Primary Care Behavioral Health Service Delivery
A Psychologist-delivered Training Curricula for Pediatric Residency Programs

Jeffrey Shahidullah[1], Paul Kettlewell[2], Kathryn DeHart[2], Ilene Ladd[2], Tyler Bogaczyk[2], Kris Rooney3, Amy Signore[2], Sharon Larson[2]
Rutgers University[1], Geisinger Health System[2], Lehigh Valley Health Network[3]

RUTGERS Graduate School of Applied and Professional Psychology

Geisinger Lehigh Valley Health Network — A PASSION FOR BETTER MEDICINE

Background

Overview

- Primary care providers (PCPs) are positioned to serve increasing numbers of youth with behavioral health (BH) concerns in primary care (PC)
- Common barrier to providing effective care → lack of BH training PCPs receive (Serby et al., 2002)
- Most directors of pediatric residency training programs acknowledge training on topic is minimal/suboptimal (Leigh et al., 2006)
- American Academy of Pediatrics (AAP, 2009) policy statement→ key aspirational behavioral health competencies for PCPs → **should be acquired via innovations in residency training**

Objective

- Empirically evaluate an innovative behavioral health training curricula on improving pediatric residents' attitudes and knowledge in primary care behavioral health service delivery compared to "training as usual"

Results

Table 1: Demographic Characteristics

Variable	Site 1 Enhanced Training (n = 24)	Site 2 Training as Usual (n = 12)	Statistical Comparison p-value
Average Age (years)	30.4	29.2	0.44
Year in Program			
PGY-1	13	5	n/a
PGY-2/3	11	7	
Gender			
Male (%)	25.0 (n = 6)	8.3 (n = 1)	0.23
Female (%)	75.0 (n = 18)	91.7 (n = 11)	
Medical School Location			
U.S. (%)	83.3 (n = 20)	100 (n = 12)	0.13
Foreign (%)	16.7 (n = 4)	0 (n = 0)	
Medical School Type			
Allopathic (%)	50.0 (n = 12)	8.3 (n = 1)	0.01*
Osteopathic (%)	50.0 (n = 12)	91.7 (n = 11)	
Undergraduate Major			
Nature/Life Science (%)	87.5 (n = 21)	83.3 (n = 10)	0.73
Humanities (%)	12.5 (n = 3)	16.7 (n = 2)	
Interest level in practicing in general pediatrics after training			
Very Interested (%)	50.0 (n = 12)	25.0 (n = 3)	0.08
Interested (%)	8.3 (n = 2)	8.3 (n = 1)	
Somewhat interested (%)	16.7 (n = 4)	0 (n = 0)	
Not interested (%)	25.0 (n = 6)	66.7 (n = 8)	
Prior experience working (volunteer or paid) in a mental health/substance abuse setting?			
Yes (%)	37.5 (n = 9)	33.3 (n = 4)	0.81
No (%)	62.6 (n = 15)	66.7 (n = 8)	
Weeks spent working in behavioral health settings during medical school training?			
0 (%)	0 (n = 0)	0 (n = 0)	0.37
1-4 (%)	58.3 (n = 14)	83.3 (n = 10)	
5-8 (%)	37.5 (n = 9)	8.3 (n = 1)	
8 + (%)	4.2 (n = 1)	8.3 (n = 1)	

Table 2: Baseline Scores (both sites combined) showing lack of improvement of scores between PGY1 and PGY 2/3's

Evidence-based Practice Parameter	PGY-1 Mean (Confidence Interval)	PGY2/3 Mean (Confidence Interval)	Statistical Comparison p-value
Knowledge of Practice Parameters- comparison across years			
ADHD Evaluation	6.00 (5.32, 6.85)	6.94 (6.16, 7.73)	.11
ADHD Treatment	5.41 (4.39, 6.43)	6.18 (5.36, 7.00)	.27
Anxiety Evaluation	6.24 (5.57, 6.90)	6.94 (6.06, 7.82)	.22
Anxiety Treatment	5.06 (4.16, 5.96)	6.24 (5.37, 7.10)	.07
Depression/Suicide Evaluation	6.71 (5.97, 7.44)	8.00 (7.10, 8.90)	.04
Depression/Suicide Treatment	5.41 (4.71, 6.11)	6.65 (5.74, 7.54)	.04
Sleep Disorder Evaluation	5.24 (4.32, 6.15)	6.00 (5.03, 6.97)	.17
Sleep Disorder Treatment	4.47 (3.45, 5.49)	5.53 (4.49, 6.57)	.17
Developmental Delay Evaluation	6.12 (4.86, 7.37)	7.47 (6.73, 8.21)	.10
Developmental Delay Treatment	4.82 (3.56, 6.08)	6.35 (5.14, 7.56)	.10
Substance Abuse Evaluation	6.24 (5.14, 7.33)	6.94 (6.10, 7.79)	.34
Substance Abuse Treatment	4.88 (3.84, 5.93)	5.59 (4.54, 6.63)	.36
Knowledge scores range from 1 (least confident in knowledge of evidence-based practices) to 10 (most confident)			
Skills in Using Practice Parameters- comparison across years			
ADHD Evaluation	3.11 (2.40, 3.82)	3.41 (2.59, 4.23)	.59
ADHD Treatment	2.06 (1.60, 2.50)	2.71 (2.29, 3.12)	.06
Anxiety Evaluation	2.61 (1.84, 3.38)	2.65 (1.91, 3.38)	.07
Anxiety Treatment	2.00 (1.57, 2.43)	1.94 (1.50, 2.38)	.85
Depression Evaluation	3.39 (2.92, 3.86)	2.65 (1.91, 3.38)	.10
Depression Treatment	2.33 (1.87, 2.80)	2.29 (1.92, 2.67)	.90
Suicide Evaluation	1.39 (1.10, 1.68)	1.35 (1.11, 1.59)	.84
Suicide Safety Plan	1.28 (1.06, 1.50)	1.29 (1.06, 1.52)	.95

