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Survey of Mental Health Consultation and Referral Among Primary Care Pediatricians

James P. Guevara, MD, MPH^{1,2,3}, Paul E. Greenbaum, PhD⁴, David Shera, ScD⁵, Laura Bauer, BA¹, and Donald F. Schwarz, MD, MPH^{2,6}

¹Division of General Pediatrics, The Children's Hospital of Philadelphia, Philadelphia, PA

²The Leonard Davis Institute of Health Economics, the University of Pennsylvania, Philadelphia, PA

³The Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania School of Medicine, Philadelphia, PA

⁴Louis de la Parte Florida Mental Health Institute, Department of Child and Family Studies, University of South Florida, Tampa, FL

⁵Division of Biostatistics and Epidemiology, the Children's Hospital of Philadelphia, Philadelphia, PA

⁶Craig Dalsimer Division of Adolescent Medicine, The Children's Hospital of Philadelphia, Philadelphia, PA

Abstract

Objective—To determine availability of and test whether on-site mental health providers (MHP) is associated with greater odds of reported mental health consultation and referral among primary care pediatricians.

Methods—Pediatricians were identified from the American Medical Association's 2004 Physician Directory, stratified by region, and 600 were randomly selected to receive a mail survey. The main independent variable was on-site MHP. The dependent variable was reported frequency (4-point rating) of mental health consultation and referral. Estimates were weighted to account for survey design and non-response.

Results—Overall response rate was 51%. The majority of respondents were male (56%), age ≥ 46 years old (59%), white (68%), and practicing in suburban locations (52%). Approximately half reported consultation with (44%) or referral to (51%) MHP always or often, but few (17%) reported on-site MHP. After adjustment for demographic and practice characteristics, pediatricians with on-site MHP were more likely to consult (Odds Ratio [OR] 6.58, 95% confidence interval [CI] 3.55-12.18) or refer (OR 4.25, 95% CI 2.19-8.22) than those without on-site MHP. Among those without on-site MHP, pediatricians with greater practice burden were less likely to consult (OR 0.69, 95% CI 0.48-0.99) or refer (OR 0.75, 95% CI 0.54-1.04) than those with lesser burden.

Conclusions—Most pediatricians in the U.S. experienced practice-related burdens that limit mental health collaboration, but those with collocated services reported a greater likelihood of consultation and referral. Policy changes that encourage collocation of mental health services and limit practice burden may facilitate mental health consultation and referral.

Keywords

mental health; child; primary health care; health surveys; referral and consultation

Introduction

The prevalence of children with behavioral problems in primary care has been estimated at 16-27%.¹⁻⁵ In addition, 24% of all office visits may involve discussion of a behavioral problem.⁶ The number of children with identified behavioral problems and the proportion of visits devoted to behavioral problems has been increasing.^{7, 8} Reasons for the apparent growth in the identification and management of such problems may be related to an increased recognition of behavioral disorders in children, reduced stigma and treatment acceptability by families, a greater array of therapies to manage these problems, and increases in poverty and other risk factors for mental illness.^{7, 9-11}

To efficiently manage behavioral problems, many pediatricians consult with or refer patients to mental health providers (MHP).¹² Reasons for these referrals include lack of knowledge and resources,^{13, 14} lack of interest and/or time,¹⁰ limited reimbursement for mental health services provided in primary care,¹⁵⁻¹⁷ and behavioral health carve-outs.¹⁸ Mental health services collocated in primary care practices may improve the efficiency and effectiveness of referrals. Little is known regarding the availability and effectiveness of collocated mental health services. The objective of this study was to assess the proportion with on-site MHP and to determine whether on-site MHP is associated with a greater likelihood of mental health consultation and referral among practicing primary care pediatricians. We hypothesized that collocated services would increase the likelihood of consultation and referral. Information from this study can be used to address policy and research related to collocation of mental health services in primary care.

Methods

Sample

We identified pediatricians from the American Medical Association (AMA) 2004 Directory of Physicians in the United States.¹⁹ This directory contains the listing of over 800,000 practicing and retired physicians in the U.S. In the directory, physicians reported their medical specialty, address, and year of graduation. To be eligible for the survey, physicians must self-identify as pediatricians and have available contact information (address ± telephone number). Pediatricians who were retired, deceased, not in general practice at least half-time, or could not be contacted due to inaccurate contact information were excluded.

We stratified the eligible sample (53,789) by region of the country: West, South, Midwest, and Northeast. We randomly selected approximately 150 pediatricians from each region using computer-generated random numbers to achieve a sample size of 600. Eligible physicians were mailed a survey, recruitment letter, declination card, self-addressed stamped return envelope, and a small monetary incentive. If physicians did not respond to the initial mailing, we sent a reminder card two weeks later, then a second questionnaire four weeks later, and then called their office 8 weeks later.

