



Published in final edited form as:  
*Child Welfare*. 2009 ; 88(1): 5–26.

## Mental Health Services for Children Placed in Foster Care: An Overview of Current Challenges

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### Abstract

Given the evidence from studies indicating that children in care have significant developmental, behavioral, and emotional problems, services for these children are an essential societal investment. Youth in foster care and adults who formerly were placed in care (foster care alumni) have disproportionately high rates of emotional and behavioral disorders. Among the areas of concern has been the lack of comprehensive mental health screening of all children entering out-of-home care, the need for more thorough identification of youth with emotional and behavioral disorders, and insufficient youth access to high-quality mental health services. In 2001, the American Academy of Child and Adolescent Psychiatry (AACAP) and the Child Welfare League of America (CWLA) formed a foster care mental health values subcommittee to establish guidelines on improving policy and practices in the various systems that serve foster care children (AACAP and CWLA, 2002). Because of the excellent quality and comprehensiveness of these statements, the Casey Clinical Foster Care Research and Development Project undertook consensus development work to enhance and build upon these statements. This article presents an overview of mental health functioning of youth and alumni of foster care, and outlines a project that developed consensus guidelines.

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Recent research underscores the urgent need to improve the access and quality of health and mental health care services for the large numbers of children in foster care (about 800,000, with a daily census of 510,000 as reported at the end of September 2006; U.S. Department of Health and Human Services [USDHHS], 2008). For example, Rubin, Halfon, Raghavan, and Rosenbaum (2005) found that an estimated one in every two children in foster care has chronic medical problems unrelated to behavioral concerns (Halfon, Mendonca, & Berkowitz, 1995; Simms, 1989; Takayama, Wolfe, & Coulter, 1998; U.S. General Accounting Office, 1995). Evidence suggests that these chronic conditions increase the likelihood of serious emotional problems (Rubin, Alessandrini, Feudtner, Mandell, Localio, & Hadley, 2004). Studies also suggest that of the 40% of youth in foster care, up to about

80% of these children exhibit a serious behavioral or mental health problem requiring intervention (Clausen, Landsverk, Ganger, Chadwick, & Litrownik, 1998; Garland, Hough, Landsverk, McCabe, Yeh, Ganger, & Reynolds, 2000; Glisson, 1994; Halfon et al., 1995; Landsverk, Garland, & Leslie, 2002; Stahmer, Leslie, Hurlburt, Barth, Webb, Landsverk & Zhang, 2005; Trupin, Tarico, Low, Jemelka, & McClellan, 1993; Urquiza, Wirtz, Peterson, & Singer, 1994). Young adults outside of foster care also suffer from mental health problems at high rates. According to a recent report of the U.S. Government Accountability Office (2008), in 2006, at least 2.4 million young adults ages 18 to 26 had serious mental illnesses.

Given the evidence from studies indicating that children in care have significant developmental, behavioral, and emotional problems (Clausen et al., 1998; Rutter, 2000), quality services for these children are an essential societal investment. Youth in foster care and adults who formerly were placed in care (foster care alumni) have disproportionately high rates of emotional and behavioral disorders. Among the areas of concern has been the lack of comprehensive mental health screening of all children entering out-of-home care, the need for more thorough identification of youth with emotional and behavioral disorders, and insufficient youth access to high-quality mental health services.

## **Need for Greater Consensus on Policy and Practice**

Despite recent findings that targeted assistance to youth, foster parents, and birthparents can exert salutary effects on youth and adult foster care alumni's mental health (e.g., Kessler, Pecora, Williams, Hiripi, O'Brien, English, White, Zerbe, Downs, Plotnick, Hwang, & Sampson, 2008), evidence-based practices are not being used routinely in foster care settings (Landsverk, Burns, Stambaugh, & Rolls-Reutz, 2006). Given this need and the shared interest of policymakers and advocacy groups to improve existing child welfare practices, guidelines on best practices for overall mental health approaches within child welfare are necessary.

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### **Step 1: Formed a Steering Committee**

A small steering committee (12 to 15 people) was formed, consisting of researchers from the Center for the Advancement of Children's Mental Health, Casey Family Programs, the Annie E. Casey Foundation, and representatives from key child welfare organizations such as the AACAP, CWLA, National Clearinghouse on Child Abuse and Neglect (NCCAN), and others. This steering committee guided the overall guideline development process, and assumed all organizational, leadership, and primary writing responsibilities.

### **Step 2: Prepared Expert Papers**

We commissioned experts in the field of mental health to write critical papers on the following mental health issues in child welfare: (a) optimal mental health screening and assessments, (b) effective psychosocial interventions, (c) appropriate psychopharmacologic treatment, (d) parent engagement, and (e) youth empowerment.

### Step 3: Surveyed Experts in the Field

To answer questions not directly addressed in the literature, a purposive sample of about 43 research and clinical experts with 10 or more years clinical and research experience with child welfare completed a brief survey on preferred practices for psychosocial intervention strategies for youth in foster care, based on the accepted RAND consensus survey methodologies (Brook, Chassin, Fink, Solomon, Kosecoff, & Park, 1986; Kahn & King, 1997). Survey responses were aggregated to identify those items demonstrating a high degree of consensus (mean > 8.0) as potential candidates for best practice guidelines.

### Step 4: Held a Two-Day Expert Consensus Conference

The two-day conference was a forum for presenting the critical papers and the results of the consensus survey. Following these presentations, conference participants were each assigned to one of five work groups corresponding to the topic areas (a through e) mentioned previously. Each work group formulated preliminary guidelines in their respective area based on their synthesis of the evidence, expert consensus data, and clinical sensibility and feasibility.

