysfunction. The clinical implications of these gender differences are articulated.

12. Deas-Nesmith D, Campbell S, Brady KT. *Substance use disorders in an adolescent inpatient psychiatric population. J Natl Med Assoc. 1998 90(4):233-8.*

This study examined the comorbidity of substance use disorders and other psychiatric disorders in adolescent populations. The study population was comprised of 100 consecutive admissions, ages 13 to 17, to an acute care adolescent psychiatric inpatient unit for substance use disorders. Patients were assessed using the Personal Experience Screening Questionnaire (PESQ) and the substance-use disorder portion of the Structured Clinical Interview for DSM III-R (SCID-R). Thirty-three (33%) patients were identified as having a substance abuse or dependence diagnosis. There was no significant difference in the age between substance users and nonsubstance users. There were significantly more whites in the substance-using group. Sixty percent of all adolescents interviewed had histories of sexual or physical trauma, with trauma being significantly more common in the substance-using group. There were no significant differences in the number or type of other Axis I or Axis II diagnoses between the two groups. While substance users and nonsubstance users had no significant difference in the number of past psychiatric hospitalizations, nonsubstance users had significantly more past medical hospitalizations. These results indicate that high rates of comorbid substance abuse and psychiatric disorders exist in adolescents, and more in-depth study of comorbidity among adolescents is warranted.

13. Ferdinand RF, Blum M, Verhulst FC. *Psychopathology in adolescence predicts substance use in young adulthood. Addiction. 2001 Jun;96(6):861-70.*

AIMS: To investigate prospective associations between psychopathology in adolescence and tobacco, alcohol and drug use in young adulthood. DESIGN: A sample of 787 10-14-year-olds from the Dutch general population was prospectively followed-up across an 8-year interval. The Child Behavior Checklist (CBCL) was administered at initial assessment, and at 2- and 4-year follow-ups. Substance abuse was assessed with the Young Adult Self-Report (YASR) at 8-year follow-up. FINDINGS: The Thought Problems scale of the CBCL was the strongest predictor of alcohol use, while smoking was predicted by the Thought Problems and Delinquent Behavior scales. The strongest association with drug use in young adulthood was for the CBCL Delinquent Behavior scale. Predictive value of predictors in early adolescence was as important as in late adolescence. CONCLUSION: To investigate pathways towards substance use in young adulthood, studies assessing a broad range of possible predictors, including Thought Problems, at different developmental stages of adolescence, are needed.

14. Glantz MD. Introduction to the special issue on the impact of childhood psychopathology interventions on subsequent substance abuse: Pieces of the puzzle. *J Consulting Clin Psychol* 2002 Dec; Vol 70(6): 1203-1206  
Studies of adolescents and adults have reported high levels of co-occurrence of substance abuse with other psychiatric disorders, suggesting influence between the conditions. The comorbidity seems complex and variable, indicating that there may be more than 1 type of association between the comorbid disorders. When occurring in childhood, some of the frequently comorbid psychopathologies typically precede later drug and alcohol abuse and may have implications for substance abuse prevention as early risk indicators and as targets for intervention. Research discussed in this article and in this special issue provides a foundation for investigating the question of whether effective treatment of childhood psychopathologies can prevent or at least mitigate substance abuse for some adolescents. Clinical, research, and policy implications are discussed.

15. Grella CE, Hser YI, Joshi V, Rounds-Bryant J. Drug treatment outcomes for adolescents with comorbid mental and substance use disorders. *J Nerv Ment Dis.* 2001 Jun; 189(6): 384-92.

This study compared the pretreatment characteristics and posttreatment outcomes of substance-abusing adolescents with and without comorbid mental disorders in the Drug Abuse Treatment Outcome Studies for Adolescents. Subjects (N = 992) were sampled from 23 adolescent drug treatment programs across three modalities (residential, short-term inpatient, outpatient drug-free). Nearly two thirds (64%) of the sample had at least one comorbid mental disorder, most often conduct disorder. Comorbid youth were more likely to be drug or alcohol dependent and had more problems with family, school, and criminal involvement. Although comorbid youth reduced their drug use and other problem behaviors after treatment, they were more likely to use marijuana and hallucinogens, and to engage in illegal acts in the 12 months after treatment, as compared with the noncomorbid adolescents. Integrated treatment protocols need to be implemented within drug treatment programs in order to improve the outcomes of adolescents with comorbid substance use and mental disorders.

16. Johnson SD, Stiffman A, Hadley-Ives E, Elze D. An analysis of stressors and co-morbid mental health problems that contribute to youth's paths to substance-specific services. *J Behav Health Serv Res.* 2001 Nov; 28(4): 412-26.

