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Predictors of Outpatient Mental Health Service Use—The Role of Foster Care Placement Change

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Abstract

This study examined the relationship between placement change and outpatient mental health service use. It is based on (1) conceptual propositions about the impact of the foster care living context on mental health service use, and (2) empirical knowledge about the adverse consequences of placement change. Results of the study, which were based on a cohort of 570 children in foster care in San Diego County, suggest an association between placement changes in child welfare and use of outpatient mental health services. Specifically, an increase in the number of placement changes predicted a greater rate of outpatient mental health visits. The study further found that children who experienced behavior-related placement changes received more outpatient mental health visits than children who experienced placement changes for other reasons. Follow-up analyses of the 144 children who experienced any behavior-related placement changes further indicated that the rate of outpatient mental health service use almost doubled in the 90 days following the first behavior-related placement change. Findings from this study have implications for the practice, policy and research fields in child welfare as well as mental health.

Keywords

foster care; placement change; mental health services; pathways to mental health services

Children and adolescents in out-of-home care are a population at high risk for a range of adverse mental health outcomes. Research during the last two decades has consistently established that foster children exhibit significantly higher rates of mental health problems than children in community samples (for conceptual and summary reviews of the empirical literature on children's mental health needs see Combs-Orme, Chernoff, & Kager, 1991; Dore, 1999; Heflinger, Simpkins, & Combs-Orme, 2000; Landsverk & Garland, 1999; Landsverk, Garland, & Leslie, 2002; Pilowsky, 1995; Rosenfeld, Wasserman, & Pilowsky, 1998; Schneiderman, Connors, Fribourg, Gries, & Gonzales, 1998; Simms, Dubowitz, & Szilagyi, 2000; Simms & Halfon, 1994). Histories of abuse and neglect, backgrounds of general family dysfunction, parental substance abuse and poverty (e.g., Rosenfeld et al., 1998) coupled with the potential trauma associated with removal from home are all believed to contribute to foster children's high-risk status (Landsverk & Garland, 1999). There is some evidence that aspects of the placement experience itself, such as frequent placement changes, might also adversely affect outcome (Newton, Litrownik, & Landsverk, 2000; Webster, Barth, & Needell, 2000).

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Although the significant needs of children in foster care are not in question, how to best address them continues to be a matter of debate. The child welfare system has traditionally relied on the curative powers of the foster home and on the abilities of foster parents to provide a therapeutic experience for children in their care. There is, however, growing recognition that most foster placements are not equipped to deal with the emotional and behavioral problems present in many children in foster care today and that additional mental health services are needed to assess and ameliorate these problems (Landsverk et al., 2002). Such services have been for the most part provided through linkages to mental health and other agencies outside of the child welfare system.

Mental Health Service Use Among Foster Children

Mental health services for behaviorally and emotionally disturbed children and their families or caretakers have long been described as inadequate, fragmented, and uncoordinated (e.g., Knitzer, 1982; Saxe, Cross, & Silverman, 1988; Tuma, 1989). However, empirical studies of mental health service use have somewhat unexpectedly demonstrated that foster children of all ages are among the highest users of mental health services, with rates as high as 70% for children over the age of 7 (Bilaver, Jaudes, Koepke, & Goerge, 1999; Garland, Landsverk, Hough, & Ellis-MacLeod, 1996; Halfon, Berkowitz, & Klee, 1992a, 1992b; Harman, Childs, & Kelleher, 2000; Landsverk, Litrownik, Newton, Ganger, & Remmer, 1996; Takayama, Bergman, & Connell, 1994). Such findings have suggested that the child welfare system and the mental health system are more strongly linked than commonly thought, and that entry into foster care might serve as a pathway to mental health services for children. Nonetheless, significant levels of unmet need continue to be documented, and agencies and providers planning services for these children have little or no information about which children are in greatest need of services or what types of services might be most appropriate given the need (Landsverk et al., under review; Risley-Curtiss, Combs-Orme, Chernoff, & Heisler, 1996).

In order to better understand pathways into mental health services (Rogler & Cortes, 1993), recent foster care mental health services research has focused on examining predictors of service use. The few studies in this area have indicated that a variety of factors predict mental health service use ranging from children's nonclinical characteristics (age, race/ethnicity, type of maltreatment), and clinical characteristics (degree of behavioral disturbance) to system characteristics and placement-related factors (Garland et al., 1996, 2000; Landsverk et al., 2002; Leslie et al., 2000).

Current conceptual frameworks of mental health service delivery to children in foster care, which built on Aday and Andersen's (1974) as well as Pescosolido's (1991, 1992) work, have emphasized the need to take into account the impact of the "placement/living environment in which the youth resides while involved in child welfare" (Landsverk et al., under review, p. 19). This includes understanding how changes in the child's placement environment might affect mental health service use. The relationship between placement change and mental health service use is of particular interest to the child welfare as well as the mental health service system, from a service delivery as well as research standpoint. Some characteristics that have been associated with mental health service use, such as a child's race or ethnicity, gender or age are immutable (Andersen, 1995), but placement-related factors that impede or enhance mental health service use can theoretically be altered and thus constitute appropriate targets for change in the effort of improving service delivery to foster children.

