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## Promoting Early Brain and Child Development: Perceived Barriers and the Utilization of Resources to Address Them

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### Abstract

**Objective**—Efforts to promote early brain and child development (EBCD) include initiatives to support healthy parent-child relationships, tools to identify family social-emotional risk factors, and referrals to community programs to address family risk factors. We sought to examine if pediatricians perceive barriers to implementing these activities, and if they utilize resources to address those barriers.

**Method**—Data were analyzed from 304 non-trainee pediatricians who practice general pediatrics and completed a 2013 American Academy of Pediatrics Periodic Survey. Sample weights were used to decrease non-response bias. Bivariate comparisons and multivariable regression analyses were conducted.

**Results**—At least half of the pediatricians agreed that barriers to promoting EBCD include: a lack of tools to promote healthy parent-child relationships, a lack of tools to assess the family environment for social-emotional risk factors, and a lack of local resources to address family risks.

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Endorsing a lack of tools to assess the family environment as a barrier was associated with using fewer screening tools and community resources. Endorsing a lack of local resources as a barrier was associated with using fewer community resources and fewer initiatives to promote parent-child relationships. Interest in pediatric mental health was associated with using more initiatives to promote healthy parent-child relationships, screening tools, and community resources.

**Conclusion**—Although the majority of pediatricians perceive barriers to promoting EBCD, few are routinely using available resources to address these barriers. Addressing pediatricians' perceived barriers and encouraging interest in pediatric mental health may increase resource utilization and enhance efforts to promote EBCD.

### Keywords

primary care; screening; social-emotional; mental health; community resources

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### Introduction

The family-centered pediatric medical home (FCPMH) greatly expands the scope of primary care and mandates that pediatricians address not only physical health but the social and emotional wellness of both children and their families.<sup>1</sup> The FCPMH recognizes the negative impact of early life adversities upon early brain and child development (EBCD), as well as the critical role of pediatric providers in preventing, identifying and ameliorating those adversities.<sup>2</sup> This focus on psychosocial aspects of pediatric care is not new<sup>3</sup> and continues to increase in importance due to the shortage of child and adolescent psychiatrists,<sup>4</sup> geographic differences in children's mental health services<sup>5</sup> and continued disparities in access to and utilization of services.<sup>6</sup>

Given that the FCPMH is well positioned for identifying psychosocial, developmental and mental health needs of young children and their families, several major initiatives have been mounted to improve pediatricians' competencies in these areas. By 1997, The Residency Review Committee for Pediatrics of the Accreditation Council for Graduate Medical Education required that pediatric residents have a minimum 1-month block rotation in developmental and behavioral pediatrics.<sup>7</sup> More recently, the American Academy of Pediatrics (AAP) focused attention upon increasing pediatricians' knowledge about the impact of adverse childhood experiences (ACEs) upon EBCD,<sup>8</sup> and many have called upon pediatricians to routinely screen for common adversities early in life.<sup>9–11</sup> The AAP has developed and disseminated several resources to assist pediatricians in promoting healthy parent-child relationships, identifying familial social-emotional risk factors, and then addressing the risk factors identified.<sup>12</sup> These efforts include Bright Futures,<sup>13</sup> Connected Kids,<sup>14</sup> a grid for promoting EBCD in primary care,<sup>15</sup> and a Trauma Tool Box for Primary Care.<sup>16</sup>

However, despite these considerable efforts, pediatricians continue to endorse numerous barriers to identifying and treating childhood psychosocial problems,<sup>17</sup> and the limited available data suggest that pediatricians rarely ask about ACEs.<sup>18</sup> Pediatricians' perceptions of barriers to promoting EBCD in a proactive manner (as opposed to identifying and treating the child's psychopathologies) are largely unknown, as is their utilization of known

resources that address those barriers. Finally, it is unclear whether pediatricians' interest in pediatric mental health (MH) or their sense of responsibility for identifying family social-emotional risk factors are related to resource utilization.

In 2013, an AAP Periodic Survey of Fellows included a series of questions about perceived barriers to promoting EBCD, as well as the utilization of known resources to address family social-emotional risk factors. This survey also asked pediatricians to rank their interest in pediatric MH, and whether they believed that screening for social-emotional risk factors within the family is beyond the scope of the pediatric medical home. Therefore, the objectives of these analyses were to: (1) identify the percentages of pediatricians that endorse three different types of barriers to promoting EBCD (lack of practice friendly tools to promote healthy parent-child relationships; lack of practice friendly tools to assess the family environment for social-emotional risk factors; and lack of local resources available to address identified familial social-emotional risk factors); (2) explore whether endorsing these barriers is related to the utilization of three different classes of resources to promote EBCD (initiatives to promote healthy parent-child relationships; tools that screen family level social-emotional risk factors; and community resources used to address identified concerns); (3) evaluate if resource utilization is related to physician socio-demographics, practice characteristics, an interest in pediatric MH, or endorsing the notion that screening for family level social-emotional risk factors is beyond the scope of the pediatric medical home.