Following the work group discussions, the chair and reporter of each work group presented their preliminary guidelines to conference participants for feedback. Work groups were given the opportunity to revise and refine their guidelines based on this feedback. By the end of the two-day conference, each work group had a preliminary set of guidelines that had been reviewed by all conference participants.

### Step 5: Refined Consensus Guidelines

Following the consensus meeting, candidate consensus recommendations derived from Step 4 were further refined, and redistributed to the smaller steering committee for approval.

## Overview of the Special Issue

This special issue presents the results of the consensus guidelines development work and abridged versions of the critical papers presented at the conference. The special issue begins with this introductory paper that presents the most current data available regarding the prevalence of emotional and behavioral disorders among youth in foster care and alumni and the major challenges faced by children in child welfare who need mental health services. Abridged versions of the five critical consensus conference papers follow, as well as a paper on a multilevel evidence-based system of parenting interventions that was also presented at the conference. This special issue closes with two guideline papers: (1) guidelines for mental health screening, assessment, and treatment (both psychosocial and pharmacologic); and (2) guidelines for parent engagement and youth empowerment.

## Emotional and Behavioral Disorders Among Youth in Foster Care<sup>1</sup>

Most youth in foster care have traumatic family histories and life experiences (including the removal from their birthfamily) that result in an increased risk for mental health disorders. A study of children in foster care revealed that posttraumatic stress disorder (PTSD) was diagnosed in 60% of sexually abused children and in 42% of the physically abused children (Dubner & Motta, 1999). The study also found that 18% of foster children who had not experienced either type of abuse had PTSD, possibly because of exposure to domestic or community violence (Marsenich, 2002).

<sup>1</sup>This section is adapted from Pecora, White, Jackson, Wiggins, and English (in press).

Several studies have documented the increased prevalence of emotional and behavioral disorders in the foster care population (Auslander, McMillen, Elze, Thompson, Jonson-Reid, & Stiffman, 2002; Clausen et al., 1998; Dos Reis, Zito, Safer, & Soeken, 2001; McMillen, Scott, Zima, Ollie, Munson, & Spitznagel, 2004; Stahmer et al., 2005). Table 1 presents data from the Casey Field Office Mental Health (CFOMH) study on the lifetime mental health disorders of adolescents in foster care. We use data from this study, along with the Midwest Study data, because the data was recently collected, an important age group was highlighted, a broad list of diagnoses was assessed, and special analyses were undertaken that compared the CFOMH adolescents to a similar national general population sample.

### **Prevalence Rates Among Youth in the Casey Study of Adolescents**

The CFOMH study used the composite international diagnostic interview (CIDI) to assess the prevalence of mental health diagnoses among 14- to 17-year-old adolescents in Casey foster care (White, Havalchak, Jackson, O'Brien, & Pecora, 2007). The CIDI generates research-based mental health diagnoses of commonly occurring DSM-IV mental disorders (American Psychiatric Association [APA], 1994) by using type and severity of experienced symptoms. Generally good concordance has been found between CIDI diagnoses and independent clinical assessments (Haro, Arbabzadeh-Bouchez, Brugha, de Girolamo, Guyer, Jin, Lepine, Mazzi, Reneses, Vilagut, Sampson, & Kessler, 2006).

Table 2 presents the lifetime and past year mental health diagnoses of adolescents in the CFOMH study and a comparison sample of youth in the general population matched by age, race and gender (see White et al., 2007, for detailed sample characteristics). About three in five youth being served by Casey (63.3%) had a lifetime CIDI diagnosis, and about one in five (22.8%) had three or more lifetime diagnoses. Of the 22 lifetime diagnoses assessed, 6 were diagnosed for 15% or more of the sample. The most common lifetime diagnoses were oppositional defiant disorder (29.3%), conduct disorder (20.7%), major depressive disorder (19.0%), major depressive episode (19%), panic attack (18.9%), and attention deficit hyperactivity disorder (ADHD; 15.1%).

Over one-third of youth served by Casey (35.8%) reported symptoms indicative of a mental health disorder in the past year, and a much smaller percentage (7.7%) had symptoms indicative of three or more past year mental health problems. Of the 20 past years mental health conditions assessed, none were diagnosed for 15% or more of the sample. The most common past year conditions were major depressive disorder (10.9%), major depressive episode (10.9%), PTSD (9.3%), intermittent explosive disorder (8.6%), and conduct disorder (8.3%).

### **Comparisons of the CFOMH Data with Other Studies**

Compared to youth in the general population comparison sample, youth in the CFOMH study were significantly more likely to have at least one lifetime diagnosis (63.3% vs. 45.9%) and to have three or more lifetime diagnoses (22.8% compared to 14.7% in the general population). Mental health comparison data were provided by the National Comorbidity Study-Adolescent (NCS-A) survey. This survey, conducted from April 2001 to April 2003, used the CIDI in a nationally representative sample of 10,148 youth ages 13 to 17 (N. Sampson, personal communication, May 30, 2007). Rates of diagnoses in the past year, however, were similar between the two samples: 35.8% in the CFOMH study, compared to 36.2% of adolescents in the general population.

### **Emotional and Behavioral Disorders Among Foster Care Alumni**

Unfortunately, relatively little information has been available concerning how foster care alumni fare as adults, particularly in terms of mental health and other functional outcomes.

