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ARTICLE

Barriers to the Identification and Management of Psychosocial Issues in Children and Maternal Depression

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ABSTRACT

CONTEXT. Child psychosocial issues and maternal depression are underidentified and undertreated, but we know surprisingly little about the barriers to identification and treatment of these problems by primary care pediatricians.

OBJECTIVES. The purpose of this work was to determine whether (1) perceived barriers to care for children's psychosocial issues and maternal depression aggregate into patient, physician, and organizational domains, (2) barrier domains are distinct for mothers and children, and (3) physician, patient, and practice/organizational characteristics are associated with different barrier domains for children and mothers.

METHODS. We conducted a cross-sectional survey of the 50 818 US nonretired members of the American Academy of Pediatrics. Of a random sample of 1600 members, 832 (745 nontrainee members) responded. This was a mailed 8-page survey with no patients and no intervention. We measured physician assessment of barriers to providing psychosocial care for children's psychosocial problems and maternal depression.

RESULTS. Pediatricians frequently endorse the lack of time to treat mental health problems (77.0%) and long waiting periods to see mental health providers (74.0%) as the most important barriers to the identification and treatment of children's psychosocial problems. For maternal depression, pediatricians most often endorsed lack of training in treatment (74.5%) and lack of time to treat (64.3%) as important barriers. Pediatricians' reports of barriers clustered into physician and organizational domains. Physician domains were distinct for children and mothers, but organizational domains were not. Several physician and practice characteristics are significantly associated with the 4 barrier scales, and different characteristics (eg, sociodemographic, attitudinal, and practice features) were related to each barrier area.

CONCLUSIONS. Pediatricians endorse a wide range of barriers with respect to the diagnosis and treatment of children's mental health problems and maternal depression. The specificity of factors relating to various barrier areas suggests that overcoming barriers to the identification and treatment of child mental health problems and maternal depression in primary care pediatrics is likely to require a multifaceted approach that spans organizational, physician, and patient issues. In addition, comprehensive interventions will likely require social marketing approaches designed to engage diverse audiences of clinicians and their patients to participate.

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Drs Horwitz, Kelleher, Hoagwood, and Stein and Ms O'Connor created the study concept and design; Ms O'Connor acquired the data; Dr Horwitz, Ms Storfer-Isser, and Dr Youngstrom conducted analysis and interpretation of data; Dr Horwitz drafted the article; Drs Horwitz, Kelleher, Stein, Park, Heneghan, Jensen, and Hoagwood, Ms Storfer-Isser, and Ms O'Connor made critical revision of the article for important intellectual content; Ms Storfer-Isser and Dr Youngstrom provided statistical expertise; Drs Hoagwood, Horwitz, and Kelleher obtained funding; and Drs Horwitz, Hoagwood, and Kelleher supervised the project.

Key Words

barriers, maternal depression, child psychosocial problems, primary care

Abbreviations

AAP—American Academy of Pediatrics
PPD—postpartum depression
PS—Periodic Survey
CPT—Current Procedural Terminology

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PEDIATRICIANS ARE IDENTIFYING more children with psychosocial problems than they did in 1979 (6.8%–18.7%).¹ However, despite some indication of increases in identification and the continued attention to psychosocial issues by pediatric practitioners,^{2–6} the vast majority of children with emotional or behavioral problems still go undiagnosed and untreated.^{7–10}

A similar problem exists with respect to identifying family psychosocial issues, including those problems with serious implications for children's development, such as maternal depression.¹¹ Depressed women with young children are unlikely to be identified and treated, perhaps because of their limited use of health services.¹² However, given that almost all children in the United States routinely interact with primary care pediatricians, and most young children visit their pediatricians multiple times a year, pediatricians are in a unique position to identify and treat or refer depressed mothers. The unique potential of pediatricians to intervene in family health and mental health issues has received attention in the professional literature,^{13,14} and work by Kahn et al¹⁵ suggests that mothers who visit pediatricians "would not mind" or "would welcome" screening and referral services from their child's pediatrician for their own health issues.

