SCREENING FOR PSYCHOSOCIAL PROBLEMS IN CHILDREN:

EFFECTS ON COMMUNICATION, MOTIVATION, AND SATISFACTION

by

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(Under the direction of Ronald L. Blount)

ABSTRACT

Mental health problems in children are rising, and largely go undetected by their pediatricians. The Pediatric Symptom Checklist (PSC) is a behavioral screening instrument that has successfully improved pediatricians' detection of psychosocial problems in children. This study sought to extend our understanding of the use of instruments such as the PSC in several ways. First, it examined the effects of using the PSC on parent-pediatrician communication about psychosocial issues during regular medical visits. Second, the study introduced a modified, parent-scored version of the PSC aimed at improving parents' involvement in and understanding of the questionnaire. Third, the effects of the interventions on parents' internal motivation, intention to adhere to pediatricians recommendations, and satisfaction with the visit were examined. Six primary care pediatricians and six pediatric gastroenterologists participated in the study. A randomized block design was used to assign pediatricians to one of three experimental conditions: the Standard PSC condition, the Modified PSC condition, or the Control condition. One hundred and seventy four parents of children ages 4-16 who were attending regular medical appointments participated in the study. Results indicated that, for children with more emotional and behavioral problems, both the Standard and Modified versions of the PSC improved parent-

pediatrician communication about psychosocial issues. Parents in the Standard group expressed significantly less intention to adhere to recommendations than those in the Modified and Control groups, and there was a trend suggesting that parents in the Modified condition were more internally motivated to follow through with pediatrician recommendations. Satisfaction was not significantly impacted by the intervention.

INDEX WORDS: pediatric psychology, psychosocial screening, Pediatric Symptom Checklist, parent-pediatrician communication.

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DEDICATION

To children who struggle and those who care for them.

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INTRODUCTION

Rates of mental health problems in pediatric populations have increased markedly. From 1979 to 1996, children with psychosocial problems presenting to primary care pediatricians increased from 6.8% to 18.7%, as identified by clinicians (Kelleher, McInerny, Gardner, Childs, & Wasserman, 2000). Other estimates of psychosocial problems have been as high as 27% (Horowitz, Leaf, Leventhal, Forsyth, & Speechley, 1992; McCue Horwitz, Leaf, & Leventhal, 1998). These increases have occurred across all psychosocial problem areas, and have resulted in an increase in psychotropic medication prescriptions, mental health interventions, and referrals for specialty services (Kelleher et al., 2000).

Pediatricians have not been blind to the importance of attending to children's psychosocial problems and explicitly expanded the role of the pediatrician beyond that of supervising and managing physical illnesses. The American Academy of Pediatrics (AAP) developed guidelines redefining the role of the pediatrician to include increased attention to prevention, early detection, and management of various behavioral, developmental, and social functioning problems (American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health, 1982). This has been an important shift, as a recent study indicated that approximately 80% of children and adolescents with psychological problems had visited their pediatrician in the year preceding their psychiatric diagnosis (Zwaanswijk, Verhaak, van der Ende, Bensing, & Verhulst, 2005).

Detection of psychosocial problems has implications not only for success in meeting the new AAP guidelines, but also is a prerequisite for improving children's physical functioning and aiding proper health care utilization. Children with chronic physiological problems have higher rates of psychosocial stress. Psychosocial difficulties and stress can exacerbate physical symptoms, resulting in a worsening of the intensity and duration of their condition. Deteriorating health status will lead to greater consumption of health care, including more frequent medical visits, more medication, and more medical tests (Bernal, Estroff, Abourham, Kelleher, & Jellinek, 2000; Lavigne et al., 1998; Riley et al., 1993).

Although the AAP has officially recognized the role of pediatricians as gatekeepers to psychosocial and other specialty services, there has been a profound failure by practicing pediatricians to detect behavioral and emotional problems in children. Studies in which pediatricians' detection of psychosocial problems is assessed by either scores on standardized assessment instruments or expert clinician ratings have found detection rates between 17% and 50% (Committee on Psychosocial Aspects of Child and Family Health, 1993; Costello et al., 1988; Wildman, Kizilbash, & Smucker, 1999). One study investigated detection and referral in a large sample of preschool children seen by their primary pediatricians. At least 52% of the children who were evaluated by child psychologists and identified as having an emotional or behavioral problem had not received counseling, medication, or a mental health referral from the pediatrician (Lavigne et al., 1993). These data are concerning, as they indicate that many children's needs are being overlooked.

Barriers to Detection

There are a variety of barriers that limit the degree to which pediatricians have incorporated their new roles and responsibilities into daily practice. Among them are knowledge

deficits (i.e., inadequate training in assessment of psychosocial problems; inadequate referral networks for mental health services), constraints on time and resources (i.e., concern about increased length of visit; insurance reimbursement for services related to psychological or behavioral problems), and attitudinal barriers (i.e., discomfort labeling children with psychiatric diagnoses, the perception by some pediatricians that psychosocial problems are outside of the range of services that a primary pediatrician should address) (Dulcan et al., 1990; Leaf, Leventhal, Forsyth, & Speechley, 1992; Lynch, Wildman, & Smucker, 1997; Sharp, Pantell, Murphy, & Lewis, 1992; Wissow, Larson, Anderson, & Hadjiisky, 2005). In part, these barriers explain the low rates of detection of psychosocial problems and referrals for mental health services.

In a commentary, Hagan (2001) spoke to the barrier of constraints on time and resources. The author commented, "We are trained, our training is improving, and opportunities for additional training are many. But will we be paid for our efforts, and will we have the help of consultants available to us?" (p. 1206). Hagan raised an important point in this statement. Pediatricians have an increasingly burdensome workload, and are unlikely to add tasks to their repertoire for which they will not be compensated. Economic barriers also limit some of the possible interventions for improving detection, care, and referral to mental health services. For example, efforts to improve attention to psychosocial issues during medical visits have focused on training physicians to expand their standard interview and refine their communication skills. However, workshop training is costly and routinely conducting extensive interviews is also costly. These efforts toward change are therefore likely to be met with resistance from physicians and the medical institutions that financially support them. Until there is a substantial systemic shift that recognizes the need for integrated, comprehensive, and preventive care accompanied by

adequate funding, incremental efforts can be made to increase the likelihood that physicians will incorporate time consuming psychosocial screening into their practices.

Discussion of Psychosocial Problems and Length of Visit

One barrier to incorporating more of a psychosocial focus into the medical interview has been the fear that addressing psychosocial needs would prolong the medical visit, making it too long in duration. Intuitively, one might expect that explicit attention to psychosocial issues would extend the length of the medical visit and reduce the number of patients seen during the workday. However, the data consistently demonstrate that visits are not prolonged by addressing psychosocial issues (Post, Cegala, & Miser, 2002; Van Dulmen & Holl, 2000; Wissow et al., 2002; Wissow, Roter, & Wilson, 1994), and there are some anecdotal reports that indicate that addressing these concerns actually makes the time spent during the medical interview more efficient (Levinson, Gorawara-Bhat, & Lamb, 2000; Triggs & Perrin, 1989). One possible explanation for these paradoxical findings might be that parents are not wasting time expressing their questions and concerns vaguely. Perhaps time is saved when parents state their concerns explicitly rather than hinting at them in numerous ways throughout the visit. The clarity of communication, therefore, might offset the time devoted to addressing psychosocial issues.

Communication Behavior and Detection

There is a dysynchrony between patients' attention to psychosocial issues during the medical interview, and the amount of attention that those issues receive from physicians. Not surprisingly, patients are more attentive to psychosocial issues. In the adult literature, Detmar, Muller, Wever, Schornagel, and Aaronson (2001) investigated the content of communication between oncologists and their patients in order to identify factors related to the discussion of health-related quality of life (HRQL) issues. Self-report HRQL questionnaires were completed

by patients and observational data from medical visits were collected via audiotape. The data revealed that physicians devoted 64% of their verbal communication to medical or technical issues and only 23% to HRQL issues. In contrast, patients divided their speech content more equally, devoting 41% to medical issues and 48% to HRQL issues. Patients' emotional functioning problems were left unaddressed during the interview 54% of the time.

Physicians appear to be responsible for at least part of the communication failure. A few studies examined those features of the physician-parent interaction that encourage or discourage disclosure of psychosocial problems. Understanding these behaviors is important, as interventions can then be designed to promote more positive behaviors. A survey of the literature on patient-physician communication (Buller & Buller, 1987) suggested that there are two general styles of physician communication: affiliation and control. Affiliation "is composed of communication designed to establish and maintain a positive relationship between physician and patient" (p. 36). This type of communication includes qualities such as showing interest, friendliness, genuineness, sympathy, and a social orientation. Control includes the expression of power, authority, detachment, and status. In general, the literature suggests that physicians demonstrating a more affiliative communication pattern receive more favorable satisfaction evaluations from their patients.

