

# The Starting Early Starting Smart Integrated Services Model: Improving Access to Behavioral Health Services in the Pediatric Health Care Setting for At-Risk Families with Young Children

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**Abstract** We evaluated the Starting Early Starting Smart (SESS) national initiative to integrate behavioral health services (parenting, mental health, and drug treatment) into the pediatric health care setting for families with young children. Data are presented from five pediatric care (PC) sites, drawing from families at risk due to demographic and behavioral health factors, with infants less than 12 months of age ( $n = 612$ ). Families were randomly assigned to either the SESS program or a standard care Comparison group. We utilized longitudinal analyses to estimate differences in utilization rates for parenting, mental health, and drug treatment over 6 follow-up time points (3, 6, 9, 12, 15 and 18 months). Our findings indicate that SESS caregiver participants were 4.6 times ( $p < 0.001$ ; CI = 3.33–6.26) more likely to receive parenting services, 2.1 times ( $p < 0.001$ ; CI = 1.48–2.86) more likely to receive outpatient mental health treatment, and 1.8 times ( $p = 0.025$ ; CI = 1.08–3.14) more likely to receive drug treatment than Comparison group participants. Our results demonstrate the success of the SESS program in coordinating and improving access to behavioral health services for high-risk caregivers within the pediatric health care setting and highlight the importance of continuing to focus

public health policy on the behavioral health care needs of families with young children.

**Keywords** Integrated services · Service utilization · Caregiver behavioral health · Parenting · Young children

## Introduction

Despite decades of developmental research supporting the effectiveness of prevention and early intervention strategies (National Research Council Institute of Medicine 2000), efforts to address the mental health needs of infants and young children are often significantly underfunded at the state and national level. Today's families face many complex problems including poverty, homelessness, domestic violence, mental illness, substance abuse, and immigration issues which can contribute to family instability and impact children's long-term mental health outcomes. Although there have been significant advances in neuroscience and clinical treatments, the prevalence of mental health disorders among children and adolescents remains high (Hoagwood and Olin 2002; Tolan and Dodge 2005).

Family focused prevention and early intervention efforts may promote optimal child development and prevent later behavioral and mental health difficulties in young children. Increasingly, policy makers and service providers are identifying the importance of early intervention for young families aimed at strengthening parenting skills and addressing the behavioral health needs of at-risk caregivers (Knutzer 2001). Service needs for at-risk infants, children and their families, however, are often complex and service systems are typically fragmented, requiring families to seek services from a variety of health, mental health, social

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service and educational agencies (Farmer 2000; Roberts and Akers 1996). Government reports indicate that 92% of children receiving services from a public service system utilize services from two or more systems, with 19% utilizing services from four or more systems (US Public Health Service 2000). Services may overlap, be duplicated, or directly conflict and may be further limited by restricted geographical areas, hours of operation, complicated eligibility requirements, or long waiting lists. Furthermore, social services are often deficit-oriented and lack a family-focused emphasis (Bruner 1994; Tolan and Dodge 2005), discouraging families from seeking help. The US Surgeon General's report concludes that "children and families are suffering because of missed opportunities for prevention and early identification, fragmented services, and low priorities for resources" (US Public Health Service 2000).

Calls for increased service integration and wrap-around services for families with infants and young children are plentiful in the literature (Knitzer 2001; Poulsen 1994; Roberts and Behl 1996; Tolan and Dodge 2005), yet there are few empirical studies evaluating comprehensive models designed to increase access to coordinated services for at-risk families with young children. As noted in a review by Farmer (2000), most studies have focused on services directed toward narrow and typically severe adult or older child populations (e.g., homeless individuals, school-aged children with severe emotional and behavior disorders, or individuals with developmental disabilities or chronic mental illness). One of the most frequently cited studies of school-aged children, the Fort Bragg Demonstration Project, failed to link greater access to services with improved children's mental health outcomes (Bickman 1996). This study, however, has been criticized for lack of a no-treatment control group, failure to evaluate the effectiveness of the clinical interventions being provided, and inclusion of children with minimal problems receiving only short-term outpatient treatment (Friedman and Burns 1996; Mordock 1997). Additionally, many studies have inadequately matched or small samples. Population and site-specific differences, if not adequately adjusted for, may confound results causing even the most effective systems of care to appear ineffective (Foster et al. 2007).

Caregivers with substance abuse and mental health problems may have difficulty fostering healthy parent-child relationships (Johnson et al. 2002), and their children may be particularly vulnerable to future emotional and behavioral difficulties (Accornero et al. 2002; Anhalt et al. 2007; Leinonen et al. 2003). Effective interventions for at-risk families with infants and young children must address the behavioral health needs of the entire family and reduce barriers to accessing needed family services (Hanson et al. 2001; Knitzer 2001; Roberts and Akers 1996; US Public Health Service 2000). Research suggests that improved

developmental outcomes for children occur when family behavioral health needs are adequately met by organized and accessible systems of care (Farmer 2000; Poulsen 1994; Tolan and Dodge 2005; US Public Health Service 2000). The President's New Freedom Commission on Mental Health (2003) calls for improved access to evidence-based child and family-centered mental health treatment, the provision of prevention and intervention services in primary health care settings, and the promotion of mental health in educational and other developmentally appropriate settings in order to improve children's functioning in their homes, schools, and communities. Despite this evolving policy knowledge base, studies evaluating prevention-oriented comprehensive care systems for families with infants and young children have been lacking, especially those that focus on caregiver risk factors such as parenting, mental health and substance abuse issues.

The current report summarizes findings from the Starting Early Starting Smart (SESS) Initiative, a national prevention-oriented movement to improve access and utilization of behavioral health services for families with young children, funded in the late 1990s by a unique public-private partnership between the Substance Abuse and Mental Health Services Administration (SAMHSA) and Casey Family Programs. The primary goal of the SESS Initiative was to develop and disseminate best practices for integrating behavioral health services such as parenting, mental health, and substance abuse services into child-focused, family-friendly settings; including five pediatric health care clinics and seven early childhood education centers across the nation. From a policy perspective, the SESS Initiative reflected the importance of focusing on preventive interventions for very young children and their families, since the infant and preschool years lay a critical foundation for optimizing development and school readiness (Carnegie Corporation of New York & Task Force on Meeting the Needs of Young Child 1994; Hawley 1998; Knitzer 2001; The President's New Freedom Commission on Mental Health 2003).

In the present report, we evaluate the SESS Initiative's goal of increasing access and utilization of behavioral health services in the pediatric health care setting for at-risk families with infants. The pediatric health care setting has been identified as an ideal interface for working with young families to promote optimal parenting and the prevention of mental disorders (Department of Health and Human Services 2001; Lavigne et al. 1999; Tolan and Dodge 2005). For parents of infants and young children, the pediatrician is typically the most frequently visited health professional. Seeking services in the health care environment is viewed as less stigmatizing than at a mental health or drug treatment agency (Department of Health and Human Services 2001), and families are more likely to

pursue a mental health referral when it is made by their primary care physician (Lavigne et al. 1999). In the current report, we analyze combined data from the five pediatric care (PC) sites that participated in the national SESS Initiative. We hypothesize that providing access to parenting, mental health, and drug treatment services to at-risk families with infants within the context of a family-focused model of pediatric health care would result in increased service utilization. We also identify and evaluate important predictors of service utilization, including demographic risk, family history of behavioral health problems, and behavioral health service needs.