If surveys were returned unopened and no forwarding address was identified, we excluded these physicians as ineligible and randomly selected an additional eligible physician from the same region to replace them. We did not replace physicians who were ineligible by virtue of responses that indicated they were retired, deceased, or not in general pediatric practice at least

half-time. Details of the survey procedures can be found elsewhere.²⁰ This study was approved by the Institutional Review Board at the Children's Hospital of Philadelphia.

Measures

A questionnaire was developed that contained questions on demographic and practice characteristics, frequency of mental health-related activities, and the modified Physician Belief Scale (PBS). Demographic questions included age, gender, race/ethnicity, and years in practice. Practice questions included practice location (urban, suburban, rural), average number of patients seen per week, frequency of communication with MHP about referrals, and availability of on-site MHP. This last question was posed as the frequency that a mental health provider sees patients in your clinic. Responses were scaled using four levels. Availability of on-site MHP was the main independent variable and was categorized as present (“always” or “often” responses) or absent (“sometimes” or “never” responses). The modified PBS is a 14-item scale that measures physician psychosocial orientation and contains two subscales, beliefs and burden.¹⁰ The beliefs subscale contains 8 questions and queries providers on the extent to which they agree with statements on the treatment of psychosocial problems. For example, “I focus on organic disease, because I cannot treat psychosocial problems.” The burden subscale contains 6 questions and queries providers on the extent to which they agree with statements on practice-related burdens in the treatment of psychosocial problems. For example, “one reason I do not consider information about psychosocial problems is the limited time I have available.” All items on the modified PBS are measured using a 5-point response scale (strongly disagree, disagree somewhat, neither agree or disagree, agree somewhat, strongly agree). Response scales were numbered so that higher scores on the beliefs subscale reflect greater psychosocial orientation, while higher scores on the burden subscale reflect lesser psychosocial orientation.

The dependent variables were self-reported frequency of mental health consultation and referral. Mental health consultation was defined as activities that seek advice on diagnosis and treatment from a MHP without transfer of care. Mental health referral was defined as activities in which part or all of patient management responsibilities are transferred to a MHP. The frequency of these activities was measured using a 4-point ordinal scale (always, often, sometimes, never).

Analysis

To account for the stratified random sampling, we computed sample weights that reflected an individual's probability of selection and non-response. Sample weights were obtained for each region as follows:

$$W_i = (\text{No. respondents} / \text{No. eligible})^{-1}$$

where W_i is the region-specific weight

We assessed univariate associations between dependent and independent variables using non-parametric tests and chi-square tests. A p-value <0.05 was considered statistically significant, however a p-value <0.20 was deemed necessary for inclusion in multivariate models to assess independent associations. We used ordinal logistic regression to model the 4-level dependent variables. All analyses were conducted using the survey module in Stata 9.0 (Stata Corporation, College Station, TX) statistical software to account for the stratified random design.

Results

Of the initial mailing to 600 eligible pediatricians, 100 were returned unopened without a forwarding address and were replaced. The overall response rate was 50.5%. We excluded 61

respondents (10.2%) who reported being retired or in specialty care practice more than 50% of the time and two respondents with incomplete questionnaires. Non-respondents included 43 (7.2%) who returned declination cards and 254 (42.3%) who never responded. Respondents did not differ ($p>0.05$) from non-respondents with respect to gender, years in practice, or region of the country. Participation rates by region varied little (47.3% to 53.4%).

Respondents were predominantly male, older than 45 years old, white, and practiced in suburban communities (Table 1). There were few Hispanic or African-American respondents. Respondents reported a mean of 16 ± 0.6 years of practice experience and saw a mean of 103 ± 3.5 patients a week. Their mean PBS subscale scores were 13.0 for beliefs and 15.7 for burden, which were similar to pediatricians from a previous nation-wide study of primary care clinicians.¹⁰ After weighting, 17% of the sample reported on-site MHP. There were few differences in characteristics by on-site MHP. Physicians with on-site MHP were more likely to practice in urban communities (53.0% vs. 31.3%, $p=0.02$) than physicians without on-site MHP. There were no differences in PBS belief and burden subscale scores among physicians by availability on-site MHP.

Approximately half of respondents reported they were able to consult with (44.1%) or refer to (50.9%) to a specific MHP often or always (Table 2). Pediatricians who reported on-site MHP were more likely to consult (80.1% vs. 36.7%, $p<0.001$) or refer (82.2% vs. 44.5%, $p<0.001$) often or always than those without on-site MHP. Most (59.6%) reported they rarely or never received communication in return from MHPs following referrals, and this result did not differ by on-site MHP.

