

The Role of Specialty Mental Health Care in Predicting Child Welfare and Juvenile Justice Out-of-Home Placements

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Objective: This longitudinal, prospective study examines the role of specialty mental health care as provided by community-based, usual-care practice settings in predicting out-of-home placements among children served by a child welfare and juvenile justice system. *Method:* The mental health needs of 1,249 children from 22 counties in Tennessee were assessed when the children were referred for child welfare and juvenile justice, in-home, case management services. The outpatient specialty mental health care received by the children in the 6-month period following the referral was recorded using the Service Assessment for Children and Adolescents and reimbursement records of TennCare. Children were then followed for 1.5 years to identify those who were subsequently placed in out-of-home care. *Results:* A majority of the children needed specialty mental health care, but most of these children did not receive it. This is important because their need was the best predictor of subsequent out-of-home placement. The odds of an out-of-home placement in the follow-up period were reduced by 36% to 40% for those children who received specialty mental health care. *Conclusions:* Improved systematic screening for mental health problems and access to specialty mental health care for children referred for in-home child welfare and juvenile justice case management services are promising strategies for reducing out-of-home placements.

Keywords: children's mental health care; child welfare; juvenile justice; case management; state custody; out-of-home placements

Child welfare and juvenile justice systems nationwide serve some 3 million children each year, and the majority of these children are at risk of serious emotional or behavioral problems that can follow them into adulthood (Burns et al., 2004; Garland et al., 2001; Hazen, Hough, Landsverk, & Wood, 2004; MacKinnon-Lewis, Kaufman, & Frabutt, 2002; U.S. Department of Health and Human Services, 2003). The high risk of chronic behavioral and mental health problems faced by these children underscores the need for timely and appropriate care, but there is evidence that many child welfare and juvenile justice systems provide ineffective care (Garbarino, 1999; Lindsey, 1994; MacKinnon-Lewis et al., 2002; U.S. Department of Health and Human Services, 2004). A critical deficit highlighted by several

studies of child welfare and juvenile justice systems is that the mental health care needs of the children are not systematically identified, and most children served by these systems who need specialty mental health care do not receive the needed care (Burns et al., 2004; Lyons, Baerger, Quigley, Erlich, & Griffin, 2001; Webb & Harden, 2003). Specialty mental health care is defined as treatment for mental health problems provided by mental health professionals, community mental health centers, day treatment programs, outpatient clinics, or in-home treatment programs (Hazen et al., 2004). A child served by a child welfare and juvenile justice system typically receives specialty mental health care when a case manager identifies the need for such care and refers the child to a specialty mental health care provider.

There have been several studies of specialty mental health care for children served by child welfare and juvenile justice systems, but most of the studies focused on children who were already placed in out-of-home residential care. These studies leave a gap in our understanding of the benefits of timely mental health assessments and access to specialty mental health care for children before they are removed from their homes. This is important because the majority of the children

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referred to child welfare and juvenile justice systems receive case management services at home, and there is evidence that the need for specialty mental health care is as great for children who are served by these systems while living at home as for children who are in out-of-home placements (Burns et al., 2004; Webb & Harden, 2003).

Although child welfare and juvenile justice case management services should include assessment and referral for specialty mental health care, a recent nationwide study indicates that case managers fail to identify most of the children with mental health service needs, and only a small portion of the children who need the care actually receive it (Burns et al., 2004). Given the high level of mental health and emotional problems among these children, it seems that improved assessment and referral for specialty mental health care could reduce subsequent out-of-home placements. However, few previous studies examined the benefits of outpatient specialty mental health care for children receiving in-home child welfare and juvenile justice services. Moreover, there is evidence that community-based, specialty mental health treatment for children as provided in usual-care settings may be ineffective (Weisz, 2004; Weisz & Jensen, 1999; Weisz, Sandler, Durlak, & Anton, 2005). This study responds to the need for more information about the benefits of specialty mental health care as delivered in actual community-based, usual-care practice settings for children receiving child welfare and juvenile justice case management services in their homes.

The Boundaries Among Child Welfare, Juvenile Justice, and Mental Health Systems

Although studies of children at risk of chronic mental health and behavioral problems tend to focus on a specific service sector, there is evidence that over time children are served by more than one service sector and that the child welfare and juvenile justice systems serve a particularly large number of children who need services from the specialty mental health care sector (Garland et al., 2001; Hazen et al., 2004; Scott, Snowden, & Libby, 2002). Although child welfare services are traditionally associated with parental maltreatment and juvenile justice services are associated with children's illegal behavior, there is a great deal of overlap in the populations served by these systems in both the risk factors and mental health needs shared by the children and their families (Garland et al., 2001).