## Method

### Starting Early Starting Smart Program Characteristics

Study participants were enrolled in the national SESS Initiative. The collaborative SESS study was approved by the Institutional Review Board at each participating site and conducted under a federal Department of Health and Human Services Certificate of Confidentiality. We have focused the current report on describing the service integration results for the five PC sites participating in the national SESS Initiative. In Table 1 we have summarized the community setting and program enrollment characteristics for each SESS PC program. Four of the five programs were administered in affiliation with university-based programs providing oversight and intervention staff. Two had clinic sites located within university medical centers and three had clinic sites located in the community. Two programs targeted newborn infants and their families and the remaining three programs enrolled infants and children through age five.

### Participant Enrollment and Randomization

For the current report we have included data collected at enrollment, and six additional follow-up research visits conducted at 3 months intervals during an 18 months intervention period. Children and their families were randomly assigned to the SESS Intervention or Comparison group (community standard of care) at each PC site. Randomization procedures varied by site but involved either a simple randomization procedure or a randomization blocking procedure utilizing key demographic and risk factor variables. Each site screened and recruited participants according to the targeted risk and exclusionary factors described in Table 1. Within each site, equivalent numbers of SESS and Comparison families were enrolled. Recruitment and identification of families occurred through screening and referral within the clinic setting and/or

through referrals received from associated hospitals and service providers. Several sites also recruited directly from hospital delivery wards where patients were eligible to receive pediatric care from the designated SESS PC Clinic. Each site recruited family participants based on an indicated high-risk population or from a socioeconomically disadvantaged population. Accordingly, participants were not necessarily representative of the larger general population served within each clinic setting.

### Participants

For the current report, we included infants from each site that were less than 12 months at enrollment and whose caregiver completed research measures for the enrollment interview and a minimum of one additional follow-up visit during the 18 months intervention period. We focused on infancy due to the comparability of parenting issues and the types of interventions provided at each site for this age range. Biological or alternative custodial care providers (relative or non-relative foster care) were included as primary caregivers, although at baseline most infants were residing with their birth mothers. Of the original 949 caregiver-child dyads enrolled, 687 were infants at the time of enrollment. Of these, 612 met the above criteria and were included in the present report. For this sample, program retention was 100% at baseline, 84.6% at 3 months, 82.8% at 6 months, 74.8% at 9 months, 73% at 12 months, 74% at 15 months, and 77.1% at 18 months, with 67% of the full 612 cohort having four or more available data points.

### Starting Early Starting Smart Pediatric Care Integrated Services Model

The SESS integrated services model is based on a family-focused intervention framework that can be implemented in diverse community settings and tailored to individual program needs (Hanson et al. 2001). The SESS model focused on increasing access to parenting, mental health, and drug treatment services for at-risk families with young children by making services available directly within the pediatric health care setting, or by facilitating services with collaborating agencies. Each of the SESS PC sites employed a multidisciplinary team including case managers or family advocates, and parenting and mental health specialists. The multidisciplinary team at each site functioned to ensure streamlined, integrated services were delivered in accord with family service needs. Family participants at each site were offered core SESS services that included case management and home visits by a coordinating case manager, family-focused service planning that included family participation, assistance with

**Table 1** SESS pediatric care setting description

	UM <sup>a</sup> Miami, FL	BMC <sup>b</sup> Boston, MA	UNM <sup>c</sup> Albuquerque, NM	UM-C <sup>d</sup> Columbia, MO	CFP <sup>e</sup> Spokane, WA
Geographic population	Urban	Urban	Urban/suburban	Urban	Urban
Clinic setting	Community	Medical center	Medical center	Community	Community
Child's enrollment age	Birth—3 months	Birth—2 months	Birth—3 years	Birth—5 years	Birth—30 months
Total cohort enrollment					
SESS	121	100	110	78	66
Comparison	121	103	112	71	67
Enrollment criteria ( <i>caregivers with one or more identified risk factors targeted for enrollment</i> )	Identified family substance use or mental health problems or parenting stress	Socioeconomic risk <sup>f</sup>	Identified family substance use or mental health problems, domestic violence, or teen parents	Parenting stress	Documented child abuse/neglect
Exclusionary criteria	Gestational age < 32 weeks; severe caregiver psychiatric or cognitive impairment (e.g., schizophrenia, bipolar, mental retardation), HIV seropositivity or maternal age < 17 years	Gestational age < 35 weeks; major congenital malformations or neonatal intensive care; severe caregiver psychiatric or cognitive impairment, HIV, or maternal age < 17 years	Residence beyond 40 miles of metropolitan Albuquerque	Residence beyond the Boone County area	None

*Note:* The UM, BMC, UNM, and UM-C Programs were all implemented in affiliation with a University Medical School; CFP is a private foundation

<sup>a</sup> University of Miami (UM)

<sup>b</sup> Boston Medical Center, Boston University (BMC)

<sup>c</sup> University of New Mexico (UNM)

<sup>d</sup> University of Missouri-Columbia (09-C)

<sup>e</sup> Casey Family Partners (CFP)

<sup>f</sup> All mothers giving birth at BMC were approached if they were planning to receive Pediatric Primary Care at BMC and did not meet any exclusionary criteria. The majority of this population was considered to be at socioeconomic risk, coming from low-income backgrounds with public health insurance

attainment of basic service needs, and access to parenting support and education. Case managers were responsible for following family participants over time and coordinating services for the family within the integrated system of care developed at each site. The SESS PC sites placed significant emphasis on providing culturally sensitive services developed with input and guidance from involved family members. Each site also offered parenting support and education services, although the specific parenting curriculums varied depending on site-specific needs and demographics, and ranged from individual home-based sessions to established group curriculums. Additional mental health and substance abuse services were made available to caregivers as needed at each site, either through facilitated referral processes with collaborating agencies or directly by SESS staff. The SESS service integration model also involved structured collaborative relationships with other behavioral health service providers in the community and typically involved streamlined referral and waitlist processes, on-site co-staffing, and regular cross-agency communication.

Comparison group families at each SESS site received the community standard of care. This typically involved linkage referrals to other agencies for identified service needs made by the pediatric care provider, but not ongoing service coordination and follow-up.

#### Data Collection Procedures

Data were collected in accord with guidelines established by the SESS National Steering Committee, comprised of evaluation and program representatives from each of the five PC and seven early childhood sites and the Data Coordinating Center, as well as representatives from the funding agencies and relevant contributing experts. The Steering Committee met monthly during the year preceding program enrollment and data collection to develop the comprehensive cross-site evaluation protocol and data collection procedures implemented by all SESS sites. Research staff from each site participated in training provided by the Data Coordinating Center prior to the onset of data collection to address instrumentation issues and ensure common data collection methods. At all SESS sites the data were gathered via caregiver self-report on a standardized survey instrument administered by independent research interviewers masked to the caregiver's study status (SESS vs. Comparison). Each site provided monetary incentives (\$20–\$50) for caregiver participation in data collection visits, as well as small gift incentives for the child. The data collection schedule occurred at program enrollment, and at 6, 12, and 18 months following program enrollment. Additional service utilization data was also collected for the 3, 9, and 15 month follow-up intervals.

The standardized SESS data collection measures were available in English, Spanish, and Creole, and bicultural interviewers were utilized as needed. Data from each SESS site were sent to the SESS Data Coordinating Center for quality assurance and computerized entry into the National SESS Collaborative data base, our source of data for this report.

