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A national study of the impact of outpatient mental health services for children in long-term foster care

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Abstract

Despite the tremendous mental health need evidenced by children in foster care and high rates of use of mental health services among children in foster care, little is known about the impact of outpatient mental health services on the behavioral health of this population. This study utilizes data from the National Survey of Child and Adolescent Well-being (NSCAW), the first nationally representative study of child welfare in the United States. A subsample of 439 children who have experienced long-term foster care were included in this study. These data were used to estimate the impact of outpatient mental health services on the externalizing and internalizing behavior problems of children in long-term foster care. A propensity score matching model was employed to produce a robust estimate of the treatment effect. Results indicate that children who have experienced long-term foster care do not benefit from the receipt of outpatient mental health services. Study results are discussed in the context of earlier research on the quality of mental health services for children in foster care.

Keywords

behavior problems, foster care, outpatient mental health services

Introduction

Children in foster care manifest notably higher rates of behavioral problems (Burns et al., 2004) and greater use of mental health services as compared to youth in the general population (Farmer et al., 2001; Halfon, Berkowitz, & Klee, 1992; Harman, Childs, & Kelleher, 2000; James, Landsverk, Slymen, & Leslie, 2004). However, little is known about the actual impact of the mental health service provision for the population children of in out-of-home care. As multiple factors

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other than mental health treatment have been linked to the behavioral health of children in foster care, measuring the unique impact of mental health services can be challenging. Consequently, this study aims to isolate the impact of outpatient mental health services from these factors and offer an estimate of the effect of providing outpatient mental health services to children in foster care. To do so, this study utilizes data from the National Survey of Child and Adolescent Well-being (NSCAW), the first nationally representative study of child welfare in the United States. Please note that in this study we use the terms foster care and out-of-home care interchangeably.

Background and significance

Mental health need, service use, and quality

As many as 80 percent of youth with active child welfare cases present with behavioral or emotional disorders, developmental delays, and other health and mental health problems (Farmer et al., 2001; Leslie, Gordon et al., 2005; Taussig, 2002). Nationally representative studies have identified that 47.9 percent of child welfare involved youth score in the clinical range on the Child Behavior Check List (CBCL) (Achenbach, 1991; Burns et al., 2004). Maltreated youth involved in the child welfare system are 2.5 times more likely to have a mental health need as compared to children in the general population (Burns et al., 2004).

The rate of service use for this population further underscores their high level of need. Children in out-of-home foster care utilize mental health services at a rate five to eight times greater than children who live in poverty (Administration for Children and Families, 2005; Landsverk et al., 2002; Leslie, Hurlburt et al., 2005; Stahmer et al., 2005). Moreover, children in foster care are more likely to receive mental health services than youth with child welfare contact who remain at home (Burns et al., 2004; Farmer et al., 2001; Garland, Landsverk, Hough, & Ellis- MacLeod, 1996; Harman et al., 2000). The child welfare system has been characterized as a gateway to mental health services (Stiffman, Pescosolido, & Cabassa, 2004) and entry into foster care appears to represent one of the largest keys to that gateway.

Despite the high need and the high rates of service use, little is actually known about the impact of these services on children's behavioral health outcomes. Studies of outpatient child mental health services in child welfare reveal that the intensity and quality of services provided to children in foster care varies widely (McKay et al., 2004). Unfortunately, " … there is little empirical basis for the notion that a higher frequency of services invariably translates into improved outcome" (James et al., 2004, p. 137). Coordination of care studies suggest that increased use of formal child mental health treatment does not translate into fewer behavioral or emotional difficulties (Bickman, Lambert, Andrade, & Penaloza, 2000; Bickman, Summerfelt, & Noser, 1997; Bickman et al., 1995). Furthermore, formal mental health services may not always be needed for children in foster care in spite of high rates of clinical need. For instance, many children with substantial mental health difficulties who do not receive services, both inside and outside of foster care, often improve without treatment (Burns et al., 2004; Lambert & Bickman, 2004).

Factors linked to mental health services and behavior health

A host of factors, including child maltreatment, sociodemographic characteristics, placement stability, and placement type, have been frequently linked to both children's behavioral health and use of mental health services. We briefly explore each of these factors.