Most recently, however, results of the Casey National Alumni Study (Pecora, Kessler, O'Brien, White, Williams, Hiripi, English, White, & Herrick, 2006; Pecora, Williams, Kessler, Downs, O'Brien, Hiripi, & Morello, 2003), the Midwest Study (Courtney, Dworsky, Ruth, Keller, Havlicek, & Bost, 2007), and the Northwest Alumni Study (NWAS; Kessler et al., 2008; Pecora Kessler, Williams, O'Brien, Downs, English, White, Hiripi, Roller White, Wiggins, & Holmes, 2005; Pecora et al., 2006) suggest that young adult foster care alumni experience some mental illnesses at a much higher rate than young adults in the general population (as measured by the National Comorbidity Study Replication [NCS-R]; Kessler & Merikangas, 2004). Findings indicated that there are sizably greater risks among adult alumni for PTSD, anxiety disorders, depression, and drug dependence (two- to sevenfold increases in risk). Particularly troubling was the frequent lack of mental health services provided for youth in care as evidenced by long delays between illness onset and diagnosis and treatment.

Data are even more scarce for alumni of foster care based on well-recognized standardized measures of mental health functioning. Some sources of standardized data are the Midwest Study and NWAS, which are described next (Pecora et al., 2005).

### **The Midwest Study and the NWAS**

The NWAS compared the mental health functioning of 479 alumni, ages 20 to 33, with individuals of a similar age, gender, and ethnicity in the general population (from the NCS-R; Pecora et al., 2005). Based on questions from the CIDI, both the NWAS and the NCS-R assessed lifetime and 12-month mental health prevalence rates (see Table 3).

For lifetime prevalence, the occurrence of mental health disorders among alumni exceeded the general population on all nine mental health disorders assessed. The prevalence of lifetime PTSD was significantly higher among alumni (30.0%) in comparison to the general population (7.6%). The prevalence of lifetime major depression episodes was also significantly higher among alumni (41.1%) than among the general population (21.0%).

For 12-month diagnoses, the prevalence of diagnoses among alumni exceeded the general population on all nine disorders assessed, with the highest rates of alumni diagnoses being PTSD and depression. The rate of 12-month PTSD among alumni was 25.2% compared to 4.6% in the general population and the rate of 12-month major depression was 20.1% for alumni and 11.1% for the general population.

For many diagnoses, rates among adult alumni in the NWAS were three to five times those of youth in CFOMH study. This pattern of results suggests that alumni of foster care may be more at risk for mental health problems than youth still in care. This may be because unresolved issues surface in the difficult years after emancipation, when young adults may not have the means or supports to address them properly.

The Midwest Evaluation of the Adult Functioning of Former Foster Youth Study assessed the mental health of the 19- and 21-year-olds in their sample using the lifetime version of the CIDI. Table 4 presents the overlapping CIDI diagnoses in the Midwest Study for 21-year-olds and the NWAS for 20- to 33-year-olds (average age 24). The most prevalent mental health problems in the Midwest Study were PTSD, major depression, and alcohol dependence. Although prevalence rates were lower than the NWAS, this may be largely attributable to the age difference between the two studies.

## Comorbidity and Racial and Gender Differences in Mental Health Among Foster Care Alumni

### Comorbidity

The co-occurrence of multiple disorders (comorbidity; Jackson, 2008) is an important consequence of childhood trauma. Individuals with depression (a mood disorder) or PTSD (an anxiety disorder), often experience medical conditions such as heart disease, high blood pressure, diabetes, or cancer (Cicchetti & Toth, 1998; DeBellis, 2001; USDHHS, 2000). Depression and PTSD are also commonly associated with each other and with a number of other mental health issues such as aggression, attention deficits, eating disorders, alcohol or drug addictions, and suicidal tendencies (Castel, Rush, Urbanoski, & Toneatto, 2006; Cicchetti & Toth, 1998; DeBellis, 2001; Green & Kreuter, 2005; Hammen & Rudolph, 2003; Linning & Kearney, 2004; USDHHS, 2000; Wilson, Becker, & Heffernan, 2003; Zimmerman, Chelminski, Zisook, & Ginsberg, 2006). Violence and traumatic stress are both linked to the neurobiological systems that affect physical health as well as cognitive functioning, emotion control, and behavior (DeBellis, 2001). Despite the significant risk of psychological and physiological trauma among foster care alumni, few published studies describe the prevalence of specific comorbidities in this population. One exception, the Nwas, demonstrated that nearly 20% of alumni ages 20 to 33 had three or more current psychiatric problems (specific disorders not reported), compared to only 3% of the general population (Pecora et al., 2005).

In a special set of analyses of African American and white alumni in the Casey National Foster Care Alumni Study, Jackson (2008) found that in contrast to studies of the general population where comorbid depression was observed in 64% of the sample (see Kessler, Berglund, Demler, Jin, Koretz, Merikangas, Rush, Walters, & Wang, 2003), 98% of foster care alumni in this study exhibited comorbid depression and 94% of alumni had comorbid PTSD. Of the alumni with depression, 77% had another mental health diagnosis and 89.9% had coexisting health problems. About 62% of alumni with PTSD had a co-occurring mental disorder and 82% had co-occurring physical ailments. Rates of depression and PTSD comorbidity with physical health conditions were 13% to 21% higher than with other psychiatric diagnoses. This suggests a need to view and respond to alumni well-being from a more holistic perspective.

### Racial and Gender Differences in Rates of Emotional and Behavioral Disorders

Racial and gender differences in the mental health of foster care alumni are rarely explored, especially with multivariate techniques that control for pre-placement and in-care experiences. In one of the few analyses conducted to date, Jackson (2008) analyzed data from the Casey National Foster Care Alumni Study and found that of a sample of 708 African American and white foster care alumni, 13.9% met diagnostic criteria for depression and 20.7% met criteria for PTSD in the past year. Within the sample, females had nearly twice the rate of depression as males (18.5% and 9.5%,  $\chi^2[12.02, 1df, p < .01]$ ) and nearly three times the rate of PTSD (30.6% and 11%, respectively,  $\chi^2[41.27, 1df, p < .000]$ ). No statistically significant differences existed by race/ethnicity.