#### Measures

##### *Psychosocial Interview*

A standardized interview developed by the SESS Steering Committee was used to collect baseline demographic data. Caregivers were interviewed regarding basic demographic information, family composition and living arrangements, educational and employment history, insurance status, and other important psychosocial factors. We drew the demographic data presented in Tables 2 and 3 from this interview. These variables were also used in the calculation of the demographic risk and propensity scores described below.

##### *Service Access and Utilization Interview*

The service access and utilization interview (SAUS) was developed by the SESS Steering Committee to measure service utilization across the scope of social, physical and behavioral health services for children and caregivers and was administered at baseline/program enrollment and the six follow-up time points. For the present report, we have focused on the following caregiver behavioral health outcomes: parenting (individual and group formats) and mental health and drug treatment (outpatient and inpatient/residential). As part of the SESS standardized cross-site evaluation, each outcome on the SAUS Interview was assessed for the 3 months time period preceding the research interview, and questions were branched to indicate receipt of services (yes/no). If endorsed, the number and type of service visits during the specified time interval were assessed as follows:

*Parenting Services* Caregivers were asked to report the number of parenting group sessions and individual “meetings or helping sessions” they received during the 3 months recall period.

*Outpatient Mental Health Treatment* Caregivers were asked to report the number of service visits in which they “talked to a counselor, therapist, doctor, or other professional for problems with your emotions or nerves, or coping with stress,” or in which they “participated in a support group to help with your emotions or to help you cope with stress”. If the counseling services

**Table 2** Baseline child/caregiver demographics by SESS PC site

	UM <sup>a</sup> Miami, FL M or % SD	BMC <sup>b</sup> Boston, MA M or % SD	UNM <sup>c</sup> Albuquerque, NM M or % SD	UM-C <sup>d</sup> Columbia, MO M or % SD	CFP <sup>e</sup> Spokane, WA M or % SD
Participating infants (<12 months)	236	185	103	47	41
Child age (months)	0.8 (0.7)	0.1 (0.7)	2.3 (3.1)	4.5 (4.1)	5.5 (4.2)
Child gender (male)	48.7%	50.8%	53.6%	44.7%	43.9%
Child race/ethnicity					
Caucasian	1.7%	4.3%	17.5%	31.9%	68.3%
African-American	59.3%	65.9%	3.9%	36.2%	4.9%
Hispanic	26.3%	9.2%	47.6%	2.1%	0.0%
Multi-racial	10.6%	14.1%	24.3%	25.5%	26.8%
Other	2.1%	6.5%	6.8%	4.3%	0.0%
Child resides with					
Both parents	33.5%	51.9%	41.7%	40.4%	34.1%
Mother	61.4%	48.1%	57.3%	57.4%	61.0%
Father	0.0%	0.0%	1.0%	0.0%	2.4%
Other	5.1%	0.0%	0.0%	2.1%	2.4%
Child has health insurance	60.2%	61.6%	58.3%	100.0%	97.6%
Caregiver characteristics					
Age (years)	26.7 (8.0)	27.4 (6.1)	23.2 (6.8)	23.4 (5.3)	23.9 (9.1)
Gender (female)	98.2%	99.5%	99.0%	95.7%	87.8%
Married	11.9%	34.6%	25.2%	27.7%	24.4%
High school graduate	42.8%	74.6%	38.8%	57.4%	36.6%
Employed (either caregiver)	43.2%	62.7%	49.5%	55.3%	26.8%
Welfare recipient	36.0%	23.2%	38.8%	36.2%	63.4%
Has health insurance	69.1%	96.8%	59.2%	87.2%	87.8%
English is primary language	84.7%	84.3%	96.1%	100.0%	100.0%
Household size	5.0 (1.9)	4.3 (1.5)	4.9 (1.8)	3.9 (1.5)	3.9 (1.7)

<sup>a</sup> University of Miami (UM)

<sup>b</sup> Boston Medical Center (BMC)

<sup>c</sup> University of New Mexico (UNM)

<sup>d</sup> University of Missouri-Columbia (M-C)

<sup>e</sup> Casey Family Partners (CFP)

included treatment for drug or alcohol use, the sessions were coded as drug treatment.

**Outpatient Drug Treatment** Caregivers were asked to report the number of outpatient service visits where they received help from a counselor, doctor, treatment program or program due to “problems with using alcohol or other drugs”. Daily attendance was counted as a service unit.

**Inpatient Mental Health and Residential Drug Treatment** Caregivers were asked to report whether they had been “admitted for an overnight stay to get help for problems with your emotions, nerves, or your use of alcohol or drugs” and to specify the reason and the duration of each stay in days. Inpatient mental health and drug treatment were coded in number of stays and the duration of each stay.

**Brief Symptom Inventory (Derogatis and Spencer 1999)**

The brief symptom inventory (BSI) is a 53-item self-report measure of psychological symptoms assessed for the 7-day period preceding administration. It measures global psychiatric distress and includes items assessing depression, anxiety, somatization, obsessive-compulsive behaviors, interpersonal sensitivity, hostility, phobic anxiety, paranoid ideation, and psychoticism. The BSI was normed for non-patient populations and has been reliability/validity tested in over 335 research studies. Internal consistency reliability coefficients for all nine dimensions reportedly range from .71 to .85 and test-retest reliabilities over a 2-week period range from .68 to .91 for the scales, and from .80 to .87 for the global indices. Moderate to excellent convergent validity with the Symptom Checklist-90 (SCL-90) and the

**Table 3** Baseline child/caregiver demographics for the combined SESS PC cohort

	SESS program M or % SD	Comparison M or % SD
Participating infants (< 12 months)	308	304
Child age (months)	1.4 (2.6)	1.4 (2.7)
Child gender (male)	52.9%	47.0%
Child race/ethnicity		
Caucasian	12.7%	11.2%
African-American	48.4%	44.7%
Hispanic	18.8%	23.4%
Mixed	16.9%	15.5%
Other	3.2%	5.3%
Child resides with		
Both parents	41.9%	40.1%
Mother	54.9%	57.9%
Father	0.3%	0.3%
Other	2.9%	1.6%
Child has health insurance	66.4%	67.2%
Caregiver characteristics		
Age (years)	25.8 (7.4)	26.0 (7.3)
Gender (female)	97.4%	98.0%
Married	22.4%	24.0%
High school graduate	54.2%	50.7%
Employed	48.7%	51.3%
Welfare recipient	37.7%	31.3%
Health insurance	77.3%	79.6%
English is primary language	90.6%	86.8%
Household size	4.5 (1.7)	4.7 (1.8)
Family history of:		
Drug use problems*	55.5%	47.4%
Mental health problems	18.2%	17.4%
Criminal background	19.2%	15.8%
Psychological distress symptoms <sup>a</sup>	40.2%	39.8%

\*  $p < .05$

<sup>a</sup> Percentage of caregiver respondents reporting clinical symptoms above the clinical cutoff range of  $T \geq 63$  on 2 or more subscales of the Brief Symptom Inventory

MMPI have been reported (Derogatis et al. 1976). The current report used baseline BSI total scores and clinical risk criteria ( $T$  score  $> 63$  on any two subscales) as described in the analyses.