The overlap between the populations served by child welfare and juvenile justice systems has created confusion and disagreement in the research literature for at least a half-century about the similarities and differences between children served by the two systems (Maas & Engler,

1959). The discussions with judges and caseworkers nationwide reported by Maas and Engler (1959) in the middle of the last century revealed differences that are still found today in the reasons given for placing children in the care of child welfare or juvenile justice systems. For example, many studies of children in the custody of child welfare systems include children who are placed in custody because of their own illegal behavior and those who are placed in custody because of parental maltreatment (see review in Glisson, Bailey, & Post, 2000). These "mixed" samples occur because many child welfare systems assume custody of children labeled "behavior problems," "unruly," or "status offenders," along with those children labeled "neglected" or "abused." As a result, many child welfare systems care for children with behavioral and emotional problems that are similar to those of the children in the care of juvenile justice systems (Garland et al., 2001). Moreover, many of the same outpatient and inpatient specialty mental health treatment facilities provide care to children through contracts with both child welfare and juvenile justice systems.

In Tennessee, child welfare and juvenile justice services are provided by one system, the Department of Children's Services (DCS). Most children enter the care of DCS through juvenile and family court. A juvenile and family court judge typically gives one of three formal, legal reasons for referring children to the DCS. The formal, legal reasons are "dependency and neglect" (includes a range of reasons from inadequate supervision to neglect to physical and sexual abuse), "unruly behavior" (includes status offenses such as curfew violations, running away, and truancy), and "delinquency" (includes a variety of criminal behaviors). A recent study found that among children with similar behavioral and family problems, older children and boys were more likely to be labeled delinquent, and younger children and girls were more likely to be labeled dependent and neglected (Glisson, 1996). This and other evidence suggest that after controlling for the child's age and gender, the behavioral problems and family profiles of children referred to DCS for all three reasons are similar (Glisson, 1996). That is, children referred for each of the three reasons tend to come from families that are disproportionately poor and are headed by single parents and tend to have high rates of mental health and substance abuse problems.

Reasons for Referral to Juvenile and Family Court in Tennessee

Of the approximately 80,000 individual children referred to juvenile and family courts each year in Tennessee,

some 70% of the children (56,000) are referred for one of the three reasons described above, placing those children (56,000) at risk of an out-of-home placement (Tennessee Council of Juvenile and Family Court Judges, 2003). The other children (30% or 24,000) are referred to juvenile and family court for a variety of other reasons (e.g., visitation rights for divorced parents) that do not place the children at risk of out-of-home placements. About 14% (8,000) of the children at risk of out-of-home placement who are referred to Tennessee juvenile and family courts for dependency and neglect, unruly behavior, or delinquency enter out-of-home placements each year.

Out-of-home placement is an important outcome criterion for child welfare and juvenile justice systems. It indicates a failure in preserving the family unit, out-of-home placements in child welfare and juvenile justice systems can place children at further risk of physical or emotional harm, and out-of-home placements are extremely costly. At the same time, out-of-home placements are at times necessary and unavoidable. For example, children who are physically or sexually abused in their homes must be removed from those homes for their own protection. But this represents a very small proportion of the children who are referred to juvenile and family courts. In Tennessee, less than 1% of the children referred to juvenile and family court are referred for physical or sexual abuse (Tennessee Council of Juvenile and Family Court Judges, 2003). As another example, children who commit serious crimes such as rape, murder, or assault with a deadly weapon and are a threat to others must also be placed in residential care. But again, these children also represent a small proportion of the children referred to juvenile and family courts. In Tennessee, less than 2% of the cases seen in juvenile and family courts fall into this category (Tennessee Council of Juvenile and Family Court Judges, 2003).