Females and males with depression and PTSD also had extremely high rates of comorbidity. Nearly the full sample of women with depression (98.7%) had a co-occurring health or mental health condition: 79.6% had another psychiatric diagnosis and 94% had other health issues. Males had comparable rates of comorbidity: 97% of men with depression had another disorder, 72.2% had other mental problems, and 82.1% had co-occurring physical disorders. Whereas 93.9% of females with PTSD had comorbid psychiatric or physical

illnesses, the full sample of males with PTSD had coexisting health or mental health conditions, a statistically significant bivariate difference.

## **Challenges in Mental Health Services Delivery for Youth and Families Being Served by Child Welfare Programs**

### **Mental Health Services Utilization**

The National Study of Child and Adolescent Well-Being (NSCAW) findings indicate that, despite high rates of mental health services utilization by youth in child welfare in comparison with community studies, three of four children who came to the attention of the child welfare systems because of a child abuse and neglect investigation and who had clear clinical impairment had not received any mental health care within 12 months after the investigation (Stahmer et al. 2005). This suggests both the high need for and dramatic underutilization of mental health services. Emerging evidence reveals that both clinical and nonclinical factors affect mental health referral and utilization patterns for children in foster care. The nonclinical factors implicated are type of maltreatment, racial/ethnic background, age, and type of placement. For example, in a recent review of the race/ethnicity factor by Garland, Landsverk, and Lau (2003), these authors found that race/ethnic status consistently predicts lower use of mental health care for African American youth. Racial biases in assessment and referral patterns as well as less effective engagement and retention of African American children in treatment may be contributing factors.

Although there is little descriptive data on services to children in foster care, it appears that much of foster care is delivered without significant mental health services for children other than referral to mental health agencies for treatment. The preponderance of mental health services utilized by foster care youth is outpatient treatment, with a small proportion admitted to hospitals, and many others placed in group homes or residential treatment centers. As summarized by Landsverk et al. (2006), in a study conducted by Halfon, Berkowitz, and Klee (1993), Medicaid data were examined for all paid claims involving children under 18 years old in the fee-for-service program in 1988. Rates of health care utilization and associated costs were compared between the 50,634 children identified in foster care and the 1,291,814 total program eligible children. While the children in foster care represented less than 4% of the population of Medi-Cal eligible users, they represented 41% of the users of reimbursed mental health services and incurred 43% of all mental health expenditures.

### **Promising Strategies for Improving Mental Health Access and Treatment in Child Welfare**

There are indications that family foster care agencies are responding to the substantial behavioral health needs of children in care and becoming more treatment oriented. Specialized family foster care programs—particularly treatment foster care—for children and youth with special needs in such areas as emotional disturbance, behavioral problems, and educational underachievement, have become more available (e.g., Chamberlain, 1994, 1997, 2003; Chamberlain, Price, Leve, Laurent, Landsverk, & Reid, in press; Chamberlain, Price, Reid, Landsverk, Fisher, & Stoolmiller, in press). Now, family foster care is sometimes provided as a multi-faceted service, including specialized or therapeutic services for some children, temporary placements for children in “emergency” homes, and supports to relatives raising children through kinship care (Maluccio, Pine, & Tracy, 2002).

In addition, systems of care models of mental health services delivery seek to operationalize a philosophy about the way in which services should be organized for children and their families, with three core characteristics: (a) child- and family-centered, (b) community-based, and (c) culturally competent (Stroul, 2002; Stroul & Friedman, 1996). These service

delivery systems, by implementing these core values, are attempting to reduce barriers to service, more extensively involve parents and children, and increase the coordination of services. More recently, these approaches are being reformulated to include better integration with child welfare services.

## Summary

This introduction to the special issue on best practices for mental health in child welfare has presented recent data about the emotional, behavioral, and substance abuse disorders of youth in foster care and alumni. The remaining papers build on the consensus guideline development work and addresses mental health services delivery challenges. The paper by Levitt describes promising ways to screen and assess the mental health of youth in child welfare. Landsverk et al. highlight some of the best psychosocial interventions for youth in child welfare. In their paper, Crismon and Argo address psychopharmacologic treatment for youth in child welfare and associated challenges.

The paper by Kemp et al. outlines principles and strategies for parent engagement in child welfare. This paper is followed by one by Prinz that describes an example of multilevel evidence-based system of parenting interventions with applicability to child welfare populations. Next, in their paper, Kaplan et al. discuss similar strategies targeted toward the empowerment of youth in child welfare.

The final two papers in this special journal issue present the guidelines and supporting rationale developed during the *2007 Best Practices for Mental Health in Child Welfare Consensus Conference*. The first paper discusses the guidelines developed in the areas of mental health screening, psychosocial interventions and psychopharmacologic treatment. The second article presents the guidelines for parent engagement and youth empowerment.