Given the prevalence of child psychosocial problems and maternal depression, as well as their importance for children's health, the continued underidentification and minimal management of child psychosocial problems and maternal depression is puzzling. Although much attention has been paid to the treatment of adult depression in primary care, and a model for barriers to treatment has been suggested,¹⁶ much less information exists about the barriers to identification or management for child mental health problems or maternal depression in primary care pediatrics. The adult literature suggests that barriers may fall into 3 areas: patient, physician, and organizational domains and that different characteristics may be related to the different barrier domains.¹⁶

Much of what is known about barriers to identification and treatment of child psychosocial problems comes from studies of the diagnosis and management of children's psychosocial issues in pediatric primary care,^{17–23} secondary analyses of large national databases,²⁴ or studies specifically examining barriers to the identification and management of these issues.^{25–27} These studies suggest that provider characteristics, such as training or confidence,^{20,25–27} knowledge of the child,^{17,21} physician specialty,^{19,24} and, to a small extent, physician beliefs,²² may facilitate or impede access to mental health services. Similarly, family and child characteristics, such as severity of the problem, family use of mental health services, and sociodemographic characteristics,^{19,23} are also barriers. However, only the organizational issues, such as lack of time or lack of available mental health services, seem to affect recognition and management.^{25–27}

Two studies that examined barriers to identification and treatment of psychosocial issues specifically for children and maternal depression used national samples. One study by Olson and colleagues^{28,29} used a national sample of pediatricians drawn from the American Academy of Pediatrics (AAP) current member lists and asked about barriers to care for maternal and child/adolescent depression. Pediatricians received 1 of 2 questionnaires, so no comparisons of perceptions of barriers across maternal and child issues were possible. Furthermore, although this work used the Williams et al¹⁶ domains, no formal examination of the domains was reported, and no characteristics associated with the barrier domains were examined. For child/adolescent and maternal depression, Olson and colleagues^{27,28} identified few patient barriers, training, and knowledge as physician barriers and time as the chief organizational issue.

The recent study by Wiley et al³⁰ examined pediatricians' knowledge and views of postpartum depression (PPD), its diagnosis, and its management. Using a randomly selected sample of pediatricians listed on the American Medical Association Physician master file, a 2-page questionnaire was mailed to 1200 pediatricians with a 32% response rate. This work documented that many pediatricians (49%) had little or no knowledge of PPD, underestimated the incidence of PPD in their practices (80%), and reported a number of barriers to screening for PPD, such as time (69%), few office resources (57%), and lack of referral sources (43%). Again, there was no conceptual formulation of barriers and little examination of correlates of perceived barriers.

Although critical for children's health and development, child psychosocial issues and maternal depression are underidentified and undertreated. We know surprisingly little about the barriers to identification and treatment of children's psychosocial problems or maternal depression by primary care pediatricians. The extant literature lacks a comprehensive examination of barriers across multiple child psychological issues and maternal depression, using a national sample and testing a conceptual model. Therefore, we developed a study to determine whether: (1) perceived barriers to care for children's psychosocial issues and maternal depression aggregate into the previously suggested patient, physician, and organizational domains¹⁶; (2) barrier domains are distinct for mothers and children; and (3) physician, patient, and practice/organizational characteristics are associated with different barrier domains for children and mothers.

METHODS

Survey Administration

The study population for this research consisted of the 50 818 US nonretired members of the AAP. The AAP estimates that 80% of all board-certified pediatricians in

the United States are academy members. The Periodic Survey (PS) has been conducted 3 to 4 times yearly since 1987 and is designed to provide information on current topics to inform policy, develop new initiatives, or evaluate current projects (AAP Web site). Using the AAP PS, academy researchers (Ms O'Connor) selected and mailed the survey to 1600 members beginning in March 2004 with a sixth and final mailing in August 2004. The questionnaire was 8 pages in length, contained largely closed-ended questions, had been pretested, and was approved by the AAP Institutional Review Board before the initial mailing.

Overall, 832 (52.0%) of the members responded with 745 (57.5%) of nontrainee members responding. Of the 745 respondents who were not trainees, 687 are involved in direct patient care. Overall, the sample reflects the AAP membership as described on the AAP Web site (www.aap.org). Bivariate comparisons of responders and nonresponders for all of the members surveyed show that women, fellows, and candidate fellows were significantly more likely to respond. To avoid potential bias created by differential nonresponse and to ensure that the respondents are representative of the population, poststratification sample weights were created by fitting multivariable logistic regression models to estimate the probability of response. Although the bivariate analyses indicated response bias by AAP member status, this was no longer a significant predictor of response after controlling for age and gender. The sample weights were created via a saturated logistic regression model with age group (≥ 40 vs < 40), gender, and the 2-way interaction between age and gender as predictors of response. The sample weights were rescaled such that the mean is unity and the sum is equal to the analytic sample size (men < 40 years of age: 1.28; men ≥ 40 years of age: 1.10; women < 40 years of age: 0.93; and women ≥ 40 years of age: 0.87).