#### *The Addiction Severity Index-5th Edition* (McLellan et al. 1990)

The Addiction Severity Index-5th Edition (ASI) is a semi-structured interview used to assess adult substance use and its impact on seven domains of functioning (i.e., medical, employment, alcohol use, drug use, illegal activity, family/

social, and psychiatric status). The SESS cross-site study administered the sections on alcohol, tobacco, and illicit drugs to yield information about lifetime and past 30-day use. For the present report, we categorized caregivers as having risk due to alcohol use by meeting at least one of the following two criteria: (1) having reported consumption of four or more drinks (for women) or five or more drinks (for men) per sitting for at least two or more times during the past 30 days or (2) having reported consumption of two or more drinks in 1 day (for women) or three or more drinks in 1 day (for men) for three or more days a week. We also categorized caregivers as at-risk for drug use if they reported any illicit drug use in the past 30 days. The family history questions pertaining to mental health, substance use, and criminal involvement were also utilized in the present report.

## Data Reduction

### Statistical Control Covariates

#### *Propensity Scores*

We created a summary variable to account for any potential nonequivalence between the SESS Intervention and Comparison groups at baseline on 34 key demographic and outcome variables. Chi-square or Wilcoxon tests (for categorical vs. continuous variables, respectively) were used to evaluate group differences for each variable in the pool. We used a liberal cutoff of  $p = .20$  to account for potential baseline nonequivalence. The following 10 variables met this criteria and were included in the propensity score regression analysis: child gender ( $p = .15$ ), child race ( $p = .15$ ), primary language ( $p = .03$ ), household size ( $p = .14$ ), family substance use history ( $p = .02$ ), family mental health history ( $p = .02$ ), family criminal justice history ( $p = .02$ ), caregiver psychological distress BSI total score ( $p = .05$ ), total family service utilization ( $p = .08$ ), and perceived service barriers ( $p = .10$ ). We used these variables in a logistic regression model to predict the probability of SESS versus Comparison group membership for each index child. The predicted probability from the resulting regression model was used to create an individualized propensity score. Due to the high degree of equivalence on baseline characteristics between the groups, we found that the propensity score correctly classified group membership 57% of the time. Even with minimal group nonequivalence, propensity scores can remove small amounts of error variance due to sampling. Accordingly, we retained the propensity score as a covariate in the primary outcome analyses.

### *Behavioral Health Risk Index*

We created a Caregiver Behavioral Risk Index from the baseline assessment to control for initial differences in mental health and substance abuse risk by totaling the following risk criteria for a possible score range of 0–6: any unmet substance treatment need (SAUS); any unmet mental health treatment need (SAUS); met alcohol use risk criteria (ASI); met drug use risk criteria (ASI); met BSI clinical risk criteria; any partner to partner violence reported in the past year. Approximately 36% of the sample had a zero score on the index, 31% had a score of one, 19% scored two and 14% had a score of three or more.

### Subgroup Variables

#### *Mental Health and Drug Treatment Service Need*

Although the SESS program targeted at-risk families, not all caregivers were in need of mental health or drug treatment services. We utilized latent class analysis (LCA) methods to create separate categorical grouping variables for indicated mental health or drug treatment service need at baseline using the following procedures: (1) A large pool of theoretically relevant indicators of need were generated from the baseline interview, ASI, BSI, and SAUS; (2) Categorical Exploratory Factor Analysis using Mplus was used to reduce the pool of redundant or low frequency indicators, and a priori hypotheses were used to finalize a list of 3–6 indicators; (3) Utilizing LCA as a confirmatory procedure, the hypothesized classifications were calculated using Mplus with a comparison of alternative models using fit statistics; and (4) The accuracy of classification was assessed by computing the average probability of class membership with actual class membership. Average class probabilities ranged from 88.6 to 99.9% for drug treatment service need and from 77.1 to 89.1% for mental health service need. We assigned caregiver participants to “indicated need” or “no indicated treatment need” categorizations for mental health ( $n = 241$ , 40%) or drug treatment ( $n = 280$ , 46%) services based on the latent class results. The indicated need categories were not exclusive since 20% of respondents had indicated need for both mental health and drug treatment. We then used the mental health and drug treatment need variables in subgroup analyses evaluating service use longitudinally across the six measured time intervals.

#### Service Utilization Predictor Variables

We also evaluated family demographic risk, family history of mental health, substance use, criminal involvement (family behavioral health history), and baseline identified

need for mental health or drug treatment services as potential predictors of service use. The family demographic risk index and family history questions overlapped substantially with the broader field of variables included in the propensity score analysis; accordingly, the demographic risk and family history variables that we describe below were utilized individually only in secondary analyses evaluating specific predictors of service utilization. We did not include the propensity scores in this subset of the analyses.

#### *Family Demographic Risk*

To measure family risk, we utilized the Annie E. Casey Family Risk Index (Annie E. Casey Foundation 1999). To calculate the risk index, we assigned each caregiver-child dyad a point for the following risk criteria: family income below poverty level, family receiving welfare benefits, household head did not complete high school, child not living with two parents, parents without full-time employment, child without health insurance. The total score ranged from 0 to 6 and was normally distributed in the SESS PC sample.

#### *Family Behavioral Health History*

We used the ASI questions pertaining to the presence/absence of other primary family members with a drug use, mental health, or criminal history to calculate a family history risk score. We assigned a point for a yes response to any of the three family history questions, resulting in a risk score ranging from 0 to 3.

### **Statistical Analyses**

#### Longitudinal Analysis of Behavioral Health Service Utilization

We conducted preliminary data analyses to examine the distributions of all variables, including visual inspection of frequency distributions. We utilized the methods of generalized estimating equations (GEE) (Diggle et al. 1994; Liang and Zeger 1986; Zeger and Liang 1986) to estimate the strength of association between treatment group assignment (SESS vs. Comparison) and differences in utilization of parenting, mental health, and drug treatment services. GEE produces a summary estimate of the association between dependent and independent variables, taking into account the correlation of the six repeated measurements through the 18 months follow-up. For each GLM/GEE service use outcome model we included a dichotomous grouping indicator (SESS vs Comparison),

and terms for the following covariates: time of assessment, program site, the propensity and behavioral risk scores, and the baseline value for the outcome being evaluated (i.e., mental health treatment services reported for the 3 months interval prior to enrollment was controlled when estimating a program effect for mental health service utilization during the follow-up period). We then repeated the GEE models separately for the subgroup of participants meeting the indicated service need criteria for mental health and drug treatment, based on the LCA classification procedures described above.

We estimated the odds ratios, 95% confidence intervals, and *p* values using STATA Version 7 and its xtgee procedures (Statacorp 1999). The working correlation structure was exchangeable (compound symmetry), with robust estimation of the standard errors, allowing for departures from the associated assumptions. The GEE modeling procedures accommodate the longitudinal interdependency of observations within the error structure of the model and utilize all available data at each age point, unlike repeated measures ANOVA which limits case inclusion by requiring availability of data at all time points under study.

#### Predictors of Service Utilization

We also elaborated the GEE models to evaluate individual predictors of service utilization, controlling for all other terms in the model, including the following predictors: the family demographic risk index (scored 0–6); family history of mental health, substance use, or criminal involvement (family behavioral health history: scored 0–3); and the indicated mental health and drug treatment need variables (yes/no). We controlled for site and assessment visit in all models and evaluated individual predictors of parenting, mental health, and drug treatment services separately within the SESS Intervention and Comparison groups.

