

Family Characteristics and Children's Receipt of Autism Services in Low-Resourced Families

Elizabeth A. Karp, MS,^a Rebecca Dudovitz, MD, MSHS,^b Bergen B. Nelson, MD, MSHS,^c Wendy Shih, DrPh,^d Amanda Gulsrud, PhD,^d Felice Orlich, PhD,^e Costanza Colombi, PhD,^f Alice A. Kuo, MD, PhD, MBA^{b,g}

abstract **OBJECTIVES:** Parents of children with autism spectrum disorder (ASD) face competing demands when caring for their child and fulfilling family commitments. It remains unknown whether family obligations and parental stress might decrease the use of intervention services for young children with ASD.

METHODS: The current study is a secondary analysis of baseline data from a published randomized control trial with 147 low-resourced caregiver-child dyads. Demographic information, data on service use, maternal employment, parent's perception of their child's development, and parental stress were collected for primary caregivers of 2- to 5-year-old children with ASD from 5 sites. Multiple logistic regressions of accessing any intervention services or more than 1 services on familial characteristics were performed, controlling for demographic and contextual variables.

RESULTS: Twenty-five percent of children were receiving no intervention service; 26% were receiving 1 service; and 49% were receiving 2 or more services. Perceived developmental delay and not having a sibling in the home were associated with higher odds of receiving intervention services. Children were more likely to receive more than 1 service if their parents had at least a college education and low levels of stress.

CONCLUSIONS: Factors including perceived developmental level, parental stress, and caring for siblings may play a role in accessing services for children with ASD. Results reveal that competing family needs may be barriers to service use. Mothers of children with ASD with multiple children in the home, low levels of education, and high levels of stress may need additional supports or alternative service delivery models.

^aDepartment of Psychology, University of Washington, Seattle, Washington; ^bDepartment of Pediatrics and Children's Discovery & Innovation Institute, David Geffen School of Medicine at UCLA and UCLA Mattel Children's Hospital; ^cCenter for Autism Research and Treatment, and ^dDepartment of Medicine, University of California, Los Angeles, Los Angeles, California; ^eChildren's Hospital of Richmond and Virginia Commonwealth University, Richmond, Virginia; ^fSeattle Children's Hospital Autism Center, Seattle, Washington; and ^gDepartment of Psychiatry, University of Michigan, Ann Arbor, Michigan

Ms Karp drafted the manuscript and conceptualized the secondary data analysis; Drs Nelson, Dudovitz, and Kuo conceptualized the secondary data analysis and reviewed and revised the manuscript; Dr Shih conducted the analyses and reviewed and revised the manuscript; Drs Gulsrud, Orlich, and Colombi reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

Early referral for and enrollment in autism spectrum disorder (ASD) specialized services is critical, as behavioral and educational interventions can improve outcomes for children in cognitive, language, and social domains.¹ Professional guidelines recommend parental involvement in their children's intervention services to ensure optimal health and developmental outcomes.¹ These recommendations are significant for children's development and growth because there is evidence that children whose parents are involved in intervention show improvements in important areas, including cognitive skills.² Although parental involvement in interventions may be a key component of acquisition and generalization of skills into the home context, the time required to maintain high parent involvement may compete with other family needs. This is particularly important to consider with parents of children with ASD because some effective interventions for young children with ASD are demanding and time intensive,³ requiring parents to take on multiple roles, including coordinators of different services⁴ and deliverers of the intervention itself.^{1,5,6}

The influence of parental involvement in intervention services on the family is particularly important to examine in parents of children with ASD because they exhibit unique patterns of stress. Mothers of children with ASD are at risk for experiencing greater parental stress than mothers of typically developing children^{6,7} and mothers of children with other disabilities.^{8,9} Furthermore, parents of children with ASD exhibit similar cortisol levels to those of combat soldiers, parents who have a child with cancer, and individuals who suffer from posttraumatic stress disorder.¹⁰ Mothers of children with ASD consistently report high

levels of psychological distress, including parental stress, depressive symptoms, and social isolation.^{11,12} Approximately 40% of such mothers report clinically significant levels of parenting stress, and between 33% and 59% report depressive symptoms warranting psychiatric evaluation.^{13,14} These depressive symptoms are associated with decreased energy, concentration, and lack of motivation, and can adversely affect maternal functioning as well as a mother's capacity to manage the health needs of her children.^{15–18} In this population, parental stress can also result from the patterns of behavior that children with ASD exhibit, specifically related to deficits in social and communication skills and the presence of restricted interests and repetitive behaviors. Not only do these behaviors themselves influence parents' stress,^{12,13} but acquiring and coordinating the sometimes multitude of intervention services needed for children with ASD places a significant strain on a family's time and financial resources.¹⁹