Placement Change in Foster Care

Placement changes are particularly critical to examine given their disruptive nature and potentially negative impact on a child's emotional development. Concerns about the adverse effects of placement instability are supported by findings from empirical studies which have

reported that a greater number of placement changes is associated with adverse permanency as well as child-level outcomes, ranging from delayed reunifications (Landsverk, Davis, Ganger, Newton, & Johnson, 1996) to higher levels of behavioral disturbance (e.g., Cooper, Peterson, & Meier, 1987; Newton et al., 2000; Pardeck, 1984) and diminished ability to build attachments and stable relationships (Goldstein, Freud, & Solnit, 1973; Penzerro & Lein, 1995). It is also believed that children who experience volatility in their pathway through care will place great demands on the service system, eventually requiring the most intensive and expensive forms of care and being at higher risk for entering other service systems, such as the juvenile justice and mental health system, and later on, adult service systems (e.g., Blankertz, Cnaan, & Freedman, 1993; Susser, Lin, Conover, & Streuning, 1991). The first longitudinal study of placement stability further indicated that placement changes occurring early in children's placement careers put them on a trajectory toward increasing instability (Webster et al., 2000). Findings on the negative impact of placement change on short- and long-term foster care outcome underscore the importance of addressing placement change, both before it occurs as well as once it has occurred.

The current study aims to contribute to the growing body of literature investigating pathways into mental health services for children in foster care with a particular focus on the link between placement change and mental health service use. The study further examines whether variations in mental health service use are not only explained by the number of placement changes, but also by the reason for the placement change. There have been efforts in the past to conceptually distinguish between different types of placement changes (Proch & Taber, 1985). Thus, placement changes that are initiated by the child welfare system to implement policy—moves from detention to long-term facilities, mandated stepping-down from highly restrictive to less restrictive settings, placement moves to be with siblings or other relatives—may in fact be desirable, and may be qualitatively different from placement changes that are precipitated by a child's behavior problems. An empirical investigation of reasons for placement changes found that the risk of behavior-related moves increased with older age, externalizing behaviors and emotional abuse. The hazard was lower for children who spent more days in kinship care. Having numerous system- or policy-related moves did not increase the risk of behavior-related changes (James, in press). Given the disruptive nature of behavior-related placement changes, it would be expected that such placement changes elicit a different response from the mental health service system than placement changes that are not.

The research presented here addresses two main questions: (1) Is there a relationship between the number of placement changes and the number of outpatient mental health visits? (2) Is there a relationship between behavior-related placement change and the number of outpatient mental health visits? In a follow-up analysis to question 2, the study further explores the temporal relationship between behavior-related placement change and mental health services.

METHODS

Study Participants

Participants for the study were drawn from a cohort of 1,084 children between the ages of 0–16 years of age who entered foster care in San Diego County between May 1990 and October 1991, and had been enrolled into a funded longitudinal study of children in foster care (Foster Care Mental Health [FCMH] Study). Inclusion criteria for the original study specified that children: (1) had remained in placement for at least 5 months; (2) were placed in San Diego County; and (3) had Department of Social Services data available.[6] For the current analysis,

[6]The exclusion of children who had remained in placement less than 5 months was based on juvenile court stipulations, which mandated that all issues about a child's legal deposition and custody had to be resolved before data collection was permitted.

children under the age of 2 ($n = 313$) were excluded from any analyses because the measure of behavior problems used in the study is designed for children ages 2 and older. This left an eligible cohort of 771 children. Further case exclusions had to be undertaken as a result of missing behavior problems data ($n = 130$), missing mental health service use data ($n = 33$), and missing or incomplete reason for placement change data ($n = 38$), yielding a final study cohort of 570.

Chi-square and *t*-test analyses indicated that the 570 children in this study were similar to the eligible cohort of 771 children on all pertinent variables except for number of placement changes ($t = -2.77$; $df = 769$; $p < .01$). Children who were not included in the final study cohort had a greater number of placement changes (mean = 3.38, $SD = 2.51$ vs. mean = 2.87, $SD = 2.15$). Discussions with personnel involved in the original FCMH study revealed that children with frequent placement changes were hard to track, and tended to never stay long enough in a placement for a caretaker to provide reliable behavior problems data. Unfortunately, such data could not be imputed using other clinical indicators since clinical data for these children were missing altogether. The implications of this exclusion will be discussed in the discussion section of this paper.

Table 1 presents the characteristics of the final study cohort of 570 children. The majority of children in the cohort were female (54.4%) and non-White (20.4% were of Hispanic descent, 28.4% were African American, and another 6% were of other racial/ethnic origin). Children were on average 7.3 years old ($SD = 3.9$) when entering this out-of-home care episode, ranging in age from 2 to 16.

Information on maltreatment type was based on case record abstraction. Data presented here reflect the substantiated maltreatment condition that resulted in the child's removal from their home and do not necessarily describe a child's comprehensive history of maltreatment. To capture children who entered care due to multiple types of maltreatment, separate indicators for each maltreatment type category are used in this analysis. The majority of children entered this episode in out-of-home care due to neglect (65.1%) or caretaker absence (46.1%). Other maltreatment types that were cited as reasons for entry included sexual abuse (15.4%), physical abuse (26.1%), emotional abuse (14.4%), and protective reasons (17.9%).