## Methods

### Study Population and Periodic Survey (PS) Administration

The study population for the 85<sup>th</sup> Periodic Survey (PS) consisted of the US non-retired fellows of the AAP in 2013 ( $N=54,491$ ) ([www.AAP.org](http://www.AAP.org)). Since 1987, the PS has been used by the AAP to inform policy, develop new initiatives or evaluate current projects. The PS 85 questionnaire, which was pretested for clarity and approved by the AAP Institutional Review Board, was mailed seven times to a random sample of 1617 members beginning in July, 2013 and ending in December, 2013; an email reminder was sent with a link to an electronic version of the survey. Overall, 594 physicians responded (36.7%).

### PS 85 Questionnaire

The survey included questions used in previous PSs about socio-demographic characteristics (e.g., age, sex, race/ethnicity, years in practice), practice characteristics (e.g., type of practice, percentage of time spent in general pediatrics, number of ambulatory visits per week, patient race/ethnicity and insurance) and amount of training in developmental and behavioral pediatrics. Pediatricians were asked if they had attended a lecture or a conference on child mental health (MH) in the past two years (yes/no), and their interest in further education in 1) identifying; or 2) managing/treating child or adolescent MH problems (very, somewhat, not at all).

Pediatricians were asked whether screening for social-emotional risk factors within the family (e.g., parental depression or substance use, domestic violence, etc.) is beyond the

scope of the medical home using a 5-point Likert scale. Those who disagreed or strongly disagreed were coded as disagree, while those responding neutral, agree or strongly agree were coded as agree. Neutral is a tacit endorsement of this statement because only those truly in disagreement with this characterization would go against the socially appropriate response in order to disagree.<sup>19</sup> Using a 4-point ordinal scale (not at all a barrier; somewhat a barrier; a moderate barrier; a significant barrier), pediatricians rated how much the following statements were a barrier to addressing EBCD in their practice: 1) lack of practice friendly tools (handouts, activities, web-based resources, etc.) to promote healthy child-parent relationships; 2) lack of practice friendly tools to assess the family environment for social-emotional risk factors (e.g., parental depression, substance use, domestic violence, food scarcity, etc.); 3) lack of local resources available to help address the familial social-emotional risk factors identified. Responses of a moderate or significant barrier were coded as endorsement of the barrier. Somewhat a barrier was not considered an endorsement because we were most interested in the largest barriers, as they are the logical targets for future interventions.

Finally, pediatricians were asked about their use of three different classes of resources: four initiatives to promote parent-child relationships (Bright Futures, Connected Kids, Parenting Programs, Reach Out and Read), six types of screening tools (parent depression, substance abuse, parental ACEs, child ACEs, domestic violence, food scarcity) and twelve community resources (addressing weak or harsh parenting, parent illiteracy, poor child-parent relationships, parental depression, parental substance abuse, domestic violence, food scarcity, assessment of early childhood mental health, child care quality, formalized school readiness, home visiting, intensive behavioral interventions). Response options were on a 4-point scale: never heard of; never use; use at times; use routinely; for community resources, the “never heard of” response category also included “not available”.

## Analysis

Although the sample reflected the AAP membership at the time of the survey, non-response was considerable. Thus, sample weights were created to decrease potential bias due to differential non-response and to ensure that the respondents were representative of the membership. As previously described,<sup>17</sup> logistic regression was used to estimate the probability of responding to the survey, and auxiliary information available for both responders and non-responders were included as predictors (age, sex, region and membership status). The final logistic regression model included the three-way interaction of age, sex, and region, as well as their two-way interactions and main effects; non-respondents were more likely to be younger females practicing in the northeast or Midwest. Ten weighting cells were created using deciles of the response propensity score distribution. The inverse of the mean response propensity score for each cell was used as that sample’s weight, so those less likely to respond were weighted more heavily. The sample weights were rescaled such that the mean was unity and the sum was equal to the analytic sample size.

The primary outcomes for these analyses were the number of resources used at times or used routinely for each of the three resource classes: (1) number of initiatives used to promote

parent-child relationships (range 0–4); (2) number of screening tools (range 0–6); and (3) number of community resources used to address identified concerns (range 0–12). The primary exposure measures were perceived responsibility for screening for social-emotional risk factors and the three perceived barriers. Other exposure measures included physician sociodemographic characteristics, practice characteristics, and interest in pediatric mental health (e.g., conference attendance or interest in further education).

Weighted means and standard errors were used to summarize continuous measures, and weighted proportions were used to describe categorical measures. Weighted linear regression and weighted negative binomial regression analyses were used to examine unadjusted and adjusted associations with the number of resources used. For each resource class, the analyses were restricted to pediatricians who had heard of at least one resource within that class. Results from the weighted linear regression models are summarized using regression coefficients ( $\beta$ ) and standard errors. Incident rate ratios (IRR) and their 95% confidence intervals (95% CI) are shown for the negative binomial regression models. Analyses were performed using procedures appropriate for survey data in SAS version 9.4 (SAS Institute, Inc., Cary, NC) and Stata version 14.1 (StataCorp LP, College Station, Texas).