Maltreatment. The experience of maltreatment can lead to a host of mental health concerns for youth (Ciccheti & Toth, 2004; Kaplow & Widom, 2007; Leslie, Gordon, et al., 2005; Springer, Sheridan, Kuo, & Carnes, 2007), and maltreatment is sometimes conceptualized as an indicator of mental health service need in and of itself (McMillen et al., 2004). Not surprisingly, research has linked more severe abuse to greater levels of emotional and behavioral problems among children (Blumberg, Landsverk, Ellis-McLeod, Ganger, & Culver, 1996; Burns et al., 2004; Garland et al., 1996). Certain types of maltreatment, such as physical and sexual abuse, have also been associated with a greater mental health service use (Garland et al., 1996; Leslie, Hurlburt, Landsverk, Barth, & Slymen, 2004). However, this association may not reflect an actual increase in mental health need related to these forms of maltreatment (Lambert & Bickman, 2004). Rather, mental health service use may reflect the perception that certain forms of maltreatment, such as physical and sexual abuse, result in relatively more harm than other forms of maltreatment (Garland et al., 1996). If caseworkers and caregivers perceive certain forms of abuse to be more harmful by nature, then children who have a history may be more likely to be referred to mental health services regardless of clinical need.

Sociodemographics. The sociodemographic characteristics associated with differences in mental health status among children involved in the child welfare system include gender, age, and low income (Armsden, Pecora, Payne, & Szatkiewicz, 2000; Burns et al., 2004; Burns et al., 1995; Stein, Evans, Mazumdar, & Rae-Grant, 1996). For example, older children frequently display greater mental health need than young children (e.g. Administration for Children & Families, 2005; Burns et al., 2004; Leslie et al., 2004; Raghavan, et al., 2005). Background characteristics such as child gender, having a parent with a criminal history, and low income have been found to be stronger predictors of mental health need than entry into out-of-home care (Stein et al., 1996). Some of these sociodemographic characteristics have also been linked to access to care. For example, a number of studies provide evidence of racial/ethnic disparities in use of mental health services (e.g. Garland, Landsverk, & Lau, 2003).

Caregivers and caseworkers. Arguably two of the most important adults for children in foster care are foster caregivers and foster care caseworkers. Foster caregivers and caseworkers can, and do, intervene when children are struggling with behavioral problems (Leathers et al., 2009; Rhodes, Orme, & Buehler, 2001). These adults do not provide specialized mental health services, but do facilitate access to mental health care (Brannan, Heflinger, & Foster, 2003). For example, if a caseworker accurately detects that a child is in need of mental health services, that caseworker is more likely to serve as a gateway provider and facilitate mental health services for the child (Carise & Gurel, 2003; Stiffman, Pescosolido, & Cabassa, 2004).

For children in out-of-home care, stability has also been consistently associated with children's behavioral health. Children who have behavioral problems, particularly externalizing behavior difficulties, are more likely to experience placement disruptions. Likewise, placement disruptions can lead to increased emotional and behavioral symptoms among youth not previously exhibiting such problems (e.g., Newton, Litrownik, & Landsverk, 2000),

The type of out-of-home care a child experiences can also have an impact on both need for and use of mental health services. For example, children who are placed with kinship caregivers use fewer mental health services (James et al., 2004; Leslie et al., 2000). However, it is difficult to say if this relationship between kin placement and relatively low service utilization is due to less need for mental health services, or differences in help-seeking by kin versus non-kin caregivers. Kin

caregivers in the United States tend to be less educated (Cuddeback, 2004), and caregiver education is linked to increased service use (Zima, Bussing, Yang, & Belin, 2000). Also, children in kin placements experience more stability and fewer placements. Given that placement disruption has been consistently linked to children's behavior problems (Cuddeback, 2004; Newton et al., 2000), children in kinship care are likely to have less mental health need compared to children in non-kinship placements.

Isolating the impact of outpatient service use

One challenge related to isolating the impact of outpatient mental health services for children who have experienced long-term foster care are the multitude of factors described above that can relate to both need for and access to service. The purpose of this study is to explicitly account for these important confounding factors and produce an estimate of the effect of outpatient mental health services on the behavioral health of children in long-term foster care in the United States. To do so we employ propensity score matching, an analog to a randomized controlled trial using observational data, to estimate this effect.