The total behavior score on the Child Behavior Checklist (parallel CBCL versions 2–3 and 4–18; Achenbach, 1991) provided an indicator of behavioral functioning. The CBCL was administered to foster caregivers on average 7.5 months after entry into care (mean = 233 days; $SD = 88.7$). The borderline cut-point (*T*-score = 60) was used to distinguish between problematic and nonproblematic scores. Achenbach (1991) generally recommends the use of raw scores for research purposes; however, given the considerable age heterogeneity of this cohort, the use of *T*-scores is preferred, permitting grouping of subjects who had used different versions of the CBCL. About half of the children (50.4%) scored in the problematic range for total behavior problems.

For almost three quarters of the children (71.2%) this was the first time in out-of-home care. Children in this cohort spent on average 485 days ($SD = 109.2$) out of the 18-month study period in out-of-home care, ranging from 140 days to the full 18 months. [7] During the 18-month study period, 263 (46.1%) children were placed at least once with a relative. Placement history data indicates that this group of children stayed in altogether 2,217 placements with an average of 3.5 ($SD = 2.0$) placement changes (standardized figure to account for varying lengths of stay in care over the 18-month study period). [8] A placement was defined as any out-of-home

[7] Actual days in out-of-home care excluded time spent outside of out-of-home care due to AWOLs, abductions, reunifications with original caretakers or adoptions.

care facility in which a child spent at least one night. About 25% of the children experienced at least one placement change that was related to problems in their psychosocial functioning (for a detailed description on the methodology used to obtain reason for placement change, refer to James, in press).

Mental Health Service Use Data

This study used Medicaid claims data to obtain a count of outpatient mental health visits. Since all foster children in California are categorically eligible for services through Medicaid, this methodology offers the most objective and reliable way of obtaining data on mental health service use. Claims data provide exact dating for placements and placement changes, which facilitate temporal investigation of events. Interview data (as used in Garland et al., 1996) have the advantage of capturing services that might not be covered through Medicaid but recall issues and changes in caregivers confound the reliability of such data.

Counts of outpatient mental health service use were obtained from mental health claims data, which were linked to children's Department of Social Services [DSS] records by social security number or DSS case numbers. Mental health services for children served in the public sector in California are funded either through federally matched Medicaid funds or through additional funds, termed Short-Doyle funds. To obtain these data, three databases were accessed: (1) Medicaid fee-for-service mental health data were obtained through the Health Care Financing Administration's (HCFA) Management of Information System (MIS) for the years 1990, 1991, and 1992; (2) San Diego County Mental Health Services provided a data file of Medicaid fee-for-service mental health services for the year 1993. Medicaid data for 1993 were not available through HCFA at the time initial analyses of these mental health service use data were undertaken (see Leslie et al., 2000); (3) Services funded through California's Short-Doyle or combined Short-Doyle/Medicaid mechanisms were obtained through the San Diego Mental Health MIS system. All data records yielded basic client demographic information, date of service, type of service, as well as associated diagnoses.

Expanding on Leslie et al.'s (2000) prior work on outpatient mental health service use, the following coding scheme was used to identify a mental health visit: (1) any mental health service provided through Medicaid funding; (2) the primary diagnosis was coded as a mental disorder according to the International Classification of Diseases—9th Revision (ICD Codes 290-314), the diagnostic instrument used in the original databases; (3) at least one of the following criteria (a–c) also had to be met: (a) the service was delivered by a mental health provider (e.g., psychiatrist or psychologist), or (b) the service was delivered in a mental health clinic, or (c) the service was coded in the mental health claims data as "psychiatric/psychological visits or group therapy sessions" or "other psychiatric/psychological services." Identical services with two claims for the same day were only counted once (this ensured that a 2-hour assessment with two claims was not counted twice). Services provided on the same day with different claims information (e.g., one visit with the psychologist, one visit with a psychiatrist) were counted as two visits.

DATA ANALYSIS

The analysis tested the relationship between placement change (number of placement changes and behavior-related placement change) and number of outpatient mental health visits adjusting for the effects of other explanatory variables which have previously been found to impact mental health service use—gender, race/ethnicity, age, maltreatment type, behavioral functioning, type of placement (Leslie et al., 2000). We further adjusted for prior episodes in

[8](Number of placements/number of days spent in out-of-home care) × 549 days [=18 months]).

out-of-home care as children who reenter care represent a highly vulnerable group (e.g., Wells & Guo, 1999). Lastly, there was a small number of children (n = 27) who had spent time in inpatient psychiatric care during the study period. Since children during such episodes can by definition not receive outpatient mental health services, the time spent in inpatient care was subtracted from the total length of stay in out-of-home care, and entered as a covariate.

Given that this is the first study investigating placement change in relation to mental health service use, the aim for this analysis was to present a model that provided an initial understanding of the relationship between the variables of interest. There were several complexities that influenced the initial formulation of the research questions and the data analytic methods chosen, which might not be readily apparent but would have undermined more complex structural analyses at this stage. For instance, while it might be theoretically possible to examine the relationship between all individual placement change events (e.g., first placement change, second placement change, etc.), there is no conceptual or empirical foundation for hypothesizing that nonbehavior-related placement changes, such as administrative placement moves, would elicit a mental health service use response. System- or policy-related moves which are generally initiated by the child welfare service system in the best interest of the child are standard for many children in out-of-home care and constituted 70% of this cohort's total number of placement changes (see James, in press, for a detailed discussion on this issue). Such an approach would further be compromised by ever diminishing power as the number of children who experience placement changes, in particular behavior-related placement changes, greatly declines with each additional placement change. Therefore, it seemed to be most appropriate to begin this area of inquiry by using the aggregate form of the independent and dependent variables (number of placement changes/behavior-related placement change and mental health services, respectively). A follow-up analysis of those children who had experienced at least one behavior-related placement change constituted an attempt to begin disentangling the temporal ordering of the variables.

