



Medical Education

Promoting mental health competency in residency training[☆]Nerissa S. Bauer^{a,*}, Paula D. Sullivan^b, Anna M. Hus^a, Stephen M. Downs^a^a Department of General and Community Pediatrics, Section of Children's Health Services Research, Indiana University School of Medicine, Indianapolis, USA^b Department of General and Community Pediatrics, Indiana University School of Medicine, Indianapolis, USA

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ABSTRACT

Objective: To evaluate the effect our developmental–behavioral pediatrics (DBP) curricular model had on residents' comfort with handling mental health issues.**Methods:** From August 2007 to January 2010, residents participating in the Indiana University DBP rotation completed a self-assessment questionnaire at baseline and at rotation end. Residents rated their comfort with the identification, treatment, and counseling of mental health problems using a 5-point scale.**Results:** Ninety-four residents completed both self-assessments. At baseline, categorical pediatric residents possessed higher comfort levels toward identification (mean 2.8 vs. 2.3 for non-categorical pediatric residents, $p < 0.05$), treatment (2.6 vs. 2.2, $p < 0.05$) and counseling of mental health issues (2.7 vs. 2.1, $p < 0.005$). Residents who were parents were also more comfortable. At rotation end, all residents showed significant improvements in self-rated comfort (4.0 vs. 2.6 for identification, $p \leq 0.05$; 4.0 vs. 2.4 for treatment, $p \leq 0.05$; and 4.0 vs. 2.4 for counseling, $p \leq 0.05$). This remained true regardless of being a categorical pediatric resident, a parent, or primary care-oriented.**Conclusion:** Our curricular model promotes residents' comfort with handling common mental health issues in practice.**Practice implications:** Increasing residents' comfort may influence the frequency of active discussion of mental health issues during well-child visits and lead to earlier diagnosis and needed treatment.

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1. Introduction

As pediatric mental health problems have become more prevalent, pediatricians face the need to hone their skills in identifying and managing these issues in practice [1–5]. Likewise, graduate medical education guidelines have changed to better prepare residents. Since 1997, pediatric residency programs have incorporated a minimum one-month block rotation in developmental–behavioral pediatrics (DBP) into the residency curriculum [6]. Moreover, the American Academy of Pediatrics has advocated for competency in mental health care for all pediatricians [1,5]. Despite these recommended changes, ongoing deficiencies and barriers to DBP training in residency persist, including inadequate faculty development, gaps in training, and funding [4,7]. Graduates

report feeling inadequately prepared to handle DBP issues such as general behavior problems, learning disabilities, depression/anxiety and sleep problems [8–10]. Systems-level issues (e.g., limited visit time, clinic flow, operation issues, reimbursement) and inadequate community resources may discourage both parents and pediatricians from actively discussing these complex issues in the office [11–13]. Providers who feel inadequately trained or lack an efficient approach to handle these issues may avoid addressing them altogether [14,15]. Furthermore, when counseling on mental health issues, graduates may rely upon anecdotal experience that lacks supporting evidence, is ineffective or inappropriate given the family circumstance, or may conflict with cultural, religious or spiritual values and beliefs of caregivers [16,17].

Outpatient pediatrics is challenging. Behavioral issues often warrant multiple visits and parent buy-in for long-term behavior change. In fact, first-line treatments for common mental health issues are parent training, especially for families of younger preschool and school-age children [18]. Thus, competence in basic child behavior management techniques and the selected use of psychotropic medications in the pediatric population is ideal. Pediatricians who coach parents on alternative parenting strategies can be more effective in garnering parent buy-in and collaboration toward treatment goals especially when medications

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are not indicated. Providing systematic training and clinical practice on important primary care topics during residency training can increase residents' comfort [14,19–22]. This, in turn, significantly increases the likelihood that physicians will counsel, treat, and manage issues common to pediatric primary care [14,19,20,22–25].