Methods

Sample

Data for this study were drawn from the long-term foster care subsample of the National Survey of Child and Adolescent Well-being (NSCAW). The NSCAW sample of children was selected using a two-stage combined stratification and cluster design. In the first stage, the US was divided into nine strata. The majority of children served by the US child welfare system reside in eight states, which constituted the first eight strata. The ninth and final stratum consisted of the remaining 42 states and the District of Columbia. Within each stratum individual areas served by a single Child Protective Service (CPS) agency constituted the primary sampling units (PSUs). The PSU sampling frame included all service areas with approximately 60 or more cases per year. The smaller service areas that were not included in the sampling frame constituted about 3 percent of all cases nationally. One hundred PSUs were randomly selected from each stratum using a probability-proportionate-to-size procedure. Of the 100 PSUs selected, eight were considered ineligible because they were in states requiring first contact with the target child's caregiver to be made by a CPS worker, rather than an NSCAW field representative.

The NSCAW data include a subsample of children who experienced long-term foster care. The primary study eligibility requirements for the long-term foster care sample were: (1) out-of-home care for approximately 12 months at the time of sampling; (2) placement into out-of-home care preceded by an investigation of child maltreatment or a period of in-home services; and (3) out-of-home care at the time the sampling frame was produced. Only one child per household was included in the frame for sample selection. Eligible children were randomly sampled from children placed into care between July 1998 and February 1999. Therefore, children in this study had been in care somewhere between 8 and 18 months at sampling. This final sample was weighted, and these weights reflect both the probability of the PSU and the child's selection. Data for this study include the first three waves of the study collected at baseline, as well as at the 9-month and 18-month follow-ups.

Not all of the 727 children in the long-term foster care sample of the NSCAW were included in the present study. Children under the age of 2 were excluded from the sample because of the lack of an appropriate measure of behavior problems for very young children. Also dropped from

analyses were children who were no longer in foster care at the time that the baseline data were collected. Among children in out-of-home care, those who are placed in group care or other residential treatment centers generally have the highest rates of behavior problems (Administration for Children & Families, 2005). Typically, these placements are highly structured in nature and often utilize a number of behavioral interventions within the care setting. Because of the unique nature of these placements that integrate mental health services, and the particularly high rate of need among these children, youth in group care were also excluded from this study.

Measures

Outcomes. The outcomes for this study included externalizing and internalizing behavior problems as measured using Achenbach's (1991) Child Behavior Checklist (CBCL) at 18-month follow-up. The CBCL was completed by the child's current caregiver. The CBCL has been used frequently throughout research on similar populations in both foster care and mental health studies, with well established reliability and validity (Leslie et al., 2000; Noser & Bickman, 2000). The standardized scores of the CBCL measured at baseline were also used to control for existing behavior problems.

Treatment. Use of mental health services was measured using an adapted version of the Child and Adolescent Services Assessment (CASA), which appears to have good concurrent validity for outpatient services (K = .81) when compared to administrative reports of service use (Ascher, Farmer, Burns, & Angold, 1996; Farmer, Angold, Burns, & Costello, 1994). The CASA captures service use across 31 settings, including outpatient mental health services. Outpatient mental health services included day or partial hospitalization, outpatient drug or alcohol clinics, mental health centers, community health centers, crisis centers, and private professional treatment. The current study utilized caregiver reports of service use. Children whose caregivers reported three or more outpatient mental health service visits were considered to have used outpatient mental health services.

Covariates. Covariates measured at baseline and used in this study included: (1) baseline behavioral problems; (2) caseworker's perceived need for care; (3) sociodemographic characteristics; (4) foster caregiver's report of their educational level; (4) maltreatment harm/severity; (5) placement type (kin or non-kin care); (6) the number of days that the child had been living in his or her current placement as reported by the caregiver as a proxy for placement stability; and (7) type of maltreatment.

Children's sociodemographic variables for the analyses included the child's race/ethnicity, gender, and age. These variables were derived from administrative data, caregiver and child self-reports. As a proxy measure for poverty, the current study utilized caregivers' reports of current household receipt of government assistance, including WIC (Women, Infants, and Children), TANF (Temporary Assistance for Needy Families), or food stamps.

Caseworkers reported the type of maltreatment experienced by the child using a modified version of the Maltreatment Classification Scale (Manly, Cicchetti, & Barnett, 1994). The most severe form of maltreatment reported was used in this study and collapsed into four categories: sexual abuse; physical abuse; neglect; and other forms of maltreatment. The caseworker's perception of the degree of harm experienced by the child as a result of maltreatment was employed as a measure of the severity of the children's maltreatment experience. Caseworkers responded to the following question, "Regardless of the outcome of the investigation, how would you describe the level of harm to [the child]?" and rated the severity on a scale ranging from 1 "None" to 4 "Severe".