## Results

The analytic sample included pediatricians who practiced general pediatrics exclusively and completed questions on barriers to and responsibility for social-emotional risk factors ( $N=304$ ). Those who completed a child/adolescent mental health (MH) or developmental-behavioral pediatrics fellowship ( $N=7$ ) were excluded because they would have had advanced training experiences. Pediatricians were 46 years old on average, 67% were female, and 55% completed at least four weeks of developmental/behavioral pediatrics training (Table 1). More than half (52%) worked in pediatric group practices; 39% worked in urban areas and almost two-thirds (64%) reported fewer than one hundred ambulatory visits per week. Nearly 20% agreed that screening for social-emotional risk factors is beyond the scope of the pediatric medical home. At least half of pediatricians endorsed the three perceived barriers as being a moderate or significant barrier: a lack of practice friendly tools to promote healthy parent-child relationships (50%), a lack of practice friendly tools to assess the family environment for social-emotional risk factors (60%), and a lack of community resources available to address family social-emotional issues (67%) (Table 2).

Use of individual resources within each resource class is displayed in Figures 1–3. Examination of the four initiatives to promote healthy parent-child relationships shows that 82% reported using Bright Futures and 58% reported using Reach Out and Read, but only 13% reported using parenting programs and 7% reported using Connected Kids. In fact, among pediatricians who had heard of at least one resource in this category, 63% reported they had never heard of parenting programs and 70% reported that they had never heard of Connected Kids (Figure 1). The most commonly used screening tool was for parental depression, which was used by 35% of pediatricians. Only 22% reported using screening tools for domestic violence, and 10% or fewer reported using screening tools for parent substance use, parent or child ACEs, and food scarcity (Figure 2). Five of the 12 community resources were used by more than half of pediatricians; for the other seven resources, over

half of pediatricians reported that they were not available or they had never heard of or never use them (Figure 3). On average, pediatricians reported using 1.59 of the four initiatives to promote healthy parent-child relationships, 0.84 of the six screening tools, and 5.25 of the twelve community resources.

Table 1 shows the bivariate associations of physician characteristics, practice characteristics, and training/interest in MH with the number of resources used in each resource class. Physicians who practice in urban versus suburban areas, have <100 ambulatory visits per week, have <80% of patients with private insurance, attended a lecture or conference on child MH in the past two years, and practice in medical school/universities (versus 1–2 physician practices, pediatric group practices, and multispecialty group practices) reported using more initiatives to promote healthy parent-child relationships. In contrast, none of the physician or practice characteristics were associated with the use of screening tools or community resources. However, pediatricians who reported being very vs. somewhat/not at all interested in further education in managing/treating child or adolescent MH problems reported using significantly more screening tools.

Bivariate associations of perceived barriers and perceived responsibility with the number of resources used in each resource class are shown in Table 2. Pediatricians who endorsed a lack of practice friendly tools to assess the family environment for social and emotional risk factors and a lack of local resources available to address the family social and emotional risk factors identified as moderate or significant barriers reported using fewer screening tools and community resources. Additionally, pediatricians who agreed that screening for social and emotional risk factors is beyond the scope of the pediatric medical home reported using fewer community resources, as did pediatricians who endorsed a lack of practice friendly tools to promote healthy parent-child relationships as a moderate or significant barrier. Perceived responsibility and perceived barriers were not associated with the number of resources used to promote parent-child relationships.

Multivariable regression analyses (Table 3) showed that the following items were significantly related to using more of the initiatives to promote parent-child relationships: having < 80% of patients with private insurance ( $\beta=0.38$ ,  $SE=.13$ ,  $p=.003$ ), attending a lecture/conference on child MH in the last two years ( $\beta=0.41$ ,  $SE=.10$ ,  $p<.001$ ), and reporting that a lack of local resources available to address family social and emotional risk factors identified is not a barrier ( $\beta=0.24$ ,  $SE=.11$ ,  $p=.03$ ). Analyses of screening tool usage showed that reporting that a lack of practice friendly tools to assess the family environment for social and emotional risk factors is not a barrier (IRR=1.52, 95% CI: 1.13, 2.04,  $p=.006$ ) and being very versus somewhat or not at all interested in further education in managing or treating child or adolescent MH problems (IRR=1.62, 95% CI: 1.20, 2.18,  $p=.001$ ) were significantly associated with using a greater number of screening tools. Similarly, reporting that a lack of practice friendly tools to assess the family environment for social and emotional risk factors is not a barrier (IRR=1.28, 95% CI: 1.12, 1.46,  $p<.001$ ) and being very versus somewhat or not at all interested in further education in managing or treating child or adolescent MH problems (IRR=1.22, 95% CI: 1.06, 1.39,  $p=.004$ ) were also significantly associated with using a greater number of community resources. Other factors positively associated with using a greater number of community resources were reporting



that a lack of local resources available to address the family social and emotional risk factors is not a barrier (IRR=1.23, 95% CI: 1.07, 1.41,  $p=.003$ ) and having fewer than 80% of patients with private insurance (IRR=1.17, 95% CI: 1.01, 1.36,  $p=.04$ ). Perceived responsibility and endorsing a lack of practice friendly tools to promote healthy parent-child relationships as a barrier were not associated with the use of the three resource classes.