Although child welfare and juvenile justice case managers nationwide seek to minimize the need for out-of-home placements, almost no studies have assessed the role of specialty mental health care as provided by community-based, usual-care practice settings in predicting out-of-home placements. There are a few studies of specific treatment models using randomized controlled trials with high fidelity to treatment protocols ensured by close clinical supervision (e.g., Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998; Sexton & Alexander, 2002). But these were not studies of community-based, specialty mental health treatment as provided in usual-care settings, and there is evidence that treatments in such settings deviate significantly from the treatments tested in controlled clinical trials in

terms of treatment model, fidelity to treatment protocols, patient screening, and other factors. Moreover, important questions have been raised about the value of specialty mental health care as provided in most community-based, usual-care settings (Weisz, 2004; Weisz et al., 2005; Weisz & Jensen, 1999). This study identifies the proportion of children referred to one state's child welfare and juvenile justice system for in-home case management services who need specialty mental health care and assesses the role of specialty mental health care as provided by community-based, usual-care practice settings in predicting subsequent out-of-home placements. We hypothesized that children with more serious mental health problems would be more likely to enter out-of-home placements and that children who received specialty mental health care would be less likely to enter out-of-home placements in the 18-month follow-up period.

METHOD

The study sampled children who were referred by 22 juvenile and family courts for in-home child welfare and juvenile justice case management services. Research assistants trained by the Children's Mental Health Services Research Center were placed in each of the 22 juvenile and family courts to recruit participants for 1 year. The courts (one per county) were located in three of the state's four major urban centers (Hamilton, Knox, and Shelby counties) and in 19 rural counties. The 19 rural counties are Anderson, Blount, Bradley, Claiborne, Cocke, Franklin, Grainger, Grundy, Jefferson, Loudon, Marion, McMinn, Meigs, Monroe, Morgan, Rhea, Scott, Sequatchie, and Sevier.

The research assistants obtained written informed consent from the children's caregivers (and from the children older than 10) for participation in the study and access to records following protocols approved by the University of Tennessee and the National Institute of Mental Health. A small incentive (\$20 gift card) was offered for each baseline and follow-up interview, resulting in a high consent rate (more than 80%) to participate in the study. After obtaining informed consent, the research assistants conducted a baseline interview with each child's caregiver within 72 hours of the child's and caregiver's appearance in juvenile and family court. A follow-up interview was conducted with the caregiver 6 months following the baseline interview to identify the mental health services received by the child during that 6-month period. Specialty mental health service use was documented with the Services Assessment for Children and Adolescents (SACA; Hoagwood et al.,

2000; Stiffman et al., 2000) and with behavioral health reimbursement records provided by Tennessee’s Medicaid-waiver health insurance program, TennCare (Chang et al., 1998; Thomas, Gourley, & Mele, 2004). The research assistants then followed the children and families for 1.5 years to identify children who subsequently entered out-of-home placements (17% of the baseline sample). Out-of-home placements were identified by the research assistants in the follow-up period using both court records and regular follow-up contacts with caregivers.

Participants

The participants were 1,249 school-aged children (4 to 18 years old) who were referred for in-home child welfare and juvenile justice case management services by a juvenile and family court because of maltreatment (dependency and neglect) or illegal behavior (unruly behavior or delinquency). Children younger than 4 years were excluded because of the difficulty in assessing the mental health needs of preschool children in field studies of this type.

Longitudinal, prospective studies of children referred to child welfare and juvenile justice systems are challenging because it is frequently difficult to locate families for follow-up interviews and because some families may withdraw from the study. Of the 1,249 children assessed at baseline, follow-up interviews were conducted with 1,038 caregivers (83% of the baseline sample). Of the 1,249 children assessed at baseline, caregivers reported that 927 were enrolled in TennCare. Valid TennCare identification numbers were required to access TennCare reimbursement records for analyses of the TennCare subsample. Among the 744 caregivers who provided valid TennCare identification numbers at baseline required for the TennCare subsample analyses, follow-up interviews were conducted with 601 caregivers (81%).

As shown in Table 1, a majority of the children selected for the sample at baseline were male (65%) and almost half were African American (43%), and they had a median age of 15 years. Children referred to juvenile and family courts statewide for all reasons in 2003 were 60% male and 31% African American and had a median age of 15 years (Tennessee Council of Juvenile and Family Court Judges, 2003). Although the sample was not randomly selected, it shares these characteristics with the children referred to juvenile and family courts statewide, with the exception that African American children were oversampled in the study because of the disproportionate number of children in the sample from urban (61%) versus rural counties. Because there is a large rural population in the state and the highest rates of referrals to juvenile and family courts are

TABLE 1: Demographic Characteristics

Variable	n	%	Mdn	M	SD
Age of child (range 4-18 years)	1,241		15	14.43	2.39
Family monthly income (range \$0-\$9,500)	1,249		\$1,300	\$1,611	\$1,244
Families below poverty level	749	60.0			
Gender of child					
Male	811	64.9			
Female	436	35.1			
Race of child					
Caucasian	667	53.6			
African American	536	43.0			
Other	42	3.4			
County of residence					
Urban	758	60.8			
Rural	488	39.2			
Child enrolled in TennCare					
Yes	930	75.1			
No	308	24.9			

NOTE: N = 1,249.

in the most rural, isolated counties in east Tennessee’s Appalachian Mountains, more children are referred to juvenile and family courts in nonurban counties. As planned, oversampling of urban areas produced a sample more evenly balanced between minority and nonminority children.