Wissow et al. (1994) hypothesized that disclosures of psychosocial problems would be more likely to occur during visits when pediatricians used affiliative interviewing techniques, such as asking questions about psychosocial issues, making supportive statements, and listening attentively. Observational data obtained from 234 children attending appointments with one of 52 participating physicians supported their hypotheses. The study found that the use of psychosocially oriented interviewing techniques predicted disclosure of information about

aggressive or overactive child behavior, family problems, parental impairment, and use of physical punishment.

Parental Disclosure

Encouraging parent disclosure of psychosocial problems and expressions of concerns about their child's behavioral or emotional functioning is crucial to attaining appropriate mental health services for children in need. In a study investigating correlates to pediatrician identification of children's psychosocial problems, parental disclosure was found to be the only significant predictor of pediatrician identification (Wildman et al., 1999). Unfortunately, data suggest that parents are reluctant to disclose their concerns to pediatricians. Although many parents reportedly believe that pediatricians are appropriate resources for advice, referral, and support regarding behavioral and developmental problems, they infrequently seek help from them.

In a study by Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, and Leaf (2000), the authors examined child psychiatric disorders in a pediatric setting and sought to identify factors that correlated with parents' decisions to use their pediatricians as a resource for mental health services. Data from a sample of school age children (N=1,060) were collected via semi-structured parent interviews. Fifty-five percent of the parents who reported that their child had a psychiatric disorder did not report discussing behavioral or emotional concerns with their pediatrician.

One study found a great discrepancy between what parents report is appropriate to do and what they actually do when their child has psychosocial problems (McCue Horwitz et al., 1998). Data were collected from 929 families whose children were identified by a screening form as having a psychosocial problem. Each family in the study participated in a 90-minute

semistructured interview about whether the parents thought it was appropriate to discuss various areas of psychosocial stress with their child's pediatrician. Parents were presented with hypothetical vignettes about 6 types of psychosocial problems. Although most parents (81%) reported that it was appropriate to discuss at least 4 out of 6 hypothetical problems with the pediatrician, only 41% of parents actually did discuss their child's real psychosocial problems with their pediatrician. Parents who thought it appropriate to discuss psychosocial problems with their children's pediatricians tended to have higher education, older age, Euro-American ethnicity, higher income, and they tended to be married, and have medical insurance. Given these demographic correlates, the authors speculated that these parents might have been providing responses that they believed to be socially desirable. That is, perhaps these parents believed that parents *should* feel comfortable talking to pediatricians about psychosocial issues, but in truth they may not feel comfortable doing so during a true office visit with their child's pediatrician. An alternative to this explanation is that there may be an actor-observer attribution error in which participating parents viewed the hypothetical family's problems as dispositional, therefore warranting a psychological intervention, whereas they perceive their own family's problems as situational, not warranting professional attention.

Physicians' Failure to Recognize Disclosure

Perhaps more important than promoting disclosure is the need for physicians to respond appropriately to parents' expressions of concern. There is some evidence suggesting that pediatricians fail to perceive expressions of concern or fail to respond appropriately. In an investigation of parent-pediatrician communication about psychosocial concerns, researchers reviewed and coded 34 videotaped appointments. Psychosocial concerns were raised by parents in half of the visits. Concerns included conduct or behavioral problems (47%), insecurity (13%),

family, sibling, or social problems (13%), learning problems (10%), somatization (7%), or "other" (10%). In addition to coding parent expressions, physicians'responses to parent concerns were also coded. In response, physicians either ignored (17%); asked further questions, but provided no information, reassurance, or guidance (43%); responded with psychosocial information or action (27%); responded with medical information or action (3%); or provided a combination of psychosocial or medical information or action (7%). Together, only 40% of the physicians responded with information, reassurance, guidance, or referral. These data suggest that physicians need clearer guidance on how to appropriately respond to parents' concerns about their children's psychosocial needs (Sharp et al., 1992). McCue Horwitz et al. (1998) found similar results, as there was an insignificant relationship between parent reports of disclosure of psychosocial problems and physician identification of those problems. This provides further support for a communication failure accounting in part for poor pediatrician detection of child psychosocial problems and referral to mental health services.

Failure of physicians to attend to parent disclosure of concern may be due to a failure to perceive the disclosure. Wildman et al. (1999) investigated physicians' attention to parents' concerns about the psychosocial functioning of their children. Parents completed an exit questionnaire that included the question, "Did you and your doctor talk about behavioral or emotional issues regarding your child today?" For each visit the pediatrician responded to a similar question, "Did the child's parent raise any psychosocial concerns he/she had about this child?" Only 61% of parents' reports of disclosing a psychosocial issue were recognized by pediatricians. This finding indicates that promotion of parent disclosure alone is inadequate. It must be paired with physician recognition of disclosure if the disclosure is to result in helpful recommendations and referrals. It therefore appears that there is a need for an intervention that

both increases parent disclosure and provides a shared language between the parent and the pediatrician to allow the pediatrician to recognize the disclosure of parent concerns.

The failure of physicians to perceive an expression of concern could be due to poor listening skills or preoccupation with medically-related issues. However a study in the adult literature points to the fact that many times patient disclosures may come in the form of indirect "clues" or "hints," rather than overt expressions of concern (Levinson et al., 2000). The study examined the rate at which physicians recognized indirect patient disclosure during the medical visit. The authors commented, "…patients often do not verbalize their anxieties directly, rather, they raise these issues indirectly by offering clues or hints about these psychological and social concerns" (p. 1022). The study was designed to examine physicians' responses to patient hints or clues via coding of verbal interactions captured on audiotape during patient visits. They found that physicians responded positively (i.e., acknowledgment, encouraging further disclosure, providing support or advice) to only 21% of emotionally-based hints or clues offered in a primary care setting. Most often (79% of the time), physicians missed opportunities to respond to hints or clues. "Missed opportunities" included behaviors such as failing to acknowledge a patient's feelings, using inappropriate humor, and changing the subject.

Health Care Consequences of Poor Communication

Despite recognition of the importance of effective physician-patient communication, physicians do not receive adequate training in skills necessary to provide and perceive information clearly (Roter, Cole, Kern, Barker, & Grayson, 1990; Smith, Marshall, & Cohen-Cole, 1994). Physicians rely heavily on information obtained from the medical interview to derive a diagnosis and plan for treatment (Peterson, Holbrook, Von Hales, Smith, & Staker, 1992; Schmitt, Kushner, & Wiener, 1986). At its worst, inadequate interviewing may lead to

incomplete information about the presenting problem and may keep a patient from receiving appropriate referral and care for an ailment. However, even when the medical interview is sufficient for addressing the presenting problem it may still fail to capture difficulties that the child is experiencing in other areas, such as emotional and behavioral health.

There is a tender balance between listening and informing that must be maintained in order for communication to be effective. Physicians who demonstrated good listening skills had patients with better adherence to recommendations and more appropriate health care utilization (DiMatteo, Hays, & Prince, 1986). When physicians listen to their patients carefully, they are more likely to respond with relevant information. Failure to completely understand a patient's problems impairs a physician's ability to deliver accurate and relevant information to the patient. Failure to be sufficiently informative has been found to contribute to patient dissatisfaction, noncompliance, and misunderstanding of medical information (Hall, Roter, & Katz 1988).

Korsch, Gozzi, and Francis (1968) identified a “clear cutoff point” to effective communication. If a pattern develops in which a parent makes several attempts to express concerns to the pediatrician and the pediatrician repeatedly fails to respond appropriately, the parent eventually gives up. Parent expressions then either cease to exist altogether, or are reduced to “toneless 'hmms' and 'yesses'” (p.864). Things said and done by the pediatrician after this cutoff point may not even be perceived by the parent, reducing the likelihood that recommendations will be understood and followed. Similarly, physicians' engagement with parents can cease when the parent is consistently verbose and unreasonable. In these interactions, physicians' communications were decreasingly meaningful and less related to what the mother was saying. This pattern will also likely impair understanding of and adherence to recommendations.

Taken together, the literature suggests that there are significant health care consequences that result from poor communication between parents and physicians. In response, interventions targeting the enhancement of communication skills have been designed and evaluated. Interventions vary in whom they target (i.e., physician or patient/parent) and the intervention method employed (i.e., training workshop, education, scripted interviews, screening tools). In the following sections, interventions targeting physicians will be reviewed first, followed by patient/parent interventions. Although this review focused most heavily on pediatricians and pediatric populations, some of the adult literature was reviewed, as it has advanced in areas in which the pediatric literature has not yet advanced.