## Discussion

In 1966, Julius Richmond received the Aldrich Award from the AAP. In his acceptance speech, “Child Development: A Basic Science for Pediatrics,” Dr. Richmond highlighted the differences between psychiatrists and pediatricians, presaged our contemporary need for primary preventions, and hinted at the importance of two-generation approaches to build resilience and optimize child development.<sup>20</sup> In the fifty years since his speech, much research has focused on the role of the pediatrician in the identification and treatment of childhood psychopathologies, but translating advances in child development and behavior into the care for all children, not just the overtly dysfunctional, remains elusive.<sup>21</sup> In this paper, we followed Dr. Richmond’s lead and elected to use a slightly different frame of reference: what can the FCPMH do to promote healthy EBCD, as opposed to reacting to the child’s MH concerns once they arise?

Of the four initiatives to promote healthy parent-child relationships, two (Bright Future and Reach Out and Read) were well recognized by pediatricians, with the vast majority (>85%) indicating that they had at least heard of these important resources. Conversely, the majority of pediatricians (>60%) indicated that they had not heard of Connected Kids or parenting programs. This lack of awareness might explain, at least in part, why half of the pediatricians agreed that lack of initiatives to promote healthy parent-child relationships is a barrier to promoting EBCD. But even for the widely-recognized resources like Bright Futures and Reach Out and Read, the minority of pediatricians (<45%) reported using them routinely. The low use of these parent-child initiatives might reflect the fact that they are large, proprietary programs, making their implementation more difficult and costly. Pediatricians who reported seeing <100 patients per week or practicing at a medical school/university setting used more of these initiatives, suggesting that time, logistical support and exposure may be important factors for their utilization. Pediatricians who practiced in an urban setting with more publically insured patients also reported using more of these parent-child initiatives, suggesting that the perceived needs of the patient population may influence their utilization. Perceived barriers may play a role as well, as pediatricians who did not see a lack of community resources to address family risk factors as a barrier used more of the initiatives to promote healthy parent-child relationships.

More than 60% of the pediatricians reported that they had either never heard of or never used the six screening tools to identify several family-level factors that might put healthy parent-child relationships at risk. The low use of screening tools might reflect the fact that there are currently no standardized screens for parental or child ACEs, but the same cannot be said for parental depression,<sup>22</sup> substance abuse,<sup>23</sup> domestic violence<sup>24</sup> or food insecurity.<sup>25</sup> The low use of screening tools to identify potential threats to healthy parent-

child relationships is related to perceived barriers, as pediatricians who did not see a lack of practice friendly tools to assess the family environment as a barrier used more of these tools.

Fewer than 30% of pediatricians routinely use any of the twelve community resources to address family risk factors. Although regional variations in the availability of these resources could diminish their utilization, the minority of pediatricians indicated that the resource was not available locally or that they had never heard of the resource. Here again, perceived barriers play a role, as pediatricians use fewer of these resources if they see a lack of community resources or a lack of screening tools as barriers. Pediatricians use more of these community resources if their practice has <80% private insurance, suggesting that the perceived needs of the population being served may influence the utilization of both community resources and the initiatives that promote healthy parent-child relationships (as discussed above).

At least half of the pediatricians in this national survey endorsed three different types of barriers to promoting EBCD, but utilization of the known resources to address these barriers was quite low. Our data demonstrate a gap between what pediatricians know and what pediatricians actually do. The majority of pediatricians acknowledge barriers to promoting EBCD. They also disagree that identifying threats to EBCD, like family-level social-emotional risks, are beyond the scope of the pediatric medical home. With the exception of Connected Kids, Parenting Programs and ACE screens for children and parents, the majority of pediatricians are aware of resources that address barriers to the promotion of EBCD. Nevertheless, only the minority of pediatricians use these resources routinely.

Practice change is never an easy proposition, but it is thought to be facilitated by engaged leaders and providers who are intrinsically motivated to improve the quality of their care.<sup>26</sup> Indeed, our analyses show that an interest in pediatric MH, indicated either by attending a lecture/conference on child MH in the last two years or by being very interested in further education in the managing/treating child or adolescent MH problems, was associated with increased utilization of all three classes of resources: initiatives to promote healthy parent-child relationships, screening tools, and community resources.

