Prevalence of Psychiatric Disorders Among Older Youths in the Foster Care System

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ABSTRACT

Objective: To estimate the lifetime and past year prevalence rates of major psychiatric disorders in a sample of older youths in the foster care system, to examine the timing of disorder onset and system entry, and to explore variations in past year prevalence rates. Method: Using the Diagnostic Interview Schedule for DSM-IV, interviews were conducted with 373 17-year-old youths (90% of those eligible) in one state’s foster care system between December 2001 and June 2003. Results: Sixty-one percent of the youths qualified as having at least one psychiatric disorder during their lifetime; of these youths, 62% reported onset of their earliest disorder before entering the foster care system. In addition, 37% of youths met criteria for a psychiatric disorder in the past year. The number of types of maltreatment experienced was the most robust predictor of psychiatric disorder among several maltreatment variables. There were no differences in prevalence rates for youths in kinship care and those in nonkin foster families. Conclusions: Older youths in the foster care system have disproportionately high rates of lifetime and past year psychiatric disorders. Results support recommendations for initial and periodic mental health assessments for these youths and mechanisms to continue mental health services for young adults transitioning out of the foster care system. J. Am. Acad. Child Adolesc. Psychiatry, 2005;44(1):88–95. Key Words: foster care, psychiatric disorder, child maltreatment.

Little is known about the extent of psychiatric disorders among the roughly 100,000 older youths in the U.S. foster care system, despite the fact that they use mental health services at exceptionally high rates (e.g., dos Reis et al., 2001; Halfon et al., 1992). Older youths often leave the foster care system to live on their own without having achieved a permanent home and are at high risk of residential, economic, and employment instability and incarceration during their early adult years (Barth, 1990; Courtney et al., 2001; Goerge et al., 2002; Wes-stat Inc., 1991). Although it is unknown to what degree these problems are related to psychiatric disorders, the poor developmental trajectory for this population underscores the necessity of estimating their need for mental health services to inform service planning for their transition to adulthood.

Only one study, to our knowledge, that examined the prevalence of psychiatric disorders among older youths in foster care systems has appeared in the professional literature, and no study has examined the onset of psychiatric disorders in relation to entrance into the foster care system. Studying 88 youths ages 13–18 in one local British child welfare authority, McCann et al. (1996) found that 67% met criteria for a psychiatric disorder, with conduct disorder being the most common. Although results were not stratified by age group, a countywide study in San Diego found that 42% of the children served met criteria for a psychiatric disorder in the past year either by caregiver or child report.
(Garland et al., 2001). Attention-deficit/hyperactivity disorder (ADHD) was the most common disorder. Additional studies using behavioral checklists found that the 25% to 31% of older youths in foster care scored above borderline clinical cutoff scores for internalizing and externalizing problems (Auslander et al., 2002; Heffinger et al., 2000). Although psychiatric diagnoses are of debatable use as a proxy for service need (Spitzer, 1998), they are nonetheless important for Medicaid reimbursement and may provide more guidance than behavioral checklists to administrators who are attempting to ensure that evidence-based treatments for mental disorders are available for youths in their care.

This study of 17-year-old youths from Missouri addressed several objectives: (1) to estimate the rates of psychiatric disorders among older youths in the foster care system, (2) to assess the onset of these disorders relative to the entry into the foster care system, and (3) to examine how rates of psychiatric disorder vary by gender, race, child maltreatment histories, and living situation. Previous research led us to two hypotheses related to this third objective: youths in kinship care would have lower rates of disorders than youths in nonkin family foster care (Berrick et al., 1994; Iglehart, 1994), and sexually abused youths would have higher rates of disorder than non–sexually abused youths (Auslander et al., 2002; Fergusson et al., 1996). We made no hypotheses related to gender or racial variation in psychiatric disorders or the timing of disorder onset and foster care system entry.