The bivariate and multivariate relationships between the predictor variables, covariates, and outcome variables were tested using generalized estimating equations (GEE), fitting a Poisson regression model. The GEE methodology, which is part of the larger class of generalized linear models and was introduced by Zeger and Liang (1986), provides a method of analyzing correlated or nested data that otherwise could be modeled as a generalized linear model. Such data violate independence of observation assumptions, an assumption that most standard statistical tests heavily depend on (Heck & Thomas, 2000). GEE provides an estimation of generalized least squares and calculates correlations among observations at each iteration and thus can address issues of nested data (Allison, 2001).

For the current analysis, GEE was used to adjsut for the effects of clustering within sibling groups. Altogether, 389 sibling groups were identified with up to six siblings in a cluster. Using the GENMOD procedure of SAS version 8.0, GEE models were fitted with a Poisson distribution and a log link yielding a Poisson regression model that captured the count data of the outcome variable. Poisson regression models are appropriate when rates of events—such as the number of mental health visits—vary across observations (Allison, 2001; Long, 1997; Orme & Buehler, 2001). In this study, the length of time spent in each placement varied for each child during the 18-month study period, thus, the dependent variable—number of mental health visits—must be analyzed relative to a child's length of stay in the respective placement. Also, while some children used no services, others were heavy users, and many individuals used services that varied greatly from one visit to the maximum number of visits. Clearly, such data are not normally distributed, and using traditional general linear models could lead to biased statistical inferences. The models presented here further adjusted for varying lengths of time in care for each child and corrected for overdispersion (Allison, 2001; Long, 1997). Multivariate results (presented in Tables 3 and 4) show the robust empirical estimates that

adjust for the clustering effects of observations. Coefficients are reported as rate ratios and refer to the individual variables' rate ratios after adjusting for all covariates. Rate ratios capture the nature of the Poisson distribution and are analogous to odds ratios.

RESULTS

The 570 children in this cohort received 3,266 mental health outpatient visits over the course of the 18-month study period, with 45.6% receiving at least one visit. The average number of mental health outpatient visits, annualized to account for varying lengths of stay in out-of-home placement, was 4.2 (*SD* = 7.0), ranging from 0 to 55 visits over the 18 months. For the 311 children who received any mental health outpatient visits, the average number of visits per year was 9.3 (*SD* = 7.7).

Bivariate Analysis

Table 2 presents bivariate statistics for the number of outpatient mental health visits received, standardized to account for length of stay in out-of-home placement. Findings indicate that a greater number of placement changes was significantly associated with more outpatient mental health visits, as was behavior-related placement change. No significant difference was determined by gender. Race/ethnicity significantly predicted outpatient service use with White children receiving the highest annualized number of visits and Hispanic children receiving the lowest number. Older age of the child at entry into care was also related to higher outpatient service use, with preadolescent children receiving the highest number of visits. None of the maltreatment variables were significantly associated with outpatient service use except for caretaker absence; children who entered out-of-home care due to caretaker absence received fewer visits than children who entered because of other reasons. Behavior problems were also associated with a higher number of mental health visits with children who scored in the problematic range receiving about three to four more mental health visits per year than children who scored below 60. Previous stays in out-of-home care also predicted higher service use in the bivariate analysis. In contrast, children who spent any time in care with relatives received fewer services than those who never spent any time in kinship care.

Multivariate Analyses

The questions of interest were tested in two models since the variables "number of placement changes" and "behavior-related placement change" shared 35% of the variance, and inclusion of them in one model would have confounded findings. Model 1 tested the relationship between the number of placement changes (a continuous variable) and outpatient mental health visits adjusting for all covariates (see Table 3). Model 2 tested the relationship between behavior-related placement change (a dichotomous variable) and outpatient mental health visits (see Table 4). Table 3 shows that after adjusting for the effect of child clinical and nonclincal characteristics the mental health visit count increased by 8% with each additional placement. The strongest predictor of the number of mental health visits in Model 1 was presence of behavior problems. The rate ratio of mental health visits for a child with behavior problems in the problematic range (≥60) was more than two times higher than for a child scoring in the nonproblematic range (<60). In addition, each unit increase in age (1 year) increased the outpatient visit count by 6% after adjusting for all covariates.

Variables predicting a statistically significant lower visit rate included being female, being Hispanic, entering foster care due to caretaker absence and having spent time in kinship care. Female in foster care had an outpatient visit rate that was 24% lower than for males. Hispanic children, when compared to White children, had a 47% lower visit rate; mental health visit rates for children entering foster care due to caretaker absence were 28% lower relative to children not entering for that reason. Lastly, children who had spent time in care with kin had

visit rates that were 41% lower when compared to children who had not spent any time in kinship care. All other variables were not statistically significant.

The second model tested whether behavior-related placement change explained any variance in mental health visit rates compared to placement changes not related to behavior problems. Results indicate the number of outpatient mental health visits increased by 48% if the child had experienced at least one behavior-related placement change, even after adjusting for the child's behavior problems. Gender, which was marginally significant in the previous model, was not significant in this model. All other results paralleled those from Model 1 with only slight changes noted in rate ratios, confidence intervals and *p* values.