Substance-specific services are tailored to address the inappropriate use of chemicals such as alcohol and marijuana. Unfortunately, few teens ever access such need-based services. This article explores the paths to substance-specific service use in a sample of urban adolescents who are public service sector users: a direct path from substance misuse and an indirect path from general mental health service use. Results indicate that even though a significant percentage of youths frequently consume substances and display negative use-related behaviors, few actually received substance-specific services. Contributors to the substance misuse path included youths' family substance dependence and environmental stressors. Contributors to the mental health services path were comorbid depression and substance misuse.

17. Kandel DB, Johnson JG, Bird HR, Weissman MM, Goodman SH, Lahey BB, Regier DA, Schwab-Stone ME  
*Psychiatric comorbidity among adolescents with substance use disorders: Findings from the MECA study.*  
*Journal-of-the-American-Academy-of-Child-and-Adolescent-Psychiatry.* 1999 Jun; Vol 38(6): 693-699

Investigated the extent to which adolescents in the community with current substance use disorders (SUDs) experienced co-occurring psychiatric disorders. Diagnostic data were obtained from probability samples of 401 adolescents (aged 14-17 yrs) and their mothers/caretakers, who participated in the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study. Rates of mood and disruptive behavior disorders were much higher among Ss with current SUD than among Ss without SUD. Comparison with adult samples suggest that the rates of current comorbidity of SUD with psychiatric disorders were the same among Ss as adults, and lower for lifetime disruptive disorders/antisocial personality disorder among Ss than adults.

18. Kavanagh DJ, Greenaway L, Jenner L, Saunders JB, White A, Sorban J, Hamilton G. Contrasting views and experiences of health professionals on the management of comorbid substance misuse and mental disorders. *Aust N Z J Psychiatry.* 2000 Apr; 34(2): 279-89.

OBJECTIVES: To determine opinions and experiences of health professionals concerning the management of people with comorbid substance misuse and mental health disorders. METHOD: We conducted a survey of staff from mental health services and alcohol and drug services across Queensland. Survey items on problems and potential solutions had been generated by focus groups. RESULTS: We analysed responses from 112 staff of alcohol and drug services and 380 mental health staff, representing a return of 79% and 42% respectively of the distributed surveys. One or more issues presented a substantial clinical management problem for 98% of respondents. Needs for increased facilities or services for dual disorder clients figured prominently. These included accommodation or respite care, work and rehabilitation programs, and support groups and resource materials for families. Needs for adolescent dual diagnosis services and after-hours alcohol and drug consultations were also reported. Each of these issues raised substantial problems for over 70% of staff. Another set of problems involved coordination of client care across mental health and alcohol and drug services, including disputes over duty of care. Difficulties with intersectoral liaison were more pronounced for alcohol and drug staff than for mental health. A majority of survey respondents identified 13 solutions as practical. These included routine screening for dual diagnosis at intake, and a range of proposals for closer intersectoral communication such as exchanging client information, developing shared treatment plans, conducting joint case conferences and offering consultation facilities. CONCLUSIONS: A wide range of problems for the management of

comorbid disorders were identified. While solution of some problems will require resource allocation, many may be addressed by closer liaison between existing services.

19. Kelly TM, Cornelius JR, Lynch KG. *Psychiatric and substance use disorders as risk factors for attempted suicide among adolescents: a case control study.* *Suicide Life Threat Behav.* 2002 Fall; 32(3): 301-12.

The objective of this research was to test substance-related and non-substance-related psychiatric disorders as predictors of attempted suicide among adolescents. Ninety-six psychiatrically disordered suicide attempters were matched one-to-one to 96 psychiatrically disordered non-attempters on age, race, gender, and the presence/absence of major depression. Conditional logistic regression was used to test psychiatric risk factors for their power to predict attempted suicide among adolescents. Bipolar disorder, cocaine use disorders, and conduct disorder were found to be predictive of attempted suicide in univariate testing. Bipolar disorder, inhalant use disorders, cocaine use disorders, and hallucinogen use disorders were found to be predictive of attempted suicide, after adjusting for all other covariates. Loglinear analyses revealed high odds ratios associated with the comorbidities of alcohol use disorder with conduct disorder and drug use disorders with conduct disorder in both groups. Higher rates of cocaine use disorder/conduct disorder, hallucinogen use disorder/conduct disorder, and alcohol use disorder/ conduct disorder were found among suicide attempters. Evaluation of these particular comorbid conditions should be part of the adolescent suicide risk assessment.

20. Kendall PC, Kessler RC *The impact of childhood psychopathology interventions on subsequent substance abuse: policy implications, comments, and recommendations..* *J Consult Clin Psychol.* 2002 Dec; 70(6): 1303-6.

This article makes observations about policy implications and offers a combination of commentary and recommendation regarding the special issue on the impact of childhood psychopathology interventions on subsequent substance abuse. The authors mention forward-looking directives to expand the mandate for early intervention, to expand the research agenda for randomized clinical trials, and to develop a policy-oriented evidence base. They also note topics that require consideration and offer recommendations with regard to how to proceed. The special issue, as well as this discussion, will spark thought and action directed toward the evaluation of interventions for youths to assess the degree to which treating mental disorders has beneficial effects on the sequelae of the initial intervention target.