These data have limitations. First, similar to other physician surveys,<sup>27</sup> this survey had a suboptimal response rate. Analysis of response bias in AAP surveys shows little non-response bias,<sup>28</sup> and comparisons of responders and the AAP membership on age, sex, region and membership status shows no differences. Although the results were weighted for non-response, it is unlikely that all of the non-response bias was corrected, as we have a limited set of characteristics that is known for responders and non-responders, and pediatricians interested in the topic were most likely to respond.<sup>29</sup> Thus, we anticipate that these results may overestimate resource use and underestimate endorsement of perceived barriers. Second, these data are cross-sectional, so our results represent associations and do not imply causality. There is also the possibility of response bias for professionally desirable behaviors, which may have resulted in pediatricians' overstating their utilization of resources. With the rise of on-line educational resources, attending a lecture/conference may not reflect pediatrician interest in child MH. Finally, our data reflect the perceived barriers and resource utilization of practicing general pediatricians and are not likely generalizable to



the pediatric specialists who frequently care for children with special health care needs. Given the vulnerability of these children, pediatric specialists should also be encouraged to engage in activities that promote EBCD.<sup>30</sup>

## Conclusions

The majority of pediatricians acknowledge barriers to promoting EBCD, but few are utilizing the known resources to address these barriers. Promoting EBCD may well depend upon a multi-faceted approach that concurrently changes pediatricians' interest in pediatric mental health, their perceptions of barriers, and their willingness to embrace the broader, two-generational mission of the FCPHM.

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## Abbreviations

<b>FCPMH</b>	family-centered pediatric medical home
<b>AAP</b>	American Academy of Pediatrics
<b>EBCD</b>	Early Brain and Child Development
<b>MH</b>	mental health
<b>ACE</b>	Adverse Childhood Experiences
<b>PS</b>	periodic survey

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**What's New**

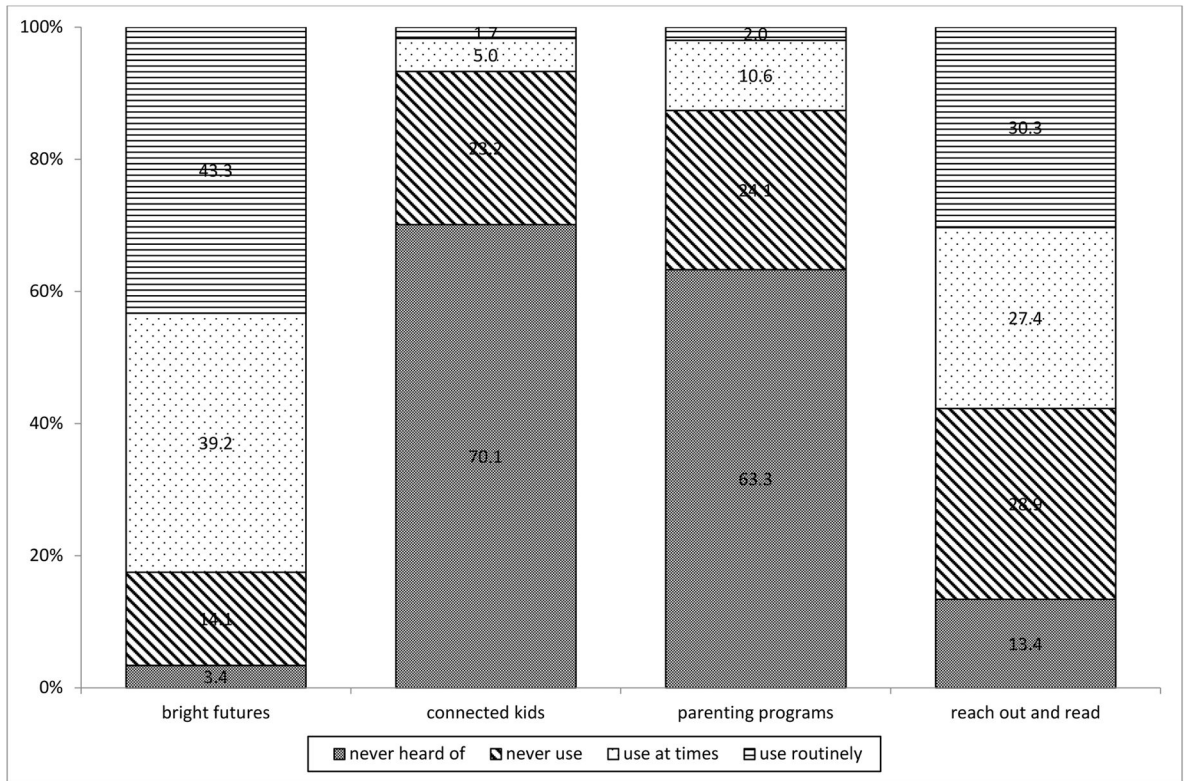
The majority of pediatricians agree that barriers to promoting EBCD include a lack of resources that: promote healthy parent-child relationships, screen for familial social-emotional risks, and address the identified risks. Few are utilizing the known resources to address these barriers.