After adjustment for potential confounding variables, pediatricians who reported on-site MHP were more likely to consult (adjusted OR 6.58, 95% CI 3.55-12.2) or refer (adjusted OR 4.25, 95% CI 2.19-8.23) than those without on-site availability (Table 3). In a subgroup analysis among pediatricians without on-site MHP ($N=84.1\%$), those physicians who had greater PBS burden subscale scores were less likely to consult (adjusted OR 0.69, 95% CI 0.48-0.99) or refer (adjusted OR 0.75, 95% CI 0.54-1.04) than those with lower burden scores, although the latter association was not statistically significant. Physician beliefs concerning mental health treatment (PBS belief subscale scores) were not associated with consultation or referral.

Discussion

In this national survey of pediatricians in general practice, we found that half of physicians reported ability to consult with or refer to mental health providers all or most of the time. Few had mental health providers available on-site, and few received communication of information from mental health providers following referrals. Pediatricians who reported on-site MHP were more likely to consult or refer than those without availability. In subgroup analysis among pediatricians without on-site MHP, those with greater practice burden were less likely to consult or refer than those with lesser burden.

The important new finding from this study concerned availability of colocated mental health services. Although such availability was relatively uncommon among primary care pediatric practices nationally, when present it greatly facilitated mental health consultation and referral. Reasons for this are unclear. It may be that colocated services increase referrals and consultation by improving mental health access and reducing stigma associated with mental health treatment. It may also be that practices that establish colocated services are more psychosocially oriented, but a measure of physician psychosocial beliefs used in this study was not associated with referrals or consultations.

In subgroup analysis, we found that practice burden was associated with a lower likelihood of mental health consultation and referral. The burden measure we employed included items such

as limited time, competing demands, and concerns regarding efficiency. We speculate that these burdens likely reflect a widening scope of practice, increased productivity pressures, and limited resources that may prevent physicians from addressing mental health issues. Recent studies have documented that pediatricians do not adequately meet widening expectations for quality of care.^{21, 22}

There are limitations to the findings reported here. First, our response rate of 51% was low for mail surveys in general but consistent with mail surveys of physicians.²³ We found no differences among respondents and non-respondents with regards to sex, years in practice, or region of the country. However, it is not clear if respondents differed from non-respondents in other important ways. Second, our absolute sample size was probably insufficient to determine small associations. This was reflected in the large confidence intervals for some variables. We incorporated a sampling scheme that allowed us to select a national pool of pediatricians to improve the generalizability of our findings. Third, our main dependent variables were scaled using ordinal responses, which may be subject to differential interpretation. It is unclear whether physicians can accurately recall the absolute number of mental health consultations and referrals they generate due to low saliency and frequent occurrence.²⁴ Our results therefore should be viewed as reflecting greater or lesser degrees of consultation and referral and not objective measures. Finally, our study did not address many of the more fundamental hypotheses concerning mental health consultation and referral such as mental health availability in the community. We were limited to questions that physicians could adequately and reliably answer.

This study has policy implications for pediatric practice and research. Practice-related burdens may impede mental health consultation and referral and suggests that pediatricians require additional resources to effectively consult with or refer to mental health providers. Collocation of mental health services in primary care may facilitate mental health referrals and consultation. However, establishing colocated services is not easy and presents challenges. A previous study cited reimbursement for services, information exchange between primary care and mental health records, and differential expectations for service delivery as difficulties that needed to be surmounted to establish effective colocated services.²⁵ Future research should test models of collocation to determine their effectiveness in promoting mental health referrals and consultation, confirm findings related to practice burdens, and investigate a greater array of important variables that may hinder or facilitate referral and consultation.

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Table 1

Characteristics of Responding Physicians by availability of on-site mental health providers*

Characteristic	Respondents %		
	On-Site MHP N=17%	Off-Site MHP N=83%	Overall Sample N=100%
Gender			
Male	57.0	55.9	56.3
Female	43.0	44.1	43.7
Age Category			
< 35 years	7.9	11.3	10.7
36-45 years	34.5	30.0	30.8
46-55 years	32.2	36.2	35.3
56-65 years	21.5	18.0	18.8
> 65 years	3.9	4.5	4.4
Race/Ethnicity			
Hispanic	15.6	5.9	7.5
African-American	8.9	3.6	4.5
White	58.5	70.1	68.3
Asian	7.5	12.2	11.3
Other	9.5	8.2	8.4
Years in Practice ($\pm$ SE)	16.3 ($\pm$ 1.4)	16.3 ($\pm$ 0.7)	16.3 ($\pm$ 0.6)
Practice Location [‡]			
Urban	53.0	31.3	35.0
Suburban	42.4	54.0	52.1
Rural	4.6	14.7	12.9
No. Patients per Week ($\pm$ SE)	87.4 ($\pm$ 8.1)	106.9 ($\pm$ 3.8)	103.2 ($\pm$ 3.5)
PBS [†] ($\pm$ SE)			
Belief	13.0 ($\pm$ 0.7)	13.1 ($\pm$ 0.3)	13.0 ($\pm$ 0.3)
Burden	14.7 ($\pm$ 0.8)	16.0 ($\pm$ 0.3)	15.7 ($\pm$ 0.3)

* Eligible pediatricians were stratified by region of country and randomly selected to receive a mail survey. Characteristics of respondents were weighted to account for stratified random sampling and non-response.