Survey Questionnaire

The respondents were asked a broad range of questions about sociodemographic and practice characteristics used in previous PSs. In addition, we asked questions on the prevalence and impact of child psychosocial problems and maternal depression, attitudes toward mental health issues, responsibility for identifying such problems, care activities with respect to mental health problems, and barriers to care activities for these problems. Questions about barriers and attitudes were modeled on the Williams et al¹⁶ and Olson and colleagues^{28,29} studies. Because physicians in the pretest affirmed no child-specific patient barriers (eg, family reluctance to acknowledge that their child may have a mental health problem), these questions were deleted from the questionnaire and, therefore, we could only test 5 of the 6 domains, namely, organizational issues for child psychosocial issues (eg, lack of time to treat child mental health

problems) and maternal depression (eg, lack of time to identify maternal depression), physician issues for child psychosocial problems (eg, lack of training in identifying child mental health problems) and maternal depression (eg, unfamiliarity with criteria for identifying maternal depression), and patient issues, specifically mother-specific issues related to maternal depression (eg, fear of losing patients if maternal depression is addressed).

To assess attitudes, questions were adapted from an instrument developed by Park et al.³¹ The attitudes questions were a subset of those reported by McLennan et al.²³ Finally, pediatricians were asked which of a range of strategies they currently use or would like to use to address maternal depression. These were adapted from work by Heneghan et al.³² The full instrument is available through the AAP Office of Research.

Factor Analysis

Twenty-five individual questions assessing barriers to care were asked on a 5-point Likert scale with the following response choices and scoring system: strongly disagree (1 point), disagree (2 points), neutral (3 points), agree (4 points), and strongly agree (5 points). A weighted exploratory factor analysis using casewise deletion was conducted to determine the extent to which the 14 maternal and 11 child barrier questions could be grouped into physician, patient, and organizational barriers. Principal axis factoring was used for factor extraction; promax, an oblique rotation that allows the factors to be correlated, was used to facilitate interpretation. Three methods were used to select the number of factors to retain: the scree test, Gorfel's extension of Horn's parallel analysis, and Velicer's Minimum Average Partial Test.^{33,34} Items with a primary loading ≥ 0.40 and secondary cross-loadings < 0.35 in the rotated pattern matrix were retained. Internal consistency reliability was assessed for each factor using Cronbach's α . Barrier scale scores were calculated by summing the individual items, provided that $\geq 80\%$ of the questions for that barrier scale were completed using the person-mean substitution method for the 1% to 2% of respondents with 1 missing item.³⁵ High scores on any barrier scale reflect greater barrier endorsement.

Means and proportions were used to summarize sample characteristics for continuous and categorical data, respectively. Between-group differences were assessed using 2 sample *t* tests and correlations for unweighted analyses, and weighted linear regression was used for weighted analyses. Unweighted and weighted linear regressions were used to assess the relationship among physician/practice characteristics, mental health activities, and beliefs, with each of the barrier outcomes using a stepwise procedure. Main effects models were fitted, and predictors were retained if statistically significant ($P < .05$). Based on the results of the main effects models, 2-way interactions of clinical relevance were evaluated.

A step-down Bonferroni procedure was used to adjust for multiple comparisons.³⁶ The results are summarized using adjusted least squares means for categorical variables and slopes for continuous variables, along with their SEs. Factor analyses were performed using SPSS 13.0 (SPSS Inc, Chicago, IL), and weighted analyses were performed using procedures appropriate for survey data in SAS 9.1.3 (SAS Institute, Inc, Cary, NC).^{37,38}

RESULTS

Table 1 displays the weighted physician and practice characteristics for the 687 nontrainee respondents who provide direct patient care. Approximately half were women (52%), and most were ≥ 40 years of age (63%) and white (72%). The largest group of respondents (44%) practice in an urban setting, in multipediatrician group practices (36%), have ≥ 100 ambulatory visits weekly (50%), and indicate that their patients are assigned or select a specific pediatrician (70%).

Mental health activities are displayed in Table 2. The majority of physicians report that they provide mental health treatment to children (61%) and/or someone in their practice provides child mental health services (71%). Only 14% report that child mental health services are very available, and only 27% of physicians report fellowship training in child mental health. Many pediatricians report identifying a mother as depressed (74%), but few regularly use screening tools to identify mothers who are depressed (4.5%), and few indicate that they have ever treated a mother for depression (4.3%).