## Results

### Sample Descriptive and Demographic Information

We have summarized caregiver and infant descriptive and demographic information for the five sites in Table 2. As indicated in Tables 1 and 2, SESS PC programs targeted families in need due to a range of risk factors including substance use, mental health problems, parenting stress, child abuse or neglect, domestic violence, or teenage parenting. Site-specific variations in enrollment criteria and demographics reflected each individual clinic setting and its surrounding community. We present demographic characteristics for the combined cross-site cohort for the SESS Intervention and Comparison groups in Table 3. While the two groups were similar on most baseline characteristics, all potential baseline differences were accounted for in the analyses using the propensity score procedures described.

### Attrition Analyses

An additional 75 infants were enrolled and completed the baseline assessment but did not return for a follow-up visit. We conducted attrition analyses between these infants and those who returned for at least one follow-up visit. The 75 infants who did not return were equally distributed between the SESS Intervention and Comparison groups. In addition, we found very few differences between the 75 infants who did not continue beyond baseline and the 612 who continued, with similarities on most baseline characteristics (e.g., child's age, gender, primary caretaker, insurance status, primary language spoken, household size, marital status, education level, and family history of behavioral health problems; Table 3). However, we observed a higher follow-up rate of African American families compared to

**Table 4** Pooled Odds Ratios (OR) of Service Utilization in the SESS Intervention versus Comparison Group: Longitudinal GEE Results for the Overall Sample and Indicated Treatment Need Subgroups

	Model <i>n</i>	Overall sample OR (95% CI)	<i>p</i> value	Model <i>n</i>	Indicated treatment need <sup>a</sup> OR (95% CI)	<i>p</i> value
Parenting education <sup>b</sup>	612	4.57 (3.33–6.26)	<.001			
Outpatient mental health services	610	2.06 (1.48–2.86)	<.001	241	2.79 (1.71–4.52)	<.001
Outpatient drug treatment	611	1.84 (1.08–3.14)	.025	279	1.83 (1.05–3.22)	.034
Residential drug treatment	608	1.41 (0.74–2.70)	.300	278	1.40 (0.70–2.90)	.359

*Note:* Each GEE model was controlled for time of assessment, program site, and baseline value on the respective outcome, propensity score, and behavioral health risk. The varying model *n*'s reflect a small amount of missing data for each outcome

<sup>a</sup> The indicated mental health treatment need subsample (*n* = 241) was evaluated for group differences in mental health service use; the indicated drug treatment need subsample (*n* = 280) was evaluated for group differences in outpatient and residential drug treatment

<sup>b</sup> Parenting results presented for overall sample only; parenting was considered a universal intervention need in this high risk cohort and an identified need subgroup was accordingly not evaluated

Caucasians and Hispanics ( $p = 0.009$ ). We found that those not followed beyond baseline were slightly younger than the follow-up subjects (maternal mean age 24.2 years to 26 years,  $p = 0.036$ ), and were more likely to report a family history of criminal problems (28.2% vs. 17.9%,  $p = 0.032$ ).

### Longitudinal Analysis of Behavioral Health Service Utilization

Longitudinal GEE results for the overall sample are reported in Table 4. The SESS program successfully increased access to targeted parenting and outpatient behavioral health services, after controlling for site, assessment visit, and baseline service utilization for the respective outcome under study, and propensity and behavioral health risk scores. SESS caregivers were 4.6 times ( $p < 0.001$ ; CI = 3.33–6.26) more likely to receive parenting services, 2.1 times ( $p < 0.001$ ; CI = 1.48–2.86) more likely to receive outpatient mental health services, and 1.8 times ( $p = 0.025$ ; CI = 1.08–3.14) more likely to receive drug treatment than Comparison participants. Utilization rates for inpatient/residential drug treatment occurred at relatively low frequencies and were not different between the groups. Inpatient mental health services could not be analyzed because only one caregiver reported receiving these services during the study period.

Figure 1 illustrates these results, indicating the percentage of caregivers at each assessment point and for the total study period who reported parenting, mental health, or drug treatment services. During the study period, 63% of the SESS group received parenting services compared to 27% of the Comparison group. Use of parenting services declined gradually over time in both groups, but remained higher in the SESS group throughout the study period. Conversely, use of mental health services showed a gradual increase across the study period for both groups, with the SESS group exhibiting consistently higher rates of utilization across the study period. A total of 39% of SESS

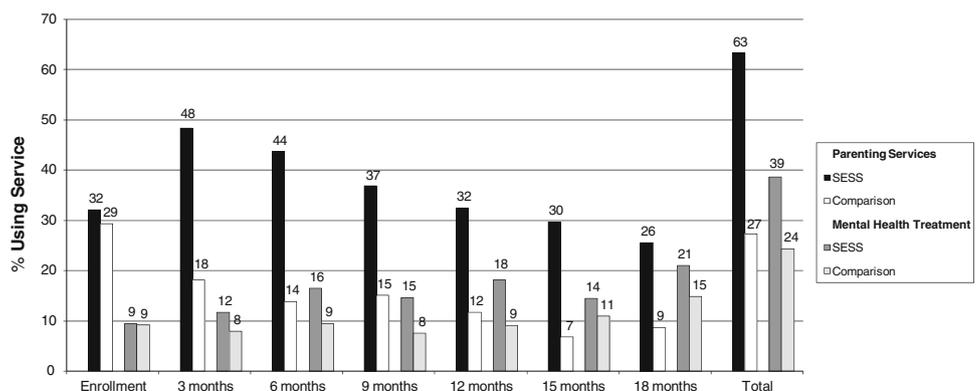
caregivers received mental health outpatient services compared to 24% in the Comparison group.

The SESS group also showed greater utilization of outpatient drug treatment services (16% SESS vs. 13% Comparison overall), although these differences peaked early in the study and use of outpatient drug treatment decreased over time in both groups. Of note, the only significant baseline difference observed in service utilization was for outpatient drug treatment, with 12% of the Comparison group reporting drug treatment compared to 10% of SESS participants at baseline. This difference was controlled in all GEE analyses. Receipt of inpatient/residential drug treatment services peaked early in both groups, with no differential program effect.

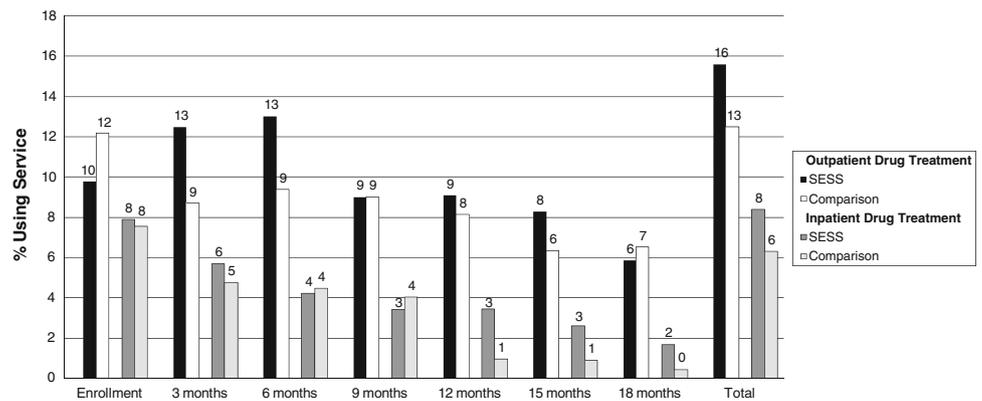
### Subgroup Analyses: Baseline Mental Health and Drug Treatment Need

The GEE analyses were repeated on the sample classified at baseline as having an identified need for mental health services (SESS  $n = 123$  or 40%; Comparison  $n = 118$  or 39%) or drug treatment services (SESS  $n = 136$  or 44%; Comparison  $n = 144$  or 47%). Baseline sample classification for mental health or drug treatment need was equally distributed across groups. As reported in Table 4, the GEE Odds Ratio results were consistent with those reported for the overall sample for mental health and drug treatment services. SESS participants with baseline mental health treatment needs were 2.8 times more likely than Comparison to receive mental health services during the study period ( $p < .001$ ; CI = 1.71–4.52). SESS participants with drug treatment needs at baseline were 1.8 times more likely than the Comparison group to receive outpatient drug treatment ( $p = .034$ ; CI = 1.05–3.22). Inpatient/residential treatment service use was not different between groups among those caregivers identified at baseline as needing drug treatment. Figure 2 depicts the percentage of caregivers in each indicated need subgroup who received needed services.