## References

- American Academy of Child and Adolescent Psychiatry and Child Welfare League of America. AACAP/CWLA policy statement on mental health and substance use screening and assessment of children in foster care. 2002. Retrieved October 1, 2008, from [www.aacap.org](http://www.aacap.org)
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 1994.
- Auslander WF, McMillen J, Elze D, Thompson R, Jonson-Reid M, Stiffman A. Mental health problems and sexual abuse among adolescents in foster care: Relationship to HIV risk behaviors and intentions. *AIDS & Behavior*. 2002; 6:351–359.
- Brook RH, Chassin MR, Fink A, Solomon DH, Kosecoff J, Park RE. A method for the detailed assessment of the appropriateness of medical technologies. *International Journal of Technology Assessment in Health Care*. 1986; 2:53–63. [PubMed: 10300718]
- Castel S, Rush B, Urbanoski K, Toneatto T. Overlap of clusters of psychiatric symptoms among clients of a comprehensive addiction treatment service. *Psychology of Addictive Behaviors*. 2006; 20:28–35. [PubMed: 16536662]
- Chamberlain, P. *Family connections: Treatment foster care for adolescents with delinquency*. Eugene, OR: Castalia Press; 1994.
- Chamberlain, P. The effectiveness of group versus family treatment settings for adolescent juvenile offenders. Paper presented at the Society for Research on Child Development; Washington, DC. 1997 April.
- Chamberlain, P. *Treating chronic juvenile offenders: Advances made through the Oregon multidimensional treatment foster care model*. Washington, DC: American Psychological Association; 2003.
- Chamberlain P, Price J, Leve LD, Laurent H, Landsverk J, Reid JB. Prevention of behavior problems for children in foster care: Outcomes and mediation effects. *Prevention Science*. in press.



- Chamberlain P, Price JM, Reid JB, Landsverk J, Fisher PA, Stoolmiller M. Who disrupts from placement in foster and kinship care? *Child Abuse & Neglect*. in press.
- Cicchetti D, Toth SL. The development of depression in children and adolescents. *American Psychologist*. 1998; 53:221–241. [PubMed: 9491749]
- Clausen JM, Landsverk J, Ganger W, Chadwick D, Litrownik A. Mental health problems of children in foster care. *Journal of Child & Family Studies*. 1998; 7:283–296.
- Courtney, M.; Dworsky, A.; Ruth, G.; Keller, T.; Havlicek, J.; Bost, N. *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 19*. Chicago: Chapin Hall Center for Children at the University of Chicago; 2007.
- DeBellis MD. Developmental traumatology: The psychobiological development of maltreated children and its implication for research, treatment, and policy. *Development and Psychopathology*. 2001; 13:539–564. [PubMed: 11523847]
- Dos Reis S, Zito JM, Safer DJ, Soeken KL. Mental health services for youths in foster care and disabled youths. *American Journal of Public Health*. 2001; 91:1094. [PubMed: 11441737]
- Dubner AE, Motta RW. Sexually and physically abused foster care children and posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*. 1999; 67:367–373. [PubMed: 10369057]
- Garland AF, Landsverk JA, Lau AS. Racial and ethnic disparities in mental health service use among children in foster care. *Children and Youth Services Review*. 2003; 25:491–507.
- Garland AF, Hough RL, Landsverk JA, McCabe KM, Yeh M, Ganger WC, Reynolds BJ. Racial and ethnic variations in mental health care utilization among children in foster care. *Children's Services: Social Policy, Research, & Practice*. 2000; 3:133–146.
- Glisson C. The effects of services coordination teams on outcomes for children in state custody. *Administration in Social Work*. 1994; 18:1–23. [PubMed: 10140227]
- Green, LW.; Kreuter, MW. *Health program planning: An educational and ecological approach*. 4. New York: McGraw Hill; 2005.
- Halfon N, Berkowitz G, Klee L. Development of an integrated case management program for vulnerable children. *Child Welfare*. 1993; 72:379–396. [PubMed: 8348846]
- Halfon N, Mendonca A, Berkowitz G. Health status of children in foster care. The experience of the Center for the Vulnerable Child. *Archives of Pediatrics & Adolescent Medicine*. 1995; 149:386–392. [PubMed: 7704166]
- Hammen, C.; Rudolph, KD. Childhood mood disorders. In: Mash, EJ.; Barkley, RA., editors. *Childhood psychopathology*. New York: Guilford; 2003. p. 233–278.
- Haro JM, Arbabzadeh-Bouchez S, Brugha TS, de Girolamo G, Guyer ME, Jin R, Lepine JP, Mazzi F, Reneses B, Vilagut G, Sampson NA, Kessler RC. Concordance of the composite international diagnostic interview version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO world mental health surveys. *International Journal of Methods in Psychiatric Research*. 2006; 15:167–180. [PubMed: 17266013]
- Jackson, LJ. Unpublished doctoral thesis. University of Washington; Seattle, WA: 2008. The comorbidity problem: A deeper look at depression & PTSD in foster care alumni.
- Kahn RJ, King SR. Dynamic procedures for assessing children's cognitive and emotional strengths and needs. *Journal of Cognitive Education*. 1997; 6:101–114.
- Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, Rush AJ, Walters EE, Wang PS. The epidemiology of major depressive disorder: Results from the national comorbidity survey replication (NCS-R). *Journal of the American Medical Association*. 2003; 289:3095–3105. [PubMed: 12813115]
- Kessler RC, Merikangas KR. The national comorbidity survey replication (NCS-R). *International Journal of Methods in Psychiatric Research*. 2004; 13:60–68. [PubMed: 15297904]
- Kessler RC, Pecora PJ, Williams J, Hiripi E, O'Brien K, English D, White J, Zerbe JR, Downs AC, Plotnick R, Hwang I, Sampson NA. The effects of enhanced foster care on the long-term physical and mental health of foster care alumni. *Archives in General Psychiatry*. 2008; 65:625–633.
- Landsverk, J.; Burns, B.; Stambaugh, LF.; Rolls-Reutz, JA. *Mental health care for children and adolescents in foster care: Review of research literature*. Seattle, WA: Casey Family Programs; 2006.