Table 3 shows the respondents' endorsements of barriers for children's psychosocial problems and mothers' depression. Pediatricians endorse most frequently lack of time to treat mental health problems (77%) and long waiting periods to see mental health providers (74%), with lack of training in treatment of these problems (65%), lack of confidence to treat mental health problems with counseling (62%), or medication (59%) and lack of providers to refer children with mental health problems (61%) also commonly endorsed. For maternal depression, pediatricians most often endorsed lack of training in treatment (74%) and lack of time to treat (64%) as important barriers. Concerns about liability (54%), unfamiliarity with screening instruments (60%), lack of time to identify (60%), inadequate time to contact community mental health providers (55%), and too few community mental health resources (54%) were also endorsed as important barriers.

Table 4 contains the results of the exploratory factor analyses of the barrier questions. Pediatricians' report of barriers clustered into physician and organizational domains. A 4-factor solution was identified with each factor containing either 5 or 6 items: factor 1: physician-child barriers; factor 2: organization-systems barriers (liability, Current Procedural Terminology [CPT] codes,

TABLE 1 Physician and Practice Characteristics (N = 687)

Physician Characteristics	N	Weighted %
Female gender	400	52.2
Age, mean \pm SD, y	687	45.4 \pm 10.4
Age category, y		
<40	245	37.0
40–49	205	28.3
50–59	165	23.6
≥ 60	72	11.1
Years in practice		
1–4	169	26.7
5–9	111	16.9
10–19	185	27.2
20–29	135	20.5
≥ 30	53	8.7
Ethnicity/race		
White	490	71.6
Asian	101	14.6
Black	30	4.2
Hispanic	28	4.0
Other/unknown	38	5.6
Location of practice		
Urban	290	44.3
Suburban	276	42.5
Rural	85	13.2
Region		
Northeast	187	27.3
Midwest	143	20.8
South	227	33.0
West	130	18.9
Type of practice		
1 or 2 physician	108	15.4
Pediatric group practice	246	36.0
Multispecialty group	75	11.0
Medical school/parent university	67	10.0
Other/unknown	191	27.6
Time in general pediatrics		
0%	116	17.7
1%–99% (part-time)	100	15.1
100% (full-time)	457	67.2
<100 ambulatory visits per wk	346	49.7
Insurance of patients		
$\geq 80\%$ have private insurance	197	28.7
<80% have private insurance	352	51.3
Unknown	138	20.0
White patients, %		
0–24	114	17.1
25–49	125	18.9
50–74	214	33.5
≥ 75	197	30.5
Patients have a specific pediatrician	484	70.4
$\geq 60\%$ patients seen are physician's	213	31.6

Unknown/missing category not shown unless $\geq 20\%$ of the sample. Numbers may not add to 687 because of missing data.

and inadequate reimbursement for both children and mothers); factor 3: organization-local services barriers (too few community resources and long waiting periods, etc, for children and mothers); and factor 4: physician-mother barriers. Lack of time to treat maternal depression had the lowest primary loading (0.49 on factor 4: physician-mother barriers), and the highest secondary

TABLE 2 Child and Adult Mental Health Activities

Activities	N	Weighted %
Child mental health activities		
Physician provides mental health treatment to children	418	60.8
Others in practice provide mental health treatment to children	397	57.9
Physician's practice provides mental health treatment to children	488	71.0
Referred ≥ 1 child for mental health treatment in past year	608	88.4
Availability of children's mental health services		
Very available	93	14.3
Somewhat available	501	75.9
Not available/do not know availability	64	9.8
Completed fellowship in child mental health area	190	27.0
Attended child mental health lecture/conference in past 2 y	385	55.8
Interest in further education on managing/treating child mental health		
Very interested	367	56.4
Somewhat interested	205	31.7
Not at all interested	75	11.9
Adult mental health activities		
Physician has identified a mother as depressed	511	73.9
Physician has referred a depressed mother for diagnosis or treatment	421	60.6
Physician has treated a mother for depression	29	4.3
Physician uses ≥ 2 methods to address maternal depression	186	27.1
Use of screening instrument to identify maternal depression		
Usually	31	4.5
Sometimes	75	11.1
Never/no answer	581	84.4
Completed residency or fellowship training in adult mental health	169	24.7
Attended lecture/conference on maternal depression in past 2 y	62	8.9
Availability of adult mental health services		
Very available	147	22.8
Somewhat available	253	39.8
Not available/do not know availability	241	37.4
Interest in further education on managing/treating maternal depression		
Very interested	79	12.1
Somewhat interested	157	24.4
Not at all interested	409	63.5