**Fig. 1** Receipt of parenting and mental health services at each time point



**Fig. 2** Receipt of outpatient and inpatient drug treatment at each time point



**Table 5** Predictors of Service Utilization by Treatment Group

	SESS		Comparison	
	OR	95% CI	OR	95% CI
<i>Parenting services</i>				
Mental health treatment need	1.23	0.88–1.72	1.20	0.68–2.13
Drug treatment need	1.16	0.80–1.68	2.21 <sup>†</sup>	1.25–3.89
Family demographic risk index	0.99	0.88–1.12	1.01	0.82–1.24
Family behavioral health history	1.03	0.84–1.26	0.98	0.72–1.34
<i>Outpatient mental health treatment</i>				
Mental health treatment need	2.59 <sup>†</sup>	1.70–3.96	1.76*	1.06–2.92
Drug treatment need	0.89	0.56–1.42	2.03*	1.10–3.74
Family demographic risk index	0.96	0.83–1.11	1.02	0.87–1.20
Family behavioral health history	1.22	0.95–1.57	1.60*	1.11–2.30
<i>Inpatient/outpatient drug treatment</i>				
Mental health treatment need	0.73	0.37–1.46	0.93	0.41–2.13
Drug treatment need	13.58 <sup>†</sup>	5.19–35.53	13.60 <sup>†</sup>	3.57–51.86
Family demographic risk index	1.36*	1.07–1.73	1.42*	1.05–1.93
Family behavioral health history	1.26	0.85–1.87	1.13	0.74–1.74

Note: Each OR is adjusted for program site, time of assessment and each covariate in the model; SESS  $n = 306$ , Comparison  $n = 304$  for all models

\*  $p < .05$ ; <sup>†</sup>  $p < .01$

### Predictors of Service Utilization

A separate series of GEE analyses were conducted by group to evaluate specific predictors of service utilization. A circumscribed set of factors focused on family demographic risk, family history of behavioral health problems,

and baseline behavioral health service needs were evaluated within each group. Results for each service domain are presented in Table 5. Use of parenting services was not predicted by any of the four risk factors in the SESS group. In the Comparison group, those with an indicated drug treatment need were more likely to receive parenting services. Receipt of outpatient mental health services was predicted by baseline indication for mental health services in both groups; family behavioral health history and baseline need for drug treatment services also predicted use of mental health services, but only in the Comparison group. Predictors of drug treatment services were the same in both groups; caregivers with an indicated need for treatment were approximately 13½ times more likely to receive substance-related services. Mental health service need and family history of behavioral health problems were not relevant predictors of service use for either group; however, family demographic risk, which was not a significant indicator of either parenting or mental health services, did predict use of drug treatment services in both groups.

### Discussion

The current study presents a synthesis of data emanating from the national SESS Initiative, focusing on the collaborative evaluation results from five participating pediatric healthcare sites across the nation. The goal of the SESS integrated services model was to increase access to behavioral health services for at-risk families with infants and young children who might not otherwise receive parenting, mental health or drug use prevention and intervention services. The national SESS study strengths include randomized assignment of participants, cross-site collaboration in data collection methods and a common evaluation design, excellent longitudinal cohort retention, and the use of statistical procedures accounting for multiple potential confounding influences.

Increasingly, public policy emphasizes the importance of providing families with young children prevention-oriented parenting and behavioral health services within a coordinated and streamlined system of care (Knitzer 2001; US Public Health Service 2000). However, in many community settings parenting prevention and intervention services are difficult to fund, and are often available only to parents with an identified mental health disorder or involvement in the child protective services system. The SESS PC program offered parenting services within the pediatric healthcare setting as a universal preventive-intervention to support parents in building healthy parent-child relationships during early childhood.

Research suggests that families living with the many challenges of poverty, single parenthood, or behavioral health problems are more likely to experience stress and difficulty managing their parenting roles (Evans et al. 2008). Effects of poverty appear to be further accentuated in families with mental health and substance abuse problems, resulting in increased risk for punitive parenting and child emotional/behavioral problems (Zima et al. 1996). Caregivers in the present study were predominately mothers (over 97% in each group); over 50% were raising their children alone and only 22–24% reported being married. Approximately half of the participants had completed high school or were employed and 30–40% were recipients of public assistance benefits. While not all caregivers reported behavioral health risks, 39% met criteria for mental health treatment need and 46% met criteria for drug treatment need at program enrollment.

Key findings from the current report indicate the SESS program was successful in increasing caregiver participation in parenting services. SESS caregivers were 4.6 times more likely than Comparison caregivers to receive parenting education services during the study period. Increased accessibility of parenting services within the PC setting resulted in more than double the number of families receiving these services when compared to standard community care. This suggests that when given the opportunity, at-risk caregivers will engage and participate in parenting services. Interestingly, indicated need for caregiver drug treatment services at baseline predicted which families used parenting services in the Comparison but not in the SESS group. Community parenting services are often more readily available to women with young children within the context of drug treatment, which may have contributed to this finding. Baseline need for mental health or drug treatment services did not predict which SESS families participated in parenting services, suggesting that SESS program efforts to provide preventive parenting services to a broader spectrum of families was achieved.

Use of parenting services declined gradually over time in both groups, but remained higher in the SESS group

throughout the follow-up period. It is likely that as parents became more confident in their parenting role or finished a specific parenting curriculum they tended to feel less need for parenting services and decreased their participation. Parents with the greatest risk for maladaptive parenting may benefit from intermittent but ongoing parenting interventions tailored to their specific needs and accelerated during periods of developmental transition that might further challenge the parent-child relationship. The current study summarizes the use of parenting services over an 18 month study period; longer term follow-up will be important to identify factors that influence need-based use for parenting services during early childhood.

The SESS PC program positively impacted caregiver use of outpatient mental health and drug treatment services. SESS caregiver participants were 2.1 times more likely to receive outpatient mental health services, and 1.8 times more likely to receive drug treatment than Comparison group participants. During the study period, 39% of SESS caregivers received mental health outpatient services compared to 24% in the Comparison group. Receipt of mental health services showed a gradual increase across the study period for both groups, with the SESS group exhibiting consistently higher rates of utilization. The SESS group also showed greater utilization of outpatient drug treatment services (16% SESS vs. 13% Comparison overall), although these differences were less clinically meaningful and peaked early in the study, with receipt of outpatient drug treatment decreasing over time in both groups. Inpatient/residential drug treatment was less common in the study population, with only 8% of SESS caregivers and 6% of Comparison caregivers reporting inpatient treatment for drug use problems. In many of the community settings under study, drug-using mothers with newborns (when identified) received referrals for drug treatment, often within the context of child protective services involvement. This factor may have contributed to the more similar utilization rates between the groups for drug treatment.