- Landsverk, J.; Garland, AF.; Leslie, LK. Mental health services for children reported to child protective services. In: Meyers, JEB.; Hendrix, CT.; Berliner, L.; Reid, J., editors. APSAC handbook on child maltreatment. 2. Thousand Oaks, CA: Sage Publications; 2002.
- Linning LM, Kearney CA. Post-traumatic stress disorder in maltreated youth: A study of diagnostic comorbidity and child factors. *Journal of Interpersonal Violence*. 2004; 19:1087–1101. [PubMed: 15358936]
- Maluccio, AN.; Pine, BA.; Tracy, EM. Social work practice with families and children. New York: Columbia University Press; 2002.
- Marsenich, L. Evidence-based practices in mental health services for foster youth. Sacramento: California Institute for Mental Health; 2002.
- McMillen JC, Scott LD, Zima BT, Ollie MT, Munson MR, Spitznagel E. Use of mental health services among older youths in foster care. *Psychiatric Services*. 2004; 55:811–817. [PubMed: 15232022]
- Pecora, PJ.; Kessler, RC.; Williams, J.; O'Brien, K.; Downs, AC.; English, D.; White, J.; Hiripi, E.; Roller White, C.; Wiggins, T.; Holmes, K. Improving family foster care: Findings from the northwest foster care alumni study. Seattle, WA: Casey Family Programs; 2005.
- Pecora PJ, Kessler RC, O'Brien K, White CR, Williams J, Hiripi E, English D, White J, Herrick MA. Educational and employment outcomes of adults formerly placed in foster care: Results from the northwest foster care alumni study. *Children and Youth Services Review*. 2006; 28:1459–1481.
- Pecora PJ, White J, Jackson LJ, Wiggins T, English D. Promoting the mental health of children and adolescents who have been placed in out-of-home care and foster care alumni. *Child and Family Social Work*. in press.
- Pecora, P.; Williams, J.; Kessler, RC.; Downs, CA.; O'Brien, K.; Hiripi, E.; Morello, S. Assessing the effects of foster care: Early results from the Casey National Alumni Study. Seattle, WA: Casey Family Programs; 2003.
- Rubin DM, Alessandrini EA, Feudtner C, Mandell DS, Localio AR, Hadley T. Placement stability and mental health costs for children in foster care. *Pediatrics*. 2004; 113:1336. [PubMed: 15121950]
- Rubin, D.; Halfon, N.; Raghavan, R.; Rosenbaum, S. Protecting children in foster care: Why proposed Medicaid cuts harm our nation's most vulnerable youth. Seattle, WA: Casey Family Programs; 2005.
- Rutter M. Children in substitute care: Some conceptual considerations and research implications. *Children & Youth Services Review*. 2000; 22:685–703.
- Simms MD. The foster care clinic: a community program to identify treatment needs of children in foster care. *Journal of Developmental and Behavioral Pediatrics*. 1989; 10:121–128. [PubMed: 2473095]
- Stahmer AC, Leslie LK, Hurlburt M, Barth RP, Webb MB, Landsverk J, Zhang J. Developmental and behavioral needs and service use for young children in child welfare. *Pediatrics*. 2005; 116:891–900. [PubMed: 16199698]
- Stroul, B. Systems of care: A framework for system reform in children's mental health (Issue brief). Washington, DC: Georgetown University Child Development Center; 2002.
- Stroul, BA.; Friedman, RM. The system of care concept and philosophy. In: Stroul, BA., editor. *Children's mental health: Creating systems of care in a changing society*. Baltimore: Paul H. Brookes; 1996.
- Takayama JI, Wolfe E, Coulter KP. Relationships between reason for placement and medical findings among children in foster care. *Pediatrics*. 1998; 101:201–207. [PubMed: 9445492]
- Trupin EW, Tarico VS, Low BP, Jemelka R, McClellan J. Children on child protective service caseloads: Prevalence and nature of serious emotional disturbance. *Child Abuse & Neglect*. 1993; 17:345–355. [PubMed: 8330221]
- U.S. Department of Health and Human Services. With understanding and improving health and objectives for improving health [Electronic version]. 2. Washington, DC: U.S. Government Printing Office; 2000. Healthy people 2010.
- U.S. Department of Health and Human Services. Trends in foster care and adoption—FY-2000 to FY-2004 [Electronic version]. Washington, DC: Author; 2005.
- U.S. Department of Health and Human Services. The AFCARS Report No. 14: Preliminary FY 2006 estimates as of January 2008 [Electronic version]. Washington, DC: Author; 2008.

- U.S. General Accounting Office. Foster care: Health needs of many young children are unknown and unmet, GAO/HEHS-95-114. 1995. Retrieved April 23, 2008, from [www.gao.gov](http://www.gao.gov)
- U.S. Government Accountability Office. Young adults with serious mental illness: Some states and federal agencies are taking steps to address their transition challenges [Electronic version]. Washington, DC: Author; 2008.
- Urquiza AJ, Wirtz SJ, Peterson MS, Singer VA. Screening and evaluating abused and neglected children entering protective custody. *Child Welfare*. 1994; 123:155–171. [PubMed: 8149776]
- White, CR.; Havalchak, A.; Jackson, LJ.; O'Brien, K.; Pecora, PJ. Mental health, ethnicity, sexuality, and spirituality among youth in foster care: Findings from the Casey Field Office Mental Health Study. Seattle, WA: Casey Family Programs; 2007.
- Wilson, GT.; Becker, CB.; Heffernan, K. Eating disorders. In: Mash, EJ.; Barkley, RA., editors. *Child psychopathology*. 2. New York: Guilford; 2003. p. 687-715.
- Zimmerman M, Chelminski I, Zisook S, Ginsberg DL. Recognition and treatment of depression with or without comorbid anxiety disorders. *Primary Psychiatry*. 2006; 13:1–13.