Some evidence suggests that parents may experience improvements in their own mental health and sense of competency when their child begins receiving intervention services,^{20,21} especially when those services directly target parent needs for information and specific help for their child.²² However, there is also evidence suggesting that enrollment in intervention services may raise additional, unintended challenges for the family unit. In a recent analysis of the National Survey of Children with Special Health Care Needs, the authors showed that families of children with ASD may face higher levels of financial and employment burden than families of other children with special health care needs; specifically, avoiding job changes to maintain health insurance, paying higher out-of-pocket expenses, experiencing

financial problems, spending a substantial amount of time each week coordinating care, and reducing or ending employment.²³ Recently, authors of a qualitative study described the challenges faced by parents of children with ASD and found that most parents reported having to adapt their employment and child care conditions to accommodate time-consuming intervention schedules.⁴ These findings are consistent with previous studies in which authors showed that mothers of children with ASD are less likely to be employed²⁴ and more likely to face problems with employment because of child care arrangements.^{25,26} In children with ASD, when intervention attendance (as measured by the percentage of sessions completed) was examined in families in 1 study, parents from a lower socioeconomic status (SES) background were less likely to attend intervention sessions as compared with parents from a higher SES background.²⁷ The importance of insurance coverage and SES reveals that further understanding is needed surrounding the relation between familial characteristics and service use in parents of children with ASD.

Given the challenges that are often associated with accessing services for ASD (eg, obtaining an individualized education plan through a school district), family burden is an important factor to consider when evaluating the extent to which underserved children with ASD are receiving appropriate services. The current study used baseline data from a multisite randomized controlled trial for children with ASD to examine the association among familial characteristics and the odds of accessing ASD-targeted therapies inside and outside of school.²⁸ In the context of previous literature demonstrating family burden associated with ASD, we

sought to investigate whether familial characteristics such as maternal employment, parental stress, and additional family and child characteristics were associated with the use of intervention services at the time of entry into the study. We sought to examine intervention use in underserved children with ASD who are 5 years old and younger, because this age group represents children eligible for early intervention services and early childhood special education.

METHODS

Participants

The current study is a secondary analysis of baseline data from a previously published randomized controlled intervention study.²⁸ Children with an existing diagnosis of ASD were recruited from the following 5 study centers across the United States participating in the Autism Intervention Research Network for Behavioral Health: University of Washington, University of Michigan, Kennedy Krieger Institute, Florida State University, and University of California, Los Angeles. Institutional review board approval was obtained at all 5 sites and all caregivers consented to their family's participation in the study. To be eligible for the main study, children must have had a diagnosis of ASD, as confirmed with the Autism Diagnostic Observation Schedule,²⁹ were between 2 and 5 years of age, and have had a reported lack of resources as defined by receiving government assistance, such as Medicaid health insurance or difficulty accessing services for ASD. Recruitment occurred over 23 months (from August 2009 through July 2011). For the current analysis, we examine data from the 147 primary caregivers (83% mothers) across 5 sites who completed self-report measures on demographics, family resources, family stress, and service use at study entry.

Measures

Dependent Variable

Our outcome of interest in this analysis was whether the child was receiving intervention services before study entry. Parents reported on all services the child was receiving (ie, speech language therapy, occupational therapy, special education, behavioral therapy, biomedical treatments, and other treatments or therapies) and whether the services were received inside school, outside of school, or both. We then compared children who were receiving no intervention services to children who were receiving at least 1 intervention service and, separately, children who were receiving only 1 intervention service to children who received more than 1 intervention service.

Independent Variables and Covariates

Caregivers completed self-report measures related to their family's demographic information, their perceptions of their child's developmental level, and their own parental stress.