In this article, we sought to evaluate our curricular model's effects on residents' comfort with the identification, management, and counseling of common mental health concerns that would be typical of outpatient practice. Specifically, we hypothesized that after our DBP rotation, residents would report increased comfort with mental health issues, regardless of residency type, career pathway, and parental status.

2. Methods

2.1. Study design

A time series study was conducted to compare residents' comfort with the diagnosis, treatment and counseling of mental health problems before and after completing a one-month DBP rotation (intervention) at Indiana University. We wanted to ascertain if being a categorical pediatrics resident, planning on going into primary care practice or being a parent had an effect on residents' baseline comfort level and if these characteristics influenced their self-reported comfort after receiving the intervention.

2.2. Intervention

To prepare residents for primary care practice, two of the authors (NB and PS) developed a curricular model to promote mental health competencies and teach residents a systematic way of handling these issues. The model draws upon evidence-based practice and social cognitive theory with interactive learning and "hands-on" practice throughout our four week DBP rotation [19]. We adapted the Incredible Years (IY) BASIC parenting curriculum and its video vignettes for teaching child behavior management techniques [26]. The efficacy of the IY parent program (www.incredibleyears.com) has been demonstrated in investigator-initiated and replicated randomized controlled trials over the past 30 years with statistically significant parent and child outcomes [26–29]. IY utilizes videotaped vignettes with common child behaviors and parental responses to teach and foster group discussion. Residents critique selected videos with DBP faculty to learn parenting principles and to hone their observations of parent–child interactions. DBP faculty guide discussion to generalize learning points from videos to clinical scenarios residents encounter in continuity clinic. Part of the adaptation involved taking the content and teaching it in such a way that would be useful to the pediatrician in counseling families. This includes discussion of when and how to utilize a technique in simple concrete language, common pitfalls to avoid, and alternative strategies the parent can use. Our goal was to teach residents how basic positive parenting principles can be integrated into practice [30]. In addition, residents receive instruction on behavioral history taking and counseling, review of clinical care guidelines, and additional related DBP didactics.

Residents practice skills during clinical encounters in our behavioral pediatrics clinic where they are directly observed by faculty while taking the history and counseling families. Time is set aside for self-reflection upon individual encounters. Parents are invited to provide feedback on the resident's professionalism. Residents also run a parent-hotline and troubleshoot issues with parents in between visits, conduct school observations, and learn to interface with teachers on behalf of the child. Through this

dynamic process of educational content, practice, direct observation, and immediate feedback residents assimilate this critical skill set.

2.3. Study sample

The study sample was comprised of categorical pediatrics, combined internal medicine–pediatrics, triple board (pediatrics, psychiatry, and child and adolescent psychiatry), and combined emergency medicine–pediatric residents assigned to the DBP rotation. The rotation is a mandatory upper-level rotation for all categorical pediatrics and combined internal medicine–pediatrics residents. On average three to four residents participate in the rotation every four weeks. All residents assigned to the DBP rotation at Indiana University were potential subjects for this analysis.

2.4. Data collection

Residents rotating on the DBP rotation completed self-assessments at baseline and at the end of the rotation. Residents rated their comfort with the identification, treatment, and counseling of mental health issues on a scale of 1 (not at all comfortable) to 5 (very comfortable). Halfway through the study period we added one true/false question to measure residents' comfort with talking to families about childcare and preschools that coincided with the addition of a requirement to learn about various curriculums by touring local centers: "I feel comfortable discussing childcare/preschool options with parents during clinic encounters." Residents were asked to correctly report which type of screening instrument they would use given each of the 6 scenarios (e.g., a 2-year well child check or 14-year old exhibiting moodiness). Beginning August 2009, self-assessments also included a subset of questions regarding comfort with the identification and treatment of specific disorders such as Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), depression and anxiety. At the end of the rotation, residents were asked to share comments related to the overall design of the rotation, its perceived usefulness, and areas for improvement. If residents were not comfortable sharing rotation feedback during an informal debriefing session with DBP faculty, residents were encouraged to use the residency online system to submit anonymous comments. All activities and results reported have been approved by the Indiana University Office of Research Administration–Human Subjects.