Impact of Behavior-Related Placement Change on Subsequent Mental Health Service Use

Given the conceptual importance of behavior-related placement changes and their statistically significant impact on outpatient mental health service use, we conducted a third analysis that tested the temporal ordering of the variables and thus represented a more sensitive approach to understanding their relationship. Specifically, we explored whether counts of outpatient mental health visits increased following the first behavior-related placement change. For this exploratory follow-up analysis, we only focused on the first behavior-related placement based on findings that have underscored the significant effect of early placement changes on later ones (Webster et al., 2000).

To explore the temporal ordering of behavior-related placement change and mental health visits, the subcohort of children who experienced behavior-related placement changes was identified ($n = 144$). On average, they had experienced their first behavior-related placement disruption about 4 months after entering out-of-home care. For 9% of the children, this was the first placement change. About 44% had already experienced one prior placement change that was not related to their behavior, 31% had experienced two placement changes, 10% three, 3% four, and another 2% had experienced as many as five prior moves that were not behavior-related.

The same analytic method was used as before—GEE with a Poisson distribution. This model required a nested approach with time being the clustering variable. We did not cluster by sibling group in this model as its effects had been negligible in the previous multivariate model and would have added complexity to this model. We further left-and right-censored the time period following the behavior-related placement event to 90 days. This was partially done to reduce the impact of potentially confounding explanatory variables, which might increase over time. The decision was further based on conceptual considerations, which purport that interventions in response to a critical event ought to be immediate (e.g., Parad & Parad, 1990). Each child had two entries—one for time 1 (up to 90 days prior to the 1st behavior-related placement change) and the second for time 2 (up to 90 days post the 1st behavior-related placement change). Adjusting for the varying number of days and placement changes pre- and post- the event as well as all other covariates that were significant in the previous regression models, it was found that the number of out-patient mental health visits significantly increased by 89% within the 90 days following the 1st behavior-related placement change (see Table 5). Children received on average one mental health visit (mean = 0.9; $SD = 2.4$) prior to this disruptive event, but received almost two visits (mean = 1.7; $SD = 2.77$) following it. Two other variables also influenced this increase—the child's race/ethnicity and behavioral functioning in the problematic range. Being Hispanic significantly reduced the rate of change in outpatient mental health service use by about 70% whereas the presence of behavior problems increased it by 94%.

DISCUSSION

For many years, children in foster care have been described as an underserved population with regard to mental health services. However, studies have established that they receive mental health services at rates far higher than children not in foster care. This study is one of the first to go beyond examining demographic or clinical characteristics in relation to mental health service use, and instead examined the relationship between a disruptive event in out-of-home care—placement change—and out-patient mental health visits.

Results of the current study indicate that a greater number of placement changes predict a greater number of outpatient mental health visits even after adjusting for other variables previously found to be predictive of outpatient mental health visits, including level of behavioral functioning. The study further found that children who experienced behavior-related placement changes had a 48% rate increase in outpatient mental health visits compared to their counterparts who changed placements due to other reasons. Findings also indicate that the child's level of behavior problems most strongly predict out-patient mental health service use.

Further analysis of a subcohort of children who had all experienced at least one behavior-related placement disruption indicated that the rate of out-patient services increased by 89% in response to the first behavior-related placement disruption even after controlling for number of placement changes pre and post. The combined findings suggest that linkages to outpatient mental health are forged in response to placement change above and beyond a child's level of behavioral functioning. This is an encouraging finding at face value that is consistent with the mission and goals of the children's mental health system of care (Stroul & Friedman, 1986).

Clinical Implications of Findings Regarding Placement Change

The observational nature of this and similar studies unfortunately limits its contribution to describing, identifying and proposing, and in this case does not permit evaluation of the effectiveness of the mental health services provided. There is an inherent bias among practitioners in relation to the provision of therapeutic services that "more equals better" and "more should be sought" (Chen, 1978). This bias, as Andersen (1995) has pointed out, grew out of an era in the 1960s when increased service utilization was an explicit policy goal and cost was less of a concern than in today's managed care environment. It likely also stems from psychodynamic perspectives on mental health treatment, which tend to promote long-term interventions and remain popular among therapists (Bergin & Garfield, 1994). However, there is little empirical basis for the notion that a higher frequency of services invariably translates into improved outcome.

Knowing that children with a greater number of placement changes receive more outpatient services also does not provide any information on whether such services address any of the problems associated with placement change, or which interventions might be most appropriate and effective in treating and preventing placement disruptions. Clearly, not enough is known about what constitutes "usual outpatient mental health care" for children in foster care. But based on current evidence of the effectiveness of interventions in community mental health settings, there is no reason to assume that the outpatient mental health services provided to foster children are effective in improving outcome (e.g., Andrade, Lambert, & Bickman, 2000; Weiss, Catron, Harris, & Phung, 1999; Weisz, Weiss, Han, Granger, & Morton, 1995).

