

Pediatric Behavioral Concerns:
Does Physician Training Influence Their Referral and Recommendation Practices?

by

Amber Soltow

April, 2014

Director of Thesis: Jennifer Kazmerski

Major Department: School Psychology

Pediatric primary care physicians indicate behavioral health concerns to be the most frequently reported complaint of parents during well-child visits. Over the last few decades, graduate medical education and training requirements in the area of behavioral management have been expanded to better equip pediatric primary care physicians to appropriately address these issues in practice. Even so, physicians continue to report a lack of knowledge in addressing these issues. Many behavior management techniques, especially time-out, have been shown to be effective in reducing pediatric behavior concerns. While pediatric primary care physicians generally understand these techniques, it is difficult for them to adequately address behavior concerns due to the time constraints they face in practice. Behavior management techniques typically require a high level of individualization per case, and mental health professionals who have the training and time to appropriately address pediatric behavior concerns may be better suited to handle these types of cases. The goal of this study was to examine how pediatric training in the area of behavioral management influences appropriate referral and recommendation practices of 232 pediatric primary care physicians regarding behavioral concerns. Additionally, differences between pediatricians and family physicians in their referrals and recommendations were evaluated.

Preeexisting data from the circulation of the Pediatric Behavior Management Survey for Physicians (PBMSP) was used in this study. Correlational analyses indicated that pediatric primary care physicians have a greater likelihood to refer their patients with behavior concerns to a psychologist regardless of the type of training they obtained in the area of behavior management. Additionally, those who received specific training in time-out or received supervised training had a greater likelihood to refer to a behavior analyst or social worker than those who only received training in general discipline. A multiple regression analysis indicated that type of training does not appear to predict whether physicians will make appropriate referrals to outside professionals, $r^2 = .047$, $F(4,227) = 2.821$, $p < .05$. A logistical regression indicated that the type of training and appropriateness of referral significantly predicted whether or not a physician recommends time-out, $\chi^2 (5, N=230) = 17.820$, $p < .01$. Independent samples t-tests pediatricians ($M = 5.734$, $SD = .189$) were significantly more likely to refer patients to psychologists than were family physicians ($M = 4.928$, $SD = .117$), $r^2 = .054$, $t(229) = -3.627$, $p = .0004$. A chi-square test indicated that there is a difference between specialty and the recommendation of time-out, $\chi^2 (1, N=230) = 6.301$, $p < .05$, and that family physicians are less likely to recommend time-out than pediatricians, $p < .01$.

Limitations of this study include small sample size, generalizability, and survey construction. The results from this study provide insight into whether the changes that have been made in pediatric education and whether the push for collaboration amongst professionals have been successfully integrated into pediatric practice.

PEDIATRIC BEHAVIORAL CONCERNS: DOES PHYSICIANS TRAINING INFLUENCE
THEIR REFERRAL AND RECOMMENDATION PRACTICES?

A Thesis

Presented to the Faculty of the Department of Psychology
East Carolina University

In Partial Fulfillment of the Requirements for the Degree
Master of Arts in School Psychology

by

Amber Soltow

April, 2014

© Amber Soltow, 2014

PEDIATRIC BEHAVIORAL CONCERNS: DOES PHYSICIANS TRAINING INFLUENCE
THEIR REFERRAL AND RECOMMENDATION PRACTICES?

by

Amber Soltow

APPROVED BY:

DIRECTOR OF

DISSERTATION/THESIS: _____
Jennifer Kazmerski, PhD

COMMITTEE MEMBER: _____
Stephen Kilgus, PhD

COMMITTEE MEMBER: _____
Christy Walcott, PhD

CHAIR OF THE DEPARTMENT
OF PSYCHOLOGY: _____
Susan McCammon, PhD

DEAN OF THE
GRADUATE SCHOOL: _____
Paul J. Gemperline, PhD

TABLE OF CONTENTS

LIST OF TABLES	iii
CHAPTER 1: INTRODUCTION	1
Prevalence of the “New Morbidity”	1
Physician Education and Training	2
Physician Recommendations and Referrals	4
Purpose of the Study	7
CHAPTER 2: METHOD	9
Participants	9
Instrument	9
CHAPTER 3: RESULTS	11
Participants	11
Hypothesis One: Relationship Between Training and Appropriate Referrals	12
Hypothesis Two: Training, Referrals, and Time-out Recommendation	15
Hypothesis Three: Specialty Differences in Referrals	16
Hypothesis Four: Specialty Differences in Time-out Recommendation	17
CHAPTER 4: DISCUSSION	18
Limitations	20
Future Directions	21
REFERENCES	22
APPENDIX: Institutional Review Board Approval	27

LIST OF TABLES

Table 1: Participant Descriptive Statistics	11
Table 2: Descriptives and Correlations Between Training Type and Referrals	12
Table 3: Multiple Regression Predicting Appropriate Referrals from Training.....	14
Table 4: Predictor Correlation Values for Overall Sample.....	14
Table 5: Logistic Regression Predicting Time-out Recommendation From Training and Referral Appropriateness	16
Table 6: Differences Between Specialty for Referrals	16