Fellowship in child mental health includes behavioral/developmental pediatrics, child psychiatry, adolescent medicine, and/or behavioral sciences. Residency or fellowship training in adult mental health includes adult interviewing techniques, *Diagnostic and Statistical Manual of Mental Disorders* diagnostic criteria for adult depression, strategies for managing/treating depression, and/or adult dosing with antidepressants.

cross-loading was 0.33 (inadequate time for making contacts with provider cross-loads on the organizational-local services barriers). Two items with primary loadings <0.40 were excluded: fear of losing patients if maternal depression is addressed and lack of time to treat child/

TABLE 3 Endorsement of Barriers by Physicians

Barriers	Agree, Weighted %
Child/adolescent-specific barriers	
Lack of time to treat child/adolescent MH problems	77.0
Long waiting periods to see the referred child/adolescent MH provider	74.0
Lack training in the treatment of child/adolescent MH problems	65.0
Lack confidence in my ability to treat child/adolescent MH problems w/counseling	62.0
Lack of competent/qualified providers to refer children with MH problems	61.0
Lack confidence in my ability to treat child/adolescent MH problems w/medication	59.3
Inadequate reimbursement for treating child/adolescent MH problems	50.6
Concern about liability coverage for treating child/adolescent MH problems	49.5
Lack training in identifying child/adolescent MH problems	47.1
Unfamiliarity with CPT codes that reimburse for treating child/adolescent MH	45.9
Lack confidence in my ability to diagnose child/adolescent MH problems	43.7
Mother-specific barriers	
Lack of training in the treatment of maternal depression	74.5
Lack of time to treat maternal depression	64.3
Lack of time to identify maternal depression	59.7
Unfamiliarity with screening instruments to identify maternal depression	59.6
Inadequate time for making contacts with providers/services to refer mothers identified with depression	55.2
Concern about liability coverage for treating maternal depression	54.5
Too few community resources to accommodate referrals/long waiting periods for appointments	54.1
Poor relationships with adult MH providers/lack of feedback on referrals	45.8
Unfamiliar with CPT codes that reimburse treating maternal depression	45.4
Unfamiliarity with criteria for identifying maternal depression	45.2
Inadequate reimbursement for treating maternal depression	36.5
Patient unwillingness to seek care after being referred	34.4
Patient dissatisfaction with referral process	25.8
Fear of losing patients if maternal depression is addressed	4.3

Agree includes agree and strongly agree. MH indicates mental health.

adolescent mental health problems.³⁹ Internal consistency reliability was high, ranging from 0.81 to 0.87 (Table 4). The interfactor correlations are shown in Table 5. The correlation between the 2 organizational barriers was the largest ($r = 0.51$), and the physician-mother barriers scale was moderately correlated with the other 3 barrier scales (r values range from 0.33 to 0.41).

TABLE 4 Results of the Exploratory Factor Analysis: Primary Factor Loadings From Principal Axis Factoring Extraction and Promax Rotation

Factor	Factor Loading
Factor 1: physician-child (mean: 17.5; SD: 4.4; $\alpha = .87$)	
1. Lack confidence in my ability to treat child/adolescent MH problems/counseling	0.77
2. Lack confidence in my ability to diagnose child/adolescent MH problems	0.77
3. Lack training in the treatment of child/adolescent MH problems	0.74
4. Lack confidence in my ability to treat child/adolescent MH problems with/medication	0.72
5. Lack training in identifying child/adolescent MH problems	0.69
Factor 2: organization-system (mean: 20.8; SD: 5.4; $\alpha = .85$)	
1. Inadequate reimbursement for treating child/adolescent MH problems	0.79
2. Unfamiliar with CPT codes that reimburse treating maternal depression	0.78
3. Inadequate reimbursement for treating maternal depression	0.75
4. Unfamiliarity with CPT codes that reimburse for treating child/adolescent MH	0.73
5. Concern about liability coverage for treating maternal depression	0.57
6. Concern about liability coverage for treating child/adolescent MH problems	0.52
Factor 3: organization-local services (mean: 21.1; SD: 4.4; $\alpha = .81$)	
1. Too few community resources to accommodate referrals/long waiting periods for appointments	0.77
2. Long waiting periods to see the referred child/adolescent MH provider	0.74
3. Lack of competent/qualified providers to refer children with MH problems	0.68
4. Patient dissatisfaction with referral process	0.68
5. Poor relationships with adult MH providers/lack of feedback on referrals	0.59
6. Patient unwillingness to seek care after being referred	0.44
Factor 4: physician-mother (mean: 22.0; SD: 4.4; $\alpha = 0.81$)	
1. Unfamiliarity with screening instruments to identify maternal depression	0.76
2. Unfamiliarity with criteria for identifying maternal depression	0.70
3. Lack of time to identify maternal depression	0.62
4. Inadequate time for making contacts with providers/services to refer mothers identified with depression	0.59
5. Lack of training in the treatment of maternal depression	0.54
6. Lack of time to treat maternal depression	0.49