Of the children referred to juvenile and family court statewide for the three reasons that place them at risk of state custody, approximately 59% are referred for delinquency, 33% for unruly behavior, and 8% for dependency and neglect (Tennessee Council of Juvenile and Family Court Judges, 2003). Similar to statewide characteristics, about 60% of the children in the sample were referred to juvenile court for delinquency, 30% were referred for unruly behavior, and about 10% were referred for dependency and neglect. As with gender and age, the reasons for referral to juvenile court in the sample matched closely the reasons for referral statewide.

The families in the sample reflect a range of incomes, but the distribution of incomes is positively skewed with lower income families being much more heavily represented. At the time of the study, the families’ median income was \$1,300 per month, and their mean income was \$1,600 per month. Approximately 60% of the families’ incomes were below the poverty line as defined by the U.S. Department of Health and Human Services during the year the data were collected (e.g., \$1,508 per month for a family of 4). The caregivers of 75% of the children in the sample reported that the children were enrolled in TennCare at the time of the baseline interview. TennCare is the state Medicaid-waiver program that extends Medicaid behavioral health coverage to

include a portion of the uninsured working poor and the uninsurable who are not covered by Medicaid (Chang et al., 1998).

Measurement Instruments

The interviews conducted by the research assistants included questions about the demographic characteristics of the child and family, a questionnaire documenting the mental health services received by the child and family, and a number of standardized instruments designed to assess the mental health of the child and caregiver.

Shortform Assessment for Children (SAC). The SAC is a validated, standardized measure developed with the support of the National Institute of Mental Health to assess the overall mental health and psychosocial functioning of children referred to juvenile justice and child welfare systems (Glisson, Hemmelgarn, & Post, 2002; Hemmelgarn, Glisson, & Sharp, 2003; Tyson & Glisson, 2005). The SAC uses separate norms for girls and boys, for preadolescents and adolescents, and for information collected from parents and teachers. These norms are used to identify children with levels of both internalizing and externalizing behavioral problems that require clinical intervention and to monitor changes in children's psychosocial functioning over time (McMahon, 1994; Ollendick & King, 1994).

The validity of the SAC was confirmed in three previous studies, each using a distinct and separate sample of children to establish the construct validity, criterion validity, and cross-ethnic validity of the SAC when used to assess the mental health of children referred to child welfare and juvenile justice systems (Glisson et al., 2002; Hemmelgarn et al., 2003; Tyson & Glisson, 2005). In the current study, the child's primary caregiver, usually the child's mother, completed the SAC at the baseline interview (i.e., at the time of referral for in-home case management services by a juvenile and family court). The alpha reliability coefficients for the SAC total scale, externalizing behavior scale, and internalizing behavior scale for the present sample are .94, .93, and .90, respectively.

Columbia Impairment Scale (CIS). The CIS is a validated, standardized measure of children's overall mental health used to identify children with clinical levels of mental health and behavioral problems that require mental health services (Bird, 1999). The CIS provides an overall measure of a child's mental health and an indication of whether a child's behavioral and mental health problems require clinical mental health services. The child's primary caregiver completed the CIS at the

baseline interview (time of referral), and the alpha reliability coefficient of the CIS for this sample is .86.

Brief Symptom Inventory (BSI). The BSI is a validated, standardized measure of mental health used to identify adults with mental health problems that require clinical intervention (Derogatis, 1993). The BSI provides an overall measure of mental health and measures of nine specific dimensions of mental health such as depression and psychoticism. The child's primary caregiver completed the BSI at the baseline interview (time of referral to court). For this sample, the alpha reliability coefficient for the total BSI scale is .97, and the reliabilities for the nine individual dimensions range between .74 and .89.