21. King RD, Gaines LS, Lambert EW, Summerfelt WT, Bickman L. *The co-occurrence of psychiatric and substance use diagnoses in adolescents in different service systems: frequency, recognition, cost, and outcomes.* *J Behav Health Serv Res.* 2000 Nov; 27(4): 417-30.

The frequency, severity, recognition, cost, and outcomes of adolescent substance use comorbidity were analyzed in the Fort Bragg Demonstration Project. Comorbidity was defined as the co-occurrence of substance use disorder (SUD) with other psychiatric diagnosis. The sample consisted of 428 adolescent clients whose providers' diagnoses were compared with research diagnoses. The project identified 59 clients (13.8%) with SUD, all with additional psychiatric diagnoses. Providers recognized only 21 of these 59 comorbid cases. The frequency and severity of comorbidity did not differ between service system samples, although recognition did. Comorbid clients had more behavior problems and more functioning impairment, and their average treatment cost (\$29,057) was more than twice as high as that of noncomorbid clients (\$13,067). Mental health outcomes were not influenced by type of service system, comorbid diagnosis, or treatment. Screening for and prevention of SUD are discussed as a potential cost-savings opportunity in mental health services.

22. Latimer WW, Stone AL, Voight A, Winters KC, August GJ. *Gender differences in psychiatric comorbidity among adolescents with substance use disorders.* *Exp Clin Psychopharmacol.* 2002 Aug; 10(3): 310-5.

The authors examined gender differences in rates of comorbid psychiatric disorders among adolescents with 1 or more psychoactive substance use disorders. Baseline diagnostic data were obtained from 135 adolescents, ages 12 to 19, and their parents-guardians, who participated in a study to develop and efficacy test Integrated Family and Cognitive-Behavioral Therapy. Rates of attention-deficit/hyperactivity disorder and conduct disorder were higher among drug-abusing male adolescents compared with drug-abusing female adolescents. However, high rates of disruptive behavior disorders also characterized drug-abusing female adolescents. Similarly, drug-abusing female adolescents exhibited a higher rate of major depression compared with drug-abusing male adolescents. However, rates of dysthymia, double depression (i.e., major depression and dysthymia), and bipolar disorder were equivalent between genders.

23. Lipschitz DS, Grilo CM, Fehon D, McGlashan TM, Southwick SM. *Gender differences in the associations between posttraumatic stress symptoms and problematic substance use in psychiatric inpatient adolescents.* *J Nerv Ment Dis.* 2000 Jun; 188(6): 349-56.

This study examined gender differences in the associations between posttraumatic stress symptoms and problematic substance use in psychiatrically hospitalized adolescents. Ninety-five adolescent inpatients (38 boys, 57 girls) were systematically evaluated with a battery of psychometrically well-established self-report measures to assess trauma exposure, posttraumatic stress symptoms, problematic alcohol and drug use, and internalizing and externalizing psychopathology. Twenty-three percent (N = 22) of patients met DSM-IV-based symptom criteria for PTSD, and 37% (N = 35) and 34% (N = 32) of patients endorsed problematic levels of drug and alcohol use, respectively. Posttraumatic stress symptoms were significantly associated with problematic drug and alcohol use in girls but not in boys. There were no significant gender differences in posttraumatic

stress symptoms and/or problematic substance use, to account for the gender differences in the association between PTSD and substance use. Our findings suggest that the link between substance abuse and PTSD may be especially salient for female adolescents.

24. Mitchell DP, Betts A, Epling M. *Youth employment, mental health and substance misuse: a challenge to mental health services. J Psychiatr Ment Health Nurs. 2002 Apr; 9(2): 191-8.*

Employment is the cornerstone of social inclusion, the means by which individuals play a full and active part in society and has a pivotal role in helping young people to negotiate the transitional period between the child and adulthood. Employment therefore should be seen as a right and given a higher priority by health and social care agencies. There are numerous difficulties preventing some young people from achieving full employment and these are compounded for young people with concurrent mental health and substance misuse problems (dual diagnosis). The coexistence of these two problems is on the increase and they are recognized as significant barriers to employment. Unemployment may lead to social alienation, criminal or other antisocial activity and a higher incidence of suicide. Consequently, there is a danger of young unemployed people slipping into a spiral of self-defeating, antisocial and risky behaviour. There is little evidence of health and social care agencies working in partnership with voluntary sector organizations to tackle the growing problem of dual diagnosis and youth unemployment, although there are obvious linkages between employment, psychological health, social inclusion and substance misuse. It is therefore worth exploring the issues surrounding work, mental health and substance misuse in young people if we are to generate new ways of thinking about and responding to the needs of this target group. This presents a challenge to mental health services, particularly nurses who face the impact of these issues in their day to day practice but often lack the preparation and support to adequately address them.