CHAPTER I: INTRODUCTION

Prevalence of the “New Morbidity”

Over the last half-century, advances in biomedical science have resulted in a decrease in the incidence of infectious diseases (Allen, Barone, & Kuhn, 1993; Matarazzo, 1984). Consequently, the major causes of morbidity and mortality have shifted from physiological pathogens to behavioral and environmental pathogens (Allen et al., 1993; Califano, 1979). Thus, a majority of pediatric primary care physicians are regularly presented with a variety of nonmedical concerns (Allen et al., 1993; Glascoe, MacLean, & Stone, 1991), most of which concern children’s behavioral adjustment (Hickson, Altemeier, & O’Connor, 1983; Thomas, Byrne, Offord, & Boyle, 1991). While psychosocial, developmental, and behavioral problems have always affected children, these problems have become more prevalent and were termed the “new morbidity” in 1975 (Haggerty, Roghmann, & Pless, 1975). On average, it has been estimated that 20% of children present with behavioral health concerns (Cooper, Valleley, Polaha, Begeny, & Evans, 2006; Lavigne et al., 1999; Polaha, Dalton, & Allen, 2011), leading these concerns to be ranked the most common problems seen by pediatric primary care physicians in their practices (Arndorfer, Allen, & Aljazireh, 1999).

Cooper and colleagues (2006) reviewed pediatrician scheduled patient lists and coded the anticipated reason for the visit as acute, chronic, well-child, or psychological. The researchers then observed the visit and counted how many behavioral and medical health concerns were raised, and by whom they were raised. Results indicated that behavioral concerns were raised by the parent and/or pediatrician in 23.6% of all visits, with an average of two behavioral concerns discussed during each visit. The percentage of behavioral concerns raised in well-child visits was 22.5% and 100% during psychological consultations. When behavioral concerns were raised, the

average length of the visit was longer by at least five minutes. Additionally, Polaha et al. (2011) found that a majority of parents (63%) indicate that they consider their pediatrician to be their main source of help with behavioral problems, while only 24% seek out help from mental health professionals.

In a study conducted by Arndorfer et al. (1999), pediatricians were surveyed to assess the problems presented in their practices. Arndorfer and colleagues found that behavior based problems were seen more often than any other problem, with a 58% occurrence rate, amongst which oppositional behavior was reported to be the most commonly seen behavior problem (60%), as well as the most challenging problem to address. This study is a powerful endorsement of the “new morbidity”; or rather, the behavioral health of children is acknowledged to be the principal focus of pediatric practice (Arndorfer et al., 1999).

Physician Education and Training

Recognition of the increasing predominance of the “new morbidity” can be seen in the recommendation by the American Academy of Pediatrics (AAP) that pediatric primary care physicians receive more education in the area of behavioral health, spend less time on physical examinations during the well-child visit and devote more time to anticipatory guidance for psychosocial, developmental, and behavioral problems, and collaborate with other professionals who specialize in behavioral health (AAP Committee on Psychosocial Aspects of Child and Family Health, 1982, 1993, 2001). Due to the prevalence of these problems, the pediatric primary care physician is being asked to expand the traditional role of health supervision and management of physical illnesses to address psychosocial and behavioral problems more effectively (AAP Committee on Psychosocial Aspects of Child and Family Health, 1993).

More specifically, in 1978, the Task Force on Pediatric Education first recommended educational changes to encourage rotations in developmental, behavioral, and adolescent pediatrics, and increase pediatric primary care physicians' skills in working with other health professionals (AAP Committee on Psychosocial Aspects of Child and Family Health, 1982). The AAP defined the role of the pediatrician to include providing increased attention to the prevention, early detection, and management of the various behavioral, developmental, and social functioning problems encountered in pediatric practice (AAP Committee on Psychosocial Aspects of Child and Family Health, 1982). Prior to this time, pediatric education did not include a requirement for the study of these types of problems, and was solely focused on physical illness (AAP Committee on Psychosocial Aspects of Child and Family Health, 1982). In 1987, the Residency Review Committee added a requirement for behavioral teaching, although the specific time requirement for training in behavioral pediatrics was undefined (AAP Committee on Psychosocial Aspects of Child and Family Health, 1993).

In continuing the work begun by the 1978 Task Force, a second Task Force was developed in the late 1990s with the goals of evaluating the 1978 Report with respect to its relevancy to the 21st century, provide direction for the improvement of pediatric education, and to recommend essential changes in the education process to meet the current and future health care needs for the youth population (American Academy of Pediatrics, Future of Pediatric Education II Task Force, 2000). The Task Force supported the “new morbidity” trend, and emphasized the necessity for curricular changes and improved training experiences for pediatric primary care physicians during medical school. Given the continued push for improved pediatric primary care physician training and education with regards to pediatric psychosocial, behavioral, and emotional problems, one would assume that the medical school curriculum for pediatrics and

family medicine would show additional training requirements for the “new morbidity” past the general statement that was incorporated in 1987 by the Residency Review Committee requiring “some” experience with behavioral problems (AAP Committee on Psychosocial Aspects of Child and Family Health, 1993). However, this is not the case. According to the Accreditation Council for Graduate Medical Education (ACGME), program requirements for graduate medical education in pediatrics and family medicine continue to refer to behavioral and developmental training in a general sense (ACGME Program Requirements, 2007). Specifically, the practitioner must obtain “some” experience in an ambulatory setting that involves gaining “some” level of experience in behavioral and developmental problems that is supervised by a physician with training and/or experience in the behavioral aspects of pediatrics. In pediatric education, there continues to be no specific quantity and/or type of training required of pediatricians and family physicians to obtain for the problems identified as the “new morbidity”.