SACA. The SACA is a validated measure developed with the support of the National Institute of Mental Health to describe a variety of social, behavioral, and mental health services received by a child or adolescent (Hoagwood et al., 2000; Stiffman et al., 2000). The measure has been used successfully to obtain information from primary caregivers about the type of services received by the children or adolescents in their care. The measure has provided accurate and valid descriptions of mental health services using information from caregivers with backgrounds and service needs that are similar to the sample selected for this study (Hoagwood et al., 2000; Stiffman et al., 2000). The child's primary caregiver completed the SACA during the baseline interview (time of referral to court) to describe mental health services received prior to court referral and during the second interview (6 months after the baseline) to describe services received in the 6-month period following court referral.

RESULTS

The results of the study are presented in three parts. First, child and caregiver functioning are described at baseline. The baseline data were collected when the children were referred for in-home child welfare and juvenile justice case management services by a juvenile and family court. Second, the mental health services received by the children any time prior to their referral for case management services and the mental health services provided in the 6 months following their referral for case management services are described. Finally, logistic regression analyses, which estimate the role of mental health care provided to the children in the 6 months following their referral for in-home case management services in predicting out-of-home placements that occurred

TABLE 2: Child and Caregiver Functioning

	n	%
Child's SAC total problem behavior (% clinical)	798	64.8
Child's CIS total functioning (% clinical)	787	63.4
Child's substance abuse	500	40.0
Caregiver BSI—overall clinical	710	56.9
Parental substance abuse	717	57.5
Reason for court referral		
Delinquent	725	59.7
Status offenses and other	370	30.5
Dependent or neglected	119	9.8

NOTE: $N = 1,249$. SAC = Shortform Assessment for Children; CIS = Columbia Impairment Scale; BSI = Brief Symptom Inventory.

in the 1.5-year follow-up period, are reported for the full sample and for the TennCare subsample.

Child and Family Functioning

As shown in Table 2, the majority (57%) of the children's caregivers (usually the child's mother) scored in the clinical range of the overall BSI. Moreover, the caregivers reported that at least one of the parents of 58% of the children had a substance abuse problem with either alcohol (50%) or drugs (42%). Caregiver mental health problems and parental substance abuse are risk factors for children, and these data suggest that a large proportion of the children's caregivers and parents have psychosocial problems that place the children at risk of out-of-home placements.

The children also have high rates of behavioral and mental health problems. As shown in Table 2, the total scores on the SAC and CIS indicate that 64.8% and 63.4%, respectively, of the children referred for in-home case management services have behavioral and mental health problems that are serious enough to require clinical intervention. It is important to note that the two measures of children's mental health, the SAC and CIS, provided very similar results. There was 83% agreement between the two scales in discriminating between the children who have behavioral and mental health problems that require clinical intervention and those who do not. The high level of agreement in classification (83%) and the high correlation ($r = .77$) between these two independently developed scales provide evidence that the two scales provide valid measures of the children's mental health.

Mental Health Services Received by the Children

The outpatient mental health care received by children referred to juvenile and family court was measured in

two ways. First, caregivers were asked to describe the services that the children received by responding to questions in the SACA (Hoagwood et al., 2000; Stiffman et al., 2000). In the baseline interview, the caregivers described the mental health care that the children received any time prior to their referral for in-home case management services. In the second interview 6 months later, they described the care their children received in the 6 months following the baseline. In this way, data that described the children's previous "lifetime" use of mental health services were collected from caregivers at baseline, and data that described their use of mental health services in the 6 months following their referral to the child welfare and juvenile justice system were collected at the 6-month follow-up interview.

Second, specialty mental health care reimbursement records were provided by the state's Medicaid-waiver program, the Bureau of TennCare, through the Department of Mental Health and Developmental Disabilities for the children in the study whose caretakers provided a valid TennCare identification number. Records of reimbursed specialty mental health services for the children enrolled in TennCare were provided for 3 years prior to their referral and for the 6-month period immediately following their referral to the child welfare and juvenile justice system.

Agreement between the two methods of measuring specialty mental health services (self-report and reimbursement records) was calculated by comparing caregiver responses to the SACA and the reimbursement records for the children with valid TennCare identification numbers. The agreement between the outpatient specialty mental health services reported by caregivers using the SACA and the outpatient specialty mental health services reimbursed by the TennCare was 71%. The data describing specialty mental health services from each source (self-report and managed care records) were then analyzed separately.

As shown in Table 3, caregiver information collected with the SACA indicated that 64% of the children received outpatient specialty mental health services any time prior to their court referral. Most of these outpatient services were provided by community mental health centers (38%), in-home therapists (31%), or individual mental health professionals (26%). The rates of service use any time prior to the children's referral to court correspond to lifetime service rates reported in a recent California study (Hazen et al., 2004).