Physician Communication Training Interventions

There are significant financial resources that are required to develop and implement a training workshop, including the cost of professionals equipped to educate physicians, space to host the workshop(s), and materials (Buyck & Lang, 2002; Razavi & Delvaux, 1997). Perhaps an even greater cost is the time physicians spend away from their practices in order to participate in the training. Advocates of communication skills training would argue that the short-term costs are minimal in comparison with the long-term costs of inferior care. If communication skills training resulted in meaningful changes such as improved quality of care, patient satisfaction, increased adherence, and/or better health care utilization, these results would likely compensate for the cost of workshop participation. Several researchers responded with program evaluations examining the effects of communication skills training on a variety of outcome variables. The data, however, are generally not encouraging (e.g., Bower, Garralda, Kramer, Harrington, & Sibbald, 2001).

One study evaluated the effects of a 5-day experiential pediatrician communication training program by comparing a group of pediatricians who received the intervention with a no-treatment control group (van Dulmen & Holl, 2000). Twenty-one participating pediatricians were randomly assigned to the intervention or control condition. Data were collected prior to and following the training period via coded videotapes of parent-pediatrician interactions during a medical visit. Together, data from 608 interactions were taped and coded. Compared with the control group, trained pediatricians asked significantly more psychosocial questions and demonstrated significantly more engaged, non-verbal communication (i.e., providing more silences for the patient/parent to talk, engaging in more eye contact) than did the pediatricians in the control condition. Trained pediatricians expressed significantly fewer concerns, reassurances, disagreements, and medical advice, and they tried to confirm parent understanding less often. This latter set of findings indicates that pediatricians were better able to efficiently elicit complete information from parents, resulting in fewer follow-up questions and gestures toward clarification. Unfortunately, the literature in this area is sparse for pediatricians. The majority of the research has targeted physicians who work with adult patients. Reviews of the adult literature are described below, followed by several empirical investigations in this area.

A review of the literature on the effectiveness of workshop training focused on improving physicians' communication skills was conducted (Hulsman, Ros, Winnubst, & Bensing, 1999). The authors categorized interventions by education method (i.e., instruction, modeling, and feedback), duration and location of training, and method of data collection (i.e., physicians self-ratings, behavioral observations, and patient outcomes). In general, study designs were described as “inadequate.” Furthermore, improvements in physician communication behavior following intervention were found in only half of the studies. Perhaps most importantly, studies with the

most adequate research designs demonstrated the fewest improvements in outcome. The greatest training effects were found in studies that used physician's subjective evaluation of their knowledge, attitudes, and skills, an outcome measure of least clinical relevance. The smallest training effects were found in studies that focused on patient health outcomes, the most clinically relevant outcome measure. In terms of patient outcomes, the most frequently mentioned improvement was in patient satisfaction. Mixed results were found regarding other important patient variables, such as adherence to medical recommendations and psychosocial health. In the studies surveyed, no data were found indicating improved physical health status.

Another review of the literature examined interventions specific to health care with cancer populations. These interventions were referred to as psychological training programs (PTPs) (Razavi & Delvaux, 1997) and were specifically geared towards helping health care professionals communicate with patients and their families about the psychosocial difficulties that accompany cancer. The programs were expected to improve clinicians' abilities to identify the nature and extent of patient problems and to recognize patients' emotional reactions to those problems. PTPs work toward that goal through a variety of training strategies such as providing information, engaging in role playing, having case discussions, providing feedback from staff observations, and learning about stress and positive coping strategies. Many of these interventions took place during weekends and lasted several days. Some workshops that were evaluated demonstrated improvements in physicians' interviewing behavior, including listening and effective delivery of information. However, studies varied in the degree to which changes in clinicians' behaviors resulted in improved patient outcomes. Although few in number, studies that included long-term follow-up assessments indicated a loss of communication skills over time. In addition to a lack of maintenance, studies also demonstrated poor generalizability of

skills gained in the workshop to the clinic setting. That is, there were significant discrepancies between interview samples taken from simulated patient interactions during the training and samples of true patient interactions that occurred in the medical setting immediately following the workshop. Together the data suggested that PTPs are costly interventions that do not result in improved patient care.

One randomized controlled study sought to determine the effects of a resident training program that focused on improving interview skills (Smith et al, 1998). Training was intensive, as it consisted of a 1-month full-time rotation in interviewing. Audiotaped recordings were collected for outpatient clinic visits from each of 63 participating medical and family practice residents. Videotape data were collected from interviews with simulated patient visits. Measures of physician attitudes, knowledge, and interviewing skills were collected, as well as measures of patient satisfaction and physical and psychological well-being both prior to the intervention, and then following its completion. Following the intervention, trained residents demonstrated greater knowledge of interviewing skills and positive attitudes toward interviewing skills. Trained residents also pursued more psychosocial information and provided more psychosocial interventions. Despite changes in physicians' attitudes and behaviors, measures of patient variables remained unchanged. Patient ratings of satisfaction, physical well being, and psychological well being did not show significant differences between groups. Taken together, data from this study suggest that physician training can effectively change physician interviewing behavior, but that these changes do not necessarily benefit patients.

In a similar study, audiotape data were used to evaluate the effects of a medical education program in communication skills on doctor practice and patient satisfaction (Roter et al., 1998). Again, there appeared to be a change in physician behavior, as trained physicians used more

positive communication skills (e.g., open-ended questions, facilitating comments) at post-test than untrained physicians. However, patient satisfaction ratings did not differ between groups. These data on improved communication behavior should be viewed with caution, as there was a significant flaw in the assignment to experimental conditions. The study enrolled 15 participating physicians. Participants were assigned to intervention or control groups based on their interest in participation in the program. The lack of random assignment to experimental condition introduces the possible confound that those physicians who were more interested in improving communication may have self-selected to the intervention group, while those less interested in improving communication skills self-selected to the control group.

Another study in the adult literature involved a randomized controlled trial of an intensive 10-hour communication skills program in a sample of primary care and specialty clinicians (Betz Brown, Boles, Mullooly, & Levinson, 1999). The authors examined the effect of the program on patients' satisfaction with their clinicians' communication during the office visit. Consistent with other studies, clinicians' ratings of their own communication skills and awareness of communication difficulties increased following the intervention. However, patient satisfaction ratings did not differ between groups, demonstrating that the program did not affect the clinically relevant outcome variable. It could be the case that physician communication does not impact patient satisfaction. However, it could also be the case that the specific communication behaviors that are targeted during training do not relate very well to patient satisfaction.

Lang, Floyd, Beine, and Buck (2002) trained physicians to enhance the degree to which their medical interviews were comprehensive and patient-focused by having them ask sequenced questions geared toward determining the patient's perspective of the illness (PPI), such as "What

ideas or thoughts have you had about the possible cause of today's problem?" These were scripted questions administered at the end of their standard medical interview. Results indicated that among new patients, using the sequenced PPI questioning resulted in significantly greater satisfaction with the visit. However, among established patients, the sequenced questioning did not influence satisfaction ratings.

Interestingly, physicians were more likely to report feeling as if they had "helped the patient" when the interview was conducted without the inclusion of the sequenced PPI. Perhaps eliciting information about the patient perspective raised issues that the physician could not or did not address during the appointment. Without probing about the PPI, the patient would be more likely to disclose a presenting problem, such as a sore throat. The physician is likely to address that issue successfully, resulting in feelings of effectiveness and satisfaction for the physician. In contrast, soliciting the PPI is likely to result in patient disclosure of a variety of physiological and/or psychosocial difficulties. It is less likely that the physician will be able to successfully address all of the issues during the medical visit, perhaps resulting in feelings of ineffectiveness and dissatisfaction. If this were the case, it would not be surprising that longitudinal studies indicate diminished implementation of communication skills over time. If physicians do not feel as good about their services following a more comprehensive interview, they are less likely to continue using the skills that elicit more information. One possible solution to this problem would be to include systematic procedures for eliciting and responding to psychosocial information without relying on physicians' motivation to pursue those issues during the interview.

Maguire, Booth, Elliott, & Jones (1996) addressed skill maintenance in their study examining the impact of intensive workshop interventions for various health care professionals.

The workshops were several days long and included a 2-day booster workshop 6 months later. Interviews with simulated patients took place at baseline, post-treatment, and follow-up measurement periods. Each interview was observed and coded. At post-test, results were mixed, with some positive behaviors increasing and others remaining at baseline levels. Similarly, some negative communication behaviors reduced while others remained at baseline levels. Although improvements in communication continued at 6-month follow-up, the effects had diminished since the post-test measurement period. In addition to evaluating physician behavior, the authors also measured the physicians' ability to identify most (at least 60%) of the simulated patients' problems. Their ability to identify the majority of problems rose from 44% of the interviews at baseline to 70% of the interviews at 6-month follow-up. This is perhaps the most clinically significant finding, as it captures the outcome measurement of problem identification training rather than a process measurement of communication behaviors. Although these data are encouraging, they must be viewed cautiously, as they were collected from simulated, rather than actual patient interviews. We know nothing about the interview behaviors that the physicians practiced with real patients. In fact, there is reason to question the external validity of these findings given that naturalistic studies have demonstrated fewer gains and poorer skill maintenance over time than has been found in simulated situations.