Analyses

Analyses for the current study utilized Stata Statistical Software Release 10 (StataCorp, 2007). Stata's survey commands accounted for the NSCAW's sampling and weighting strategy. Multiple imputation (MI) was employed in the current study to address missing data. In simulation studies, MI generally outperforms other approaches, such as listwise deletion and setting missing values to the mean, each of which can lead to bias and false identification significant differences (Croy & Novins, 2005). The MI technique was developed based on the seminal work of Rubin (1987) (for a recent and accessible discussion regarding the use of multiple imputation and other methods for missing variables see work by Croy & Novins, 2005).

MI is performed by creating multiple databases based on observed values. In the current study five fully imputed databases were created. Analyses were performed separately in each imputed dataset, and the final point estimates reported in the results are a statistical average of the results of analyses carried out with each of the datasets individually. Standard errors are calculated using an (Analysis of Variance) ANOVA-like formula that accounts for both sampling variation within modeled datasets as well as variability among datasets that reflects the models' uncertainty. The current study utilized Royston's (2004) MICE (multiple imputation by chained equations) procedure to impute each of the datasets. This procedure employs switching regression, an iterative multivariable regression technique. UVIS (univariate imputation sampling) is called multiple times by MICE to impute missing values for each specified variable based on a multiple regression model using specified predictors. Micombine commands are then used to produce model estimates incorporating the ANOVA-like procedure to produce reasonable standard errors.

The variables with the most missing data included number of mental health outpatient visits (20.73%), caseworkers' assessment of whether or not the child needed mental health services (8.66%) and the caseworkers' assessment of the level of harm from maltreatment experienced by the child (8.66%). All variables included in the analysis with missing data were imputed.

We used a propensity score matching technique to estimate the effect of outpatient mental health services on internalizing and externalizing problems at 18-month follow-up. Propensity scores are used to produce an estimate of the effect of a treatment by creating a comparison group matched on potentially confounding covariates. These covariates must either be measured before the treatment, or arguably be unaffected by the treatment. In this study, the treatment is the receipt of outpatient mental health services. The first step of analysis included the use of baseline covariates to create balanced groups that are highly similar on all variables except in that the treatment group received outpatient mental health services and the comparison group did not.

Stata's psmatch2 command was used to create the balanced groups. If good balance is achieved on all covariates, then any differences between the two groups can arguably be attributed to the effect of treatment. Balance was first achieved by using the first implicate to construct an optimal model. Multiple propensity score models were tested for balance before the final model, which evidenced the best overall balance, was used to estimate the treatment effect. The final propensity score matching model was applied to each of the implicates and weights were created in each to reflect the number of times each observation was matched in the final model using Stata's micombine command. We addressed further remaining imbalance between matched groups by using additional covariance adjustment to produce the estimated treatment effect in the final model.

Results

The unweighted sample characteristics of the children included in this study are presented in Table 1. Although the mean behavioral problems score on the CBCL falls below the clinical level for this

Table 1. Unweighted sample characteristics (n = 439)

	n	Percent or mean	SE or *SD*
Treatment			
*Outpatient Mental Health Use	114	.26	.03
Baseline Covariates			
*Externalizing CBCL Scores Baseline		57.40	1.21
*Internalizing CBCL Score Baseline		54.03	1.37
*Caseworker Perceived Need for Care	246	.56	.03
Sociodemographic Characteristics			
Child Age		7.62	.27
Child Gender (Male = 1)	228	.52	.05
Child Race/Ethnicity			
Black	180	.41	.05
White	154	.35	.05
Hispanic	75	.17	.03
Other	31	.07	.05
*Government Support	171	.39	.03
Maltreatment			
Physical Abuse	26	.06	.01
Sexual Abuse	31	.07	.02
Neglect	250	.57	.04
Other	132	.30	.03
Level of Harm		3.20	.08
Foster Care			
Kin Care	162	.37	.04
Days in Current Placement		597.63	48.29
*Caregiver High School Education	373	.85	.03

Note: * For those values with missing data where multiple imputation was employed, the number of children in each category is an estimate derived from the model predicted percentage.

sample, caseworkers indicated that they believed that over half of the children are in need of mental health services. However, only about a quarter of the children received outpatient mental health services over the course of the 18 months of the study.