25. Moss HB, Lynch KG. *Comorbid disruptive behavior disorder symptoms and their relationship to adolescent alcohol use disorders. Drug Alcohol Depend 2001 Sep 1; 64(1): 75-83.*

This investigation evaluated the relationship between comorbid Disruptive Behavior Disorder (DBD) and Alcohol Use Disorder (AUD) symptoms in adolescents. The factor structure of both DBD and AUD symptoms was evaluated and a structural model then examined the relationships between comorbid DBD symptoms and AUD symptoms. A full model and a sex-differentiated model were evaluated. For the full model, only Conduct Disorder (CD) symptoms were associated with AUD symptoms. In the sex differentiated model, male adolescents demonstrated direct effects of CD and Attention Deficit Hyperactivity Disorder (ADHD) on AUD. For female adolescents we found only a robust direct effect of CD on AUD. We concluded that CD symptoms have the strongest concurrent association with AUD symptoms in adolescents. However, there is preliminary evidence of sex heterogeneity.

26. Myers MG ; Brown SA ; Tate S ; Abrantes A ; Tomlinson K. *Toward brief interventions for adolescents with substance abuse and comorbid psychiatric problems. In: Monti PM ; Colby SM ; O'Leary T (eds.). ADOLESCENTS, ALCOHOL, AND SUBSTANCE ABUSE : REACHING TEENS THROUGH BRIEF INTERVENTIONS. New York : The Guilford Press, 2001, pp.275-296.*

This chapter outlines the potential utility of brief interventions for substance-abusing adolescents with comorbid psychiatric problems. Efforts aimed at youths who experience substance use problems that have not been identified and/or treated are examined. The article suggests that the potential utility of brief interventions lies in identifying substance use problems, motivating adolescents in various settings to attend to their substance use behaviors, and facilitating behavior change.

27. Novins DK, Beals J, Sack WH, Manson SM. *Unmet needs for substance abuse and mental health services among Northern Plains American Indian adolescents. Psychiatr Serv. 2000 Aug; 51(8): 1045-7.*

Use of mental health and substance abuse services was examined among 109 American Indian adolescents in a Northern Plains reservation community. Each was interviewed to assess psychiatric diagnosis and service use and to determine whether an adult had recognized a problem in the adolescent—a critical determinant of receipt of services. Of the 23 youths who had a disorder, nine (39 percent) reported lifetime service use. Of the 25 who received services, 17 were treated by a school counselor; only one received services from a mental health specialist. Eight of the 25 youths with a psychiatric or substance use diagnosis who did not receive services reported that an adult had recognized a problem.

28. Pressman M, Brook DW, Maidman P, Orlowski B. *Clinical improvement in adolescents comorbid for substance abuse and psychiatric diagnoses through multiple group psychotherapy. Group. 2001 Dec; Vol 25(4): 321-332*

In a pilot study, the authors examined the outcome of group psychotherapy for the treatment of 19 adolescents (6 females and 13 males, aged 15-18 yrs), comorbid for substance abuse and psychiatric diagnoses, in terms of symptom reduction. They compared presenting symptomatology of treatment completers with treatment noncompleters. A retrospective study of the outcome of a multiple group psychotherapy treatment program using the Drug Use Screening Inventory-Revised Version (DUSI-R) to assess change over time was conducted. Depressive disorders were the most prevalent psychiatric diagnoses (68%), and marijuana was the substance most commonly abused on a frequent basis. Treatment completers showed improvement in behav-

for problems, health status, and social competence. As part of an integrated treatment program, multiple group psychotherapy is a promising treatment modality for adolescent patients, comorbid for substance abuse and psychiatric diagnoses, pending further assessment of the complex issues involved in combined treatment

29. Pressman MA, Kymissis P, Hauben R. *Group psychotherapy for adolescents comorbid for substance abuse and psychiatric problems: a relational constructionist approach. Int J Group Psychother.* 2001 Jan;51(1):83-100.

The group psychotherapy of adolescents comorbid for psychiatric and substance abuse problems is fraught with inconsistent attendance, frequent verbal and physical disruptions by the adolescents, and intense countertransference toward patients and their parents on the part of treating staff. A relational constructionist approach assists staff and patients in overcoming these obstacles and in focusing on the adolescents' search for personal meaning. Multiple group psychotherapy conducted in a combined day treatment and high school program is described and illustrated by case examples during the course of a year of treatment. These examples illustrate the importance of a relational non-hierarchical approach to adolescent patients by treating staff.

30. Pressman MA, Brook DW. *A multiple group psychotherapy approach to adolescents with psychiatric and substance abuse comorbidity. Int J Group Psychother.* 1999 Oct;49(4):486-512.