Weighted linear regression was used to examine the physician and practice characteristics associated with each barrier scale. Physician-child barriers (Table 6) are associated with physician-specific characteristics, such as lack of fellowship training in a psychosocial area, not having attended a lecture/conference on child mental health, and younger physician age, as are perceptions of unavailability of mental health services and not providing mental health services to children. Finally, physicians who are full-time in general pediatric practice and those whose patient populations are <75% white have higher physician-specific barrier scores for child psychosocial problems.

Correlates of endorsing organizational-systems barriers (Table 6) include type of practice. Physicians who practice in a medical school/parent university settings report significantly lower mean organizational-systems barriers scores compared with those in 1–2 physician practices ($P = .0002$), those in pediatric group practices ($P = .0054$), and those in multispecialty group practices ($P = .0035$). Physicians practicing in “other” settings (including health maintenance organizations, government, etc) report significantly lower mean organizational-systems barriers compared with physicians working alone or with 1 other physician ($P = .0005$). Physicians in practice for <5 years, physicians who use ≥ 2 methods to address maternal depression, and male physicians have lower organizational-systems barriers scores, whereas physicians who are very interested in further education in managing/treating child mental health problems have higher organizational-system barrier scores on average.

Correlates of endorsing organizational-local services barriers have some overlapping correlates with organizational-systems barriers; physicians who use ≥ 2 methods to address maternal depression have lower scores, whereas physicians who are very interested in further education in managing/treating child mental health problems have greater endorsement of this barrier. Physicians who use <2 methods to address maternal depression did not attend a lecture or conference on maternal depression in the past 2 years, practice in a suburban or rural setting, and see predominantly nonwhite patients reported greater endorsement of this barrier. Physicians who report that <80% of their patients have private insurance and physicians who do not know their patients’ insurance show greater endorsement of organizational-local services barriers ($P = .0011$ and $P = .0087$, respectively). Interestingly, physicians who attended a lecture/conference on children’s mental health in the past 2 years and physicians who are very interested in further education in managing/treating child mental health problems had greater endorsement of this barrier (Table 6).

For physician-mother barriers (Table 6), higher scores are associated with many of the same characteristics that are related to physician-child barriers, including lack of training in adult mental health issues, no continuing education in maternal depression, and lack of availability of mental health services. In addition, physicians who use <2 methods to address maternal depression, have some or no interest in further education in managing/treating maternal depression, and have ≥ 100 ambulatory visits per week had greater endorsement of this barrier.

DISCUSSION

The results generated from the AAP PS of Fellows point to the complexity of barriers contributing to the iden-

TABLE 5 Results of the Exploratory Factor Analysis: Interfactor Correlations

Interfactor Correlations	Physician-Child	Organization-System	Organization-Local	Physician-Mother
Physician-child	1	0.18	0.16	0.33
Organization-system	0.18	1	0.51	0.41
Organization-local services	0.16	0.51	1	0.37
Physician-mother	0.33	0.41	0.37	1

MH indicates mental health; NA, not applicable.

tification and treatment of children's psychosocial problems and mothers' depression as perceived by pediatricians involved in direct patient care. The barriers identified by pediatricians clustered into physician and organizational domains, but only physician-specific barriers were capable of being measured using separate scales for children and their mothers. Furthermore, different characteristics were related to each barrier area.

Pediatricians who believe that organizational issues involving broad systems issues, such as lack of reimbursement and liability, are barriers to the identification and treatment of both children's psychosocial issues and maternal depression are interested in further education in children's mental health issues, have few strategies to address maternal depression, work in solo or 2-physician groups, are more often women, and have been in practice ≥ 5 years. These factors suggest that those who are interested in treating children's psychosocial issues and, indeed, probably treat them given that they are not in large pediatric or multispecialty groups where there might be experts in developmental and behavioral problems, see these issues as barriers perhaps because they are consistently confronted by the lack of reimbursement for the mental health services that they deliver and are concerned about their liability.