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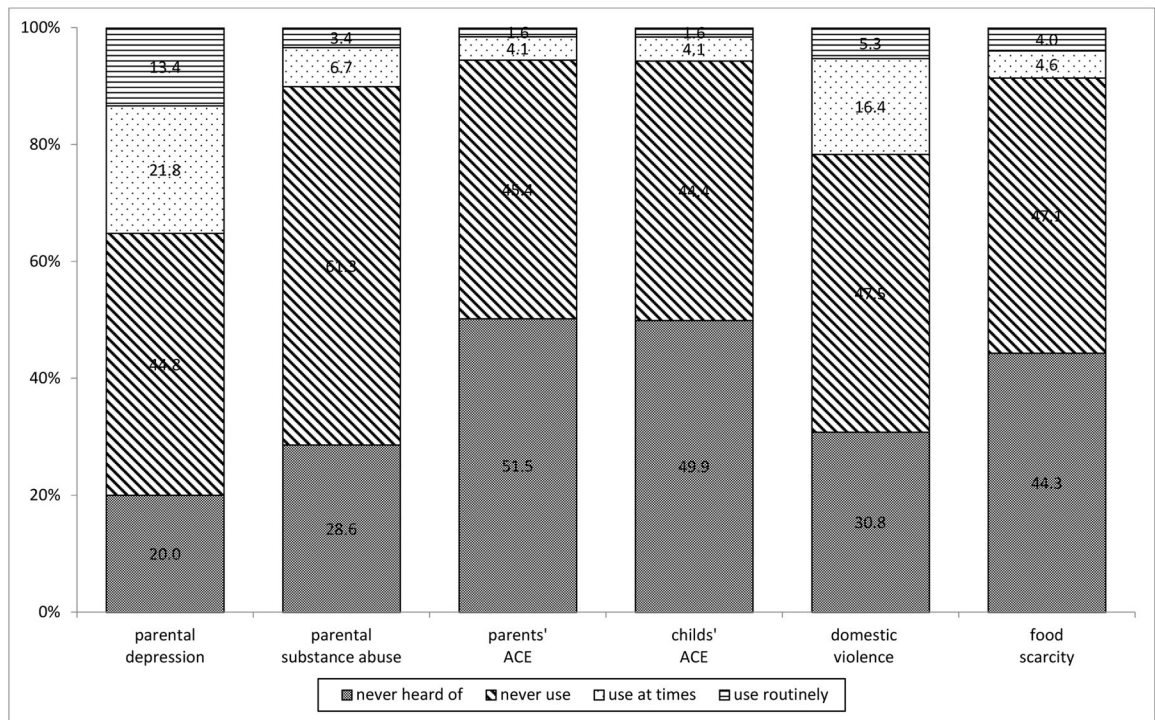
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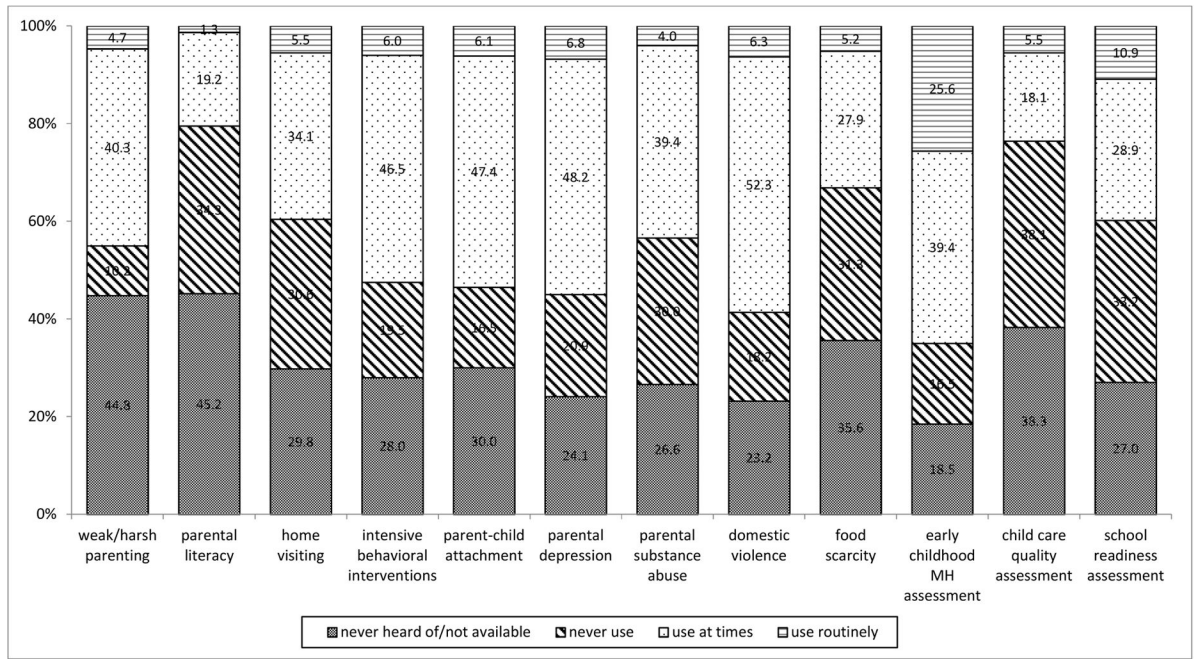