METHOD

Participants

From December 2001 to May 2003, the Missouri Division of Family Services (MDFS) provided to the research team the names and caseworkers of youths from eight Missouri counties who would be turning age 17 in the following month and were in the custody and care of the Division. The eight counties included the six in and around St. Louis and two in southwest Missouri added to make the sample more ethnically representative of youths in the state’s foster care system. These counties represent 7 of the 10 largest counties (of 115) by population in the state. Caseworkers were contacted to screen youths for exclusion criteria, which included documented IQ scores below 70, having exited the Division’s custody, the presence of a chronic medical condition that made it difficult to communicate verbally, placement more than 100 miles from the borders of any of the eight counties, and continual runaway status 45 days past the 17th birthday.

Following study procedures approved by the Washington University Institutional Review Board, informed consent was provided by the MDFS foster care case manager and then consenting youths were contacted by the study team and asked whether they wanted to participate. Of the 450 eligible youths, 406 (90%) were interviewed. Of those eligible, 39 (9%) chose not to participate. We were unable to contact the case manager for another four youths (1%), and we were unable to complete one interview for which consent and assent had been obtained. In analyses for this report, we excluded the 33 youths who had been returned to live with a biological parent but remained in the custody of the MDFS.

Procedures

Youths were interviewed in person at their residences by trained full-time professional interviewers who all had at least a bachelor’s degree in a social science. Youths were paid $40 for the interview.

Measures

Psychiatric Disorders. Because we anticipate following the participants longitudinally into adulthood for research purposes, we used a measure of lifetime and past year psychiatric disorder that had been used for both 17-year-old youths and young adults, the Diagnostic Interview Schedule for DSM-IV (Robins et al., 1995). The Diagnostic Interview Schedule for DSM-IV is a structured tool designed for use with lay interviewers that assesses the recency, onset, and duration of DSM-IV diagnoses. It also assesses impairment in standard ways across disorders and considers impairment as needed in determining diagnoses. The following sections were administered: posttraumatic stress disorder (PTSD), major depression, mania, attention-deficit/hyperactivity disorder (ADHD), oppositional disorder, and conduct disorder. Following the lead of Teplin et al. (2002), the criterion for onset before 7 years of age was not required for the diagnosis of ADHD because of the possibility of ADHD symptoms beginning before age 7 that youths would not be able to recall. The DSM precludes youths being positive for both oppositional disorder and conduct disorder; therefore, we used the term disruptive behavioral disorder, for which youths qualified if they met the criteria for either conduct disorder or oppositional disorder. The Diagnostic Interview Schedule has demonstrated moderate test-retest reliability and validity for lifetime and current diagnoses (Helzer et al., 1987; Robins et al., 1981).

Age at Entry Into the Foster Care System. Age at entry into the foster care system was assessed by youth self-report and from MDFS administrative data. Analyses were conducted with each age at entry variable and results were similar. We present the results for youth-reported age at system entry in this report. Youths were considered to have a psychiatric disorder that began before entry into the foster care system if the reported age at the onset of the earliest psychiatric disorder experienced was less than the age at first foster care entry.

Child Maltreatment History. Physical abuse and physical neglect maltreatment histories were assessed with the widely used Childhood Trauma Questionnaire (Bernstein and Fink, 1998). In this sample, α coefficients were .88 for physical abuse and .78 for physical neglect. For clarity of presentation, we used the cutoff scores provided by Bernstein and Fink (1998) to indicate moderate or severe maltreatment. We considered respondents as sexually abused if they answered yes to being forced to touch someone else’s private parts or having had their private parts touched against their will or having experienced vaginal, anal, or oral sex against their will. These items were previously adapted from Russell (1986) and used in a previous study of older youths in foster care (Auslander et al., 2002). Reviewers have criticized previous efforts to examine the
connection between child maltreatment and subsequent psychopathology for not addressing potentially complex additive or interactive effects of different maltreatment types (Higgins and McCabe, 2001; Wolfe and McGee, 1994). Therefore, we also created a variable indicating the number of ways that a youth reported being maltreated and two-way interaction terms among the three types of maltreatment.