Physician Recommendations and Referrals

Therefore, even with the call for increased education, a majority of pediatric primary care physicians continue to report a lack in knowledge regarding pediatric behavior problems (AAP, Future of Pediatric Education II Task Force, 2000; Boreman, Thomasgard, Fernandez, & Coury, 2007; Williams, Klinepeter, Palmes, Pulley, & Foy, 2004), and continue to struggle in their efforts to address these problems (Cooper et al., 2006). The AAP Committee on Psychosocial Aspects of Child and Family Health (1998) has published recommendations for pediatric primary care physicians to use when advising parents about discipline strategies. These strategies include the consideration of the parent-child relationship, reinforcement of desired behaviors, and consequences for negative behaviors. The report encourages the use of time-out over the use of techniques such as corporal punishment and spanking. The time-out intervention is defined as the

withdrawal of access to positive reinforcers for a specified time, contingent on the occurrence of a behavior (Wolf, McLaughlin, & Williams, 2006). In their survey of pediatricians, Arndorfer et al. (1999) used the Abbreviated Acceptability Rating Profile (AARP) to demonstrate that time-out is one of the most effective and acceptable interventions for addressing the common behavior problems faced in practice when compared to other intervention techniques such as praise, access to tangibles, ignoring, token economy, and loss of privileges. In preschool children, time-out has been shown to increase compliance with parental expectations from 25% to 80% (Scarboro & Forehand, 1975), and similar effectiveness is seen when used appropriately with older children (Davies, McMahon, Flessati, & Tiedemann, 1984). Time-out is a complicated and intricate intervention, and to be effective time-out must be used consistently, for an appropriate duration, not excessively, and with strategies for managing escape behavior (AAP Committee on Psychosocial Aspects of Child and Family Health, 1998). Thus, to be successful, time-out requires effort and practice on the part of the parents, and education and direction from the pediatrician or other professional with whom they are working.

Pediatric primary care physicians would benefit from being able to provide their patients with the general recommendations for the use of time-out, however, in some cases the presenting problems may require more individualized strategies. Therefore, these professionals need to be knowledgeable in how to customize the intervention for each child, be able to problem solve any issues that arise, and know how to support the parents while the intervention is occurring. A major issue for pediatric primary care physicians arises when such individualization is required, and that is the problem of time constraints; on average, pediatric visits last thirteen minutes (National Center for Health Statistics, 1988). When behavioral concerns are raised during an appointment, the visit lasts five minutes longer (Cooper et al., 2006). Therefore, there is a

legitimate concern regarding the ability of pediatricians to adequately address these issues in a short amount of time (National Center for Health Statistics, 1988).

In dealing with behavior problems, pediatric primary care physicians must estimate their ability to intervene and decide if they can appropriately manage the problem or if the parent and child need to be referred for more intense services (Wolraich, 1997). Typically, children with common low-intensity behavior problems are not referred to other professionals for treatment and are managed in office by the pediatrician (Goldberg, Roghmann, McInerny, & Burke, 1984), while the children presenting with more severe mental health concerns are referred to mental health providers (Regier et al., 1982). Consequently, there is a possibility that the problems termed the “new morbidity” are not being addressed or are not being addressed adequately (Christopherson, 1982; Costello, et al., 1988; Williams et al., 2004), even though pediatric primary care physicians receive some level training in the area of behavioral, developmental, and psychosocial health.

Other professionals, such as behavior analysts, psychiatrists, and psychologists have demonstrated many effective behavioral applications in the treatment of the common behavioral problems pediatricians routinely face in practice (Roberts, 1995; Schroeder & Gordon 1991). These mental health providers often have the training necessary to implement behavioral strategies such as time-out, and are capable of altering the treatment to “fit” the patient (Arndorfer et al., 1999). Unfortunately, mental health providers developed their skills and knowledge parallel to, rather than collaboratively with, pediatric primary care physicians (Allen et al., 1993). Therefore, even though mental health providers could be considered valuable consultants for pediatric primary care physicians to have when presented with pediatric behavior problems, they are not always recognized as such. In recent decades, researchers have been able

to provide numerous resources for mental health providers describing how to establish behavioral pediatrics training programs, how to select an appropriate consultation model, and how to maintain a relationship with a pediatric primary care physician once one has been established (Allen et al., 1993; Christophersen, Cataldo, Russo, & Varni, 1984). Allen et al. (1993) took this research further and devised a behavioral prescription to stimulate collaboration between mental health providers and pediatric primary care physicians for the promotion and treatment of child behavioral health. The prescription directs the mental health provider in how to initiate contact and successfully establish a collaborative relationship with a pediatric primary care physician. Finney, Riley, and Cataldo (1990) found that when pediatric psychologists were working as members of the primary care office, 76% of parents reported improved or resolved levels of behavior problems. Thus, pediatric primary care physicians and mental health providers working in collaboration yield better outcomes for patients.