**Figure 1.**  
Knowledge and Use of Initiatives to Promote Parent-Child Relationships



**Figure 2.**  
Knowledge and Use of Screening Tools





**Figure 3.**  
Knowledge and Use of Community Resources

**Table 1** Weighted Sample Characteristics and Weighted Bivariate Associations of Physician and Practice Characteristics with the Number of Resources Used

Physician and Practice Characteristics	Analytic Sample (n=304)	Initiatives to Promote Parent-Child Relationships <sup>†</sup> (n=296)		Screening Tools <sup>‡</sup> (n=272)	Community Resources* (n=285)
		p=.25	r=-.07		
Age, y	46.1 (0.64)		r=-.07	p=.23	p=.19
Sex					r=-.08
Female	67.5%	p=0.94		p=.48	p=.38
Male	32.5%	1.64 (0.06)		0.98 (0.09)	5.49 (0.24)
Race/Ethnicity		1.63 (0.10)		0.86 (0.14)	5.85 (0.35)
Caucasian	75.6%	p=.10		p=.10	p=.26
Asian	10.6%	1.58 (0.06)		0.94 (0.08)	5.78 (0.22)
Other	13.8%	1.73 (0.19)		0.61 (0.14)	4.75 (0.63)
Location of practice		1.85 (0.11)		1.15 (0.24)	5.19 (0.60)
Urban	39.1%	p=.003		p=.11	p=.26
Suburban	49.9%	1.85 (0.08)		1.09 (0.12)	5.98 (0.34)
Rural	11.0%	1.46 (0.08)		0.89 (0.11)	5.30 (0.25)
Type of practice		1.62 (0.13)		0.61 (0.17)	5.62 (0.67)
1 or 2 physician	9.0%	p=.02		p=.06	p=.46
Pediatric group practice	52.3%	1.45 (0.17)		0.98 (0.23)	4.66 (0.61)
Multispecialty group	12.0%	1.55 (0.08)		0.78 (0.10)	5.49 (0.27)
Medical School/University	7.1%	1.56 (0.14)		0.85 (0.19)	6.06 (0.56)
Other/Unknown <sup>‡</sup>	19.6%	2.07 (0.19)		1.55 (0.38)	5.95 (0.92)
Number of ambulatory visits per week		1.83 (0.09)		1.19 (0.17)	5.89 (0.42)
<100	64.3%	p=.02		p=.53	p=.76
100	35.7%	1.72 (0.07)		0.97 (0.90)	5.63 (0.24)
Patient insurance		1.46 (0.09)		0.87 (0.13)	5.50 (0.35)
<80% have private insurance	61.6%	p<.001		p=.91	p=.09
80% have private insurance	25.4%	1.81 (0.06)		0.92 (0.10)	5.94 (0.26)
Unknown	13.0%	1.36 (0.11)		0.93 (0.14)	5.11 (0.34)
<b>Mental Health Training and Interest</b>		1.34 (0.15)		1.02 (0.23)	4.96 (0.56)
Number of weeks residency rotation in DBP		p=.39		p=.60	p=.99

	Analytic Sample (n=304)	Initiatives to Promote Parent-Child Relationships <sup>†</sup> (n=296)	Screening Tools <sup>‡</sup> (n=272)	Community Resources* (n=285)
0-3 weeks	45.3%	1.58 (0.08)	0.89 (0.10)	5.59 (0.29)
4 weeks	54.7%	1.68 (0.07)	0.96 (0.11)	5.60 (0.27)
Attended lecture or conference on child MH in the past 2 years		<i>p</i> <.001	<i>p</i> =.57	<i>p</i> =.07
No	55.4%	1.45 (0.06)	0.89 (0.10)	5.26 (0.27)
Yes	44.6%	1.85 (0.08)	0.98 (0.11)	6.00 (0.29)
Interest in further education in managing/treating child or adolescent MH problems		<i>p</i> =.18	<i>p</i> =.01	<i>p</i> =.10
Very interested	51.8%	1.71 (0.08)	1.12 (0.12)	5.97 (0.28)
Somewhat interested	37.6%	1.59 (0.08)	0.69 (0.09)	5.42 (0.29)
Not at all interested	10.6%	1.37 (0.18)	0.84 (0.20)	4.40 (0.67f)

Univariate statistics: weighted % shown for categorical variables; weighted mean (standard error) shown for continuous measures.

Bivariate associations: weighted means (standard error) shown for categorical exposures and Spearman Correlation (*r*) shown for continuous exposures. Analyses for each resource category included physicians who had heard of 1 of the resources in that category

<sup>a</sup> Other type of practices includes HMO (staff model), non-government hospital or clinic, government hospital or clinic, non-profit community health center

<sup>†</sup> 4 initiatives to promote parent-child relationships: anticipatory guidance per Bright Futures; preventative care guidelines/materials, anticipatory guidance per Connected Kids, parenting programs (e.g., Triple-P), Reach out and Read.

<sup>‡</sup> 6 screening tools: screening tools for parental depression, substance abuse, parents' ACE, child's ACE, domestic violence and food scarcity.