Information that described nonspecialty mental health services provided by general health care providers and by schools was also obtained with the SACA. Prior to their court referral, 16% of the children received nonspecialty

TABLE 3: Children Receiving Outpatient Mental Health Services

	Any Time Prior to Court ^a		Following Court ^b	
	n	%	n	%
Specialty or nonspecialty outpatient mental health service	991	79.3	309	30.3
Specialty outpatient mental health service	802	64.2	232	22.8
Community mental health center	471	37.7	115	11.3
In-home treatment	385	30.8	81	7.9
Individual mental health professional	322	25.8	63	6.2
Mental health day treatment program	83	6.6	3	0.3
Drug or alcohol clinic	54	4.3	24	2.4
Medical outpatient nonspecialty mental health service	196	15.7	31	3.0
Pediatrician or family doctor	151	12.1	21	2.1
Emergency room for mental health	61	4.9	12	1.2
School nonspecialty outpatient mental health service	597	47.8	106	10.4
Special school for mental health problems	352	28.2	63	6.2
Special classroom in regular school	254	20.3	38	3.7
Counseling in school	142	11.4	12	1.2
Special help in regular classroom	57	4.6	6	0.6

a. *N* = 1,249.b. *N* = 1,019.

mental health services from emergency rooms, family physicians, or pediatricians, and 48% received nonspecialty mental health services from schools through alternative schools, special classrooms, special help, or school counseling.

As shown in Table 3, self-reported specialty outpatient mental health service use was lower in the 6 months following the children's referral to the child welfare and juvenile justice system. This reduction was a function of the reduced time frame (i.e., lifetime services prior to referral versus services received in the 6 months following referral). However, this difference is important because referrals to child welfare and juvenile justice systems represent a period of crisis for these children and families when mental health services could play an important role in the children's well-being and in preventing out-of-home placements. It is therefore significant that specialty mental health services were not provided during that period to most of the children who needed the services. Although more than 60% of the

children needed specialty mental health care as indicated by clinical scores on both the SAC and CIS, the caregivers reported that only 23% of the children received the needed care following their referral for in-home case management services.

Role of Specialty Outpatient Mental Health Care in Predicting Out-of-Home Placements

Of the children in the sample, 17% were placed in state custody during the 18-month follow-up period. Logistic regression analyses were conducted separately with the full sample and the TennCare subsample to estimate the role of mental health care in predicting out-of-home placements during that period. The services included in the model that was tested with both the full sample and TennCare sample included specialty mental health care, nonspecialty mental health services provided by health care providers (i.e., emergency room, pediatrician, or family physician), and nonspecialty mental health services provided by schools. Specialty mental health care was documented with the SACA in the full sample and with the TennCare reimbursement records in the TennCare subsample. Nonspecialty mental health services were documented with the SACA in both analyses.

Measures of children's mental health that were included in the model were the child's total SAC score and the child's history of substance abuse. The CIS was not included in the model because it is highly correlated with the SAC ($r = .77$) and would be redundant. Measures of the mental health of family members in the model included the continuous total BSI score for the child's caregiver and parental substance abuse. Additional covariates in the model included the child's gender, age, race, family income, reason for referral to juvenile and family court (maltreatment or the child's illegal behavior), and whether the child was enrolled in TennCare. The same variables were included in the models tested in both the full sample and TennCare subsample with two exceptions. First, enrollment in TennCare was not included as a variable in the TennCare subsample because all children in the subsample were enrolled in TennCare. Second, specialty mental health services were documented with the SACA in the full sample and with TennCare reimbursement records in the TennCare enrolled subsample.

Table 4 provides the results of estimating the natural log of the odds ratio of an out-of-home placement in the 18-month follow-up period. The odds ratio is the probability of a child entering an out-of-home placement divided by the probability of the child remaining in the home. A benefit of estimating the log of the odds (η) of an