The current review of the literature is consistent with the impressions expressed by Hulsman et al. (1999), as it appears that investigators who utilized the best methodology found the fewest indicators of the effectiveness of physician communication training workshops. Taken together, the literature indicates that communication skills training workshops for physicians might produce short-term changes in physicians' communication behavior. However, there is no evidence to suggest that these interventions change clinically relevant outcome measures, such as

adherence, physical or psychological health, or health care utilization in their patients. Thus far, the data are equivocal regarding whether these interventions improve patient satisfaction. Furthermore, many of the studies lacked information about the maintenance of implementing positive communication skills beyond post-test. Those that did include follow-up data collection demonstrated a lack of maintenance.

Patient Communication Training Interventions (Adult Patients)

Traditionally, the physician has been viewed as the central, authoritative force in health care. Rather than engage in active collaboration, patients were generally passive recipients of the consequences of health care decision making. Increasingly, patients have become more active consumers, with the introduction of self-help resources and marketing geared directly toward patients as consumers. Currently, patients are more educated and aware of their options in health care; however the passive patient role remains more the rule than the exception. In order to increase physicians' ability to recognize patients' needs and provide appropriate care, patients must disclose their concerns and expectations. Efforts have been made to increase patient disclosure through interventions that target their communication skills.

In a review of the literature on randomized, controlled studies of adult outpatients' communication training interventions between 1975 and 2000, outcomes were generally promising (Post, Cegala, & Miser, 2002). Improvements included patient communication behavior, medical outcomes, functional status, adherence to treatment recommendations, appointment keeping, and follow-through with referrals. All of the studies that examined locus of control suggested that the patient-based intervention led to a shift in physician-patient interaction, with patients assuming more control during the visit. The studies revealed mixed findings on the outcome of patient satisfaction. Although it has been a concern expressed by

physicians, all of the studies reviewed indicated that the training that occurred in the waiting room prior to the medical visit had no effect on the overall length of the visit.

In a landmark study, Roter (1977) investigated the effectiveness of a health education intervention geared towards increasing adult patient question asking during a medical visit. The study sought to evaluate whether the intervention would increase patient question asking and also to understand the consequences of increased question asking during the medical visit. Data were collected from 250 patients at a community outpatient facility, and included tape recordings of the patient-provider interaction during the medical visit, questionnaires completed by patients following their visit, and records of whether subsequent medical appointments were kept. Patients were randomly assigned to the experimental condition, a placebo condition, or a no-treatment control condition. The experimental condition consisted of a 10-minute session in the waiting room prior to the medical appointment. During the session the patient and a health educator identified questions that the patient had concerning illness or treatment. In the placebo intervention a health care educator met with the patient for 10 minutes prior to the patient's medical appointment during which instructions for appropriate use of the emergency room were reviewed.

Results indicated that the intervention increased the number of direct questions asked. Furthermore, patients in the experimental condition posed fewer bids for clarification than did placebo patients, suggesting that the communication patterns between patients in the experimental group and their physicians was altogether more clear and efficient. It is noteworthy that increased question asking did not affect the duration of the appointment. An examination of the outcome variables revealed that patients in the experimental group experienced significant increases in internal locus of control scores compared to the placebo group patients. This finding

is consistent with literature that demonstrates a relationship between information-seeking and internal locus of control. Patients in the experimental condition also had higher ratings of subsequent appointments kept. Perhaps an increase in internal locus of control accounts for this increase in adherence.

Interventions that target patients rather than physicians appear to be more successful in improving health-related outcomes. However, evidence of maintenance is lacking in the literature. There is evidence supporting the short-term impact of these interventions, but none to indicate that the effects are lasting. Another limitation is the feasibility of continued training over time. Training each patient individually is costly, involving additional time and personnel. Medical facilities are unlikely to provide a service such as patient training in the absence of data demonstrating long-term cost-effectiveness, particularly for a service that is outside of the immediate scope of medical practice.

Additional Barriers to Detection and Referral

Parent disclosure and physician perception of disclosure are two major barriers to detection and referral. However, the barriers appear to extend beyond communication failures. Rushton, Bruckman, & Kelleher (2002) conducted an investigation into the actual and perceived barriers to appropriate referral and follow-through with referral. To do so, they collected data from 21,150 patients, 4,012 (19%) of whom had been identified as having a psychosocial problem by a clinician during a primary care visit. When children were identified as having a psychosocial problem, the most common management strategy was "watchful waiting" (38.4%), followed by primary care counseling alone (33.4%). A minority of patients received counseling and a psychotropic medication prescription from their primary care provider (18%), and fewer still received a prescription only with no counseling by the physician or referral for mental health

services (10.2%). Of the 4,012 children identified with psychosocial problems, only 650 (16.2%) were referred for specialty mental health services. When only children with newly detected psychosocial problems were considered (n=1,299), the rate was higher (27%). It is possible that pediatricians are more likely to refer patients who have new rather than preexisting conditions.

It appears that a successful intervention would need to involve tools to enhance communication so that physicians are able to detect psychosocial problems, as well as tools to minimize the barriers to referral with mental health providers. These might include knowledge barriers (e.g., identifying the level at which a problem is severe enough to warrant referral); logistical barriers (e.g., administration costs involved in assessment and referral); and attitudinal barriers (e.g., beliefs about mental health services).

Increasing Detection and Referral with Screening Measures

In a study by Triggs and Perin (1989), a screening tool was used to increase parent-pediatrician communication about child behavior and development. Three hundred, ninety six parents attending appointments with their children with one of 11 physicians were enrolled in the study. The intervention consisted of a brief checklist of symptoms on which the parent was asked to indicate whether each item was a problem for his or her child. A similar checklist was provided following the appointment; however instead of indicating whether the item was a problem, the parent indicated whether the issue was discussed with the pediatrician. Participants were randomly assigned to one of three groups. The first group was a control group. This group received nothing prior to the appointment, but completed both versions of the checklist following the appointment. The second group was the intermediate group. This group completed the first version of the checklist prior to the appointment; however they were informed that the pediatrician would not have access to the checklist. They also completed the second checklist

following the appointment. The third group was the intervention group. They completed the first checklist prior to the appointment and were informed that the checklist would be attached to their child's chart and reviewed by the pediatrician.

Among the entire sample, the number of concerns that were endorsed by parents was 3.85 out of a possible 28 concerns. More than half (52%) of parents indicated no concerns about their child on the checklist. The majority of problems endorsed involved concerns about discipline and behavior management. In the control group, 30% of the parents' concerns were discussed. The number of concerns that were discussed was significantly greater in the intermediate group (43%) than in the control group. The number of concerns discussed in the intervention group (53%) was significantly greater than in the intermediate group and in the control group. It is noteworthy that items that were reportedly discussed were not limited to those items about which parents endorsed concern. Within-pediatrician analyses revealed that all pediatricians demonstrated some response to the intervention; however there was a substantial range of effect among pediatricians (range = 4% change to 45% change) across conditions.

The Pediatric Symptom Checklist (PSC). The PSC (Jellinek, 1979) is a 35-item screening instrument that assesses parents' impressions of their children's psychosocial functioning across a wide range of factors. It is designed to be administered in the waiting room prior to a pediatric appointment and takes 5 minutes to complete, on average. It is easily scored by simply adding the scores for each of the items endorsed. A score 28 or greater indicates a high likelihood that the child is experiencing significant psychosocial problems. Children at or above the cut-off score should be evaluated more thoroughly. The PSC has been validated for use with children ages 4-16.

The construct validity of the PSC has been established in studies that have compared it with other parent report measures of child psychosocial functioning (e.g., the Child Behavior Checklist), clinician interview ratings (e.g. the Children's Global Assessment Scale; Diagnostic Interview for Children and Adolescents), and clinical judgment in a variety of settings (e.g., military outpatient setting). Sensitivity ratings indicate the degree to which the PSC accurately identifies children with clinically significant problems, when compared to established measures of child psychopathology that indicate abnormal functioning. Sensitivity ratings have ranged from r=.79 to r=.95, with an overall average rating of r=.84. It is noteworthy that, when studies that investigated disadvantaged populations are excluded, the sensitivity rises to r=.87. The sensitivity rating for disadvantaged populations was r=.79. In contrast, specificity ratings indicate the degree to which the PSC accurately identifies children without clinically significant problems when compared to established measures of child psychopathology that indicate normal functioning. Specificity ratings have ranged from r=.68 to r=.74, with an average of r=.69. Test-retest reliability ranged from r=.80 to r=.91, with a mean of r=.86 (Jellinek et al., 1988; Jellinek, Little, Murphy, & Pagano, 1995; Jellinek, Murphy, & Burns, 1986; Murphy, & Jellinek, 1988; Navon, Nelson, Pagano, & Murphy, 2001; Simonian & Tarnowski, 2001; Walker, LaGrone, & Atkinson, 1989).