2.5. Statistical analysis

Data were analyzed using Stata11 (StataCorp, College Station, Texas, 2010). Baseline comfort scores were examined overall and in relation to three categories of interest (being a categorical pediatrics resident, being primary care-oriented, and being a parent) using the Wilcoxon–Mann Whitney test. To evaluate the curriculum's effectiveness, the change in group means from baseline was analyzed using the Wilcoxon signed-rank sum test. Group means for comfort with childcare discussion and correct number of screening tests were analyzed using a paired *t*-test. Any items left blank by the resident were excluded from the final analysis.

3. Results

Between August 2007 and January 2010, a total of 96 residents completed the DBP rotation (Table 1). Of these, more than half were female. Most residents were categorical pediatrics (60%) or combined internal medicine–pediatrics (35%) residents, and in the

Table 1
Study sample characteristics.

	N=96	%
Female	63	66
Residency type		
Categorical pediatrics	58	60
Combined internal medicine-pediatrics	34	35
Pediatrics-adult and child psychiatry	3	3
Combined emergency medicine-pediatrics	1	1
Upper-level resident	95	99
Planning to go into primary care	40	42
Has a child of their own	34	35

third or fourth year of post-graduate training (99%). Of all residents in our sample, 42% reported wanting to pursue primary care. Slightly over one-third of residents were also parents at the start of the rotation.

At baseline, being a categorical pediatrics resident was associated with higher comfort scores for identification (mean 2.8 vs. 2.3 for non-categorical pediatrics residents, $p < 0.05$), treatment (mean 2.6 vs. 2.2, $p < 0.05$), and counseling of mental health issues (mean 2.7 vs. 2.1, $p < 0.005$). Similar findings were associated with being a parent for identification (mean 2.9 vs. 2.5 for non-parents, $p < 0.05$), treatment (mean 2.7 vs. 2.2, $p < 0.05$), and counseling (mean 2.9 vs. 2.2, $p < 0.001$). Primary care-oriented residents did not differ significantly from those residents pursuing specialty fields in terms of baseline comfort scores. At baseline, the majority of residents (80/96 = 83%) reported correct screening tests for at least half of the six scenarios. Three-fourths of the residents who were assigned to the rotation when preschool tours were added (30 of 40) reported feeling uncomfortable talking about childcare/preschool with parents.

By the end of the rotation changes in mean comfort scores for the combined sample, as well as for all groups of interest were significant (see Table 2). In addition, all residents reported feeling comfortable talking to parents about childcare and preschool. At rotation end, all residents showed improvement in identifying appropriate screening tests for the six given scenarios. Forty-two percent of the residents (40 of 95; 1 resident with incomplete data) correctly identified screening tests for all six scenarios. Similar trends were found in the change of mean comfort scores when teaching was refined in later years of the study and residents were specifically asked to rate comfort with specific mental health conditions (see Table 3).

Based on resident feedback and our yearly rotation ranking when compared with other pediatric rotations offered at Indiana University, our curricular model has been well received. Residents enjoy the multimedia and interactive teaching employed by DBP faculty. Just as videotape modeling promoted rapid skill acquisition among parents, it has likewise been a critical teaching tool for residents.

Table 2
Mean comfort ratings on a Likert five-point scale for residents with complete data.

Item	Categorical pediatrics resident		Primary care orientation		Parent status		Combined	
	Pre (N=56)	Post (N=56)	Pre (N=38)	Post (N=38)	Pre (N=33)	Post (N=33)	Pre (N=94)	Post (N=94)
Identification of mental health problems [*]	2.8	4.1	2.7	3.9	2.9	4.0	2.6	4.0
Treatment of mental health problems [*]	2.6	4.1	2.3	3.9	2.7	4.0	2.4	4.0
Counseling of mental health problems [*]	2.6	4.1	2.4	4.0	2.8	4.2	2.4	4.1

Likert scale: 1 = not at all comfortable; 3 = neutral; 5 = very comfortable.