Table 3: Site 2 Pre/Post Data (showing improvement in response to intervention)—all residency years

Evidence-based Practice Parameters	Pre-intervention Mean (se)	Post-intervention Mean (se)	Significance p
Knowledge of Practice Parameters- before and after curriculum all years			
ADHD Evaluation	7.27 (.56)	7.28 (.35)	.95
ADHD Treatment	6.36 (.54)	6.19 (.50)	.30
Anxiety Evaluation	7.27 (.54)	7.33 (.36)	.67
Anxiety Treatment	6.18 (.48)	5.71 (.52)	.0004
Depression/Suicide Evaluation	7.73 (.52)	7.81 (.30)	.55
Depression/Suicide Treatment	6.27 (.51)	6.57 (.52)	.07
Sleep Disorder Evaluation	6.73 (.51)	6.05 (.50)	.0001
Sleep Disorder Treatment	6.18 (.48)	5.62 (.65)	.0003
Developmental Delay Evaluation	7.36 (.62)	7.28 (.41)	.62
Developmental Delay Treatment	6.36 (.73)	6.29 (.58)	.73
Substance Abuse Evaluation	7.09 (.49)	6.90 (.43)	.19
Substance Abuse Treatment	6.00 (.54)	5.62 (.49)	.02

Table 4: Site 1 Pre/Post Data (showing improvement in response to intervention)—all residency years

Evidence-based Practice Parameters	Pre-intervention Mean (se)	Post-intervention Mean (se)	Significance p
Knowledge of Practice Parameters- before and after curriculum			
ADHD Evaluation	6.15 (.38)	7.53 (.28)	.0001
ADHD Treatment	5.55 (.41)	6.43 (.39)	.0001
Anxiety Evaluation	6.26 (.30)	7.13 (.27)	.0001
Anxiety Treatment	5.30 (.40)	5.53 (.30)	.06
Depression/Suicide Evaluation	7.11 (.34)	7.80 (.25)	.0001
Depression/Suicide Treatment	5.78 (.36)	6.57 (.35)	.0001
Sleep Disorder Evaluation	5.07 (.38)	5.63 (.31)	.02
Sleep Disorder Treatment	4.41 (.42)	5.03 (.41)	.0001
Developmental Delay Evaluation	6.44 (.45)	7.13 (.31)	.0001
Developmental Delay Treatment	5.15 (.53)	5.97 (.42)	.0001
Substance Abuse Evaluation	6.22 (.40)	6.40 (.29)	.13
Substance Abuse Treatment	4.78 (.41)	5.00 (.33)	.09

Method

Participants

- 36 pediatric residents from two similar pediatric residency programs (Site 1 = 24; Site 2 = 12) participated in study (Table 1) by completing a survey regarding behavioral health service delivery both before and after a year of residency training; program sites were flagship hospitals of two large health systems in a northeastern state
- Site 1 residents participated in a behavioral health training curricula; Site 2 residents received training as usual which largely consisted of a mandated 1-month developmental-behavioral pediatrics rotation

Survey Tool Development

- The Survey, developed by study investigators, includes 18-items:
  - *Items 1-12* consist of demographic questions including questions about education/ training history; *Items 13-18* consist of resident's rating their level of confidence and comfort in managing BH concerns using evidence-based practice parameters (AAP, 2009; AACAP, 2007a; AACAP (2007b; AACAP, 2001 on 1-10 scale (i.e., **Knowledge**)

Data Collection

- Surveys were administered separately for PGY-1 and PY-2/3's at the beginning and end of training year
- Data was analyzed to demonstrate the response to the behavioral health curricula at Site 1 compared to "training as usual" at Site 2 after one year of implementation

Quick Facts: Enhanced Behavioral Health Training

What did the behavioral health training curricula consist of?