TABLE 4: Logistic Regression Predicting Out-of-Home Placement in Full Sample

	B	Relative Log Odds	SE	Wald	Exp(B)	p
SAC—child’s mental health problems	0.020	0.005	13.819	1.021	.000	
Referral reason (maltreatment = 1)	-1.170	0.483	5.870	0.310	.015	
TennCare	0.016	0.237	0.004	1.016	.947	
Child substance abuse	0.530	0.200	6.994	1.699	.008	
BSI—caregiver’s mental health problems	0.002	0.002	0.684	1.002	.408	
Parent substance abuse	0.475	0.198	5.759	1.609	.016	
Gender (female = 1)	-0.203	0.196	1.073	0.816	.300	
Age	-0.106	0.048	4.826	0.900	.028	
Location (urban county = 1)	-0.461	0.221	4.327	0.631	.038	
Monthly income	0.000	0.000	1.443	1.000	.230	
Race (African American = 1)	-0.088	0.233	0.143	0.916	.705	
Specialty mental health services	-0.452	0.230	3.863	0.636	.049	
Medical nonspecialty mental health services	0.379	0.498	0.581	1.461	.446	
School nonspecialty mental health services	0.057	0.291	0.039	1.059	.844	
Constant	-0.849	0.787	1.164	0.428	.281	

NOTE: *N* = 1,019. SAC = Shortform Assessment for Children; BSI = Brief Symptom Inventory.

out-of-home placement instead of the probability (ϕ) of an out-of-home placement is that η is normally distributed, whereas ϕ is positively skewed (Raudenbush & Bryk, 2002, pp. 297-298).

The regression coefficient (*B*) for each predictor variable in Table 4 represents the relative log odds ratio. More precisely, the *B* value provides the change in the log of the odds of an out-of-home placement for each unit increase in the predictor variable. The exponent of the relative log ($\exp B$), the relative odds ratio, can be used to compute the percentage change in the odds for every unit change in the associated predictor. The percentage increase or decrease in the odds ratio may be determined by subtracting the base odds rate (1.0) from this value. Consequently, $\exp(B)$ values greater than 1 indicate an increase in the odds of entering custody, and values of less than 1 indicate a decrease in the odds of entering custody.

As shown in Table 4, the analysis indicated that a number of variables significantly predicted the odds of an out-of-home placement in the full sample. The results indicate that after controlling for all other variables in the model, out-of-home placements were more likely for children with more serious mental health problems

as indicated by SAC scores (the best predictor in the model), substance abuse problems, caregivers with more serious mental health problems as indicated by the BSI, and a parent who is a substance abuser. After controlling for all other variables in the model, out-of-home placements were less likely for children who were referred for maltreatment (dependency and neglect) than for illegal behavior (delinquency or unruly behavior), for older children, for children in urban counties versus rural counties, and, most important, for children who received specialty mental health care following their referral for in-home child welfare and juvenile justice case management services.

The relative log-odds ratio coefficient for the dichotomous specialty mental health care predictor is $-.452$, or a relative odds ratio of $.636$, $\exp(-.452) = .636$. This indicates that after controlling for other variables in the model, the odds of an out-of-home placement among children receiving specialty mental health care was 36% less ($.636 - 1 = -.364$) than the odds of an out-of-home placement among children who did not receive specialty mental health care. A hypothetical profile can illustrate the difference. A Caucasian boy from a rural area who is covered by TennCare, has average values on all continuous predictors including age (14.40) and the SAC (34.78), and does not receive specialty mental health services has an estimated odds of an out-of-home placement of $.21$. The estimated odds are reduced by 38% to $.13$ if the same boy receives specialty mental health services. If the boy had the highest SAC score in the sample (91) rather than the average score, the odds of an out-of-home placement would be tripled to $.63$ if he did not receive specialty mental health services. If he received mental health services, the odds for that boy would be reduced by 37% to $.40$.

In contrast to the reduction in the odds associated with specialty mental health care, the children who received nonspecialty mental health services from either a general health services provider (emergency room, pediatrician, or family physician) or from a school were slightly more likely to enter out-of-home placements, but the effects were not statistically significant. At best, out-of-home placements were not predicted by nonspecialty mental health services.

As shown in Table 5, the effect of specialty mental health care was even larger for the TennCare sample using TennCare reimbursement records to measure the receipt of specialty mental health care. After controlling for the effects of the other variables in the model, specialty mental health care reduced the odds of an out-of-home placement by more than 40%, $\exp(B) - 1 = .594 - 1 = -.405$. As in the full sample, nonspecialty mental