**Table 1**

## Lifetime Mental Health Disorders of Adolescents in Foster Care: Comparisons to the Midwest Study

Diagnosis	CFOMH Study (%) (Ages 14–17)	Midwest Study (%) (Age 17)
PTSD	13.4	16.1
Alcohol abuse	7.7	11.3
Alcohol dependence	3.6	2.7
Any depression <sup>a</sup>	19.0*	2.9
Drug abuse	14.1*	5.0
Drug dependence	4.2	2.3
Social phobia	10.5*	0.4
<i>Sample size</i>	<i>188</i>	<i>732</i>

p < .05

<sup>a</sup> In the Midwest Study, “any depression” was measured as having mild, moderate, or severe depression (single episode and recurrent). The comparison provided for CFOMH is for major depressive episode only, which is likely an underestimate of “any depression.” Therefore, the difference between the CFOMH study and Midwest Study samples in rates of depression is likely larger than presented here.

Note: The demographic backgrounds and age range of the two alumni groups may also be affecting the prevalence rates for certain emotional and behavioral disorders.

**Table 2****Mental Health Functioning of Adolescents in Foster Care: Lifetime Diagnoses and Diagnoses in the Past Year**

Mental Health Diagnoses	CFOMH Study (ages 14–17)		NCS-A (Adolescent General Population, ages 14–17) <sup>a</sup>	
	Lifetime (%)	Past year (%)	Lifetime (%)	Past year (%)
At least one CIDI DSM-IV diagnosis <sup>b</sup>	63.3	35.8	45.9 (–)	36.2 (=)
Three or more CIDI diagnoses <sup>b</sup>	22.8	7.7	14.7 (–)	9.1 (=)
Alcohol abuse	7.7	3.6	5.9 (=)	4.4 (=)
Alcohol dependence	3.6	2.0	1.1 (–)	0.8 (=)
Anorexia	0.0	0.0	0.2 (=)	0.1 (=)
ADHD	15.1	—	4.5 (–)	—
Bulimia	3.2	1.1	1.1 (–)	0.8 (=)
Conduct disorder	20.7	8.3	7.0 (–)	3.8 (–)
Drug abuse	14.1	2.1	8.8 (–)	5.7 (+)
Drug dependence	4.2	1.5	1.8 (–)	1.2 (=)
Dysthymia	4.5	2.0	3.7 (=)	2.7 (=)
Generalized anxiety disorder	4.7	2.1	2.5 (=)	1.7 (=)
Hypomania	0.0	0.0	3.7 (+)	3.0 (+)
Intermittent explosive disorder	13.9	8.6	14.4 (=)	11.8 (=)
Major depressive disorder	19.0	10.9	11.9 (–)	8.4 (=)
Major depressive episode	19.0	10.9	14.1 (–)	10.2 (=)
Mania	9.3	5.5	1.7 (–)	1.3 (–)
Nicotine dependence	3.1	2.0	6.7 (=)	5.1 (=)
Oppositional defiant disorder	29.3	—	—	—
Panic attack	18.9	6.8	20.3 (=)	11.2 (=)
Panic disorder	0.0	0.0	2.5 (+)	2.1 (=)
PTSD	13.4	9.3	5.2 (–)	3.6 (–)
Separation anxiety disorder	12.0	0.0	8.9 (=)	2.1 (=)
Social phobia	10.5	7.2	14.6 (=)	13.1 (+)
<i>Sample size</i>	<i>188</i>		<i>7753</i>	

p < .05

Notes: “—” indicates that the diagnosis was not assessed. Symbols in parentheses indicate whether rates were significantly different between the CFOMH study and other studies. A “(–)” means that the comparison study rate was significantly lower than the CFOMH rate, a “(=)” means that the rates were similar, and a “(+)” means that the comparison study rate was significantly higher.

<sup>a</sup>Data from the NCS-A are weighted on age, race/ethnicity, and sex to match the demographics of the current study.

<sup>b</sup>All diagnoses listed in this table were included in the variables “at least one CIDI DSM-IV diagnosis” and “three or more CIDI DSM-IV diagnoses” except major depressive episode, oppositional defiant disorder, and panic attack. These diagnoses were excluded to match those included in the NCS-A (further, major depressive episode overlaps with major depressive disorder, and panic attack overlaps with panic disorder). If a youth had both alcohol abuse and alcohol dependence, it was counted as only one disorder; the same was true for drug abuse and drug dependence. ADHD was included in the lifetime rates but not in the 12-month rates.

Source: White, Havalchak, Jackson, O’Brien, and Pecora (2007).