- Embedded behavioral health providers (psychology attending and post-doc fellow) in the continuity training clinic for pediatric residents
- BHPs provided shared patient care (warm handoffs, etc) with live performance feedback of residents, as well as a formal didactic curriculum on variety of BH topics

Was the innovative behavioral health curricula effective?

- Yes! Residents at all levels at Site 1 appear to generally report more confidence and knowledge, while Site 2 residents either reported a similar level of confidence at time 1 and time 2, or in some instances a reduction in knowledge about the conditions and treatment

Didactic Seminar Schedule

Date	Topic
10/16	The Behavioral Health Referral
10/23	Pediatric Behavior Management: The Basics
11/6	Pediatric Behavior Management: The Skills
11/20	ADHD: Evaluation (AAP)
12/4	ADHD: Treatment (AAP)
12/18	Anxiety: Evaluation (AACAP)
1/8	Anxiety: Treatment (AACAP)
1/22	Motivational Interviewing in Primary Care (1)
2/5	Motivational Interviewing in Primary Care (2)
2/19	Depression: Evaluation (AACAP)
3/4	Depression: Treatment (AACAP)
3/18	Suicide/Crisis Response (AACAP) (1)
3/25	Suicide/Crisis Response (AACAP) (2)
4/1	Sleep
4/22	Feeding
5/6	Toileting
5/20	Child Abuse
6/3	Schools (SPED system & bullying)
6/17	Medically unexplained physical symptoms

Service-Delivery Components (requiring an embedded behavioral health provider)

Warm hand-offs
On-site behavioral health providers (psychologists) collaborating w/ residents on behavioral health concerns through direct patient care in conjunction w/ a well-/sick-child visit

Behind-the-scenes consults
On-site behavioral health providers (psychologists) collaborating w/ residents on behavioral health concerns through indirect (informal discussion in the resident bullpen) patient care in conjunction w/ a well-/sick-child visit

In-vivo performance feedback
Feedback provided to residents in providing evaluation for ADHD, anxiety, depression, and/or suicide risk assessments; Observations conducted by embedded psychologists; Performance feedback is provided based on AAP/AACAP practice parameters

Didactic Components (not requiring an embedded behavioral health provider)

Lectures on behavioral health topics
18 lectures throughout year focused on commonly presenting behavioral health concerns; Instruction specifically addresses AAP/AACAP practice parameters for ADHD, anxiety, depression, & suicide/crisis intervention

Readings and quizzes
Readings consists of AAP/AACAP practice parameters as well as evidence-based evaluation of ADHD, anxiety, depression, & suicide risk assessment; Residents take quizzes over readings and feedback is provided

Vignettes
Residents read vignettes describing behavioral health concerns & identify the appropriate course of treatment based on evidence-based practice parameters; Feedback is provided

Conclusions

Data yielded 3 major findings:

(1) At baseline, there were no significant differences in scores between residents at the 2 sites making them appropriate for comparison
(2) At baseline, there were no significant differences between scores of interns and upper-level residents, demonstrating a lack of growth during matriculation through residency, despite low baseline scores
(3) Residents who participated in the enhanced BH training demonstrated more statistically significant improvements in their clinical competencies compared to the "training as usual" group

Limitations

- Generalizability of these residents to those nationally may be limited without controlling for other demographic, educational/training, and competency covariates such as individual pediatric board exam scores, particularly the psychiatry sub-section scores
- Attitudes and knowledge data were self-reported and thus subject to bias
- The survey was developed by study investigators; There have been no validity nor reliability testing completed on this survey

Future Directions

- Add additional sites to perform dismantling studies to determine relative effectiveness of each component within the behavioral health curricula
- Assessment residents' "Skills" in actually carrying out evidence-based practice parameters
- Examine psychometric properties of survey instrument

References

- AAP (2009). Policy Statement—The Future of Pediatrics: Mental Health Competencies for Primary Care, *Pediatrics, 124*, 410-421
- AACAP (2007a). Practice parameters for the assessment and treatment of children and adolescents with anxiety disorders. *J of Am Acad of Child Adol Psychiatry,* 46, 267-283
- AACAP (2007b). Practice parameters for the assessment and treatment of children and adolescents with depressive disorders. *J of Am Acad of Child Adol Psychiatry,* 46, 1503-1526
- AACAP (2001). Practice parameters for the assessment and treatment of children and adolescents with suicidal behavior. *J of Am Acad of Child Adol Psychiatry,* 40, 24S-51S
- Serby, Schmeidler, & Smith (2002). Length of psychiatry clerkships: Recent changes and the relationship to recruitment. *Acad Psych, 26*, 102-104
- Leigh, Stewart, & Mallios (2006). Mental health and psychiatry training in primary care residency programs Part I. Who teaches, where, when, and how satisfied? *Gen Hosp Psychiatry, 28*, 189-194