Organizational barriers with respect to local services was likewise a barrier that was not capable of being measured separately for maternal depression and child psychosocial issues. Physicians who scored high on this barrier scale have a curious inconsistency. They use fewer methods to address maternal depression and report not having attended any educational offering on maternal depression, suggesting a lack of interest in maternal depression. Perhaps these individuals see local services as barriers because they believe depressed women should have services other than their child's pediatric services available. Conversely, pediatricians who report local services as a barrier are also more likely to have attended a conference on children's mental health, have more interest in this area, and are more likely themselves to provide mental health services for children. Why these physicians see local services as a problem seems clear: they treat mental health problems and are probably confronted frequently with constrained service options. It is also sensible that physicians whose patients may not have insurance see local services as a barrier because it is difficult to obtain mental health services without the ability to pay for such services.

Physician-specific barriers related to the identification and treatment of children's psychosocial issues are endorsed by pediatricians who are less likely to treat child mental health problems, have had no fellowship training in any child psychosocial area (eg, developmental/behavioral pediatrics, child psychiatry, etc) or continuing medical education in the area but who spend all of their time in general in pediatric practice, or are younger and perceive that mental health services are not readily available in their communities. This suggests that those pediatricians without specialized training but who care for general pediatric patients and are confronted with mental health problems on a daily basis identify physician issues as barriers. Furthermore, physicians who are younger and may not have the experience in treating these issues endorse physician-related barriers. This is particularly concerning given that younger physicians have had ≥ 4 weeks of developmental and behavioral pediatrics. This finding suggests that a single rotation in developmental and behavioral pediatrics may be insufficient to prepare pediatricians for the psychosocial issues that they are confronted with in general pediatric practice.

When we move to physician-specific barriers for maternal depression, we find that using fewer strategies to address maternal depression, lack of residency or fellowship training in adult mental health techniques or continuing education in the area, having less interest in further education on managing maternal depression, and perceiving low availability of adult mental health services are related to high barrier scores. Lack of training/interest in maternal depression coupled with likely exposure to depressed mothers given ≥ 100 ambulatory visits per week seem to be driving endorsement of the physician-mother barriers scale. Unfortunately, pediatricians who acknowledge that their own skills and confidence in diagnosing and managing maternal depression are lacking are the very physicians least interested in seeking education to improve their skills in this area.

Limitations

These findings must be evaluated in light of their limitations. This survey, like others of physicians, has a suboptimal, although solid, response rate.^{40,41} Although a detailed analysis of response rates in AAP surveys shows little nonresponse bias,⁴² we weighted for nonresponse. Even with the weighting, it is unlikely that we corrected for all of the nonresponse bias. Furthermore, given that

TABLE 6 Weighted Main Effects Regression Models

Covariates in the Model	Adjusted Mean	SE	P
Physician-child barriers			
Fellowship training in child psychosocial issues			
Yes, received training	16.49	0.33	.0003
No, did not receive training	17.92	0.20	
Attended child MH lecture/conference in past 2 y			
Yes, attended child MH lecture	17.20	0.23	.0233
No, did not attend child MH lecture	17.99	0.26	
Availability of child MH services in your community			
Very available	16.23	0.48	.0041
Somewhat available/not at all available/do not know	17.73	0.18	
Physician provides child MH services			
Yes, provides MH services	17.22	0.21	.0223
No, does not provide MH services	18.10	0.30	
% time spent in general pediatrics			
100% (full-time) in general pediatrics	18.24	0.18	<.0001
<100% in general pediatrics	15.92	0.38	
Patient race			
≥75% patients are white	16.96	0.29	.0232
<75% patients are white	17.77	0.21	
Physician's age (per 5-y increase)	-0.17	0.08	.0344
Organizational-system barriers			
No. of methods used to address maternal depression			
≥2 methods	19.94	0.41	.0204
<2 methods	21.07	0.25	
Interest in further education: managing/treating child MH			
Very interested	21.27	0.29	.0141
Some/no interest	20.19	0.32	
Practice type			
One or 2 physicians	22.24	0.45	.0003
Pediatric group practice	21.14	0.36	
Multispecialty group practice	21.51	0.54	
Medical school/parent university	18.49	0.88	
Other (health maintenance organization, government, unknown)	20.00	0.43	
Physician gender			
Male	20.21	0.32	.0133
Female	21.27	0.28	
Years in practice			
<5	19.86	0.42	.0438
5 to <10	21.31	0.51	
≥10	21.01	0.29	
Organizational-local services barriers			
No. of methods used to address maternal depression			
≥2 methods	20.24	0.33	.0029
<2 methods	21.43	0.21	
Attended lecture/conference on maternal depression in the past 2 y			
Yes, attended lecture/conference	19.57	0.65	.0110
No, did not attend lecture/conference	21.28	0.18	
Attended lecture/conference on children's mental health in the past 2 y			
Yes, attended lecture/conference	21.48	0.22	.0204
No, did not attend lecture/conference	20.57	0.31	
Interest in further education: managing/treating child MH			
Very interested	21.68	0.25	.0022
Some/no interest	20.46	0.29	