**Table 3**  
Mental Health Functioning: Rates for Lifetime Symptoms, Symptoms in the Past 12 Months, and Lifetime Recovery<sup>a</sup>

Mental Health Outcomes	NWAS			NCS-R (GENERAL POPULATION)		
	% Who Had Symptoms — Lifetime	% Who Had Symptoms in Past 12 Months	% Recovered	% Who Had Symptoms— Lifetime	% Who Had Symptoms in Past 12 Months	% Recovered <sup>b</sup>
CIDI diagnosis <sup>c</sup>	—	54.4 (2.7)	—	—	22.1 (1.0) <sup>*d</sup>	—
Three or more CIDI diagnoses <sup>c</sup>	—	19.9 (2.3)	—	—	2.9 (0.5) <sup>*d</sup>	—
Major depression episode	41.1 (2.8)	20.1 (2.3)	51.0 (4.5)	21.0 (1.4) <sup>*</sup>	11.1 (0.8) <sup>*</sup>	48.3 (2.2)
Panic syndrome	21.1 (2.2)	14.8 (1.9)	30.1 (5.4)	4.8 (0.5) <sup>*</sup>	3.5 (0.4) <sup>*</sup>	30.4 (4.7)
Modified social phobia	23.3 (2.5)	17.1 (2.3)	26.6 (5.2)	15.9 (1.6) <sup>*</sup>	9.4 (1.0) <sup>*</sup>	36.7 (3.1) <sup>*</sup>
Generalized anxiety disorder	19.1 (2.4)	11.5 (2.0)	39.6 (7.3)	7.0 (0.8) <sup>*</sup>	4.0 (0.6) <sup>*</sup>	39.8 (3.8)
PTSD <sup>e</sup>	30.0 (2.5)	25.2 (2.5)	15.7 (2.4)	7.6 (0.7) <sup>*</sup>	4.6 (0.5) <sup>*</sup>	41.9 (4.1) <sup>*</sup>
Alcohol problem	Not measured	11.9 (1.6)	—	Not measured	Not measured	—
Alcohol dependence	11.3 (1.2)	3.6 (0.6)	67.9 (4.5)	7.1 (0.1) <sup>*</sup>	2.3 (0.6)	63.4 (5.4)
Drug problem	Not measured	12.3 (2.2)	—	Not measured	Not measured	—
Drug dependence	21.0 (2.3)	8.0 (1.8)	61.8 (6.6)	4.5 (0.7) <sup>*</sup>	0.7 (0.2) <sup>*</sup>	80.4 (4.8) <sup>*</sup>
Anorexia <sup>f</sup>	1.2 (0.3)	0.0	100.0	0.3 (0.1) <sup>*</sup>	0.0	—
Bulimia	4.9 (1.4)	3.6 (1.3)	25.8 (1.1)	0.8 (0.2) <sup>*</sup>	0.5 (0.2) <sup>*</sup>	48.3 (13.6) <sup>*</sup>
SF-12 <sup>g</sup> mental health score of 50 or above	—	50.6 (2.8)	—	—	—	—
Sample size		479			1601	

\* Indicates a significant difference between the NWAS and the NCS-R,  $p < .05$ , two-tailed.

<sup>a</sup>This analysis takes the NCS-R data matched to ages 20 to 33 and poststratifies the NCS-R data to match the NWAS distribution of race  $\times$  sex  $\times$  age. The NCS-R prevalence estimates were then run on this poststratified data set. These numbers are slightly different from the NCS-R mental health comparison statistics published previously in the NWAS report (Pecora et al., 2005) because those original numbers did not take into account the poststratification.

<sup>b</sup>Alumni were considered to have recovered if the lifetime occurrence of a mental health symptom was not present in the past 12 months.

<sup>c</sup>Because alcohol and drug problems were not assessed during the lifetime, CIDI diagnoses could not be computed for the lifetime, and consequently, no recovery rate could be computed for either item.

<sup>d</sup>Not adjusted by race or gender.

<sup>e</sup>The NCS-R PTSD section included some additional specific trauma items but the N-WAS version of the CIDI PTSD items included some general questions that were designed to identify potentially traumatic events. The focus was to help the respondent identify at least one event so the focus was on measuring whether the reactions to any of these events constituted PTSD, rather than measuring the number or type of items per se. The measures, therefore, should be comparable.

<sup>f</sup>Anorexia is extremely rare in the general population.

**Table 4**

## CIDI-Based Diagnoses of Foster Care Alumni

Mental Health Diagnoses	NWAS (ages 20–33, Males and Females Combined)		Midwest Study (age 21) Past year (%) <sup>a</sup>	
	Lifetime (%)	Past year (%)	Females	Males
At least one CIDI DSM-IV diagnosis	54.4 <sup>b</sup>	22.1 <sup>b</sup>	14.2 <sup>b</sup>	4.6 <sup>b</sup>
Alcohol dependence	11.3	3.6	3.5	11.6
Anorexia	1.2	0.0	—	—
Drug abuse	—	12.3 <sup>c</sup>	1.9	5.8
Drug dependence	21.0	8.0	1.0	5.1
Generalized anxiety disorder	19.1	11.5	0	0
PTSD	30.0	25.2	7.9 <sup>d</sup>	3.8 <sup>d</sup>
<i>Sample size</i>	479			

Notes: “—” indicates that the diagnosis was not assessed.

<sup>a</sup>Midwest Study data have not been weighted for age, gender, race, or other variables to be equivalent to the NWAS so comparisons should be viewed with caution. Midwest Study data abstracted from Courtney et al. (2007, p. 46).

<sup>b</sup>Comparisons of the Midwest Study data with the NWAS in terms of number of diagnoses must be made with caution, given that the NWAS measured more diagnoses. Lifetime diagnoses in the NWAS included alcohol dependence, anorexia, bulimia, drug dependence, generalized anxiety disorder, major depressive episode, modified social phobia, panic syndrome, and PTSD. Past year diagnoses included all lifetime diagnoses, with the addition of alcohol problem and drug problem.

<sup>c</sup>The NWAS measured drug problem.

<sup>d</sup>PTSD diagnosis for the Midwest Study was indeterminate for 11 females and 10 males because of missing data.