Even with the limited training that pediatric primary care physicians received in pediatric behavior management and the limited visibility of mental health providers as referral options, Arndorfer et al. (1999) found that pediatricians report a general willingness to refer to a mental health provider for behavioral problems, and an even greater willingness to refer to a provider who uses time-out to decrease oppositional behavior above other techniques. While research has indicated willingness for pediatric primary care physicians to refer their pediatric patients to mental health providers for behavioral concerns, studies focused on evaluating the extent to which physicians actually refer for these problems has not been at the forefront of research.

Purpose of the Study

Pediatric primary care physicians receive some training in the management of pediatric behavior problems during their medical education, and they have been provided guidelines on

effective discipline techniques that include the use of time-out. Pediatric primary care physicians should be able to provide general recommendations for the use and implementation of time-out; however, mental health providers may be better equipped to manage more cumbersome cases. Research has shown that mental health providers are valuable consultants when pediatric primary care physicians are faced with behavioral concerns in practice, and that outcomes tend to be better when these professionals are involved in care. The purpose of this study was to examine how pediatric training in the area of behavioral management influences referral and recommendation practices of pediatric primary care physicians regarding behavioral concerns. This study aimed to answer the following research questions. Does the level of training acquired by pediatric primary care physicians impact their rate of making referrals to other appropriate professionals, such as behavior analysts, psychologists, and psychiatrists? Does the level of training and the appropriateness of primary care physician referrals influence their likelihood of recommending the time-out strategy? Is there a difference between pediatricians and family physicians in their referral practices? Is there a difference between pediatricians and family physicians in the recommendation of the time-out strategy? It was hypothesized that the higher the level of training received by pediatric primary care physicians, the more likely they are to recognize when a referral to other professionals is needed, and the more likely they are to recommend the highly effective and researched based strategy of timeout when faced with pediatric behavior concerns in practice. It was also hypothesized that pediatricians would engage in higher referral rates than family physicians, and pediatricians would also recommend time-out at a higher rate for pediatric behavior concerns.

CHAPTER II: METHOD

Participants

The current study used a preexisting private data set obtained from a comprehensive survey of pediatricians and family practice physicians from the Midwestern United States, which was collected by a team of researchers at Mississippi State University. The University and Medical Center Institutional Review Board reviewed the research plan and categorized the current study as Exempt (see Appendix A). Three hundred and forty-seven of 1252 physicians completed the Pediatric Behavior Management Survey for Physicians (PBMSP), yielding approximately a 27% response rate.

Instrument

The PBMSP is a 10-item questionnaire that assesses physician's medical training, treatment recommendations, and referral practices regarding pediatric behavior problems. Demographic information such as gender, ethnicity, and years in practice were also requested. For the purpose of this study, only a portion of the survey was used. The sections of the PBMSP included involve those questions targeting physician training, physician referral practices, and time-out recommendation.

The training section of the PBMSP asked participants to indicate from given options, the number of hours spent receiving didactic and supervised training in general childhood discipline strategies and in didactic and supervised training specifically in the use of the time-out strategy. The referral section of the survey asked participants to indicate on a 7-point Likert scale (1=rarely, 7=very often) how often they refer their patients to a psychiatrist, psychologist, behavior analyst, and social worker. The time-out recommendation question asked the

participants to indicate (yes or no) whether they recommended the time-out strategy for behavior concerns.

CHAPTER III: RESULTS

Participants

Statistical analyses were conducted using SAS JMP 10.0 statistical software package (SAS Institute Inc.). Raw data were filtered to include only those data which corresponded to the specific sections of the Pediatric Behavior Management Survey for Physicians (PBMSP) used in this study, and data were further inspected for missing data. After excluding those cases containing missing data via listwise deletion, 232 of the 347 respondents were included in the statistical analyses. Descriptive statistics were computed based on the demographic information obtained in the survey, including that of gender, specialty, and years in practice (see Table 1). It was found that 62% of the 232 respondents were male. Family medicine practitioners comprised 72% of the sample, with pediatricians comprising the remainder of the sample. Thirty-seven percent of respondents had more than twenty years of medical experience, while the remaining 63% of respondents were split between having zero to ten (31%) and eleven to twenty (32%) years in practice.

Table 1. Participant Descriptive Statistics

Characteristic	N	%
Gender		
<i>Male</i>	143	62
<i>Female</i>	89	38
Specialty		
<i>Pediatrician</i>	64	28
<i>Family Physician</i>	167	72
Years in Practice		
<i>0-5</i>	36	15
<i>6-10</i>	37	16
<i>11-15</i>	43	19
<i>16-20</i>	30	13
<i>20+</i>	86	37

Hypothesis One: Relationship Between Training and Appropriate Referrals

In order to determine relationships among the type of training received by pediatric primary care physicians and to whom they refer their patients for behavior concerns, correlational analyses were performed. For these analyses all data were coded as continuous variables. Descriptive statistics and correlation coefficients between didactic and supervised training in general discipline, and didactic and supervised training specific to time-out are presented in Table 2.