There have been several studies comparing PSC detection of psychosocial problems with pediatrician detection. In these studies, use of the PSC has resulted in an average prevalence rate of 12.5%, with rates ranging from 11% to 14%. Pediatrician detection has shown a prevalence rate of 5.6% (Jellinek et al., 1999; Murphy, Arnette, Bishop, Jellinek, & Reede, 1992; Murphy et al., 1996; Wildman, Kinsman, & Smucker, 2000). This suggests that the PSC aids in the

detection of psychosocial difficulties beyond what would be found during routine pediatric appointments.

There have also been studies examining the degree to which use of the PSC influences referral rates for mental health services. When the PSC was used in a low-income Hispanic community it identified 10.6% of the sample as at risk for psychosocial problems (Murphy et al., 1996). Most of those (9.5% of the overall sample) were referred for mental health follow-up. Public health data indicated that during the time the PSC was used, overall referrals for mental health services in the entire county in which the study was conducted increased from 0.5% to 2.9% of the school-aged children seen in medical practices.

A 4-phase, longitudinal, naturalistic study investigated the feasibility and acceptability of the PSC for routine psychosocial screening for well-child visits in outpatient pediatric practice (Murphy et al., 1992). For a period of 4 months, baseline data on mental health referrals were collected. The PSC was then introduced for a 5-month trial. During this phase, the PSC was given to the parents by clinic nurses and scored by the pediatrician. Next, a 6-week monitoring phase began, during which a research assistant was present in the clinic to ensure administration and retrieval of the PSC by the nurses. During this phase, the PSC was also compared with a semi-structured interview for validation purposes. During the final phase, the research team no longer visited the clinic and the PSC was discontinued.

At baseline, the clinic referred 1.5% of its well-child population. This rose to 12% during the unmonitored use period. This rate was maintained when research assistants prompted administration and retrieval of the PSC. When the PSC was discontinued, rates of referral fell to 2%, a rate similar to baseline. It is important to note that the referrals made with the introduction of the PSC were not all cases that had been identified as clinically significant by the PSC. There

were cases that were above cutoff who, upon further interview were determined to be functioning adequately and did not receive referrals. For others, a referral was suggested and declined by the family. More interestingly, some cases that were not above cutoff received referrals. This latter finding suggests that regular use of the PSC might be prompting a more comprehensive assessment by physicians, even for patients who are not identified as "clinically significant" by the PSC.

In a national feasibility study, use of the PSC in medical offices was evaluated in a sample of 2,165 parents of children between the ages of 4 and 15 (Jellinek et al., 1999). The PSC was distributed and collected by a nurse to parents in the waiting room prior to the medical visit. The feasibility of the instrument was measured by calculating the percentage of forms that were returned by parents with at least 30 out of the 35 items completed. The overall rate of completed measures was 94%. No differences in completion were found by medical specialty, geographic region, or managed/non-managed care plan membership. Completion was slightly lower in urban settings, for low SES parents, for parents receiving Medicaid, and for minority parents; however no group completion rate fell below 94%.

Despite its feasibility, the PSC is not being adopted by practitioners in medical settings. A study was conducted on 201 pediatricians and family practitioners who had requested information about the PSC from the authors (Bishop, Murphy, Jellinek, & Dusseault, 1991). Of those contacted 157 replied to the survey. Of those who replied, only 36 (23%) reported that they had used the PSC in the past 6 months; 9 had used it more than 21 times, 4 had used it 11-20 times, 5 had used it 6 to 10 times, and 8 used it fewer than 5 times. Of the 36 that used it, 80% reported it either useful or very useful and led to increased case detection and/or referral.

Efforts have been made to develop briefer versions of the PSC to reduce the burden on parents who are completing it (Gardner, Kelleher, & Pajer, 2002). However, there is no evidence that indicates that parents are burdened by the 35-item measure, or that 5 minutes is too long to spend completing a questionnaire. More likely, the barriers to use lie in the burden on medical practice (i.e., distributing, collecting, scoring, and investigating appropriate referrals for children in need). The rewards are not in place to encourage medical practices to continuously assume these burdens (i.e., time, financial compensation) nor are there tangible consequences for failing to screen (i.e., liability for failing to detect mental health problems). Therefore, in order to maintain routine screening, there must be minimal burden on the medical practice.

Although described as highly feasible (i.e., it is quickly completed, most parents complete it, and it is simple to score), data from one study suggest that the instrument places somewhat of a burden on medical personnel. Although the PSC was generally well-accepted, "nurses whose job it was to hand out and collect the forms did feel somewhat overburdened initially by the responsibility of the added paperwork (p. 663)." Furthermore, whereas pediatricians reportedly viewed the implementation of the PSC as part of gathering comprehensive patient data, nurses reported feeling that the PSC was more appropriate for a mental health setting (Murphy et al., 1992).

In summary, the literature suggests that communication, disclosure, detection, and referral are factors that can be altered through a range of interventions that vary in cost, feasibility, and effectiveness. Interventions that focus on training pediatricians tend to be intensive and costly. Not only do they require a considerable amount of time from physicians, they also require a staff of professionals who are competent to effectively train communication skills. Taken together, studies that have evaluated physician communication training workshops

indicate that they might be effective in changing physicians' communication behavior following the workshop, but that these gains are not maintained in the long-run. Furthermore, and perhaps more importantly, the changes observed in physician communication behavior do not correlate with clinically meaningful changes for patients, such as satisfaction, adherence, or health care utilization.

Interventions that have focused on communication skills training with parents or patients have demonstrated more promising results. In general, these training efforts have resulted in changes in question-asking behavior during the medical visit, as well as improved adherence and health care utilization in the future. Thus far, the data indicate that these interventions do not improve factors that predict parents' or patients' health behavior following the medical visit. Although the outcome research in this area is impressive, widespread, routine interventions with parents and patients is costly, and maintaining the expense of ongoing parent/patient training is impractical.

In an effort to develop an intervention that is low-cost and can be maintained over time, screening instruments have been introduced. Screening instruments have the advantage of transmitting information between pediatricians and parents without relying on the acquisition or proper implementation of new skills. The PSC has been the most widely used psychosocial screening tool for use in a pediatric setting. It has demonstrated an ability to identify psychosocial problems in children that go undetected by pediatricians' medical interviews alone. Use of the PSC has resulted in increased referrals to mental health professionals. To date, however, studies examining use of the PSC have not investigated the likelihood that parents will follow through with referrals or other recommendations that are generated by the PSC. To date, there are no studies in the pediatric literature that indicate characteristics of the medical visit that

improve health behavior. In the adult literature, Self Determination Theory has provided the most insight into understanding and implementing positive changes in health behavior. There is also some evidence that satisfaction with the medical visit predicts health outcomes.

Internally Regulated Motivation and Self-Determination Theory

Self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 1998; Ryan & Deci, 2000) is a model of human motivation that has been used to understand patient adherence to medical advice and regimens. The model differentiates between intrinsically and extrinsically motivated behavior. Intrinsic motivation describes performance of an activity in which the behavior *is* the reward. Intrinsic motivation is a part of human nature. People are born curious, interested, and exploratory. Young children enjoy washing dishes because of the warm soapy water and the opportunity to stand on a stool. Having clean dishes is simply a byproduct of the process of washing. Unfortunately, in sub-optimal environments, these characteristics can diminish, and behaviors lose their intrinsic enjoyment. Where intrinsic motivation falls short, extrinsic motivation takes over to help individuals maintain productivity and progress.

Extrinsic motivation describes the performance of an activity in order to attain a desired outcome. In extrinsic motivation, the behavior *leads to* the reward. Extrinsic motivations vary in the degree to which they are internally or externally regulated. Behaviors that are *extrinsically* motivated and have high *internalization* produce an outcome that is rewarding because it is consistent with internal beliefs, values, or goals. For example, an individual who is *extrinsically* motivated with *internal* regulation might wash the dishes because he or she believes that doing so is part of the collectivism that makes a family operate successfully. He or she is performing the activity in pursuit of an outcome, and the outcome is enjoyed because it is consistent with internal beliefs and desires. In contrast, behaviors that are *extrinsically* motivated and have high

externalization produce an outcome that is rewarding because it is reinforced through positive external consequences (e.g., financial rewards, social rewards). An example of this would be washing the dishes to receive an allowance or to avoid punishment. This individual is performing the activity in pursuit of an outcome; however the outcome itself does not satisfy an internal need or desire. Rather, the outcome leads to external rewards (e.g., money, avoidance of punishment).