^{*} All pre-post rotation differences were clinically significant at the $p \leq 0.05$ level by Wilcoxon signed-rank test.

Table 3
Comfort ratings for specific mental health conditions on a 5-point Likert scale.^a

Item	Combined [*]	
	Pre (N=28)	Post (N=28)
Identification of ADHD	3.5	4.4
Treatment of ADHD	2.9	4.0
Identification of ASD	2.6	4.1
Treatment of ASD	2.1	3.5
Identification of depression	2.6	3.8
Treatment of depression	2.5	3.6
Identification of anxiety	2.4	3.8
Treatment of anxiety	2.3	3.9
Coaching parents on parenting techniques	2.8	4.2
Counseling on aggression	2.6	3.9

Likert scale: 1 = not at all comfortable; 3 = neutral; 5 = very comfortable.

^a Subset of 28 residents (rather than 96) were asked these items when teaching in the rotation was refined to focus on clinical care guidelines for these issues in later years of the study.

^{*} All pre-post rotation differences were clinically significant at the $p \leq 0.05$ by Wilcoxon signed-rank test.

4. Discussion and conclusion

4.1. Discussion

Regardless of baseline comfort ratings, we found that our curricular model produced significant positive changes in residents' ratings of their comfort with the identification, treatment, and counseling of mental health issues. Residents also felt more comfortable discussing childcare with families. Further, residents were better able to correctly identify the use of appropriate screening tests. Our DBP curricular model at Indiana University increases residents' comfort with mental health issues through use of screening instruments, behavioral history-taking, and collaboration with parents on child behavior techniques. Our curricular model emphasizes a scope of knowledge and skills for general pediatricians and family practitioners applicable in today's society [9].

Even though participating in our rotation led to improvements in comfort ratings, we acknowledge that resident responses at the end of the rotation may reflect an expectancy effect; they know they should feel more comfortable and be more knowledgeable at the end of a rotation and, thus, report accordingly. However, many residents did not rate themselves as a "5" by rotation end. This is not unexpected since exponential growth and life-long learning continue beyond residency training. This is especially true as specific mental health clinical care guidelines are developing. Evidence is also growing regarding specific treatments for many of these conditions in the pediatric population. Thus, as the field expands, new knowledge and policies will concurrently encourage all practitioners to continually expand their knowledge base and practice. Our findings complement and extend the findings of others who have shown that physicians with developmental-behavioral pediatrics training report higher self-competence and

more responsibility for common mental health issues [31,32]. Physicians reporting comfort using medications for treatment of common mental health issues were more likely to report feeling responsible for managing these issues in primary care practice [31]. However, first line treatment of pediatric mental health issues is parent training and medications are seldom indicated in very young children [18]. Until now, there has been no standardized curriculum or systematic method for teaching pediatric residents basic child behavior management and counseling skills. Our results to date provide early evidence that our curriculum and methods for teaching residents are meeting our goals in preparing residents to handle these issues using systematic screening and parent training.

Over the years, we have encountered various challenges that require on-going efforts to determine best practices to support mental health integration into pediatric residency training [33]. First, when to offer our DBP rotation has been a continual point of discussion with residency program administration. We found that senior-level residents possess a good foundation, comfort with basic clinical skills, and increased motivation to focus on more complex psychosocial issues during the rotation. However, residents frequently express their desire to have the rotation earlier in training: *“I learned a lot from this high-yield month and I now feel more comfortable talking with parents about behavior and discipline. I only wish this could have been offered sooner.”* Second, ensuring continued application of skills learned during the rotation to primary care settings (e.g., resident continuity clinics) and eventually in practice has been a challenge. Most residents can apply skills to identify and manage ADHD: *“I had a scenario where I newly diagnosed ADHD [in my clinic] and I was able to fully discuss initiating medication (all risks and benefits), school involvement/request for testing, as well as, sharing instruction on positive praise, consistent time-outs, and reducing the complexity of multi-step commands. In the past, I would have immediately come running to [my attending] and she would have run the conversation with the parents. So, I was quite proud of myself!”* Lastly, other residents express time constraints and lack of support from attending preceptors to identify and treat pediatric mood disorders or more complex psychosocial issues, which usually require several longer visits within primary care. Therefore, extending this skill set to general pediatrics faculty resident preceptors in other ambulatory settings remains a continual challenge.