\* 12 community resources: addressing weak or harsh parenting, parental illiteracy, poor child-parent attachments/relationships, parental depression, parental substance abuse, domestic violence, food scarcity, assessments of early childhood mental health, child care quality, formalized school readiness; home visiting and intensive behavioral interventions.

**Table 2**  
 Weighted Sample Characteristics and Weighted Bivariate Associations of Perceived Responsibility and Perceived Barriers with the Number of Resources Used

	Analytic Sample (n=304)	Initiatives to Promote Parent-Child Relationships <sup>†</sup> (n=296)	Screening Tools <sup>‡</sup> (n=272)	Community Resources* (n=285)
<b>Perceived Responsibility</b>				
Screening for social and emotional risk factors is beyond of the scope of the pediatric medical home		<i>p</i> =.35	<i>p</i> =.06	<i>p</i> =.03
Disagree	80.4%	1.65 (0.06)	1.02 (0.08)	5.82 (0.22)
Agree	19.6%	1.52 (0.13)	0.59 (0.16)	4.70 (0.43)
<b>Perceived Barriers</b>				
Lack of practice friendly tools to promote healthy parent-child relationships		<i>p</i> =.82	<i>p</i> =.17	<i>p</i> =.002
Somewhat/not at all	50.0%	1.64 (0.08)	1.02 (0.11)	6.20 (0.26)
Moderate/significant	50.0%	1.62 (0.07)	0.82 (0.09)	4.97 (0.29)
Lack of practice friendly tools to assess the family environment for social and emotional risk factors		<i>p</i> =.27	<i>p</i> =.01	<i>p</i> <.001
Somewhat/not at all	39.7%	1.70 (0.08)	1.16 (0.13)	6.53 (0.28)
Moderate/significant	60.3%	1.58 (0.07)	0.79 (0.08)	5.02 (0.26)
Lack of local resources available to address the family social and emotional risk factors identified		<i>p</i> =.11	<i>p</i> =.03	<i>p</i> <.001
Somewhat/not at all	33.3%	1.75 (1.00)	1.16 (0.15)	6.50 (0.32)
Moderate/significant	66.7%	1.57 (0.06)	0.81 (0.08)	5.14 (0.24)

Univariate statistics: weighted % shown.

Bivariate associations: weighted mean (standard error) shown for categorical exposures and Spearman correlation (*r*) shown for continuous exposures.

<sup>†</sup> 4 initiatives to promote parent-child relationships: anticipatory guidance per Bright Futures preventative care guidelines/materials, anticipatory guidance per Connected Kids, parenting programs (e.g., Triple-P), Reach out and Read.

<sup>‡</sup> 6 screening tools: screening tools for parental depression, substance abuse, parents' ACE, child's ACE, domestic violence and food scarcity.

\* 12 community resources: addressing weak or harsh parenting, parental illiteracy, poor child-parent attachments/relationships, parental depression, parental substance abuse, domestic violence, food scarcity, assessments of early childhood mental health, child care quality, formalized school readiness, home visiting and intensive behavioral interventions.

**Table 3**

Weighted Regression Models of Number of Resources Used\*

	Initiatives to Promote Parent-Child Relationships <sup>†</sup> β (SE)	Screening Tools <sup>‡</sup> IRR (95% CI)	Community Resources* IRR (95% CI)
<b>Physician and Practice Characteristics</b>			
<80% of patients have private insurance	0.38 (0.13)	n.s.	1.17 (1.01, 1.36)
<b>Interest in Mental Health</b>			
Attended a lecture or conference on child MH during the past 2 years	0.41 (0.10)	n.s.	n.s.
Very interested in further education in managing or treating child or adolescent MH problems	n.s.	1.62 (1.20, 2.18)	1.22 (1.06, 1.39)
<b>Perceived Barriers</b>			
Lack of local resources available to address family social and emotional risk factors identified is <u>not</u> a barrier	0.24 (0.11)	n.s.	1.23 (1.07, 1.41)
Lack of practice friendly tools to assess the family environment for social and emotional risk factors is <u>not</u> a barrier	n.s.	1.52 (1.13, 2.04)	1.28 (1.12, 1.46)

Variables that were not statistically significant (n.s.) at  $p < .05$  were not included in the model.

\* Beta (SE) shown from weighted linear regression model of use of initiatives to promote parent-child relationships. Incidence rate ratios (IRR) and 95% confidence interval shown for negative binomial regression models of use of screening tools and use of community resources

<sup>†</sup> 4 initiatives to promote parent-child relationships: anticipatory guidance per Bright Futures preventative care guidelines/materials, anticipatory guidance per Connected Kids, parenting programs (e.g., Triple-P), Reach out and Read.

<sup>‡</sup> 6 screening tools: screening tools for parental depression, substance abuse, parents' ACE, child's ACE, domestic violence and food scarcity.

\* 12 community resources: addressing weak or harsh parenting, parental illiteracy, poor child-parent attachments/relationships, parental depression, parental substance abuse, domestic violence, food scarcity, assessments of early childhood mental health, child care quality, formalized school readiness; home visiting and intensive behavioral interventions.