Multiple group psychotherapy was employed as the primary treatment modality in a day-treatment program as an innovative multifaceted approach to treating adolescents comorbid for psychiatric and substance abuse diagnoses. The concurrent educational program included a high school on site. The groups included Substance Abuse Group, which promoted the 12-step model; Health Group; Psychotherapy Group; Leisure Time Group; Self-Awareness Group; and Multiple Family Group. The effect of the multiple groups was to provide a variety of experiences focusing on varied aspects of normal and dysfunctional adolescent development. Together the combination of groups served to strengthen the participants' cohesiveness, communicating skills, and hopefulness.

31. Rivers SM, Greenbaum RL, Goldberg E. *Hospital-based adolescent substance abuse treatment: comorbidity, outcomes, and gender. J Nerv Ment Dis.* 2001;189(4):229-37.

Positive change was demonstrated on a number of self-report scales administered to 129 adolescents at a hospital-based substance abuse program, of whom 72 were posttested after 8 weeks. Female subjects showed change on more measures than male subjects, and a greater number of female subjects went from the clinical to subclinical range. Based on number of sessions attended, subjects were grouped by "dose" into either "hi-attenders" or "lo-attenders." A Trials (pretest/posttest) x Dose interaction revealed significant reduction in drug use at posttest for hi-attenders who were initially heavier users. Multiple regression analyses determined how well "comorbidity" predicted attendance and change in drug use. Although comorbidity failed to predict attendance consistently, male subjects who reported more internalizing symptomatology reduced their drug use to a greater extent than those low on this dimension, and female subjects who initially reported experiencing more family problems became more self-efficacious about future drug avoidance.

32. Robbins MS, Kumar S, Walker-Barnes C, Feaster DJ, Briones E, Szapocznik J. *Ethnic differences in comorbidity among substance-abusing adolescents referred to outpatient therapy. J Am Acad Child Adolesc Psychiatry.* 2002 Apr;41(4):394-401.

OBJECTIVE: To examine differences in psychiatric comorbidity between African-American and Hispanic substance-abusing adolescents referred for outpatient therapy. METHOD: Participants were 167 substance-abusing adolescents and their family members who completed an intake assessment. As part of the intake assessment, adolescents and parents were administered the Diagnostic Interview Schedule for Children-Predictive Scales to screen for the presence of nine psychiatric diagnoses representing both externalizing and internalizing disorders. RESULTS: Both African-American and Hispanic youths presented with high-above-threshold symptom rates of co-occurring disorders. However, both adolescents and parents reported that Hispanic youths (78.3% and 83.9%, respectively) demonstrated greater rates of externalizing symptoms than African-American youths (65.2% and 70.1%, respectively). African-American youths (40%) reported significantly more symptoms of agoraphobia than Hispanic youths (19.5%). CONCLUSIONS: The presence of high rates of co-occurring internalizing and externalizing problems provides evidence of the need for developing and implementing multifaceted interventions that address the complex emotional and behavioral needs of adolescent substance abusers. Among Hispanic youths in particular, treatments must address constellations of problem behaviors that appear to co-occur and likely represent the child's entrenchment in a deviant subculture.

33. Shrier LA, Harris SK, Kurland M, Knight JR. *Substance use problems and associated psychiatric symptoms among adolescents in primary care. Pediatrics.* 2003 Jun;111(6 Pt 1):e699-705.

OBJECTIVE: Substance use disorders (SUDs) are associated with other mental disorders in adolescence, but it is unclear whether less severe substance use problems (SUPs) also increase risk. Because youths with SUPs are most likely to present first to their site of primary care, it is important to establish the presence and patterns of psychiatric comorbidity among adolescent primary care patients with subdiagnostic use of alcohol or other drugs. The objective of this study was to determine the association between level of substance use and psychiatric symptoms among adolescents in a primary care setting. METHODS: Patients who were aged 14 to