**Demographic Variables.** Ethnicity was self-reported. Because Missouri has small numbers of Asians, Native American, and Hispanics, we combined youths of these ethnicities with African Americans to create a category called youths of color. Living situation was coded by the interviewer. For analyses, youths were categorized as living in congregate care if they were living in a group home, residential treatment program, drug and alcohol residential program, shelter, detention facility, or in-patient psychiatric unit. Likewise, youths who were living in Job Corps dormitories or in supervised or unsupervised apartments were classified as living semi-independently.

**Analyses**

Chi-square tests of proportion were used to examine differences in prevalence rates of past year psychiatric disorders by youth demographic factors, placement type, and maltreatment history (physical abuse, physical neglect, and sexual abuse). Hierarchical multivariable logistic regression was used to assess the multivariate relationships between race, gender, maltreatment history, living situation, and past year disorders. We used several dependent variables for these analyses, including two summary variables: any disorder in the past year and presence of both internalizing (major depression, PTSD, mania) and externalizing (conduct disorder, oppositional defiant disorder, ADHD) disorders in the past year and presence of any individual disorder within the past year that had a prevalence rate greater than 10%. Gender and race variables were entered first, followed by maltreatment history variables, and then the dummy codes for living situation, using nonkin family foster care as the comparison category. Decreases in odds ratios were monitored as sets of variables were entered to assess for possible mediation effects. We then ran two sets of additional analyses to further specify the relationship among different maltreatment types with the psychiatric disorder. We added (individually) interaction terms to the equations to test for the following possible interactions: gender by each type of maltreatment and each type of maltreatment by each other type of maltreatment. Then, we reran the multivariate analyses, substituting the number of ways in which a youth reported being maltreated for the three types of maltreatment variables. Probability values for all analyses were set at <.05.

**RESULTS**

Table 1 provides descriptive information on the study’s 373 participants. The mean (±SD) age of the sample was 16.99 (±0.09) years. Youths entered the foster care system for the first time at the mean age of 10.61 (±4.50) years. It was more common for youths to report two or more types of maltreatment than one type alone. Seventy-five percent of youths who had been physically neglected, and 77% of those who had been sexually or physically abused also reported another maltreatment type.

**Prevalence of Psychiatric Disorders**

Table 2 shows the lifetime and past year prevalence rates for the psychiatric disorders. Thirty-two percent of youths qualified as having more than one lifetime psychiatric disorder. Fifteen percent of youths met criteria for more than one disorder in the past year. Ten percent of the youths met criteria for both an internalizing disorder (major depression, PTSD, or mania) and an externalizing disorder (disruptive behavioral disorder or ADHD) in the past year.

**Timing of Disorder Onset and Entrance Into the Foster Care System**

Table 2 also displays information on disorder onset and the percentage of youths with a specific psychiatric disorder with onset before foster care system entrance. Internalizing disorders tended to appear after entrance into the foster care system. Externalizing disorders tended to begin before entrance into the foster care system.
How Past Year Disorder Varied by Race, Gender, Maltreatment, and Living Situation

Table 3 breaks down the prevalence rates for past year major depressive disorder, disruptive behavioral disorder, ADHD, any disorder in the past year, and comorbid externalizing and internalizing disorders in the past year by gender, race, maltreatment history, and living situation.

Final multivariate models for four of the five dependent variables (when the three different types of maltreatment were entered into the models) are shown in Table 4. No independent variable was associated with ADHD in the past year in the multivariate model. In none of the model building was there evidence of a mediation effect. Results were similar to those from the bivariate analyses, except for the relationship between

Note: PTSD = posttraumatic stress disorder; CD/ODD = conduct disorder or oppositional defiant disorder; ADHD = attention-deficit/hyperactivity disorder.