Demographic Information

Caregivers completed a self-report form, which asked them to report on familial characteristics including maternal employment, whether there was more than 1 child living in the home, child's age, child's sex, child's race and ethnicity, language the child hears most at home, mother's education, and household income. Because this was a multisite study, the study site was entered as a covariate into the model. All variables were selected for their potential to impact service use and entered into the model simultaneously, and there was no evidence of multicollinearity between variables. Caregivers completed questionnaires to collect information about their child's background and their own background. The number of adults in the home was asked inconsistently

across study sites; therefore, we were not able to use the presence of adults (second parents or other caregivers) in our analyses. However, single mothers were eligible for enrollment in the study. The child's age was calculated in months from date of birth to date of entry into the study. Caregivers were asked to select any number of options to report on their child's race and ethnicity and these categories were collapsed into white, African American, Hispanic, Asian American, and other (American Indian and Pacific Islander were placed into the "other" category). Caregivers were asked to select the child's mother's level of education from 7 categories and this variable was then categorized as high school diploma or less, some college, college degree, or more than college. Caregivers were asked to report the primary language the child hears most at home, and this variable was coded as "English" or "not English." Caregivers were asked to list the number of children in the home, and this covariate was dichotomized to reflect whether the study participant had siblings living in the home or no siblings living in the home. Given that mothers are typically involved with intervention services, we elected to use maternal employment and education in our model.

Perceptions of Child's Developmental Level

Caregivers were asked whether they perceived their child's development to be "behind age level," "at age level," or "above age level." This variable was dichotomized as "behind age level" or "at age level or above."

Parental Stress

Parental stress was measured with the Parenting Daily Hassles survey³⁰ (internal consistency reliability $\alpha = .81-.90$). This is a 20-item measure of typical everyday events in parenting and parent-child interactions. Parents were asked to rate (1) how often these events occur in their daily life

(frequency), and (2) how much of a hassle they feel these events are (intensity). For the frequency subscale, in response to each item, the caregiver rates the frequency of occurrence on a 5-point scale (never = 0, rarely = 1, sometimes = 2, a lot = 3, constantly = 4). A frequency scale score is calculated as the sum of the frequency ratings on all 20 items and treated as a continuous variable in the analysis. A frequency scale score of 37 (SD = 7) is considered average. We elected to use the frequency subscale of the Parenting Daily Hassles survey because we were interested in the frequency with which parents experience challenges with their children.

Data Analysis

All analyses were performed by using R version 3.3.2 statistical programming language (R Foundation for Statistical Computing, Vienna, Austria). For our primary analysis we conducted multiple logistic regressions to examine whether familial characteristics influence the odds of receiving any intervention services. As a secondary analysis, we also sought to determine if any familial characteristics were associated with accessing fewer intervention services among those families who successfully accessed at least 1 service. We therefore restricted the next analysis to families who had accessed intervention services and conducted a separate multiple logistic regression of accessing more than 1 intervention service, compared with accessing only 1 service, controlling for the covariates described above. Missing data represented at most 20% of the sample in which parents did not return the demographic form. Significance was determined at $P < .05$, and moderate significance was determined as P range between .05 and .1.

RESULTS

Descriptive Statistics

Demographic characteristics of the children and families included in

the study sample are presented in Table 1. Twenty-five percent were receiving no services or interventions on entry to the study, 26% were receiving 1 service or intervention, and 49% were receiving 2 or more services. All parents reported on services that children received inside and/or outside of school. Fourteen percent of the sample was Hispanic, and 14% of participants spoke a language other than English at home. In addition, 21% of mothers had a high school diploma or General Equivalency Diploma or less. Of the 147 caregiver-child dyads, 112 caregivers provided complete data (“completers”) on all the variables of interest and 35 caregivers did not provide complete data (“noncompleters”). A detailed analysis was performed to determine if completers and noncompleters differ in the variables of interest. There were no significant differences between completers and noncompleters in any variables of interest.

Multivariate Analysis

Logistic regression of maternal employment on accessing any intervention services revealed that children whose mothers perceived delays in their child’s development had higher odds of accessing services for their children compared with those whose mothers did not feel that their child’s development was delayed (odds ratio [OR] = 0.22, $P = .05$). Maternal employment was not associated with the odds of receiving intervention services, nor were any other familial characteristics. Additionally, having a sibling was associated with lower odds of accessing any intervention services (OR = 0.26, $P = .05$). Among children who had received at least 1 intervention service, higher maternal education was associated with higher odds of accessing more than 1 service (OR = 6.86, $P = .04$ for some