Table 2. Descriptives and Correlations Between Training Type and Referrals (N=232)

	Zero-Order <i>r</i>				<i>M</i>	<i>SD</i>
	Psychiatrist	Psychologist	Behavior Analyst	Social Worker		
Didactic-General Discipline	.090	.173**	.128	.030	2.36	1.05
Supervision-General Discipline	.105	.194**	.162*	.160*	1.59	.98
Didactic-Time-out	.081	.200**	.134*	.038	1.85	.86
Supervision-Time-out	.040	.213**	.141*	.157*	1.43	.80
<i>M</i>	3.54	5.16	2.13	2.04		
<i>SD</i>	1.74	1.55	1.75	1.63		

Note. **p*<.05, ***p*<.01.

Self-reported number of hours of didactic training in general discipline strategies (*M* = 2.36, *SD* = 1.05) was significantly positively correlated with referral to a psychologist (*M* = 5.16, *SD* = 1.55), *r* = .173, *p* <.01. Self-reported supervised training in general discipline strategies (*M* = 1.59, *SD* = .98) was significantly positively correlated with referral to a psychologist, *r* = .194, *p* <.01, behavior analyst (*M* = 2.13, *SD* = 1.75), *r* = .162, *p* <.05, and

social worker ($M = 2.04$, $SD = 1.63$), $r = .160$, $p < .05$. Didactic training on the time-out strategy ($M = 1.85$, $SD = .86$), was significantly positively correlated with referral to a psychologist, $r = .191$, $p < .01$, and behavior analyst, $r = .120$, $p < .05$. Supervised training on the time-out strategy ($M = 1.43$, $SD = .80$), was significantly positively correlated with referral to a psychologist, $r = .224$, $p < .01$, behavior analyst, $r = .146$, $p < .05$, and social worker, $r = .145$, $p < .05$. There were no significant correlations between any type of behavioral management training and referral to a psychiatrist. These findings suggest that pediatric primary care physicians had a greater likelihood to refer their patients with behavior concerns to a psychologist regardless of the type of training they obtained in the area of behavior management. Additionally, those who received specific training in time-out or received supervised training had a greater likelihood to refer to a behavior analyst or social worker than those who only received training in general discipline.

A multiple regression analysis was performed to determine whether the type of training received by physicians predicted the appropriateness of referral to other professionals when behavior problems are of concern. In this analysis, the predictor variables were the type of training received by physicians, and the outcome variable is the appropriateness of referrals. To conduct this analysis, an appropriateness score for referral was generated by calculating the sum of self-reported rates of referral for psychiatrist, psychologist, and behavior analyst, and social worker (reverse scored). Thus, lower appropriateness scores would suggest a more inappropriate referral rate than a higher resulting appropriateness score. Results of this analysis are shown in Table 3.

Table 3. Multiple Regression Predicting Appropriate Referrals from Training

Model:	$r^2 = .047$	$F = 2.821^*$	Parameter Estimates	
Predictor		β	Std. Beta	
Didactic- General Discipline		.202	.067	
Supervision- General Discipline		.453	.139	
Didactic- Time-out		.539	.145	
Supervision- Time-out		-0.510	-0.128	

Note. * $p < .05$, ** $p < .01$.

The four predictor model was able to account for 5% of the variance in appropriate referrals, $r^2 = .047$, $F(4,227) = 2.821$, $p < .05$. Although the model was statistically significant, type of training does not appear to predict whether physicians will make appropriate referrals to outside professionals. This may be due to multicollinearity among the predictor variables as none of the individual parameter estimates or standardized beta weights were statistically significant, and all predictors were significantly positively correlated ($p < .0001$). Multicollinearity is one major cause of a statistically significant r^2 value, but non-significant predictors. Predictor correlation values can be found in Table 4.

Table 4. Predictor Correlation Values for Overall Sample (N = 230)

	Zero-Order Correlations			
	TD_D	TD_TO	TS_D	TS_TO
TD_TO	.732****			
TS_D	.589****	.624****		
TS_TO	.513****	.665****	.860****	
<i>M</i>	2.36	1.85	1.59	1.43
<i>SD</i>	1.05	0.86	0.98	0.80

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$

Training Didactic Discipline = TD_D;

Training Didactic Time-Out = TD_TO;

Training Supervised Discipline = TS_D;

Training Supervised Time-Out = TS_TS

Hypothesis Two: Training, Referrals, and Time-out Recommendation

The time-out strategy was recommended by 198 participants when presented with pediatric behavior concerns, while the remaining participants indicated that they do not recommend time-out. Logistic regression was conducted to assess whether the type of training (i.e., didactic training in general discipline, supervised training in general discipline, didactic training specific to time-out, and supervised training specific to time-out) obtained by pediatric primary care physicians and the appropriateness of their referrals predicted whether an individual was likely to recommend time-out for behavioral concerns. When the four types of training listed in previous sentence and the appropriateness of their referrals are considered together, they significantly predicted whether or not a physician recommends time-out, $\chi^2(5, N=230) = 17.820, p<.01$. The model was able to correctly classify 100% of physicians recommending time-out and 3% of those not recommending time-out, for an overall success rate of 86.5%.