Table 2

Onset and Prevalence of Major Psychiatric Disorders for the Past Year, Lifetime, and Before Entrance Into the Foster Care System (N = 373)

<table>
<thead>
<tr>
<th>Psychiatric Disorder</th>
<th>Lifetime</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Foster</td>
<td>Past Year</td>
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<tr>
<td></td>
<td>Care Entry No. (%)</td>
<td>No. (%)</td>
</tr>
<tr>
<td>Major depression</td>
<td>101 (27)</td>
<td>35 (35)</td>
</tr>
<tr>
<td>Mania</td>
<td>24 (6)</td>
<td>8 (33)</td>
</tr>
<tr>
<td>PTSD</td>
<td>52 (14)</td>
<td>22 (42)</td>
</tr>
<tr>
<td>CD/ODD</td>
<td>174 (47)</td>
<td>56 (75)</td>
</tr>
<tr>
<td>ADHD</td>
<td>75 (20)</td>
<td>56 (75)</td>
</tr>
<tr>
<td>Any disorder</td>
<td>229 (61)</td>
<td>137 (60)</td>
</tr>
</tbody>
</table>

Note: PTSD = posttraumatic stress disorder; CD/ODD = conduct disorder or oppositional defiant disorder; ADHD = attention-deficit/hyperactivity disorder.

Table 3

Prevalence Rates for Past Year Psychiatric Disorder by Gender, Race, Living Situation, and Maltreatment History

<table>
<thead>
<tr>
<th>Gender</th>
<th>%</th>
<th>χ²</th>
<th>p</th>
<th>%</th>
<th>χ²</th>
<th>p</th>
<th>%</th>
<th>χ²</th>
<th>p</th>
<th>%</th>
<th>χ²</th>
<th>p</th>
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<tbody>
<tr>
<td>Male</td>
<td>33</td>
<td>1.96</td>
<td>ns</td>
<td>10</td>
<td>14.45</td>
<td>&lt;.001</td>
<td>16</td>
<td>0.16</td>
<td>ns</td>
<td>13</td>
<td>2.09</td>
<td>ns</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>25</td>
<td>ns</td>
<td>17</td>
<td>1.11</td>
<td>ns</td>
<td>14</td>
<td>4.18</td>
<td>.041</td>
<td>11</td>
<td>0.22</td>
<td>ns</td>
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<tr>
<td>Race</td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>44</td>
<td>5.81</td>
<td>0.16</td>
<td>19</td>
<td>0.10</td>
<td>ns</td>
<td>15</td>
<td>1.11</td>
<td>ns</td>
<td>14</td>
<td>4.18</td>
<td>.041</td>
</tr>
<tr>
<td>Youths of color</td>
<td>32</td>
<td>18</td>
<td>7</td>
<td>19</td>
<td>1.11</td>
<td>ns</td>
<td>14</td>
<td>4.18</td>
<td>.041</td>
<td>11</td>
<td>0.22</td>
<td>ns</td>
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<tr>
<td>Living situation</td>
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<td></td>
<td></td>
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<tr>
<td>Kinship care</td>
<td>21</td>
<td>15.31</td>
<td>.002</td>
<td>8</td>
<td>10.88</td>
<td>.012</td>
<td>13</td>
<td>5.00</td>
<td>ns</td>
<td>4</td>
<td>6.77</td>
<td>ns</td>
</tr>
<tr>
<td>Nonkin foster care</td>
<td>33</td>
<td>15</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Congregate care</td>
<td>47</td>
<td>24</td>
<td>21</td>
<td>13</td>
<td>17</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Semi-independent</td>
<td>38</td>
<td>15</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Maltreatment history</td>
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<td></td>
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<tr>
<td>Physical abuse</td>
<td>50</td>
<td>24.13</td>
<td>&lt;.001</td>
<td>23</td>
<td>4.82</td>
<td>.028</td>
<td>23</td>
<td>11.31</td>
<td>.001</td>
<td>14</td>
<td>6.88</td>
<td>.009</td>
</tr>
<tr>
<td>No physical abuse</td>
<td>25</td>
<td>14</td>
<td>10</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physical neglect</td>
<td>45</td>
<td>8.11</td>
<td>.004</td>
<td>22</td>
<td>3.91</td>
<td>.048</td>
<td>21</td>
<td>4.07</td>
<td>.044</td>
<td>13</td>
<td>3.90</td>
<td>.048</td>
</tr>
<tr>
<td>No physical neglect</td>
<td>30</td>
<td>14</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sexual abuse</td>
<td>46</td>
<td>6.29</td>
<td>.012</td>
<td>26</td>
<td>8.08</td>
<td>.005</td>
<td>20</td>
<td>1.52</td>
<td>ns</td>
<td>8</td>
<td>0.71</td>
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<tr>
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<td>9</td>
<td>9</td>
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</tbody>
</table>