[†] PBS refers to the Modified Physician Belief Scale, a 14-item instrument that measures a physician's psychosocial orientation. Two subscales assess beliefs and burden in the provision of mental health treatment.

[‡] p<0.05

Table 2

Self-Reported Frequency of Collaborative Mental Health Activities Stratified by On-Site Mental Health Availability*

Activity	Frequency of Reporting	
	Always or Often (%)	Sometimes or Never (%)
Mental health consultation [†]	44.1	55.9
On-Site MHP	80.7	19.3
No On-Site MHP	36.7	63.3
Mental health referral [†]	50.9	49.1
On-Site MHP	82.2	17.8
No On-Site MHP	44.5	55.5
Mental health provider communication	40.4	59.6
On-Site MHP	46.2	53.8
No On-Site MHP	39.2	60.8

* Pediatricians reported the frequency with which they conducted the following mental health activities: consultation with mental health providers about patient care, referral of patients to specific mental health providers, and receipt of referral information from mental health providers. Frequencies of self-reported activities were weighted to account for stratified random sampling and non-response.

[†] Differences between on-site MHP and no on-site MHP statistically significant, $p < 0.001$.

Table 3

Adjusted Odds of Mental Health Consultation and Referral by Provider Characteristics*

Characteristic	Odds Ratio (95% Confidence Interval)			
	Consultation		Referral	
	Without onsite MH N=84.1%	Full Sample N=100%	Without onsite MH N=84.1%	Full Sample N=100%
PBS Subscale [†]				
Beliefs	1.24 (0.88-1.75)	1.29 (0.90-1.84)	1.09 (0.78-1.53)	1.15 (0.81-1.62)
Burden	0.69 (0.48-0.99)	0.73 (0.50-1.06)	0.75 (0.54-1.04)	0.79 (0.57-1.10)
Region of Country				
Midwest	1.78 (0.80-3.94)	1.41 (0.63-3.16)	1.42 (0.64-3.17)	1.22 (0.54-2.75)
South	1.64 (0.71-3.77)	1.35 (0.59-3.07)	0.99 (0.46-2.16)	0.83 (0.39-1.78)
Northeast	2.44 (1.05-5.69)	2.38 (0.98-5.78)	1.78 (0.80-3.93)	1.75 (0.77-3.95)
West	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Male	1.43 (0.79-2.57)	1.39 (0.76-2.54)	1.35 (0.78-2.34)	1.32 (0.76-2.28)
Age >45 years	2.02 (0.84-4.87)	1.90 (0.73-4.96)	2.70 (1.22-5.98)	2.58 (1.12-5.98)
Race				
Black	1.33 (0.25-6.92)	0.91 (0.19-4.37)	9.85 (2.43-39.92)	8.19 (1.45-46.30)
Hispanic	1.74 (0.55-5.48)	1.15 (0.39-3.43)	2.00 (0.46-8.59)	1.51 (0.39-5.84)
Other	0.68 (0.32-1.45)	0.73 (0.34-1.57)	1.25 (0.61-2.56)	1.36 (0.68-2.73)
White	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Practice Location				
Suburban	1.22 (0.64-2.32)	1.55 (0.81-2.96)	0.53 (0.28-0.99)	0.61 (0.32-1.17)
Rural	0.78 (0.30-2.03)	1.13 (0.38-3.32)	0.66 (0.28-1.54)	0.87 (0.36-2.12)
Urban	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Years in Practice	0.99 (0.94-1.04)	0.99 (0.94-1.04)	0.97 (0.93-1.03)	0.97 (0.92-1.03)
Mean Patients/Week	1.00 (0.99-1.01)	1.00 (0.99-1.01)	1.00 (0.99-1.01)	1.00 (0.99-1.01)
On-Site MH	-	6.58 (3.55-12.18)	-	4.25 (2.19-8.23)

* Separate multivariate ordinal logistic regression models were fit for mental health consultation and referral in the full survey sample and among those without on-site mental health providers (83%). Estimates were weighted to reflect stratified sampling and non-response.

[†] PBS refers to the modified Physician Belief Scale, a 14-item instrument that measures a physician's psychosocial orientation. Two domains assess beliefs and burden in the provision of mental health treatment. Higher belief and lower burden scores represent higher psychosocial orientation.