TABLE 1 Child and Family Characteristics

	<i>n</i> (%)
Child	
Age, mo, mean \pm SD	41.7 \pm 9.8
Sex	
Female	24 (16)
Male	123 (84)
Race and/or ethnicity ^a	
White	48 (36)
Asian American	13 (10)
African American	34 (26)
Hispanic	18 (14)
Other	19 (14)
Language heard at home ^a	
English	114 (86)
Other	18 (14)
Developmental level ^b	
At or beyond age level	14 (11)
Behind age level	109 (89)
Intervention services accessed ^c	
None	31 (25)
1 service	33 (26)
2 or more services	61 (49)
Family	
Mother works outside the home? ^d	
No	75 (57)
Part-time	23 (17)
Full-time	34 (26)
Mother’s education level ^d	
High school diploma or less	28 (21)
Vocational school or some college	44 (33)
College degree	35 (27)
More than college degree	25 (19)
Annual household income, ^e \$	
<20 000	36 (28)
20 000–49 000	46 (36)
50 000 or more	46 (36)
Have at least 1 sibling in household ^d	
	89 (67)
Parent daily hassles frequency total, ^f mean \pm SD	
	43.2 \pm 13.3

^a $n = 117$.

^b $n = 123$.

^c $n = 125$.

^d $n = 132$.

^e $n = 128$.

^f $n = 127$.

college versus high school or less; OR = 11.23, $P = .03$ for postcollege versus high school or less; see Fig 1A); whereas, higher parental stress was associated with lower odds of accessing more than 1 intervention service (OR = 0.92, $P < .01$; see Fig 1B). Again, maternal employment was not significantly associated with the odds of receiving more than 1 intervention service, nor were any other familial characteristics.

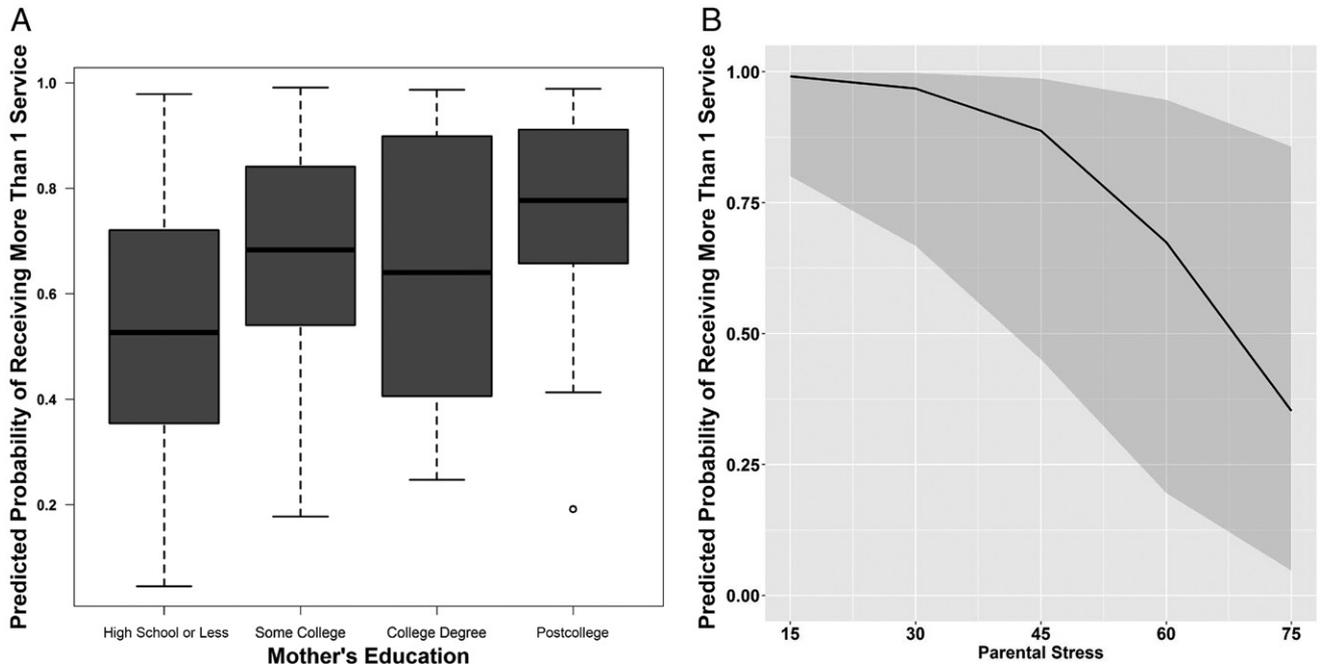


FIGURE 1 A, Predicted probability of receiving more than 1 service based on maternal education. B, Predicted probability of receiving more than 1 service based on parental stress.