Note: CD/ODD = conduct disorder or oppositional defiant disorder; ADHD = attention-deficit/hyperactivity disorder; ns = not significant.
maltreatment types and disorder. For four of the five dependent variables, at least one association between a maltreatment type and disorder was no longer statistically significant when controlling for the effect of other variables in the model. Histories of physical neglect and sexual abuse were not related to any past year disorder modeled. To these models, we added interaction terms to test for interactions between maltreatment types and gender and among the maltreatment types; none were significant.

In a subsequent step, we substituted the number of maltreatment types experienced for the three maltreatment type variables in multivariate models predicting past year disorders. Controlling for the effect of other variables in the model, the number of maltreatment types experienced was associated with having any disorder (odds ratio \( [OR] = 1.76, CI = 1.10–2.82, p = .019 \)), past year major depression (\( [OR] = 1.16, CI = 0.64–2.09, ns \)), past year CD/ODD (\( [OR] = 1.37, CI = 0.76–2.45, ns \)), and a comorbid internalizing and externalizing disorder (\( [OR] = 1.31, CI = 0.62–2.74, ns \)).

**DISCUSSION**

Findings from this study suggest that older youths in the foster care system have a disproportionately high rate of psychiatric disorders, and for many, the onset of at least one disorder begins before entry into the foster care system. Compared with a sample of working-class 18-year-old youths in the community (Reinherz et al., 1993), the youths in this study had prevalence rates of major depression three times greater and rates of PTSD two times greater. Rates of disruptive behavioral disorder for this sample ranged from slightly higher (Cohen et al., 1993; Kashani et al., 1987) to several times higher (Feehan et al., 1994; Fergusson et al., 1993) than those found in community samples of adolescents. Our prevalence rates of past year psychiatric disorders were similar to those reported among a countywide sample of children and youths in foster care in San Diego (Garland et al., 2001). However, additional research is merited to examine the consistency of this study’s findings across foster care populations because the earlier study included a wide age range of children, used a different diagnostic interview, and included both caregiver and youth reports. Youths in the foster care system may be at disproportionate risk of psychiatric disorder due to a number of reasons, including a family history of psychiatric disorder that may have contributed to the placement of the children outside the home, child maltreatment, and the disruptions of life in the foster care system.
system that might include multiple moves and relationship losses.

Although almost two thirds of the youths with a lifetime history of a psychiatric disorder reported onset of at least one disorder before their age at entry into the foster care system, the study design did not allow us to ascertain whether youths were in the foster care system because of their psychiatric problems. Nevertheless, this study provides additional evidence among an understudied foster care population that the child welfare system is asked to care for a large number of youths with serious psychiatric disorders, many of which begin before their entrance into the system. This study also suggests that a substantial number of these youths with disorders (53% in this study) end up living in congregate care facilities. These findings are relevant to policymakers because the federal government recently estimated that roughly 13,000 children and youths enter the foster care and juvenile justice systems annually to seek psychiatric treatments that are not available or affordable to families outside the system (General Accounting Office, 2003).