18 years and receiving routine care at a hospital-based adolescent clinic were eligible. Participants completed the Problem Oriented Screening Instrument for Teenagers Substance Use/Abuse scale, which is designed to detect social and legal problems associated with alcohol and other drugs, and the Adolescent Diagnostic Interview, which evaluates for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition diagnoses of substance abuse/dependence and 8 types of psychiatric symptoms. We examined gender-specific associations of no/nonproblematic substance use (NSU), SUP, and SUD with psychiatric symptom presence (any symptoms within each type), score (symptom scores summed across all types), and number of types (number of different symptom types endorsed). RESULTS: Of 538 adolescents (68% female; mean +/- standard deviation age: 16.6 +/- 1.4 years), 66% were classified with NSU, 18% with SUP, and 16% with SUD, and 80% reported having at least 1 type of psychiatric symptom in the previous 12 months. Symptoms of anxiety were most common (60% of both boys and girls), followed by symptoms of depression among girls (51%) and symptoms of attention-deficit disorder (ADD) among boys (47%). Compared with those with NSU, youths with SUP and those with SUD were more likely to report symptom presence for several types of psychiatric symptoms. Girls with SUP or SUD had increased odds of reporting symptoms of mania, ADD, and conduct disorder; girls with SUD were at increased risk for symptoms of depression, eating disorders, and hallucinations or delusions. Boys with SUP had increased odds of ADD symptoms, whereas boys with SUD had increased odds of reporting hallucinations or delusions. Boys with SUP or SUD had increased odds of reporting symptoms of conduct disorder. Youths with SUP and SUD also had higher psychiatric symptom scores and reported a wider range of psychiatric symptom types (number of types) compared with youths with NSU. CONCLUSIONS: Like those with SUD, adolescents with subdiagnostic SUP were at increased risk for experiencing a greater number of psychiatric symptoms and a wider range of psychiatric symptom types than youths with NSU. Specifically, adolescents with SUP are at increased risk for symptoms of mood (girls) and disruptive behavior disorders (girls and boys). These findings suggest the clinical importance of SUP and support the concept of a continuum between subthreshold and diagnostic substance use among adolescents in primary care. Identification of youths with SUP may allow for intervention before either the substance use or any associated psychiatric problems progress to more severe levels.

34. *Simkin DR. Adolescent substance use disorders and comorbidity. Pediatr Clin North Am. 2002;49(2):463-77.*

It is imperative to know what risk factors are more likely to appear during specific developmental stages so that identification and interventions can be used to decrease the risk for future SUD. Continued surveying of risk factors that can occur at any stage in childhood are important to ensure that other risk factors are anticipated and intervened upon as well. Multiple risk factors increase the magnitude of the risk for SUD, and therefore all risk factors should be detected to convert these to protective factors. Screening instruments that can assess risk factors found to increase the risk for substance abuse can be found in examples, such as the Drug Usage Screening Instrument [81] and the Problem-Oriented Screening Instrument for Teenagers. The detection of risk factors by primary care providers is becoming increasingly important. However, other professionals are beginning to recognize that early recognition and treatment can enable a youth to go on to a productive life in other arenas as well. Drug courts and diversion programs are beginning to treat first-time offenders and their families rather than taking the punitive approach. These have proven to be very successful. Primary care physicians also should become familiar with motivational enhancement therapy when confronting a youth with a suspected substance abuse problem [57]. This method has proven to be more effective in getting youth into treatment than the direct, confrontational style, which often puts the youth in a defensive mode. Motivational enhancement therapy includes interventions that are delivered in a neutral and empathetic way. The six components of motivational enhancement therapy (also called FRAMES) include: Feedback on personal impairment; Emphasis on personal responsibility; Clear advice to change; Menu of alternative options; Empathy as a counseling style; Self-efficacy. In this way, a clinician can elicit pros and cons, give advice, provide choices, practice empathy, clarify goals, and remove barriers without making youth feel defensive. Monti et al. [59] have demonstrated that this technique has been useful in getting youth into treatment. Primary care physicians can use instruments that will assess the possibility of both externalizing (e.g., ADHD) and internalizing (e.g., depression and anxiety) disorders. Examples of this type of instrument are the Achenbach child behavior checklist, teacher report form, and youth self-report form, which survey symptoms for these disorders [1]. Social anxiety disorder can be detected by asking whether the prelatency child went into new situations willingly and tended to hang back or whether the child had difficulty separating from his or her parents. Other questions to ask are whether the child tended to isolate or was fearful of speaking in front of the class. Of course, any bruising or behavior that suggests exposure to adult-related sexual acts may cause concern for physical or sexual abuse and possible PTSD. However, interest in sex earlier than expected for the age of the child may also indicate the possibility of bipolar disorder. These children have many symptoms of ADHD with a high degree of irritability and may seem boastful, grandiose, or they may be "daredevils" with no fear of consequences. Referral to a specialist is necessary to evaluate these children further. Because substance use at age 14 or 15 years can be predicted by academic and social behavior at ages 7 to 9 years, early detection of poor social skills and learning difficulties is essential [43]. Learning disorders can be uncovered by school evaluations. However, schools with economic problems may not be able to accommodate all requests, in which case a parent may have to go through a private provider. Few schools screen for processing problems, including auditory and visual motor processing problems, processing speed, comprehension, and short-term and

long-term memory problems. This is extremely important because ADHD can be confused with an auditory processing problem. Stimulants may help this condition, but accommodations must be made to ensure continued success. Early-intervention programs, such as Drug Abuse Resistance