Little is also known about specific interventions that would be effective in preventing subsequent placement instability. There is indication from several studies that externalizing behaviors are particularly prevalent among children in foster care (e.g., Garland et al., 2000; Landsverk, Davis, et al., 1996; Pilowsky, 1995) and seem to drive placement instability (e.g.,

James, Landsverk, & Slymen, 2004; Smith, Stormshak, Chamberlain, & Whaley, 2001). This would imply that much energy should be focused on addressing the disruptive behaviors that are associated with placement disruptions. A growing body of literature supports the effectiveness of a variety of treatments in decreasing disruptive behaviors in general and for foster children, in particular (e.g., Burns & Hoagwood, 2002; Chamberlain & Mihalic, 1998; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Interventions, such as Chamberlain's Oregon Learning Model (see Chamberlain & Mihalic, 1998; Smith et al., 2001), are promising in lowering the number of placement changes even though the interventions themselves were not developed to specifically target placement change.

The development of targeted interventions aimed at treating the effects of placement change and preventing unnecessary subsequent placement disruptions would further be aided by efforts to examine the impact of placement change in greater depth. Very little is known from an empirical standpoint about the immediate or long-term effects of placement change on the child in foster care (e.g., Newton et al., 2000; Webster et al., 2000). There is great need for prospective studies, both quantitative as well as qualitative, which would investigate what reactions or symptoms children in foster care exhibit in response to placement change and how children as well as caregivers experience and adjust to placement change. Such research would also need to address if different types of placement changes have different effects. There is already indication that children who experience behavior-related placement changes and that they share the characteristics of high-risk foster children whom Fanshel (1992) describes as being in need of special treatment services. Results of the current study underscore the value of distinguishing between different placement types.

This study further identified other variables that in combination with placement change predict mental health service use. Some of these variables, such as behavioral functioning and age of the child, have been identified in prior studies (Garland et al., 1996; Glisson, 1994, 1996; Halfon et al., 1992a; Leslie et al., 2000). By far the largest predictor of outpatient mental health service use was the child's behavioral functioning. Interpretation of this finding is, however, confounded by the fact that CBCL scores for this cohort were not obtained until about 7 months after the child entered care. Thus, the CBCL score in this study really only constituted a gross indicator of behavioral functioning rather than an initial indicator. Empirical studies have consistently confirmed that there is a relationship between placement change and behavior functioning (e.g., Cooper et al., 1987; Newton et al., 2000; Pardeck, 1984), which in turn might impact other outcomes, such as mental health service use. In order to conclusively disentangle the relationship between placement change and behavior functioning, studies will be necessary that obtain measures of the child's functioning early on during the child's placement career and at multiple timepoints, in particular following a placement disruption.

An interesting finding of this study was the association between kinship care and mental health service use. First investigated by Leslie et al. (2000) in relation to outpatient mental health visits, this variable appears to emerge as an important predictor of mental health service use. Experts in the child welfare field have repeatedly suggested that children who are placed with kin while in out-of-home care receive fewer services than their counterparts in nonrelative foster care (Berrick & Barth, 1994; Dubowitz, Feigelman, & Zuravin, 1993). After controlling for all other covariates in this study, stays in kinship care were significantly associated with fewer mental health services. Several hypotheses have been purported to explain why kinship care status might be associated with fewer services. Some studies have found evidence of lesser support and monitoring by caseworkers for children in kinship care (Berrick & Barth, 1994; Dubowitz et al., 1993). Caseworkers might perceive need for service differently when children remain with relatives. Attributes of the kinship caregivers may also affect service use. Kinship caregivers have been described as being older, having lower educational levels, and having fewer economic resources (Gebel, 1996). Findings of more stable placement histories (e.g.,

James et al., 2004; Iglehart, 1994) also suggest that kinship care may have a stabilizing and perhaps even buffering effect at least as it affects a child's movement through out-of-home care. Kinship care status is clearly a variable that needs to continue being included in predictive models of mental health service use.

Findings related to gender, race/ethnicity, and maltreatment type in relation to mental health service use have been inconsistent across studies, including this one, and across methodologies even for the same foster care cohort, and thus need to be interpreted with caution. In community studies, gender has not been found to be a significant predictor of service use (Koot & Verhulst, 1992; Offord et al., 1987; Zahner, Pawelkiewicz, DeFrancesco, & Adnopoz, 1992).

With regard to race/ethnicity, being Hispanic predicted lower rates of outpatient mental health service use. African American children had outpatient rates that resembled those of White children who had the highest visit counts. Different explanations have been suggested, ranging from differences in help-seeking patterns and beliefs about mental health among some minority groups to biases in the court system, which presents an important gatekeeper toward access to mental health services (Garland & Besinger, 1997; Hough et al., 1987). Potential barriers for Hispanic children in this cohort may include cultural and language barriers, concerns about immigration status, lack of knowledge about available services and lack of minority mental health providers (Cross, Bazron, Dennis, & Isaacs, 1989; Hoberman, 1992).

Different types of maltreatment have been associated with mental health service use depending on methodology and thus appear to be sensitive to how mental health services are measured. This study found that children who entered out-of-home care due to caretaker absence received fewer outpatient mental health visits. Such children generally were removed from their parents due to drug use. A possible explanation for this variability in outpatient mental health visits is that caseworkers or courts might perceive children of drug-using parents to be in less need of mental health services. There is no literature that would guide interpretation of this finding. This study also did not find a significant relationship between sexual abuse and number of outpatient mental health services, a finding that was reported by Garland et al. (1996). One possible explanation is that some children who experienced trauma, whether through sexual or physical abuse, may receive supplemental services that utilize alternative funding sources and would therefore not be captured in claims data (Landsverk et al., 2002; Leslie et al., 2000).