Despite similar baseline levels for treatment need between the SESS and Comparison groups, SESS caregivers with identified behavioral health service needs were more likely to receive mental health or drug treatment. While these results are encouraging and clearly suggest that the integration of behavioral health services for caregivers within the pediatric healthcare setting was effective in improving access to needed mental health and drug treatment services, there remained significant gaps in both groups between the percentage of caregivers with identified service needs and those actually receiving services. Although knowledge regarding evidence-based effective treatments for mental health and drug abuse issues has greatly improved in the past decade, significant barriers to

treatment for the most at-risk populations remain (Hoagwood and Olin 2002; Tolan and Dodge 2005). Data from the National Comorbidity Survey indicated that approximately half of parenting women and one-third of parenting men meet criteria for a psychiatric disorder or a co-occurring psychiatric/substance use disorder during their lifetime (Kessler et al. 1994; Nicholson and Biebel 2002). In a recent synthesis of the literature on mothers with mental illness, Brunette and Dean (2002) highlighted the difficulty in parenting that these mothers often have, and called for the improved integration of child and adult services, long-term home-based parenting support, and coordination of other community resources related to family service needs.

This report also evaluated the degree to which identified caregiver need for mental health or drug treatment, family demographic risk, and family behavioral health history predicted service use among participants. Identified risk factors did not unilaterally predict service use. For example, receipt of parenting services among SESS participants was not predicted by any of the four risk factors. This finding was consistent with the notion that parenting services were considered to be a universal preventive-intervention among the SESS PC programs and were widely offered and received by SESS participants, decreasing the likelihood that any single factor might predict participation. In the Comparison group, those meeting risk criteria for substance abuse treatment need were more likely to receive parenting services. This is consistent with standard care in most communities, where only the most at-risk caregivers are most likely to be identified and offered parenting services, often within the context of substance abuse treatment or due to involvement with child protective services.

As would be expected, receipt of outpatient mental health services was predicted by identified caregiver need for mental health services in both groups. Mental health service utilization was also predicted by family behavioral health history and drug treatment need, but only in the Comparison group. These findings suggest that in the SESS group, other predictors were less powerful once the overall need for mental health services was taken into account, perhaps due to a more targeted correspondence between treatment need and receipt of services within the SESS service integration model. It is possible that the SESS multidisciplinary team approach resulted in better assessment and engagement into needed services based upon specific treatment needs.

There was also a clear correspondence between identified need for drug treatment and receipt of services; caregivers indicating drug treatment need in both groups were approximately 13½ times more likely to receive substance-related services. Mental health service need and family

history of behavioral health problems were not relevant predictors of drug treatment service use for either group; however, family demographic risk did predict use of substance-related treatment services. Results suggest that mental health and parenting services were used by caregivers independent of family demographic risk, while participation in substance-related services was associated with caregivers from more demographically disadvantaged populations.

The national SESS PC study benefited from inherent strengths, including random group assignment of PC participants and excellent overall program retention. Several study characteristics, however, merit discussion when interpreting results. From an analytic perspective, the sites varied in their demographic make-up and overall level of risk, although these differences were controlled for in all analyses. The SESS integrated services model was intended to be a dynamic and flexible model, adaptable to varying community and contextual settings serving young children. Accordingly, the SESS model focused on increasing access to the general scope of community-based parenting services provided within the context of each individual program's cultural, demographic, and risk-related consumer need. While the SESS PC sites shared common program elements based on established key principles (Hanson et al. 2001), there were site-specific differences in the services provided. Accordingly, the model being tested was focused on the provision of integrated services within the PC setting rather than the evaluation of any specific model of parenting, mental health, or drug treatment.

The data used in the current report were drawn from self-report measures and are impacted by the potential biases associated with self-report methods. For example, the service use summary variables were derived from retrospective accounts of caregiver service utilization, and may have been impacted by recall errors or under-reporting. A recent study suggests, however, that even individuals with serious mental illness can reliably report their use of health services retrospectively up to 6 months (Goldberg et al. 2002). Also relevant, parents have been observed to reliably report their child's health service utilization, although reliability decreases when service questions are specific to provider details and settings, and as the length of the recall period increases (Bean et al. 2000). Similarly, Spanish-speaking parents report child school and mental health service utilization with fair to moderate reliability for past year recall, although reliability diminishes significantly when details are asked regarding the type of professional or treatment modality used (Canino et al. 2002). In regard to identified need for drug use services, biological markers were not used to verify drug use and self-report of drug use has the potential to be underestimated due to the perceived associated stigma of drug-related interpersonal difficulties.

Parents may also fail to disclose their own mental health or drug use issues due to concerns regarding stigmatization or loss of custody of their children (Nicholson and Biebel 2002; Nicholson et al. 1998).

Results from the current report show a clear link between implementation of the SESS integrated services model within the pediatric healthcare setting and increased use of parenting, mental health, and to a somewhat lesser degree, drug treatment services among at-risk families. The SESS initiative recognized the importance of providing the full spectrum of early prevention and intervention services to both children and their caregivers to promote optimal health and development during the early childhood years. As noted by Knitzer (2001) there is a preponderance of evidence supporting the importance of caregiver behavioral health and early parenting relationships to the mental health and well-being of young children as they reach school-age. The SESS model allowed for communities to implement varying best practice evidence-based models for parenting and behavioral interventions based on their patient populations, but did not evaluate specific curricula or intervention approaches. Future research needs to link integrated services to functional outcomes and to evaluate specific evidence-based treatments within the context of an integrated system of care for at-risk families with young children. Within this framework, it is important to delineate participant and programmatic factors that influence successful outcomes. Research that evaluates and compares components of multimodal service integration programs will also further inform our knowledge of “what works” by identifying which components are most integral to both effective service integration and improvement of targeted family outcomes. Results from the current report are encouraging in identifying innovative community-based practices for decreasing barriers and improving access to parenting and behavioral health services for at-risk caregivers with young children; however, much work remains to influence policy and develop reliable state and federal funding streams to support prevention-oriented family services beyond traditional venues.