Table 5 shows the logistic regression coefficient, Wald tests, and odds ratio for each of the predictors. Employing a .05 criterion of statistical significance, didactic training in general discipline strategies and supervised training in both general strategies and time-out strategies had significant partial effects. For every one-point increase in the level of didactic training received in general discipline strategies there is a 2.8-increased likelihood that one would recommend time-out. Inverting the odds ratio for supervised training in general discipline indicates that for each one-point increase in the amount of training received there is a 3.4-decreased likelihood of recommending time-out. For every one-point increase in the level of supervised training received in the time-out strategy there is a 5.4-increased likelihood that one would recommend time-out. There were no significant relationships between didactic training in time-out and the

recommendation of the time-out strategy, nor was a relationship found between appropriateness of referrals and the recommendation of time-out.

Table 5. Logistic Regression Predicting Time-out Recommendation From Training and Referral Appropriateness

Predictor	B	Wald χ^2	p	Odds Ratio
Didactic – General Discipline	-0.349	7.619	.006**	2.798
Supervision- General Discipline	-1.224	8.703	.003**	.294
Didactic- Time-Out	-0.471	1.116	.291	.624
Supervision- Time-Out	1.687	6.623	.010**	5.404
Referral Appropriateness	.0282	.197	.656	1.029

Note. *p<.05, **p<.01.

Hypothesis Three: Specialty Differences in Referrals

Independent samples t-tests were conducted for each possible referral professional to determine if there was a significant difference in referral practices between specialties. Dependent variables are represented by possible referral professionals, while specialty corresponds to the independent variable. Results indicated that pediatricians ($M = 5.734$, $SD = .189$) were significantly more likely to refer patients to psychologists than were family physicians ($M = 4.928$, $SD = .117$), $r^2 = .054$, $t(229) = -3.627$, $p = .0004$. No significant differences were found between pediatricians and family physicians when referring to psychiatrists, behavior analysts, or social workers. Table 6 shows the results of these analyses.

Table 6. Differences Between Specialty for Referrals

	Psychiatrist		Psychologist		Behavior Analyst		Social Worker	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pediatrician	3.297	.218	5.734	.189	2.313	.219	1.938	.204
Family Physician	3.641	.135	4.928	.117	2.042	.136	2.078	.126
	<i>r</i> ²	<i>t</i>						
	.008	1.344	.054	-3.627**	.005	-1.051	.001	.0584

Note. *p<.05, **p<.01.

Hypothesis Four: Specialty Differences in Time-out Recommendation

In order to assess whether there is a difference between pediatricians and family physicians and the recommendation of time-out for pediatric behavior concerns, a chi-square test was performed. Results indicate that there is a difference between specialty and the recommendation of time-out, $\chi^2(1, N=230) = 6.301, p <.05$. Fisher's Exact Test indicates that that difference is statistically significant, such that family physicians are less likely to recommend time-out than pediatricians, $p < .01$. In fact, 95.3% of pediatricians recommended time-out as opposed to 82.5% of family physicians.

CHAPTER IV: DISCUSSION

The results from this investigation indicate that overall, the type and amount of training received by pediatric primary care physicians in the area of pediatric discipline strategies do not appear to predict whether appropriate referrals are made when they are faced with pediatric behavior problems. Results do show that those physicians who receive supervised training tend to refer their patients more often than those who only receive didactic training; and, the higher the amount of time spent receiving each type of training, the more referrals made to other professionals. The only difference found between specialty and the type of referrals made was that pediatricians are more likely to refer to psychologists than were family physicians. Additionally, no relationship was found between the appropriateness of referral practices and the recommendation of time-out. However, those who received didactic training in general discipline and supervised training in time-out were more likely to refer time-out; and, pediatricians are more likely to recommend time-out than family physicians.

These findings support three of four hypotheses, in that, the higher the level of training received by physicians, the more likely they are to refer out to other professionals, such as behavior analysts, psychologists, psychiatrists, and social workers; and, pediatricians typically provide more referrals and recommend time-out more often. Findings were inconclusive in determining whether higher levels of training led to higher recommendations of the time-out strategy, as results showed support for the less intensive type of training (i.e., didactic training in general discipline) and the most stringent type of training (i.e., supervised training in time-out). There are several possible reasons as to why increased training is resulting in increased levels of referrals to mental health professionals, yet not to an increased rate of time-out recommendation.

Possible reasons may include an inadequacy of medical training and time constraints within practice.