Limitations

In interpreting the study's findings and evaluating its generalizability, several limitations have to be kept in mind. First, the study's cohort was biased in two ways: (1) it excluded children who were in care less than 5 months, and (2) the final study cohort was biased toward children with more stable placement histories. With regard to the latter exclusion, one could argue that this study's findings produced conservative estimates, which would have been strengthened had children with more volatile placement histories been included in the study. It is, however, also possible that the most seriously disturbed children in foster care who tend to experience multiple placement disruptions simply "fall through the cracks" as they never stay anywhere long enough to receive continuous out-patient services. Very little is known to date about the service needs of this group of children, the services they actually receive and the outcomes such services produce. Given that this is the group of children at high-risk for negative outcomes reaching into adulthood (e.g., Dore, 1999), there is great need to begin addressing these knowledge gaps.

Second, rates of mental health service use were based on Medicaid claims data, which as discussed earlier have inherent limitations as they do not capture services that might not be covered through Medicaid. Given that all foster children in California are categorically eligible

for services through Medicaid, claims data nonetheless provide an objective and reliable way of obtaining data on outpatient mental health service use, including specific dates of services, than interview data where recall issues may confound accurate counts of mental health services. Despite its limitations, claims data remain a primary method of obtaining mental health service use data for foster care cohorts (e.g., Bilaver et al., 1999; Halfon et al., 1992a, 1992b; Harman et al., 2000; Takayama et al., 1994).

Last, claims data do not provide information about the content or effectiveness of mental health services, and therefore this study suffers from the inherent limitations associated with all observational research. However, observational data often contribute to the development of the foundation on which the next generation of research is built.

CONCLUSION

In March 2003, Los Angeles County settled a class action lawsuit filed on behalf of foster children in foster care, which had charged that the child welfare system failed to adequately assess and treat their mental health needs. The lawsuit further claimed that this lack of services contributed to placement instability for many children with serious emotional and behavior problems (Bazelon Center for Mental Health Law, 2003). Findings from this study indicate that children with a greater number of placement changes and those who experienced behavior-related placement disruptions also received more mental health visits. Unfortunately, we do not know whether these services are appropriate or sufficient in preventing subsequent placement disruptions and addressing the problems that are associated with it. Future research efforts need to begin systematic investigation of "usual care" in outpatient mental health and assess the degree to which these services are effective in addressing the needs of children experiencing placement change and the families taking care of them. This will also mean applying longitudinal and structural methodologies that are capable of disentangling the complex relationships between clinical need, placement and mental health service use trajectories (e.g., Wulczyn, Kogan, & Harden, 2003) and would contribute to the building of theoretical models of mental health service use for out-of-home care populations. Lastly, a much clearer understanding is needed of the short- and long-term effects of placement change on children in out-of-home care. Such data will be necessary to provide guidance to intervention developers in the design and implementation of targeted interventions that will prevent and treat the effects associated with placement instability.

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Table 1

Characteristics of Study Cohort (n = 570)

Characteristics	*N* (%) or Mean (*SD*)
Gender	
Male	260 (45.6)
Female	310 (54.4)
Race/ethnicity	
White	258 (45.3)
Hispanic	116 (20.4)
African American	162 (28.4)
Other	34 (6.0)
Age at entry into care	7.3 (3.9)
Sexual abuse	
Yes	88 (15.4)
No	482 (84.6)
Physical abuse	
Yes	149 (26.1)
No	421 (73.9)
Neglect	
Yes	371 (65.1)
No	199 (34.9)
Emotional abuse	
Yes	82 (14.4)
No	488 (85.6)
Caretaker absence	
Yes	263 (46.1)
No	307 (53.9)
Protective issues only	
Yes	102 (17.9)
No	468 (82.1)
Total behavior problems	
Yes (≥60)	287 (50.4)
No (<60)	283 (49.6)
Previous episodes in out-of-home care	
Yes	164 (28.8)
No	406 (71.2)
Number of days in out-of-home care	485.1 (109.2)
Episodes in relative foster care	
Yes	263 (46.1)
No	307 (53.9)
Number of placement changes	3.5 (2.8)[a]
Behavior-related placement change	
Yes	144 (25.3)
No	426 (74.7)

[a] Standardized to account for varying lengths of stay in out-of-home placement among cohort (number of placements/number of days spent in out-of-home care) × 548 days [=18 months]).