The balance statistics for the propensity score matching model are presented in Table 2. The "unmatched" means and percentages presented in this table represent the characteristics of the sample when those who have received outpatient mental health services are simply compared to those who have not received outpatient mental health services without matching. For example, before matching, children who received outpatient mental health services had a mean baseline externalizing problems CBCL score of 60.55 and those children who did not receive services had a mean score of 57.26. After matching the groups using the propensity scores, the groups are more similar with scores of 60.55 versus 59.37 respectively. In some cases balance was greatly improved for the covariates including the caseworker's perception of need, sexual abuse history, and days in current placement. Overall, good balance was achieved in most of the covariates. Only the "other maltreatment" (i.e., children who suffered maltreatment that could not be classified as physical abuse, sexual abuse, or neglect) covariate approached a statistically significant difference between the treatment and control group.

Table 3 presents the final propensity score model estimate with additional covariance adjustment. Use of outpatient mental health services had no statistically significant impact on either externalizing or internalizing behavior problems. The only covariate that was statistically

Table 2. Propensity score matching balance statistics (n = 120 treatment, n = 92 comparison)

Covariate	Percent or Mean		Covariate	Percent or Mean	
	Treated	Control		Treated	Control
Externalizing Problems			Physical Abuse		
Unmatched	60.55	57.26	Unmatched	.13	.14
Matched	60.55	59.37	Matched	.13	.12
Internalizing Problem			Sexual Abuse		
Unmatched	57.47	54.36	Unmatched	.11	.04
Matched	57.47	55.59	Matched	.11	.12
Caseworker Perceived Need			Neglect		
Unmatched	.64	.51	Unmatched	.46	.55
Matched	.64	.64	Matched	.46	.56
Age			*Other Maltreatment		
Unmatched	8.46	7.16	Unmatched	.31	.27
Matched	8.46	9.16	Matched	.31	.21
Male			Level of Harm		
Unmatched	.49	.51	Unmatched	3.16	3.24
Matched	.49	.41	Matched	3.16	3.23
Black			Days in Current Placement		
Unmatched	.43	.46	Unmatched	512.60	540.94
Matched	.43	.42	Matched	512.60	527.70
Hispanic			Kin Caregiver		
Unmatched	.18	.16	Unmatched	.33	.33
Matched	.18	.11	Matched	.33	.29
Other			Caregiver High School Education		
Unmatched	.43	.46	Unmatched	.85	.86
Matched	.43	.42	Matched	.85	.85
White			Caregiver Income Support		
Unmatched	.32	.32	Unmatched	.38	.46
Matched	.32	.39	Matched	.38	.42

Note: *Nearing statistical significance $p \leq .10$.

significant in the model despite the balance between the two groups was the baseline externalizing and internalizing standardized scores for the externalizing and internalizing models respectively. Each of the baseline scores were significant at the $p < = .000$ level in predicting outcomes at 18-month follow-up.

Discussion and conclusion

The findings of this study suggest that outpatient mental health services provided to children who have experienced long-term foster care in the United States do not result in any improvement in children's behavioral health. In reality, little is known about the type and quality of mental health services child welfare involved youth receive nationwide. The few studies that do exist suggest that children are not receiving outpatient mental health services proven to be effective in reducing children's behavior problems (Kolko, 2006; McKay et al., 2004). Instead, youth frequently receive untested treatments with questionable effectiveness. Unfortunately, this issue pervades not only in child welfare and foster care, but across the larger child and adolescent mental health system as

Table 3. Effect of outpatient mental health on behaviour problems at 18-month follow-up propensity score matching model estimate with covariance adjustment ($n = 12$)