DISCUSSION

These results suggest that parental stress, whether there is another sibling in the household, and a parents' perception of their child's development are significantly associated with accessing intervention services for a child with ASD. Both having a mother who is experiencing high stress and having another sibling in the home were associated with lower odds of receiving intervention services. With these findings, we demonstrate the difficulty parents of children with ASD face in addressing competing needs in the family. Conversely, caregivers who perceived that their child's development was behind his or her chronological age were more likely to access intervention services for their child as compared with caregivers who did not perceive delays in their child's development. Taken together, these results highlight the critical role caregivers play in accessing and coordinating service delivery for children with ASD. It was somewhat surprising

that maternal employment was not associated with the odds of receiving intervention services; however, this may be because the reason behind maternal employment level was not collected. That is, mothers were not asked to report whether they were unemployed by choice, or unemployed because they were unable to find work. Future studies could examine the reasons behind maternal employment as a possible means of determining its relation to receipt of ASD services.

Ideally, access to intervention services should be determined by how likely the child is to benefit from these services; however, our findings suggest that specific familial characteristics should be targeted to enhance service use. Intervention providers might consider the extra demands on parents who have more than 1 child and are experiencing high levels of parental stress. Although the type of intervention service received was not examined as a part of this study, because many interventions

include some level of parent involvement,^{5,31} we must consider the different effects of this involvement. Recently, efficacy studies of parent-delivered interventions have become increasingly popular because they are cost-effective, and intervention techniques continue to be taught in the home when the parent and child are together.^{28,32,33} Parents and therapists collaborate in helping their children improve communication and social skills. Although an efficacious means of delivering intervention services, if children whose parents have more than 1 child have greater difficulty accessing these services, they may need additional supports at home and work to meet their competing demands. The current study provides an important first step in understanding the challenges that parents may face when confronted with the reality of enrolling their children in intervention programs.

The current study has several limitations, which should be examined further in the future.

Although our sample size is considerably larger than many studies of children with ASD, our relatively small sample prevented us from a deep dive into the complexities of paternal employment versus maternal, and single versus 2-parent families. Authors of future studies could examine whether differences exist in the services children receive inside of school or outside of school, because the coordination of services outside of school may require a higher level of maternal involvement. Additionally, the options caregivers were given to describe their child's development were broad, and future studies could examine this in a more nuanced manner. All families enrolled in the main study were considered low-resourced and results should be interpreted in light of the study population. The ways in which parents navigate their living situations and also care for a child who needs additional services and specialized schooling is a critical topic as ASD becomes more prevalent in the population. Although ASD services are becoming more available to all families, the ability to obtain those services, advocate for your child and maintain your own household duties are likely critical

concerns of mothers and fathers alike. Interventions developed for children with ASD should consider familial characteristics and may serve children better if real-world considerations for involving parents are included.

Despite a relatively small sample, the current study revealed important relations between number of children living in the household, parental stress, maternal education, and the likelihood that young children will receive interventions. Intervention providers, as well as policy makers and grant-funding agencies may need to consider additional supports for children with ASD who have difficulty accessing intervention services. Raising a child with special needs places extra demands on families: financially, emotionally and logistically. With these findings, we suggest that our current service delivery system might place parents in the difficult position of choosing between caring for a sibling and ensuring that their child with ASD accesses appropriate services to reach their full developmental potential. To complement this model, parents may need additional supports to enroll and maintain services for their children. Future

studies should examine what structural changes can be made to increase the likelihood that parents are able to enroll their children and maintain them in intervention services.

ACKNOWLEDGMENTS

We acknowledge Vani Nimbal, MPH for her assistance with preliminary data cleaning of this data set and Lynette Lau, PhD for her assistance in the preparation of this manuscript. We would like to acknowledge the Autism Intervention Research Behavioral Network (PI: Kasari), who conceived of and collected data for the original study from which participants were drawn for the current study. Autism Intervention Research Behavioral Network members include Connie Kasari, PhD, Catherine Lord, PhD, Bryan King, MD, Amy Wetherby, PhD, and Rebecca Landa, PhD. We also express our sincere gratitude to the families who participated in the original study.