Table 2

Number of Outpatient Mental Health Services per Year by Predictor Variables

Variables	N (%)	Mean number of services (*SD*)[a]	*p* value
Number of placement changes			<.0001**
0	28 (4.9)	2.07 (4.14)	
1–2	306 (53.6)	3.27 (6.53)	
3–5	173 (30.4)	4.89 (6.71)	
≥6	63 (11.1)	8.15 (8.87)	
Behavior-related placement change			<.0001**
Yes	144 (25.3)	6.96 (8.44)	
No	426 (74.7)	3.32 (6.12)	
Gender			.12
Male	260 (45.6)	4.65 (7.18)	
Female	310 (54.4)	3.90 (6.75)	
Race/ethnicity			.011*
White	258 (45.3)	5.01 (7.41)	
Hispanic	116 (20.4)	2.40 (5.24)	
African American	162 (28.4)	4.61 (7.06)	
Other	34 (6.0)	2.89 (7.02)	
Age at entry			<.0001**
2–5	225 (39.5)	2.37 (5.00)	
6–8	146 (25.6)	4.72 (6.91)	
9–12	118 (20.7)	6.29 (8.52)	
13–16	81 (14.2)	5.60 (7.95)	
Sexual abuse			.67
Yes	88 (15.4)	4.47 (6.83)	
No	482 (84.6)	4.20 (7.64)	
Physical abuse			.40
Yes	149 (26.1)	4.86 (7.48)	
No	421 (73.9)	4.02 (6.76)	
Neglect			.83
Yes	371 (65.1)	4.22 (7.08)	
No	199 (34.9)	4.28 (6.73)	
Emotional abuse			.84
Yes	82 (14.4)	4.61 (7.88)	
No	488 (85.6)	4.18 (6.80)	
Caretaker absence			.036*
Yes	263 (46.1)	3.47 (5.76)	
No	307 (53.9)	4.91 (7.78)	
Protective issues			.69
Yes	102 (17.9)	4.24 (6.97)	
No	468 (82.1)	4.24 (6.96)	
Total behavior problems			<.0001**
Yes (≥60)	287 (50.4)	6.01 (8.11)	
No (<60)	283 (49.6)	2.44 (4.95)	
Previous out-of-home care			.023*
Yes	164 (28.8)	5.28 (8.13)	
No	406 (71.2)	3.82 (6.38)	
Stays in kinship care			<.0001**
Yes	263 (46.1)	2.85 (5.66)	
No	307 (53.9)	5.43 (7.71)	

[a] Annualized to account for varying lengths of stay in out-of-home care among cohort.

* $p < .05$.

** $p < .01$.

Table 3

Multivariate Poisson Regression Analysis of Number of Placement Changes and Mental Health Visits Using GEE (Empirical GEE Parameter Estimates)

Variables	Rate ratio	95% Confidence interval	*p* value
Number of placement changes	1.08	1.02, 1.14	.009**
Gender (male = 0)	0.76	0.59, 0.99	.040*
Age at entry	1.06	1.03, 1.10	.0003**
Race/ethnicity			.006**
African American	1.10	0.80, 1.53	
Hispanic	0.53	0.34, 0.82	
Other	0.56	0.27, 1.18	
White	1.00	—	
Type of maltreatment			
Sexual abuse (no = 0)	0.85	0.56	.42
Physical abuse (no = 4 0)	0.98	0.70	.92
Neglect (no = 0)	1.04	0.75	.81
Caretaker absence (no = 0)	0.72	0.53	.044*
Emotional abuse (no = 0)	1.05	0.69	.83
Protective issues (no = 0)	0.94	0.62	.74
Behavior problems (no = 0)	2.06	1.55, 2.72	<.0001**
Episodes in kinship care (no = 0)	0.59	0.43, 0.81	.0009**
Previous out-of-home care (no = 0)	1.20	0.89, 1.61	.23
Days in inpatient psychiatric (30-day interval)	1.02	0.94, 1.10	.66

* $p < .05$.

** $p < .01$.

Table 4

Multivariate Poisson Regression Analysis of Behavior-Related Placement Change and Mental Health Visits Using GEE (Empirical GEE Parameter Estimates)

Variables	Rate ratio	95% Confidence interval	*p* value
Behavior-related placement change	1.48	1.10, 1.99	.010*
Gender (male = 0)	0.78	0.60, 1.01	.06
Age at entry	1.06	1.03, 1.10	.0002**
Race/ethnicity			.009**
African American	1.10	0.79, 1.54	
Hispanic	0.54	0.35, 0.84	
Other	0.54	0.25, 1.12	
White	1.00	—	
Type of maltreatment			
Sexual abuse (no = 0)	0.86	0.58, 1.29	.47
Physical abuse (no = 0)	1.00	0.72, 1.39	.99
Neglect (no = 0)	1.06	0.77, 1.46	.73
Caretaker absence (no = 0)	0.72	0.53, 0.99	.04*
Emotional abuse (no = 0)	0.95	0.63, 1.42	.96
Protective issues (no = 0)	0.95	0.64, 1.42	.81
Behavior problems (no = 0)	2.05	1.56, 2.70	<.0001**
Episodes in kinship care (no = 0)	0.57	0.42, 0.79	.0006**
Prior out-of-home care (no = 0)	1.18	0.88, 1.59	.28
Days in inpatient psychiatric (30–day interval)	1.05	0.98, 1.13	.14

* $p < .05$.

** $p < .01$.

Table 5

Changes in Outpatient Mental Health Visits Following 1st Behavior-Related Placement Change (n = 144)

Variables	Rate ratio	95% Confidence interval	p value
Number of placement changes (pre/post)	1.01	0.87, 1.18	.86
Age at entry	1.03	0.98, 1.08	.25
Race/ethnicity			.006**
Hispanic	0.31	0.16, 0.60	
African American	0.66	0.37, 1.19	
Other	0.50	0.15, 1.64	
White	1.00	—	
Caretaker absence (no = 0)	1.12	0.70, 1.80	.63
Episodes in kinship care (no = 0)	1.17	0.71, 1.94	.53
Behavior problems (no = 0)	1.94	1.14, 3.29	.014*
Time			.007**
Pre-event	1.00	—	
Postevent	1.89	1.20, 3.00	

* $p < .05$.

** $p < .01$.