TABLE 5: Logistic Regression Predicting Out-of-Home Placement in TennCare Sample

	B	Relative Log Odds	SE	Wald	Exp(B)	p
SAC—child's mental health problems	0.022		0.007	10.657	1.023	.001
Referral reason (maltreatment = 1)	-0.865		0.562	2.369	0.421	.124
Child substance abuse	0.385		0.245	2.471	1.469	.116
BSI—caregiver's mental health problem	0.001		0.003	0.107	1.001	.743
Parent substance abuse	0.831		0.261	10.168	2.296	.001
Gender (female = 1)	-0.336		0.250	1.812	0.714	.178
Age	-0.115		0.058	3.914	0.891	.048
Location (urban county = 1)	-0.707		0.299	5.594	0.493	.018
Monthly income	0.000		0.000	0.475	1.000	.491
Race (African American = 1)	0.002		0.295	0.000	1.002	.993
Specialty mental health services	-0.522		0.259	4.064	0.594	.044
Medical nonspecialty mental health services	0.611		0.601	1.036	1.843	.309
School nonspecialty mental health services	0.457		0.316	2.087	1.580	.149
Constant	-0.846		0.904	0.875	0.429	.350

NOTE: $N = 601$. SAC = Shortform Assessment for Children; BSI = Brief Symptom Inventory.

health services from either medical providers or schools increased the probability of out-of-home placement, but the effects were not significant.

DISCUSSION AND APPLICATIONS TO RESEARCH AND PRACTICE

Children who received specialty mental health care were less likely to enter out-of-home placements, but the naturalistic, longitudinal, prospective study design did not control all threats to internal validity concerning the effects of mental health care on out-of-home placements. Two of the three requirements for causal inference were met. That is, there was a significant association between specialty mental health care and fewer out-of-home placements, and the hypothesized cause (i.e., mental health care) preceded the effect (i.e., fewer out-of-home placements). However, all possible effects of unknown confounding variables cannot be eliminated. Although a number of child, caregiver, and community characteristics were controlled statistically and a significant effect of specialty mental health care was found in separate analyses using self-report and reimbursement records, respectively, the effects of unmeasured variables remain unknown. For

example, the children who received specialty mental health care may have had superior case managers who were more available and responsive to the needs of the child and family. A final limitation is that the study was conducted in only one state. Additional studies of individual state samples that provide information that is unique to the specific states and more research with nationwide representative samples are needed to generalize the role of specialty mental health care in predicting out-of-home care.

Child welfare and juvenile justice systems are potential “gateway providers” of children’s specialty mental health care (Stiffman, Pescosolido, & Cabassa, 2004). This is important because some 3 million children receive child welfare and juvenile justice case management services each year, and the majority of these children have emotional and behavioral health problems that require treatment. Moreover, it appears that mental health issues for both children and parents play significant roles in predicting out-of-home placements.

The levels of mental health and behavioral problems identified for the children in this sample (63%-65% scored in the clinical range of the mental health screening measures) are similar to the rates described in a recent nationwide sample of children served by child welfare systems that reported 66% of adolescents and 44% of preadolescents had mental health problems requiring clinical intervention (Burns et al., 2004). Similar proportions of mental health problems were found in studies of children served by juvenile justice systems. Lyons et al. (2001) provided estimates of serious emotional disorders among children in the care of the juvenile justice system that ranged between 46% and 88%, and Garland et al. (2001) reported a disorder rate among children served by juvenile justice systems of 52%.

Although this study replicates findings from recent studies that find a high proportion of mental health problems among children referred to child welfare and juvenile justice systems, there have been few studies of specialty mental health treatment as provided in community-based, usual-care settings for children receiving in-home case management services from these systems. Moreover, there is some doubt about the value of the mental health treatment provided in community-based, usual-care settings (Weisz, 2004; Weisz et al., 2005; Weisz & Jensen, 1999). These findings suggest that access to community-based, specialty mental health treatment may be important to outcomes for children referred to child welfare and juvenile justice systems and may play a role in determining whether the children can remain in their homes. Given the high costs of out-of-home placements and the value of preserving families, the 36% to 40% reduction

in the odds of placements predicted by specialty mental health care suggests a high benefit-to-cost ratio might result from improving access to such care.

The study underscores the need for the routine use of standardized mental health screening tools such as the SAC by child welfare and juvenile justice case managers who function as gateway providers of specialty mental health care for children receiving in-home services. Although these children use mental health services at a high rate during their lifetimes, a much lower proportion of the children receive specialty mental health care when they need it most, at the time they are referred to the child welfare and juvenile justice system. Given the association between specialty mental health care and the reduced probability of out-of-home placement reported here, more work is needed to better understand how child welfare and juvenile justice systems can become successful gateway providers of specialty mental health care.

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