Individuals who engage in behaviors out of intrinsic motivation reap rewards of greater interest, excitement, confidence, performance, persistence, creativity, and experience high levels of autonomy (Ryan & Deci, 2000). Individuals who engage in behaviors out of extrinsic motivation but are *internally* regulated also enjoy similar benefits. In health care, greater internalization has been associated with greater medication adherence among people with chronic illnesses (Williams, Rodin, Ryan, Grolnick, & Deci, 1998). It has also predicted maintenance of weight loss (Williams, Grow, Freedman, Ryan, & Deci, 1996), improved blood glucose control in diabetic populations (Kaplan, Greenfield, & Ware, 1989; Williams, Freedman, & Deci, 1998), and better attendance and involvement in addiction-treatment programs (Ryan, Plant & O'Malley, 1995; Williams & Deci, 1996; Williams, Levesque, Zeldman, Wright, & Deci, 2003).

Individuals who engage in behaviors out of extrinsic motivation and have *external* regulation do not share these benefits. Therefore, interventions that focus on increasing internalization on extrinsically motivated tasks would be expected to result in significant improvements in physical and psychological well being. Because intrinsic motivation is more difficult to enhance than internalized extrinsic motivation, interventions have focused on the latter.

In order to increase internalization in behaviors that are extrinsically motivated, one must develop an internal belief or value consistent with the desired outcome. Thus far, this has been accomplished through enhancing the degree to which the individual is involved as an active participant in the task rather than a passive recipient of an outcome. One strategy might involve enlisting the individual as a collaborator in care and decision-making. For example, an obese individual with low levels of physical activity is less likely to adhere to a prescribed exercise regimen than a regimen that he was involved in creating. These strategies seek to enhance internalization by increasing the degree to which the patient feels autonomous, or capable of making choices and participating in processes that affect outcomes. There is preliminary evidence to support the hypothesis that interventions designed to enhance internalization via increased autonomy result in more positive health outcomes.

One longitudinal study randomly assigned 159 patients with type-2 diabetes to a “patient activation” condition, in which patients were encouraged by their physicians to be active participants in decision making and treatment planning or a “passive education” condition in which they were not explicitly encouraged to collaborate with the physician (Williams, McGregor, Zeldman, Freedman, & Deci, 2004). Patients' autonomous motivation and perceived competence, and physician's autonomy support were assessed at baseline, 3 month, and 6 month time periods. Positive outcome was measured by low HbA1c levels. Participants in the autonomy intervention condition demonstrated better glycemic control.

In a similar study, patients were randomly assigned to an “activated” condition or a control condition (Kaplan, Greenfield, & Ware, 1989). The “activated” patients met with a research assistant prior to their medical appointments and were encouraged to be more initiating and interactive during the appointment. Patients who were in the “activated” condition were

more involved during the visit and also had lower HbA1c levels at subsequent appointments, suggesting that they had better adherence to their regimen following the intervention.

Another study evaluated an intervention that took a different approach to enhancing intrinsic motivation encouragement in an effort to increase adult patient involvement during an outpatient medical visit (Greenfield, Kaplan, & Ware, 1985). Forty-five patients recruited from a gastroenterological clinic participated in the study. Half of the participants were randomly assigned to an experimental group in which they reviewed a recent visit from their medical record and a treatment algorithm for chronic ulcer disease with a clinic assistant. In addition, behavior change strategies were taught regarding how to effectively communicate with their physician during the appointment. The other half of the participants were assigned to the control group and spent 20 minutes with a clinic assistant reviewing information about the cause, complications, and treatment of ulcer disease. Data were collected via audiotapes of the medical visit. At the next patient visit, a set of questionnaires were completed by the patient including measures of satisfaction with the visit, general health perceptions, number of health problems, level of health concern, and functional disability.

Results indicated that the experimental group was significantly more involved in the physician-patient interaction. They were also more assertive in their attempts to direct the flow of communication and the physician's behavior. In addition to significant improvements in communication, patients in the experimental group also reported significantly fewer physical and role limitations by their next appointment. Interestingly, there were no between-group differences in satisfaction ratings. However, the confidence intervals were very large, suggesting that there may have been profound individual differences in satisfaction that were not detected by a comparison between group means. It is noteworthy that no differences in satisfaction ratings

between groups is inconsistent with data reported in Roter (1977) in which patients receiving the training intervention reported less satisfaction than controls. Greenfield et al. (1985) recognized the discrepancy in findings and suggested that the differences in findings between these studies might be due to a greater emphasis on patient communication training in their study, which could have helped patients more skillfully navigate discussions with their physicians.

Taken together, the literature suggests that greater internal motivation toward particular pro-health behaviors is indeed predictive of performing those health behaviors. Furthermore, researchers have successfully manipulated internal motivation to improve health outcomes. Internal motivation has also been shown to be an important component of other psychological theories that have been used to predict and change health behavior such as the Health Belief Model, Social Cognitive Theory, and the Theory of Reasoned Action/Planned Behavior (Redding, Rossi, Rossi, Velicer, & Prochaska, 2000).

Parent Satisfaction

An early study investigated the relationship between the nature of pediatrician-parent communication and parent satisfaction ratings and response to medical recommendations (Korsch et al., 1968). Data were collected from 800 patient visits with 64 participating pediatricians at an urban emergency walk-in clinic. Patients were assigned to one of three groups in rotation. The three groups differed in data collection methods. For the first group, data were collected via tape-recorded medical visits, chart review, and a follow-up interview with parents. Interviews were conducted immediately following the visit and then again 14 days later. The second group had tape recordings and chart review only, and the third group had chart review only. The vast majority of parents (76%) were highly or moderately satisfied with care. High ratings of parent satisfaction have been found elsewhere. This finding was confirmed by a more

recent study in which 2,068 parents attending well-child visits with a primary care pediatrician were surveyed and the average overall satisfaction rating was 87 out of 100 (Halfon, Inkelas, Mistry, & Olson, 2004).

Korsch et al., (1968) collected data on a broad range of variables that they hypothesized might affect satisfaction. Several of their hypotheses were not supported by the data. Neither patient nor pediatrician background variables were correlated with satisfaction. Parent SES and education also appeared to be unrelated to satisfaction ratings. Finally, characteristics of the appointment, including diagnosis and length of visit did not correlate with satisfaction ratings. Factors that did influence satisfaction ratings included parents' perceptions of their pediatricians as friendly and engaging in good communication behavior. Parents were also more satisfied when their expectations were met during the appointment. For example, those parents that expected an etiological explanation for their child's medical ailment were highly satisfied if they received an explanation. Failure to have expectations met resulted in low levels of satisfaction. It is noteworthy that, although met expectations were found to be highly predictive of satisfaction, few parents (24%) verbalized their expectations to the pediatrician. Data from another study suggested that parent satisfaction is also enhanced when pediatricians provided more comprehensive services that went beyond health supervision and management (Taaffe, Young, Davis, Schoen, & Parker, 1998).

Patient Satisfaction (Adult Literature)

Predictors of satisfaction found in the pediatric literature were consistent with the adult literature that also identified unmet expectations and poor ratings of physician communication to be predictive of dissatisfaction. Data in the adult literature also indicated that physicians were frequently unaware of patient needs and expectations (Jackson, Chamberlin, & Kroenke, 2001).

An interesting study examined physician perceptions of patients, rather than their behaviors toward patients, as potential predictors of patient satisfaction. The authors found that being considered “difficult” by the physician was a predictor of patient dissatisfaction (Jackson et al., 2001). “Difficult” behavior is likely born from feeling like one's problems are not understood, resulting in increased anxiety, reassurance seeking, and bids for clarification. If systemic changes that decrease misunderstanding are implemented, it is reasonable to expect that physicians' perceptions of patients as “difficult” would decrease.

The adult literature provides insight not only into factors that predict satisfaction, but health-related consequences of patient satisfaction. In a study examining the relationships between patient satisfaction with physicians' interpersonal skills and health behaviors, data from 56 adult patients were collected at a primary care clinic. Videotapes of appointments were reviewed and follow-up phone calls were made 1 to 2 weeks following the visit to assess patient satisfaction with the physician's interpersonal skills. Overall satisfaction was high. Average recall of information about medication was 86%, and reported medication adherence rate was 82%. In a more thorough analysis, it was found that the relationship between physician interpersonal skills and patient adherence was mediated entirely by patient satisfaction. The study found that physician communication behavior did not have any direct effect on adherence; however that is not to say that it is inconsequential (Bartlett et al., 1984).