Given the high prevalence of the “new morbidity,” the Accreditation Council for Graduate Medical Education’s (ACGME; ACGME Program Requirements, 2007) requirement for medical training programs to provide increased pediatric behavior management education for physicians was an important first step in appropriately addressing these types of problems in the pediatric population. Even with the increased educational requirements within physician training programs, a majority of physicians are still reporting low levels of education received in pediatric behavioral management strategies (Boreman et al. 2007; Williams et al., 2004); however, physicians appear to be receiving enough education regarding behavior concerns, that they can now identify when there is a pediatric behavior problem and refer their patient to a mental health professional. Overall, the ACGME’s and the American Academy of Pediatrics’ (AAP; AAP Committee on Psychosocial Aspects of Child and Family Health, 1982, 1993, 2001) guidelines for medical training in the area of pediatric behavior concerns are not being implemented in a way in which physicians are gaining adequate knowledge about and experience with pediatric behavior problems (Boreman, Thomasgard, Fernandez, & Coury, 2007; Mulvey, Ogle-Jewett, Cheng, & Johnson, 2000). In order to increase the effectiveness of pediatric behavior education, a focus needs to be placed on aiding medical programs integrate the proposed guidelines into their existing programs, as well as promote faculty and supervisory development (Boreman, Thomasgard, Fernandez, & Coury, 2007).

Not only do physicians still struggle with how to address behavior problems, they do not have much time to devote to these problems within well-child visits (National Center for Health Statistics, 1988). Better education is necessary but not sufficient to address the “new morbidity”

(AAP Committee on Psychosocial Aspects of Child and Family Health, 1993). Time constraints limit physicians in their ability to adequately address behavioral problems presented during the visit, and thus are often overlooked (Cooper et al., 2006). When behavior problems are mentioned during visits, the visits typically last longer than scheduled, which in turn causes the physician to run behind schedule (Cooper et al., 2006). Behavioral interventions, especially time-out, need to be highly individualized and well explained to parents. There is often a need for troubleshooting unforeseen problems when time-out is recommended, thus causing even more time to be taken out of the physician's schedule. However, if physicians were more comfortable in their medical training of handling behavior problems and were aware of their options for referral, time might not play such a big role in the under-diagnosis and mistreatment of pediatric behavior problems.

Limitations

While this study provided important gains in the assessment of whether increased physician training influences referral practices for pediatric behavior problems, and whether training influences physician recommendation of time-out, it is not without limitations. First, for survey research, 347 participants is considered to be a small sample size, especially when only 232 participant's data could be used in the study. This introduces concerns for the generalizability of the study findings. Second, as with all survey research, data were self-report only, thus, response bias could be an issue. Also, there are potential limitations in how the PBMSP was constructed. The use of a Likert-type scale and required responses for every question may have led to some inaccuracies in training and referral scores reported by participants. For instance, a participant could have reported that he or she always refers their patients with behavior concerns to each of the four possible referral professionals. However, this

is not a feasible response, as it is not possible to always refer to different professionals in every instance, and there may be a limit to the availability of mental health professionals in the community.

Future Directions

In the future, research should continue to be concerned with how to improve the medical education physicians receive regarding pediatric behavior management (ACGME Program Requirements, 2007; AAP Committee on Psychosocial Aspects of Child and Family Health, 2001). It may be beneficial to examine how well the AGCME and AAP guidelines for education in this area are being implemented, and in what ways the medical programs need to be supported in order to adequately train of physicians in delivering treatment for behavior problems, including knowing their referral options and when to use those professionals (AAP, Future of Pediatric Education II Task Force, 2000; Arndorfer et al., 1999; Cooper et al., 2006). Related, research focused on determining whether the guidelines provided in the literature for integrating mental health providers into medical practices are working needs to be conducted (Allen et al., 1993; Christophersen et al., 1984). Another area of research should evaluate to what extent mental health providers are working to integrate their skills and technology into medical practices (Finney et al., 1990).

REFERENCES

- Accreditation Council for Graduate Medical Education. (2007). *ACGME Program Requirements for Graduate Medical Education in Pediatrics*. Available at:
http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/320_pediatrics_07012007.pdf. Accessed June 13, 2013.
- Allen, K., Barone, V., & Kuhn, B. (1993). A behavioral prescription for promoting applied behavior analysis within pediatrics. *Journal of Applied Behavior Analysis*, 26, 493-502.
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (1982). Pediatrics and the psychosocial aspects of child and family health. *Pediatrics*, 70, 126-127.
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (1993). The pediatrician and the “new morbidity.” *Pediatrics*, 92, 731-733.
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (1998). Guidance for effective discipline. *Pediatrics*, 101, 723-728.
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (2001). The new morbidity revisited: A renewed commitment to the psychosocial aspects of pediatric care. *Pediatrics*, 108, 1227-1230.
- American Academy of Pediatrics, Future of Pediatric Education II Task Force. (2000). Organizing pediatric education to meet the needs of infants, children, adolescents, and young adults in the 21st century. *Pediatrics*, 105, 163-212.
- Arndorfer, R., Allen, K., & Aljazireh, L. (1999). Behavioral health needs in pediatric medicine and the acceptability of behavioral solutions: Implications for behavioral psychologists. *Behavioral Therapy*, 30, 137-148.