ABBREVIATIONS

ASD: autism spectrum disorder
OR: odds ratio
SES: socioeconomic status

DOI: <https://doi.org/10.1542/peds.2016-4300D>

Accepted for publication Sep 26, 2017

Address correspondence to Elizabeth A. Karp, MS, Department of Psychology, University of Washington, Box 351525, Seattle, WA 98195. E-mail: ekarp@uw.edu
PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2018 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Supported by the Maternal and Child Health Bureau (MCHB) Autism Intervention Research Behavioral Network (UA3MC11055; principal investigator [PI]: Kasari) and further supported by an MCHB R40 Secondary Data Analysis Study (R40MC22642; PI: Kuo). Drs Lau and Kuo are also supported by the MCHB Health Care Transitions Research Network (UA3MC27364; PI: Kuo).

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. National Research Council. *Educating Children With Autism*. Washington, DC: National Academy Press; 2001
2. Wallace KS, Rogers SJ. Intervening in infancy: implications for autism spectrum disorders [published correction appears in *J Child Psychol Psychiatry*. 2011;52(5):627]. *J Child Psychol Psychiatry*. 2010;51(12):1300–1320
3. Dawson G, Rogers S, Munson J, et al. Randomized, controlled trial of an intervention for toddlers with autism: the Early Start Denver Model. *Pediatrics*. 2010; 125(1). Available at: www.pediatrics.org/cgi/content/full/125/1/e17