Another study aimed to understand the predictors of patients' failure to return to a health care practice for medical care in the future. The authors collected survey data from 2,782 primary care medical patients. Dissatisfaction with the length of visit and the physician's listening skills correlated with reported intentions not to return to the practice for medical care in the future. This relationship remained after controlling for demographic variables (Puopolo,

Haas, Brennan, & Burstin, 2001). These findings were replicated in another study in which low levels of patient satisfaction with the patient-physician interaction were associated with both medical and psychological treatment avoidance (Moore et al., 2004). Furthermore, the authors found that patients' perception that the physician listened to them was associated with a 50% decrease in psychological treatment avoidance. Treatment avoidance was measured by a self-report questionnaire that asked whether, in the past 12 months, the patient had a medical or psychological problem for which they would have liked to see a doctor, but did not. Taken together, it appears that improving satisfaction is a relevant goal, as it predicts health-related outcomes such as adherence and appropriate health care utilization.

Summary of the Literature and Current Limitations

The prevalence of psychosocial problems in pediatric populations is rising (Kelleher et al., 2000; McCue Horwitz et al., 1998), and physicians' ability to accurately identify children with significant mental health problems and refer them for appropriate services is poor (Committee on Psychosocial Aspects of Child and Family Health, 1993; Costello, Edelbrock, Costello, Dulcan, Burns, & Brent, 1988; Lavigne et al., 1993; Wildman, Kizilbash, & Smucker, 1999). Several physician barriers to detection have been identified, including knowledge about assessing for psychosocial issues and lack of insurance reimbursement for time spent assessing for psychosocial problems (Dulcan et al., 1990; Leaf et al., 1992; Lynch et al., 1997; Sharp et al., 1992; J. Williams et al., 2004; Wissow et al., 2005). Parent barriers have also been identified, such as parent's reluctance to disclose their psychosocial concerns about their children to the pediatrician (Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, & Leaf, 2000; McCue Horwitz, Leaf, & Leventhal, 1998). Finally, parent-pediatrician interaction barriers have also been found, including communication failures, such as parents' lack of clarity in communicating concerns,

pediatricians' failure to recognize parental disclosure of concern, and failure to respond appropriately to expressions of concern (Levinson et al., 2000; McCue Horwitz et al., 1998; Sharp et al., 1992; Wildman et al., 1999).

The literature that describes the characteristics of parent-physician interactions that result in positive outcome is substantial, and is supported further by the adult patient-physician communication literature. Together the data suggest that comprehensive interviews, positive communication skills, and attention to the patient as an individual rather than a "case" result in positive outcomes of greater satisfaction, improved adherence, and appropriate health care utilization (DiMatteo et al., 1986; Hall et al., 1988; Korsch et al., 1968).

These findings led naturally to intervention research aimed primarily at training physicians to incorporate more positive communication behaviors. Although physician communication skills interventions appeared to change physician behavior during appointments (van Dulmen & Holl, 2000), there was little evidence to suggest that they led to positive clinical outcomes, such as satisfaction, adherence, or improved health status (Betz Brown et al., 1999; Bower et al., 2001; Hulsman et al., 1999; Roter, et al., 1998; Smith et al., 1998). Furthermore, in longitudinal studies that included a follow-up assessment of behavior, improved communication behaviors were not maintained in the long-run (Maguire et al., 1996; Razavi & Delvaux, 1997). Since physician training is very costly and the data do not appear to indicate that it is an effective mechanism for improving physical and psychological health outcomes, this approach appears to be inadequate.

Interventions have also been designed and evaluated targeting patient or parent communication training in an effort to increase disclosure of concerns and involvement in medical decision-making. These interventions resulted in some improvements in health behavior

outcomes, such as appointment keeping (Post et al., 2002; Roter, 1977). However, the interventions are costly and impractical, as most medical practices lack the personnel for training patients in waiting rooms prior to each medical visit.

In order to bypass the cost of training and the potential logistic and attitudinal barriers that interfere with continued use of communication skills, screening tools were introduced and their effectiveness in detecting psychosocial problems in the medical setting were evaluated. Screening instruments have the distinct advantage of collecting information from parents and delivering it to physicians, demanding neither a change in physician nor parent communication initiation. They also provide the physician with information about the severity of the problem, reducing the need for physicians to be very knowledgeable about psychosocial issues.

One screening instrument that has been extensively investigated has been the Pediatric Symptom Checklist (PSC; Jellinek, 1979). Use of the PSC has been evaluated in a variety of medical settings and has the advantages of brevity, simplicity, clarity, and sound psychometric properties (Jellinek et al., 1995; Jellinek et al., 1986; Jellinek et al., 1988; Murphy, & Jellinek, 1988; Navon et al., 2001; Simonian & Tarnowski, 2001; Walker et al., 1989). It has demonstrated an impressive ability to detect psychosocial problems that were otherwise undetected by pediatricians; thereby increasing referral rates for mental health services (Murphy et al., 1996). Furthermore, when using the PSC, referrals by pediatricians for mental health problems have been shown to increase for children who score below the clinically significant cutoff. In addition to referring children with scores at or above the cutoff of 28, some children who scored below 28 were also referred, as the PSC generated discussion about psychosocial problems that were concerning during the medical interview (Murphy et al., 1992). Unfortunately, there is no evidence to suggest that medical practices continue to use the PSC

outside of the scope of an intervention study, and there is some evidence to suggest that routine use of the PSC is indeed discontinued, and that referral rates return to baseline upon discontinuation (Bishop et al., 1991; Murphy et al., 1992).

Although use of the PSC has consistently been supported in the literature, none of the studies to date have implemented a randomized controlled experimental design. Researchers thus far have implemented pre-post designs, relying on comparisons with baseline data to evaluate the effectiveness of the PSC in increasing detection and referral of mental health problems. Implementation of a more experimental approach where physicians are randomly assigned to differing conditions would enhance the internal validity of the study, improving the likelihood that observed improvements are indeed a result of the intervention rather than an extraneous variable (e.g., passage of time, presence of psychological researchers).

Barriers to adherence have been investigated, and a young but promising area of the literature has contributed substantially to our understanding of the mechanisms underlying adherence behavior. Self-determination theory suggests that adherence is influenced by the degree to which adherent behavior is regulated by internal versus external motivation (Deci & Ryan, 1985; Deci & Ryan, 1998; Ryan & Deci, 2000). Those with high internalization are more likely to maintain adherent behavior and reap rewards of positive physical and psychological outcomes. Several studies have experimented with interventions that aim to increase internalization. Thus far, the results are promising. The data indicate that patients who participate in interventions to increase internalization have better adherence and better health outcomes (Kaplan et al., 1989; Ryan et al., 1995; G.C. Williams & Deci, 1996; G.C. Williams et al., 1998; G.C. Williams et al., 1996; G.C. Williams et al., 2003). To date, these interventions have been tried only with adult populations and have not been tried with parents in pediatric populations.

Purpose of this Study

There are several ways that this study advances the current literature in this area. First, randomized controlled studies are gravely lacking in this area of the pediatric literature. In a review of the literature on outcome research in pediatric settings, only 1 of 10 studies used a randomized controlled trial study design (Forrest, Shipman, Dougherty, & Miller, 2003). This study served as the first experimentally controlled investigation of the effectiveness of the use of the PSC for increasing the rate of appropriate mental health referrals. Experimental designs allow for more confident interpretations of treatment effects than have been reported in the literature previously.

Second, this study examined the feasibility of using a modified version of the PSC aimed at decreasing the administrative burden on the medical facility, and increasing parent involvement in care. Currently, standard administration of the PSC has consisted of the office receptionist, nurse, or a research assistant distributing the PSC to the parent. Upon completion, the PSC has been collected by one of these individuals, and placed in the child's medical record to be scored, reviewed, and interpreted by the pediatrician. Distribution, collection, and scoring are time-consuming activities that do not require the expertise of medical personnel. The modified administration of the PSC used in this study involved the following changes: 1) parents were provided with clear, simple instructions and scored their own questionnaire following its completion; 2) parents were instructed to maintain possession of the questionnaire until their meeting with the pediatrician, at which time they handed the scored questionnaire directly to the pediatrician; and 3) parents were told the range of scores that are considered to be clinically significant.

Third, this study sought to understand the motivational processes associated with parents' decisions to adhere to pediatrician's recommendations. The adult literature has suggested that the development of internalized motivation for a task can be enhanced through interventions that increase involvement in treatment planning. This study sought to evaluate whether increasing parental involvement in discussions about their children's psychosocial problems via self-scoring and interpretation of the PSC would result in an increase in parents' internalized motivation that has been found to be predictive of greater adherence to recommendations.

Hypotheses

In this investigation children were divided into those whose PSC scores were indicative of more emotional and behavioral problems, and those whose scores reflected normal child behavior. The treatment conditions were expected to benefit participants with children who had more psychosocial problems and have little effect on those with fewer psychosocial problems. For participants with children who received high scores on the PSC, it was expected that parents in the intervention groups would engage in significantly more communication with the pediatricians about their children's psychosocial functioning compared with those in the Control group. It was also expected that participants in the intervention groups would receive more referrals for children's mental health services, and be more satisfied with the medical visit compared with their Control group counterparts. It was also hypothesized that parents with high scoring children in the Modified group would demonstrate more favorable results on these outcome variables than their Standard group counterparts. In addition, parents with high scoring children in the Modified condition were expected to demonstrate more internal motivation and intention to adhere than participants in the Standard or Control groups. Among participants with

children who did not have concerning psychosocial problems, differences were not expected across the three experimental conditions.