- Boreman, C., Thomasmard, M., Fernandez, S., & Coury, D. (2007). Resident training in developmental/behavioral pediatrics: Where do we stand? *Clinical Pediatrics*, 46, 135-145.
- Califano, J. (1979). *Healthy people: The Surgeon General's report on health promotion and disease prevention*. Washington, DC: U.S. Government Printing Office.
- Christophersen, E. (1982). Incorporating behavioral pediatrics into primary care. *Pediatric Clinics of North America*, 29, 261-296.
- Christophersen, E., Cataldo, M., Russo, D., & Varni, J. (1984). Behavioral pediatrics: Establishing and maintaining a program of training, research, and clinical service. *The Behavior Therapist*, 7, 43-46.
- Cooper, S., Valleley, R., Polaha, J., Begeny, J., & Evans, J. (2006). Running out of time: Physician management of behavioral health concerns in rural pediatric primary care. *Pediatrics*, 118, 132-138.
- Costello, E., Edelbrock, C., Costello, A., Dulcan, M., Burns, B., & Brent, D. (1988). Psychopathology in pediatric primary care: The new hidden morbidity. *Pediatrics*, 82, 415-424.
- Davies, G., McMahon, R., Flessati, E., & Tiedemann, G. (1984). Verbal rationales and modeling as adjuncts to a parenting technique for child compliance. *Child Development*, 55, 1290-1298.
- Finney, J., Riley, A., & Cataldo, M. (1990). Psychology in primary health care: Effects of brief targeted therapy on children's medical care utilization. *Journal of Pediatric Psychology*, 16, 447-461.

- Glascoe, F., MacLean, W., & Stone, W. (1991). The importance of parents' concerns about child behavior. *Clinical Pediatrics*, 30, 8-11.
- Goldberg, I., Roghmann, K., McInerny, T., & Burhe, J. (1984). Mental health problems among children seen in pediatric practice: Prevalence and management. *Pediatrics*, 73, 278-293.
- Haggerty, R., Roghmann, K., & Pless, I. (1975). *Child Health and the Community*. New York: John Wiley & Sons.
- Hickson, G., Altemeier, W., & O'Connor, S. (1983). Concerns of mothers seeking care in private pediatric offices: Opportunities for expanding services. *Pediatrics*, 72, 619-624.
- Lavigne, J., Gibbons, R., Arend, R., Rosenbaum, D., Binns, H., & Christoffel, K. (1999). Rational service planning in pediatric primary care: Continuity and change in psychopathology among children enrolled in pediatric practices. *Journal of Pediatric Psychology*, 24, 393-403.
- Matarazzo, J. (1984). Behavioral health: A 1990 challenge for the health sciences professions. In J. D. Matarazzo, S. M. Weiss, J. A. Hord, N. E. Miller, & S. M. Weiss (Eds.), *Behavioral health: A handbook of health enhancement and disease prevention* (pp. 3-40). New York: John Wiley & Sons.
- Mulvey, H., Ogle-Jewett, A., Cheng, T., & Johnson, R. (2000). Pediatric residency education. *Pediatrics*, 106, 323-329.
- National Center for Health Statistics. (1988). *The National Ambulatory Medical Care Survey, United States (1975, 1981, and 1985 trends)*. Washington, DC: government Printing Office.

- Polaha, J., Dalton III, W., & Allen, S. (2011). The prevalence of emotional and behavior problems in pediatric primary care serving rural children. *Journal of Pediatric Psychology*, 36, 652-660.
- Regier, D., Goldberg, I., Burns, B., Hankin, J., Hoeper, E., & Nycz, G. (1982). Specialist/generalist division of responsibility for patients with mental disorders. *Archives of General Psychiatry*, 39, 219-224.
- Roberts, M. (Ed.). (1995). *Handbook of pediatric psychology* (2nd ed.). New York: Guilford Press.
- Scarboro, M., & Forehand, R. (1975). Effects of two types of response-contingent time-out on compliance and oppositional behavior of children. *Journal of Experimental Child Psychology*, 19, 252-264.
- Schroeder, C., & Gordon, B. (1991). *Assessment and treatment of childhood problems: A clinician's guide*. New York: Guilford Press.
- Thomas, B., Byrne, C., Offord, D., & Boyle, M. (1991). Prevalence of behavioral symptoms and the relationships of child, parents, and family variable in 4 to 5 year olds: Results from the Ontario Child Health Study. *Developmental and Behavioral Pediatrics*, 12, 177-184.
- Williams, J., Klinepeter, K., Palmes, G., Pulley, A., & Foy, J. (2004). Diagnosis and treatment of behavioral health disorders in pediatric practice. *Pediatrics*, 114, 601-606.
- Wolf, T., McLaughlin, T., & Williams, R. (2006). Time-out interventions and strategies: A brief review and recommendations. *International Journal of Special Education*, 21, 22-29.
- Wolraich, M. (1997). Addressing behavior problems among school-aged children: Traditional and controversial approaches. *Pediatrics in Review*, 18, 266-270.

APPENDIX



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
4N-70 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · www.ecu.edu/irb

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Amber Soltow](#)
CC: [Jennifer Kazmerski](#)
Date: 7/23/2013
Re: [UMCIRB 13-001541](#)
Pediatric Behavioral Concerns: Pediatric Primary Care Physician Recommendation of Time-Out and Their Referral Practices

I am pleased to inform you that your research submission has been certified as exempt on 7/23/2013. This study is eligible for Exempt Certification under category #4.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