The study examined two a priori hypotheses. Previous research with younger children had found that children in kinship care had fewer problems than children in nonkin family foster care (Berrick et al., 1994; Igglehart, 1994). The data from this study did not, however, support our hypothesis that older youths in kinship care would have lower rates of past year psychiatric disorder than older youths in nonkin foster care, although the trend was in the anticipated direction. In this study, most youths with a past year psychiatric disorder were living in congregate care settings. It may be difficult to place and maintain older youths with psychiatric problems in family settings in general, be they kin or nonkin families, without substantial supports in place.

Based on previous research (Auslander et al., 2002; Fergusson et al., 1996), we also proposed that youths with self-reported histories of child sexual abuse would have higher rates of past year psychiatric disorder than youths who were not sexually abused. Although consistent with findings from two bivariate analyses (with any past year disorder and past year major depression), this hypothesis was not supported in multivariate analyses that controlled for exposure to other forms of maltreatment. In this study, the most consistent and robust predictor of past year psychiatric disorder was the number of types of maltreatment reported, suggesting that the effects of maltreatment on disorder may be additive. All three forms of maltreatment studied had some bivariate effects on depression. Both physical abuse and physical neglect were associated with the presence of a disruptive behavioral disorder and physical abuse was associated with ADHD and having comorbid internalizing and externalizing disorders. However, when controlling for the effects of other kinds of maltreatment, physical abuse was the only maltreatment type associated with psychiatric disorder and only with a disruptive behavioral disorder and having comorbid internalizing and externalizing disorders.

We also found no evidence of an interactive effect of different maltreatment types on psychiatric disorder, suggesting that there was no one particular combination of two maltreatment types that was especially potent. The scarcity of previous research on psychiatric disorder in foster care populations and the failure of previous researchers to account for multiple types of maltreatment make it difficult to provide a context for these findings. We do not know how unique these findings may be to a foster care population. It is possible that previous reports have overemphasized the effects of single types of maltreatment, especially sexual abuse, by not accounting for other maltreatment types and the additive effect of maltreatment types. Although childhood maltreatment types have been shown elsewhere to be frequently comorbid (e.g., Bernstein et al., 1994), they appear to be even more frequently so in foster care populations. This makes it even more difficult to generalize the findings on maltreatment and psychiatric disorder to other populations.

Limitations

This study was limited in several ways. The prevalence rates of psychiatric disorders among older youths in the foster care system may have been underestimated because assessment was based solely on youth report, did not include the full range of psychiatric disorders, and youths who were on runaway status were excluded. Onset of disorder was also obtained solely from youth report, which is especially problematic for disorders that begin at an early age. In addition, findings from this study may not be generalizable to other foster care populations because the sample was restricted to eight counties in Missouri.
Clinical Implications

The high rates of psychiatric disorder found in this study support the recommendations of a joint policy statement from the American Academy of Child and Adolescent Psychiatry and the Child Welfare League of America (2002) that call for (1) mental health screenings within 24 hours of placement in out-of-home care, (2) comprehensive mental health assessments within 60 days of placement, (3) periodic reassessments thereafter, and (4) reassessments for youths moving to self-sufficiency or returning home.

Previous research has shown that children in foster care with sexual abuse histories are five times more likely to receive mental health services than other youths (Garland et al., 1996; Leslie et al., 2003), suggesting that they may receive extra scrutiny for assessment and referral. These findings suggest that a better screen for psychiatric disorder would be to assess for the number of ways that a youth may have been mistreated.

Findings from this study also underscore the need to provide services to youths and families to address mental health problems before placement outside the home and for intensive services that can help youths with psychiatric disorders in the foster care system remain in family placements, such as treatment foster care (e.g., Chamberlain, 2002). Further, the combination of the high prevalence of psychiatric disorders and the high percentage of youths living in congregate care facilities with psychiatric disorders calls for two additional kinds of services: (1) the inclusion of mental health components, such as psychoeducation about psychiatric disorders, in programs designed to help youths transition successfully out of the foster care system and (2) mechanisms to continue mental health treatments as youths transition out of the child welfare system and into young adulthood.

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