4. Houser L, McCarthy M, Lawer L, Mandell D. A challenging fit: employment, childcare, and therapeutic support in families of children with autism spectrum disorders. *J Soc Serv Res*. 2014;40(5):681–698
5. Stadnick NA, Stahmer A, Brookman-Frazee L. Preliminary effectiveness of project ImPACT: a parent-mediated intervention for children with autism spectrum disorder delivered in a community program. *J Autism Dev Disord*. 2015;45(7):2092–2104
6. Hodapp RM, Ricci LA, Ly TM, Fidler DJ. The effects of the child with Down syndrome on maternal stress. *Br J Dev Psychol*. 2003;21(1):137–151
7. Johnston C, Hessl D, Blasey C, et al. Factors associated with parenting stress in mothers of children with fragile X syndrome. *J Dev Behav Pediatr*. 2003;24(4):267–275
8. Blacher J, McIntyre LL. Syndrome specificity and behavioural disorders in young adults with intellectual disability: cultural differences in family impact. *J Intellect Disabil Res*. 2006;50(pt 3):184–198
9. Kasari C, Sigman M. Linking parental perceptions to interactions in young children with autism. *J Autism Dev Disord*. 1997;27(1):39–57
10. Seltzer MM, Greenberg JS, Hong J, et al. Maternal cortisol levels and behavior problems in adolescents and adults with ASD. *J Autism Dev Disord*. 2010;40(4):457–469
11. Davis NO, Carter AS. Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: associations with child characteristics. *J Autism Dev Disord*. 2008;38(7):1278–1291
12. Olsson MB, Hwang CP. Socioeconomic and psychological variables as risk and protective factors for parental well-being in families of children with intellectual disabilities. *J Intellect Disabil Res*. 2008;52(12):1102–1113
13. Benson PR. The impact of child symptom severity on depressed mood among parents of children with ASD: the mediating role of stress proliferation. *J Autism Dev Disord*. 2006;36(5):685–695
14. Bromley J, Hare DJ, Davison K, Emerson E. Mothers supporting children with autistic spectrum disorders: social support, mental health status and satisfaction with services. *Autism*. 2004;8(4):409–423
15. Bartlett SJ, Krishnan JA, Riekert KA, Butz AM, Malveaux FJ, Rand CS. Maternal depressive symptoms and adherence to therapy in inner-city children with asthma. *Pediatrics*. 2004;113(2):229–237
16. Kramer RA, Warner V, Olfson M, Ebanks CM, Chaput F, Weissman MM. General medical problems among the offspring of depressed parents: a 10-year follow-up. *J Am Acad Child Adolesc Psychiatry*. 1998;37(6):602–611
17. Hastings RP. Child behaviour problems and partner mental health as correlates of stress in mothers and fathers of children with autism. *J Intellect Disabil Res*. 2003;47(pt 4–5):231–237
18. Baker-Ericzn MJ, Brookman-Frazee L, Stahmer A. Stress levels and adaptability in parents of toddlers with and without autism spectrum disorders. *Res Pract Pers Sev Disabil*. 2005;30(4):194–204
19. Sharpe DL, Baker DL. Financial issues associated with having a child with autism. *J Fam Econ Issues*. 2007;28(2):247–264
20. Estes A, Vismara L, Mercado C, et al. The impact of parent-delivered intervention on parents of very young children with autism. *J Autism Dev Disord*. 2014;44(2):353–365
21. McConachie H, Diggie T. Parent implemented early intervention for young children with autism spectrum disorder: a systematic review. *J Eval Clin Pract*. 2007;13(1):120–129
22. Kasari C, Gulsrud A, Paparella T, Helleman G, Berry K. Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism. *J Consult Clin Psychol*. 2015;83(3):554–563
23. Zuckerman KE, Lindly OJ, Bethell CD, Kuhlthau K. Family impacts among children with autism spectrum disorder: the role of health care quality. *Acad Pediatr*. 2014;14(4):398–407
24. Cidav Z, Marcus SC, Mandell DS. Implications of childhood autism for parental employment and earnings. *Pediatrics*. 2012;129(4):617–623
25. Montes G, Halterman JS. Child care problems and employment among families with preschool-aged children with autism in the United States. *Pediatrics*. 2008;122(1). Available at: www.pediatrics.org/cgi/content/full/122/1/e202
26. Kataoka SH, Zhang L, Wells KB. Unmet need for mental health care among U.S. children: variation by ethnicity and insurance status. *Am J Psychiatry*. 2002;159(9):1548–1555
27. Carr T, Shih W, Lawton K, Lord C, King B, Kasari C. The relationship between treatment attendance, adherence, and outcome in a caregiver-mediated intervention for low-resourced families of young children with autism spectrum disorder. *Autism*. 2016;20(6):643–652
28. Kasari C, Lawton K, Shih W, et al. Caregiver-mediated intervention for low-resourced preschoolers with autism: an RCT. *Pediatrics*. 2014;134(1). Available at: www.pediatrics.org/cgi/content/full/134/1/e72
29. Lord C, Rutter M, DiLavore PC, Risi S. *Autism Diagnostic Observation Schedule*. Los Angeles, CA: Western Psychological Services; 1999
30. Crnic KA, Greenberg MT. Minor parenting stresses with young children. *Child Dev*. 1990;61(5):1628–1637
31. Stahmer AC, Collings NM, Palinkas LA. Early intervention practices for children with autism: descriptions from community providers. *Focus Autism Other Dev Disabil*. 2005;20(2):66–79
32. Ingersoll B, Wainer A. Initial efficacy of project ImPACT: a parent-mediated social communication intervention for young children with ASD. *J Autism Dev Disord*. 2013;43(12):2943–2952
33. Drew A, Baird G, Baron-Cohen S, et al. A pilot randomised control trial of a parent training intervention for pre-school children with autism. Preliminary findings and methodological challenges. *Eur Child Adolesc Psychiatry*. 2002;11(6):266–272

Family Characteristics and Children's Receipt of Autism Services in Low-Resourced Families

Elizabeth A. Karp, Rebecca Dudovitz, Bergen B. Nelson, Wendy Shih, Amanda Gulsrud, Felice Orlich, Costanza Colombi and Alice A. Kuo

Pediatrics 2018;141;S280

DOI: 10.1542/peds.2016-4300D

Updated Information & Services

including high resolution figures, can be found at:
http://pediatrics.aappublications.org/content/141/Supplement_4/S280

References

This article cites 31 articles, 5 of which you can access for free at:
http://pediatrics.aappublications.org/content/141/Supplement_4/S280#BIBL

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.aappublications.org/site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Family Characteristics and Children's Receipt of Autism Services in Low-Resourced Families

Elizabeth A. Karp, Rebecca Dudovitz, Bergen B. Nelson, Wendy Shih, Amanda
Gulsrud, Felice Orlich, Costanza Colombi and Alice A. Kuo

Pediatrics 2018;141;S280

DOI: 10.1542/peds.2016-4300D

The online version of this article, along with updated information and services, is
located on the World Wide Web at:

http://pediatrics.aappublications.org/content/141/Supplement_4/S280

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2018 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