	Externalizing		Internalizing	
	b	SE	b	SE
Treatment	2.85	2.25	1.87	1.93
Outpatient Mental Health Use				
Baseline Covariates				
Externalizing CBCL Scores Baseline	.51***	.09	−.05	.12
Internalizing CBCL Score Baseline	.00	.09	.52***	.11
Caseworker Perceived Need for Care	.17	1.95	2.79	2.24
Child Black	.15	3.18	1.50	3.20
Child Hispanic	−1.42	3.48	−1.60	3.83
Child White	2.18	3.34	3.02	3.65
Child Gender (Male = 1)	−1.42	1.68	−1.12	1.82
Child Age	.24	.22	−.08	.28
Government Support	.34	2.01	−1.12	2.74
Caregiver High School Education	1.87	2.33	1.63	2.62
Maltreatment Harm	−.60	1.00	−.06	1.23
Kin Care	−2.23	1.71	−2.58	1.84
Days in Current Placement	.00	.00	.00	.00
Physical Abuse	4.67	2.88	1.49	3.45
Sexual Abuse	-.01	3.69	3.13	4.27
Neglect	2.44	2.34	2.90	2.77
Constant	24.40	8.42	21.71	9.05

Notes: Child other race/ethnicity and other form of maltreatment are the reference groups. *** $p < = .001$ level.

well. Despite an increasing number of evidence-based interventions with demonstrated efficacy in reducing behavioral problems among child welfare populations, many of these interventions have not been widely implemented in practice (Burns, 2003; Garland, Hawley, Brookman-Frazee, & Hurlburt, 2008; Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001; Kazdin, 2004). Given the tremendous mental health need of foster children and the volume of services purchased by the child welfare agencies, current policy and practice efforts must focus on ensuring that child welfare involved youth have access to effective mental health interventions.

The strengths of this study include the use of a nationally representative sample of children who have experienced long-term foster care. We also made a systematic effort to parse out the effect of receiving outpatient mental health services from key confounding covariates by using propensity score matching. Propensity score matching is a useful method for estimating the impact of services, like outpatient mental health use, which cannot be easily tested through randomized controlled trials. The model is preferable over traditional regression analyses because it provides an opportunity to critically examine and improve the comparability of the treatment and control groups by using diagnostic statistics before estimating the treatment effect. It is also relatively robust in estimating treatment effects even when the propensity score matching model is misspecified (Drake, 1993).

Limitations for the current study are also acknowledged. If the matched groups differ from one another on important covariates, then the assumptions that underlie the propensity score matching technique may be compromised. The two groups should be arguably equal with the exception of one factor: whether or not they received the outpatient mental health services. Using the balance

statistics as a diagnostic tool, there may have been a balance problem on the type of maltreatment. The difference between the treatment and control groups neared statistical significance on this covariate. The children who received outpatient treatment were more likely to have experienced some form of maltreatment that could not be classified as physical abuse, sexual abuse, or neglect. Some examples of these other forms of maltreatment include emotional maltreatment and exploitation. Despite some imbalance, overall, relatively good balance on key covariates that have consistently been linked to children's use of mental health services and behavioral health outcomes was achieved in this study including baseline behavioral health and placement stability. In addition, the use of additional covariance adjustment further addresses any remaining imbalance between the treatment and control groups.

As with many large scale datasets, there is often a trade off between the breadth and the depth of measures that are collected. In this case there are no measures of certain key indicators related to the quality and duration of service use. Some children may access high quality outpatient services, while others do not. Similarly we cannot pinpoint the exact timing of the outpatient mental health treatment across the 18 months of the study. Some children may have begun service use sometime between baseline and follow-up, while others were continuing ongoing service use. Still others may have ended and begun service in the same time frame. However, by defining treatment as having at least three outpatient mental health visits, we have some protection against including children who have only just begun outpatient mental health services, or had only a single visit.

Limitations not withstanding, the current study does provide evidence that children in long-term foster care are not receiving adequate mental health prevention and intervention services. As previous studies have demonstrated, children in long-term foster care have greater mental health service needs, and greater mental health service utilization (Burns et al., 2004; Farmer et al., 2001; Halfon, Berkowitz, & Klee, 1992; Harman, Childs, & Kelleher, 2000; James, Landsverk, Slymen, & Leslie, 2004) than children in the general population. Yet, the quality of these services has been frequently documented as ineffective. This may be due to various mental health service delivery problems, ranging from poor client engagement to lax intervention fidelity (Kolko, 2006; McKay et al., 2004). Future research regarding outpatient mental health service use among children in out-of-home care would be strengthened by the inclusion of more detailed information regarding the timing and nature of service use. In particular, research is needed to guide the implementation and maintenance of high quality mental health services for children in foster care. As evidence-based interventions increasingly permeate throughout the mental health system, special attention should be paid to the effectiveness of treatments for children in out-of-home care as these children represent one of the largest and most vulnerable populations served by the mental health care system.

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