Helping future graduates gain comfort and eventual competence in managing mental health issues may improve the quality of care provided in primary care clinics. Pediatric mental health disorders cost \$8.9 billion in 2006, with mean expenditures of \$1931 per child [34]. Therefore, helping pediatricians incorporate positive parenting principles into anticipatory guidance and promoting the skills to identify these issues in their earliest stages may contribute to overall healthcare savings and improve the quality of life for pediatric patients and their families.

4.1.1. Limitations

Certain limitations of our study should be acknowledged. Even though a randomized controlled trial would have been the gold standard for measuring our curriculum's effect, we were unable to randomize residents into a control and treatment group because our rotation is mandatory for all pediatrics residents at Indiana University and data regarding resident comfort before the curriculum was implemented was not available. Therefore, we felt the strongest statistical design would utilize individual residents as their own control. Second, individual factors (e.g., exposure to learning experiences and faculty with varying degrees of comfort with mental health issues outside of the DBP rotation) could be controlled in the pre-post study design. Third, there is no objective data to show how readily residents transfer skills learned

during the rotation to other settings (e.g., resident continuity clinics). However, we have anecdotally noted that past residents have obtained a more thorough history and discussed positive parenting principles prior to referring to our behavioral clinic. Finally, long-term data to verify that graduates from our program continue to feel comfortable identifying and treating mental health issues in primary care is not yet available. A future survey to sample our graduates' attitudes and practice patterns upon completing residency training, and again at periodic intervals, is planned for this purpose.

4.2. Conclusion

Our curricular model has been effective in promoting residents' comfort with common mental health issues. An adaptation of the evidence-based IY parenting program provided the framework for teaching behavior management techniques, honing resident observational skills of parent-child interactions, and coaching residents on how to effectively counsel parents. Opportunities to practice interview and counseling skills under direct observation with immediate feedback helped reinforce individual strengths and increase resident comfort. We believe our curricular model will guide other pediatric residency programs wishing to incorporate a systematic method of preparing their graduates in gaining mental health competency.

4.3. Practice implications

Due to increases in the prevalence of pediatric mental health problems and associated psychosocial risk factors, the focus of primary care practice has moved from a predominantly biological model to a biopsychosocial one. This change has challenged pediatricians to develop the skills necessary to identify and manage mental health issues in primary care. Although further research is needed to determine whether the knowledge, skills, and improved comfort gained during our DBP rotation are generalizable to other pediatric care settings and result in improved patient outcomes, our results suggest that our systematic approach in preparing residents to manage mental health issues is promising. As residency programs around the country focus on increasing residents' competency, curricular models such as ours may be useful. By promoting active skills acquisition, graduates may begin to engage in targeted and thoughtful discussions of important mental health issues during well child visits. This, in turn, will lead to earlier diagnosis and appropriate treatment.

Disclaimers

The authors have presented parts of this material at the pre-meeting teaching DBP workshop at the Society of Developmental-Behavioral Pediatrics annual meeting in 2007, 2008, 2009 and 2010.

The authors do not have any financial disclaimers.

Permissions

The authors have secured written permission from Dr. Carolyn Webster-Stratton to adapt the Incredible Years[®] BASIC Parent Curriculum.

Ethical approval for studies involving human participants

Ethical approval for this study was obtained through the Indiana University Office of Research Administration.

All authors confirm the following statement to be true: “I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.”

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