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## References

- Accornero, V. H., Morrow, C. E., Bandstra, E. S., Johnson, A. L., & Anthony, J. C. (2002). Behavioral outcome of preschoolers exposed prenatally to cocaine: Role of maternal behavioral health. *Journal of Pediatric Psychology*, 27, 259–269.
- Anhalt, K., Telzrow, C. F., & Brown, C. L. (2007). Maternal stress and emotional status during the perinatal period and childhood adjustment. *School Psychology Quarterly*, 22, 74–90.
- Annie E. Casey Foundation. (1999). *Kids count data book 1999: State profiles of child well-being Baltimore*. MD: Author.
- Bean, D. L., Leibowitz, A., Rotheram-Borus, M. J., Duan, N., Horwitz, S. M., Jordan, D., et al. (2000). False-negative reporting and mental health services utilization: Parents’ reports about child and adolescent services. *Mental Health Services Research*, 2, 239–249. doi:10.1023/A:1010116604540.
- Bickman, L. (1996). A continuum of care—More is not always better. *The American Psychologist*, 51, 689–701. doi:10.1037/0003-066X.51.7.689.
- Bruner, C. (1994). State government and family support: From marginal to mainstream. In S. L. Kagan & B. Weissbourd (Eds.), *Putting families first: America’s family support movement and the challenge of change* (pp. 338–357). San Francisco, CA: Jossey-Bass.
- Brunette, M. F., & Dean, W. (2002). Community mental health care for women with severe mental illness who are parents. *Community Mental Health Journal*, 38, 153–165. doi:10.1023/A:1014599222218.
- Canino, G., Shrout, P. E., Alegria, M., Rubio-Stipec, M., Chavez, L. M., Ribera, J. C., et al. (2002). Methodological challenges in assessing children’s mental health services utilization. *Mental Health Services Research*, 4, 97–107. doi:10.1023/A:1015252217154.
- Carnegie Corporation of New York & Task Force on Meeting the Needs of Young Child. (1994). *Starting points: Meeting the needs of our youngest children: The report of the Carnegie Task Force on Meeting the Needs of Young Children*. New York, NY: Carnegie Corporation of New York.
- Department of Health and Human Services. (2001). *Report of a surgeon general’s working meeting on the integration of mental health services and primary health care*. Rockville, MD: US DHHS, Public Health Service, Office of the Surgeon General.
- Derogatis, L. R., Rickels, K., & Rock, A. F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. *The British Journal of Psychiatry*, 128, 280–289. doi:10.1192/bjp.128.3.280.
- Derogatis, L. R., & Spencer, P. M. (1999). *The brief symptom inventory: Administration, scoring, and procedures manual* (2nd ed.). Baltimore, MD: Clinical Psychometric Research, Inc.
- Diggle, P., Liang, K. Y., & Zeger, S. L. (1994). *Analysis of longitudinal data*. London, UK: Oxford University Press.
- Evans, G. W., Boxhill, L., & Pinkaya, M. (2008). Poverty and maternal responsiveness: The role of maternal stress and social resources. *International Journal of Behavioral Development*, 32, 232–237. doi:10.1177/0165025408089272.
- Farmer, E. M. Z. (2000). Issues confronting effective services in systems of care. *Children and Youth Services Review*, 22, 627–650. doi:10.1016/S0190-7409(00)00107-9.
- Foster, E. M., Stephens, R., Krivelyova, A., & Gamfi, P. (2007). Can system integration improve mental health outcomes for children and youth? *Children and Youth Services Review*, 29, 1301–1319. doi:10.1016/j.childyouth.2007.05.004.

- Friedman, R. M., & Burns, B. J. (1996). The evaluation of the Fort Bragg Demonstration Project: An alternative interpretation of the findings. *Journal of Mental Health Administration*, 23, 128–136. doi:10.1007/BF02518651.
- Goldberg, R. W., Seybolt, D. C., & Lehman, A. (2002). Reliable self-report of health service use by individuals with serious mental illness. *Psychiatric Services (Washington, DC)*, 53, 879–881. doi:10.1176/appi.ps.53.7.879.
- Hanson, L., Deere, D., Lee, C. A., Lewin, A., & Seval, C. (2001). *Key principles in providing integrated behavioral health services for young children and their families: The starting early starting smart experience*. Washington, DC: Casey Family Programs and the US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.
- Hawley, T. (1998). *Ready to succeed: The lasting effects of early relationships. An ounce of prevention fund and zero to three paper*. Washington, DC: Zero to Three: National Center for Infants, Toddlers and Families.
- Hoagwood, K., & Olin, S. S. (2002). The NIMH blueprint for change report: Research priorities in child and adolescent mental health. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 760–767. doi:10.1097/00004583-200207000-00006.
- Johnson, A. L., Bandstra, E. S., Morrow, C. E., Accornero, V. H., Xue, L., & Anthony, J. C. (2002). Maternal cocaine use: Estimated effects on mother-child play interactions in the preschool period. *Journal of Developmental & Behavioral Pediatrics*, 23, 191–202.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., et al. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51, 8–19.
- Knitzer, J. (2001). *Building services and systems to support the healthy emotional development of young children: An action guide for policymakers*. New York, NY: National Center for Children in Poverty.
- Lavigne, J. V., Gibbons, R. D., Arend, R., Rosenbaum, D., Binns, H. J., & Christoffel, K. K. (1999). Rational service planning in pediatric primary care: Continuity and change in psychopathology among children enrolled in pediatric practices. *Journal of Pediatric Psychology*, 24, 393–403. doi:10.1093/jpepsy/24.5.393.
- Leinonen, J. A., Solantaus, T. S., & Punamaki, R. L. (2003). Parental mental health and children's adjustment: The quality of marital interaction and parenting as mediating factors. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 44, 227–241. doi:10.1111/1469-7610.t01-1-00116.
- Liang, K. Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika*, 73, 13–22. doi:10.1093/biomet/73.1.13.
- McLellan, A., Parikh, G., Bragg, A., Cacciola, J., Fureman, B., & Incmikoski, R. (1990). *Addiction severity index-administration manual* (5th ed.). Penn, VA: Center for Studies of Addiction.
- Mordock, J. B. (1997). The Fort Bragg continuum of care demonstration project: The population served was unique and the outcomes are questionable. *Child Psychiatry and Human Development*, 27, 241–254. doi:10.1007/BF02353353.
- National Research Council Institute of Medicine. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- Nicholson, J., & Biebel, K. (2002). Commentary on "Community mental health care for women with severe mental illness who are parents"—The tragedy of missed opportunities: What providers can do. *Community Mental Health Journal*, 38, 167–172. doi:10.1023/A:1014551306288.
- Nicholson, J., Sweeney, E. M., & Geller, J. L. (1998). Mothers with mental illness: I. The competing demands of parenting and living with mental illness. *Psychiatric Services (Washington, DC)*, 49, 635–642.
- Poulsen, M. K. (1994). The development of policy recommendations to address individual and family needs of infants and young children affected by family substance use. *Topics in Early Childhood Special Education*, 14, 275–292. doi:10.1177/027112149401400209.
- Roberts, R. N., & Akers, A. L. (1996). Family-level service coordination within home visiting programs. *Topics in Early Childhood Special Education*, 16, 279–302. doi:10.1177/027112149601600303.
- Roberts, R. N., & Behl, D. D. (1996). Community-level service integration within home visiting programs. *Topics in Early Childhood Special Education*, 16, 302–322. doi:10.1177/027112149601600304.
- Statacorp. (1999). *Stata statistical software*. College Station, TX: Stata Corporation.
- The President's New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America*. Final Report. <http://www.mentalhealthcommission.gov/reports/FinalReport/toc.html> [On-line]. Accessed November 2008.
- Tolan, P. H., & Dodge, K. A. (2005). Children's mental health as a primary care and concern—A system for comprehensive support and service. *The American Psychologist*, 60, 601–614. doi:10.1037/0003-066X.60.6.601.
- US Public Health Service. (2000). *Report of the Surgeon General's conference on children's mental health: A national action agenda*. Washington, DC: Department of Health and Human Services.
- Zeger, S. L., & Liang, K. Y. (1986). Longitudinal data analysis for discrete and continuous outcomes. *Biometrics*, 42, 121–130. doi:10.2307/2531248.
- Zima, B. T., Wells, K. B., Benjamin, B., & Duan, N. (1996). Mental health problems among homeless mothers: Relationship to service use and child mental health problems. *Archives of General Psychiatry*, 53, 332–338.

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