Education (DARE), proved to be ineffective because the programs did not target components that have been shown to predict future drug use [54]. One program that has targeted these components, normative beliefs, lifestyle-behavior incongruence, and commitment is the All Stars program [39,40]. A strong initial dosage with booster interventions for at least 2 years is also important [10]. Before a child is diagnosed with oppositional defiant disorder or conduct disorder, every effort should be made to detect any underlying psychiatric disorder that has not been treated and therefore may look like a conduct disorder (e.g., bipolar disorder). Proper psychopharmacologic interventions should be made for psychiatric disorders. If one drug has been ineffective, another untreated psychiatric disorder may be present, and it is always important to tease out what remaining symptoms are present after a therapeutic trial has been tried. It is important to form a team approach so that all risk factors can be approached. Members of the team often include a primary care physician, a child psychologist, the parents, the patient, a teacher, a school counselor, a child psychiatrist, and sometimes a pediatric neurologist. No one member of the treatment team can provide all of the necessary services to prevent the future risk for substance abuse.

35. Solhkhah R, Armentano M. *Adolescent substance abuse and psychiatric comorbidity*. IN: Marsh DT, Fris-tad MA. (eds). *HANDBOOK OF SERIOUS EMOTIONAL DISTURBANCE IN CHILDREN AND ADOLESCENTS*. (pp. 304-319). New York, NY, US: John Wiley & Sons, 2002.

Adolescents with substance use disorders (SUDs) exhibit a high prevalence of psychiatric disorders compared to the general population. Not only are specific psychiatric disorders associated with drug abuse, but other problems that affect teenagers, such as suicide, violence, and pregnancy, are also associated with increased risk of substance use. Certain factors that put children and adolescents at risk for the development of an SUD include genetics, constitutional and psychological factors, and sociocultural factors. Awareness of the most likely disorders and formulation of an integrated treatment plan are important. This chapter reviews what is known about psychiatric comorbidity--reviewing the major diagnostic categories including mood disorders, psychosis, anxiety disorders, and personality disorders--and offers guidelines for management and consultation

36. Stanton A, Kennedy M, Spingarn R, Rotheram-Borus MJ. *Developing services for substance-abusing HIV-positive youth with mental health disorders*. *J Behav Health Serv Res*. 2000 Nov; 27(4): 380-9.

Models of program development have primarily focused on the internal organizational processes needed to plan, implement, and evaluate new service programs. However, creating an external demand for new programs by policy makers, administrative bureaucracies, public health officials, and funders is critical to establishing new programs. A series of deaths of seropositive youth and an absence of local service settings with staff trained to address the needs of youth living with HIV provided the impetus for Larkin Street Youth Center. In particular, the agency had to overcome stigma associated with having both substance use and mental health disorders to establish service programs to recruit and mobilize staff within the agency and the local community and to establish a comprehensive housing program for symptomatic HIV-infected adolescents. This article examines how a residential assisted care facility for HIV-seropositive adolescents was established using organizational strategic planning processes, problem solving, and social marketing frameworks.

37. Swadi H, Bobier C. *Substance use disorder comorbidity among inpatient youths with psychiatric disorder*. *Aust N Z J Psychiatry*. 2003 Jun; 37(3):294-8.

Objective: Substance abuse/dependence has been reported to show significant association with psychopathology, and is likely to influence the course and outcome of psychiatric illness. The aim of this study was to determine the rate of substance use disorders (other than alcohol) comorbidity among inpatient adolescents with severe Axis 1 psychiatric disorder. Method: A retrospective analysis of systematically collected data was carried out. The subjects were 16-18-year-old youths, admitted to an inpatient unit for severe psychiatric disorder. The data collection process utilized the DSM-IV criteria for diagnostic categorization of psychiatric disorder and substance use disorder. Demographic data, and data on suicide attempts were also collected. Results: Over a period of one year (March 2001-March 2002), 62 patients were admitted to the Christchurch Youth Inpatient Unit; 40 (64.5%) had a comorbid Substance Abuse Disorder (SAD) according to DSM-IV criteria and none had a Substance Dependence Disorder. The vast majority involved cannabis and stimulants. Sixty per cent of those with mood disorder, 63% of those with anxiety disorder and 80% of those with schizophrenia spectrum disorder had a comorbid SAD. Internalizing problems, especially mood disorders, pre-dominated among those with SAD reflecting the Unit's admission criteria. There were no differences in attempted suicide rates between those with SAD and those without SAD, but those with SAD were more likely to have unstable accommodation/living arrangements than those without SAD. Conclusions: Our findings confirm previous reports suggestive of high rates of SAD comorbidity among youth with severe psychiatric illness. There are clinical and process implications for these findings particularly identification of substance use disorders and their treatment as well as resource availability and staff training.

38. Turner RJ, Gil AG. *Psychiatric and substance use disorders in South Florida: racial/ethnic and gender contrasts in a young adult cohort.* *Arch Gen Psychiatry.* 2002 Jan;59(1):43-50.