TABLE 6 Continued

Covariates in the Model	Adjusted Mean	SE	P
Physician provides child mental health services			
Yes, provides MH services	21.61	0.24	.0011
No, does not provide MH services	20.20	0.32	
Location of practice			
Urban	20.71	0.31	.1014
Suburban	21.27	0.26	
Rural	21.90	0.48	
Percentage of patients with private insurance			
$\geq 80\%$ of patients	20.06	0.35	.0027
$< 80\%$ of patients	21.55	0.26	
Unknown	21.50	0.42	
Percentage of patients who are white			
$\geq 75\%$ of patients	20.71	0.36	.1730
$< 75\%$ of patients	21.29	0.21	
Physician-mother barriers			
No. of methods used to address maternal depression			
≥ 2 methods	20.34	0.32	$< .0001$
< 2 methods	22.72	0.20	
Residency or fellowship training in adult mental health			
Yes, completed residency or fellowship training	21.47	0.33	.0338
No, did not complete residency or fellowship training	22.29	0.20	
Interest in further education: managing/treating maternal depression			
Very interested	20.89	0.50	.0121
Some/no interest	22.23	0.18	
Attended lecture/conference on maternal depression in the past 2 y			
Yes, attended lecture/conference	20.36	0.56	.0011
No, did not attend lecture/conference	22.27	0.18	
Availability of adult mental health services			
Very available	21.36	0.35	.0213
Somewhat available/not available/do not know	22.29	0.19	
No. of ambulatory visits per week			
< 100 visits	21.52	0.23	.0005
≥ 100 visits	22.68	0.24	

Physician-child barriers weighted main effects regression model adjusted R^2 is 0.14. Organizational-system barriers weighted main effects regression model adjusted R^2 is 0.08. Organizational-local services barriers weighted main effects regression model adjusted R^2 is 0.11. Physician-mother barriers weighted main effects regression model adjusted R^2 is 0.16. MH indicates mental health. Fellowship training in child psychosocial issues includes behavioral/developmental pediatrics, child psychiatry, adolescent medicine, and/or behavioral sciences. Location of practice and percentage of white patients were included because of confounding. Residency or fellowship training in adult mental health includes adult interviewing techniques, *Diagnostic and Statistical Manual of Mental Disorders* diagnostic criteria for adult depression, strategies for managing/treating depression, and/or adult dosing with antidepressants.

those pediatricians who are most interested in this topic are most likely to respond, the results must be viewed with this fact in mind.⁴³ Given that the correlates of interest and the barriers were measured at the same time, these results represent associations and in no way imply causality. Finally, given the possibility of response biases for socially desirable behaviors, it may be that respondents overestimated some of the behaviors or actions listed on the survey.

CONCLUSIONS

Pediatricians report a wide range of barriers with respect to the diagnosis and treatment of children's mental

health problems and maternal depression. Physician barriers are capable of being measured using separate scales for children and mothers, although organizational barriers seem to be measured as unified scales for mothers and children. Furthermore, these barrier domains are associated with different sociodemographic, practice-related, and physician-training factors. Interestingly, perception of local services as barriers seems to be driven by very different attitudes toward maternal depression and child psychosocial problems. Our findings suggest that pediatricians with the least interest in treating maternal depression rate local services barriers as high, whereas those physicians who may be most interested in and

attentive to child psychosocial issues are more likely to report local services barriers as high. This may be attributable, in part, to the way pediatricians perceive their responsibilities toward children versus their responsibilities toward mothers. This curious dichotomy bears further investigation. The specificity of factors relating to various barrier areas suggests that overcoming barriers to the identification and treatment of child mental health problems and maternal depression in primary care pediatrics is likely to require separate multifaceted approaches that span organizational, physician, and patient problems. In addition, comprehensive interventions will likely require social marketing approaches designed to engage and educate diverse audiences of clinicians and their patients.

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Barriers to the Identification and Management of Psychosocial Issues in Children and Maternal Depression

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