BACKGROUND: Prevalence rates of psychiatric and substance use disorders among young adults in South Florida are presented. Unique aspects of the study include the large sample size, its ethnic diversity, and the fact that a substantial proportion of Hispanic participants were foreign born. METHODS: This study builds on a previous cohort study of students who entered middle school in 1990. A random subsample of this representative cohort (N = 1803) was interviewed between 1998 and 2000 when most were between 19 and 21 years of age. Disorders were assessed through computer-assisted personal interviews utilizing the DSM-IV version of the Michigan Composite International Diagnostic Interview. RESULTS: More than 60% of the sample met lifetime criteria for 1 or more study disorders, and 38% did so within the preceding year. Childhood conduct and major depressive and alcohol abuse disorders were the most prevalent. Although rates of affective and anxiety disorders in females were double that in males, this gender difference disappeared when attention-deficit/hyperactivity disorder, conduct disorders, and antisocial personality disorders were also considered (46.6% vs 45.7% for females vs. males, respectively). Substantially lower rates were observed among African Americans for depressive disorders and substance abuse and dependence. Among Hispanics, rates tend to be lower among the foreign-born in comparison with their US-born counterparts, particularly for the substance disorders. CONCLUSIONS: The documented presence of psychiatric and substance disorders in middle and high school populations emphasizes the importance of prevention efforts in school settings. Research on the origins of ethnic and nativity differences is called for.

39. Weiner DA, Abraham ME, Lyons J. *Clinical characteristics of youths with substance use problems and implications for residential treatment.* *Psychiatr Serv.* 2001 Jun;52(6):793-9.

OBJECTIVE: Despite high rates of dual diagnosis among children and adolescents and evidence that adults with coexisting substance use disorders require specialized services, many children are placed in residential settings and are offered uniform service packages regardless of their individual clinical profiles. The authors examined the rate of substance use problems in a sample of children and adolescents with severe emotional or behavioral disturbances who were in residential treatment. Differences in clinical characteristics and placement outcomes between children with and without coexisting substance use disorders were evaluated. METHODS: This retrospective study analyzed clinical data obtained by chart review using the Child Severity of Psychiatric Illness, a rating scale for symptom severity. The study subjects were 564 children and adolescents in residential treatment and state custody in Florida and Illinois who had serious emotional or behavioral disturbances. RESULTS: Twenty-six percent of boys and 37 percent of girls had substance use problems in addition to serious emotional or behavioral disturbances. Residents with co-occurring substance use disorders were significantly more likely than those with serious emotional or behavioral disturbances only to be at risk for suicide, elopement from residential placement, delinquent behavior, and institutional discharge placement. CONCLUSIONS: Children and adolescents with coexisting substance use problems require individualized service packages to address their greater need for supervision and higher rate of risk behaviors and to facilitate community discharge placements.

40. Wise BK, Cuffe SP, Fischer T. *Dual diagnosis and successful participation of adolescents in substance abuse treatment.* *Addiction.* 2000 Nov;95(11):1619-20.

A retrospective record review of one year of admissions to a residential adolescent substance abuse treatment program (N = 91) examined the prevalence of comorbid psychiatric disorders and factors associated with successful treatment participation. Psychiatric and substance use disorders (SUD) were diagnosed by DSM-IV criteria. Successful participation was based on multiple factors assessed by the treatment team. Consistent with prior studies, there was considerable comorbidity (63.7%) with both disruptive (Attention Deficit Hyperactivity Disorder [ADHD], 11%; Conduct Disorder [CD], 24%) and other disorders (depression, 24%; adjustment disorder, 7.7%; bipolar disorder, 3.3%). Male gender was negatively associated (OR = 0.23, P = 0.019) with successful participation in univariate analyses, as was ADHD (OR = 0.18, P = 0.007). CD (OR = 0.37, P = 0.053) approached significance. Multivariate analysis reveals ADHD was significant while having CD and being male approached significance. Psychotropic medication use and other diagnoses were not associated with successful participation. It is concluded that further research on the relationship between ADHD, CD, and substance abuse treatment is needed.

41. *Drug use and young people: why is co-morbidity research so important?* [editorial] Zeitlin H. *Addiction.* 2000 Nov;95(11):1619-20.

There is consistent evidence that substance misuse in young people is associated with high levels of co-morbid disturbance, perhaps up to 90% (Brown *et al.*, 1996). Can we reach these youngsters? They are present within the forensic services but it is also about time that we started looking under our noses, in child and family clinics, where usually referral is for co-morbid problems, though failing to recognize substance involvement. Behaviour and performance at school are common presenting problems and clinicians need to be aware of the possible role of commonly used substances in the genesis and dynamics of disturbance. The epidemiology of disorder and of substance use is such that it would take a very strange referral pattern indeed to avoid children involved with drugs. Lynskey & Hall (2000) address a problem with important, practical therapeutic inferences which should no longer be ignored.