CHAPTER 2

METHOD

Participants

Two hundred and eighty nine parents of children ages 4 to 16 attending a medical appointment with a pediatrician in the southeastern United States were approached for participation in this study. Of those, 35 (12%) refused participation because they lacked the time to complete the questionnaires following the appointment. Others declined participation due to a lack of interest (N = 25; 8.2%), resulting in 229 participants who were enrolled in the study. Fifty-five (24%) who initially enrolled in the study were excluded from the analyses due to incomplete data. The final sample of 174 parents of children attending medical appointments were enrolled in this study and had completed data. Of them, 91 were recruited at a primary care group practice and 83 were recruited at a pediatric gastroenterological practice. Children attending appointments ranged in age from 4 to 16 (M = 9.25, SD = 3.63), and 45% were girls. Demographic features of the sample are detailed in Table 1.

Measures

Copies of measures used in this study may be found in Appendix A. Please note that in the interest of meeting formatting guidelines for the graduate school, the forms included in this document reflect some deviations in formatting from those used in the study.

Background information. Background information about the child and his/her family were collected via a parent completed Background Questionnaire designed for this study. Questions included information about the child's age, and race; parent’s gender, income, and

marital status; and characteristics of the visit, including reason for the visit, and history with the treating physician.

Child psychosocial adjustment. The 35-item Pediatric Symptom Checklist (PSC; Jellinek, 1979) was completed by the parent. The parent rated each item as occurring "often," "sometimes," or "never." In the standard version of the PSC, the completed questionnaire was scored by nurses or medical assistants. This is the approach that has been used in prior research in this area. As is typical when using the PSC, "often" responses were assigned a score of 2, "sometimes" was scored as 1, and "never" was scores as 0. An overall score was calculated by simple addition. Scores range from 0 to 70, and scores up to 27 were considered within the normal range. A score of 28 or higher suggests a need for additional assessment and may warrant a referral to a mental health provider.

A modified version of the PSC developed for this study was also used. The modified PSC included the same 35 items and followed a similar response format as the Standard version described above. The Modified version differed from the Standard version in that clear scoring instructions were provided, instructing the parent to sum the total score independently. After completing and scoring the questionnaire, the parent was instructed to hand the scored questionnaire directly to the pediatrician at the beginning of the medical appointment. All Modified PSC scores were verified by the researcher, and parents' self-scoring was found to be 100% accurate.

Communication. A parent-completed checklist titled the Communication Questionnaire (CQ) was developed for this study in order to assess parents' perceptions of communication during the medical visit. Items on the CQ paralleled those on the PSC; however the instructions and response format differed. Rather than instructions to rate the degree to which a behavior is

problematic, the parent was asked to report: 1) whether the behavior was discussed during the visit (i.e., “yes,” ”no”), 2) who initiated the discussion (i.e., “me,” “pediatrician,” “child”), and 3) the degree to which the behavior was discussed with the pediatrician (i.e., “well enough,” “not well enough”). Data derived from this questionnaire served as an indicator of intervention effectiveness (i.e., impact of the PSC on parent-pediatrician communication about the children’s psychosocial issues).

The CQ was completed immediately after the medical visit. Communication scores were derived by comparing responses on the CQ with those on the PSC. Items endorsed “often” on the PSC were assigned a score of 2 on the CQ if they were discussed during the visit or a score of -2 if they were not discussed. Items endorsed “sometimes” on the PSC were assigned a score of 1 on the CQ if they were discussed or a score of -1 if they were not discussed. Items endorsed “never” on the PSC were not considered when scoring the CQ.

The communication scores for each item were summed and the sum was divided by the score on the PSC, yielding a proportion. The proportion represented the final psychosocial communication score for the participant. Scores ranged from -1 to +1. Positive scores were favorable, as they indicated more communication about parent psychosocial concerns. Proportions were used in order to standardize CQ scores across the range of PSC scores. For example, an individual scored a 40 on the PSC and had a score of 20 on the CQ (a proportion of +.50) is different from an individual who scores a 20 on the PSC and scores a 20 on the CQ (a proportion of +1). In the first case, only half of the problematic psychosocial issues were addressed, whereas in the second case, all of the psychosocial issues were addressed.

In reviewing the items on the PSC and CQ, it appeared that several of them were somatic or illness-related items, and were likely to be routinely addressed during regular medical visits as

medical concerns rather than psychosocial concerns. They included items #1 (complains of aches or pains), #4 (tires easily, little energy), #17 (absent from school), #20 (visits doctor with finding nothing wrong), and #21 (has trouble sleeping). Indeed, these were the most frequently discussed items during baseline assessment. As a result, the calculation of the CQ total score omitted the 5 abovementioned items.

Parent satisfaction. To date, no validated measures of parent satisfaction have been published that were appropriate for this study. Therefore, a 15-item Satisfaction Questionnaire was designed to measure parent satisfaction in this study. Parents were asked to rate the degree to which they were satisfied with a variety of aspects of the medical visit on a 5-point Likert scale, where -2=very dissatisfied, -1=somewhat dissatisfied, 0=neutral, 1=somewhat satisfied, and 2=very satisfied.

Two scores were derived from this questionnaire. First, a “target satisfaction” score was calculated by summing the responses for 8 items that were specifically being targeted in this study (i.e., items 2, 3, 7, 9, 11, 12, 13, and 14). Internal consistency for this subset of items was also good ($\alpha = .88$). The “target satisfaction” score was expected to demonstrate the greatest difference among the groups, as it included items that were directly targeted by the intervention such as “The pediatrician's attention to my child as a person, rather than a 'case',” “Opportunities to ask about my child’s emotional or behavioral health” or “The quality of interaction with the pediatrician.” However, it was hypothesized that increased satisfaction regarding attention to psychosocial issues might create a halo effect that will increase parents' satisfaction with more general aspects of care (e.g., “Opportunities to ask about my child's physical health,” “The amount of time spent waiting,” or “The amount of time spent interacting with the pediatrician). Therefore, a “non-target satisfaction” score was also calculated including items unrelated to the

intervention, such as time spent waiting prior to the appointment. Non-target items included # 4, 5, 8, 10 and 15. Internal correlations revealed that responses to items #1 and #6 were inconsistent with others non-target items, and they were subsequently dropped from the questionnaire Internal consistency was good for non-target items ($\alpha = .81$).

Parent internal motivation. The Treatment Self-Regulation Questionnaire (TSRQ; Ryan & Connell, 1989) assesses the reason why a person would choose to engage in a pro-health behavior (e.g., adherence to diet, abstinence from substance use), adhere to a treatment recommendation, or try to change an unhealthy behavior (i.e., smoking, excessive eating). Previously, the authors of the TSRQ adapted it for use with four different adult populations, including smoking, diet, exercise, and alcohol consumption. Scores on the TSRQ have been related to positive health outcomes, such as adherence to treatment regimens, weight loss, and abstinence from substance use (Williams, Freedman et al., 1998; Williams et al., 1996; Williams, Rodin et al., 1998). For this study, the primary pro-health behavior to which parents responded was, "The reason I would follow pediatrician recommendations is..."

Parents responded to 15 items that indicated various reasons for engaging in a pro-health behavior, and indicated the extent to which each reason was true for them on a 7-point scale, where 1="not at all" and 7="very true." The questionnaire contains 3 subscales, including internal motivation (e.g., "Because I personally believe it is the best thing for my child's health," "Because it is an important choice I really want to make"), external motivation (e.g., "Because others would be upset with me if I did not," "Because I want others to approve of me"), and amotivation (e.g., Because it is easier to do what I am told than think about it," "I really don't know why"). Subscale scores were derived from summing particular items related to internal

motivation (range from 0 to 42), external motivation (range from 0 to 42), or amotivation (range from 0 to 21). For this investigation, only the internal motivation scores were used.

Parent intention to adhere. A separate item was included on the TSRQ motivation questionnaire to assess parents' intent to adhere to their pediatricians' recommendations. These included a variety of health recommendations (e.g., pharmacological, dietary) and were not limited to psychosocial domains. The item simply stated, "I intend to follow through with recommendations that my child's pediatrician made today," and used the same 7-point response format used on the TSRQ.

Pediatrician referral. Information about pediatrician referral for further assessment or treatment of mental health issues was collected via a question on the Communication Questionnaire administered following the appointment. The question read, "Did the pediatrician provide a referral for mental health services (psychology, psychiatry, counseling) today?" to which the parent responded by circling "yes" or "no."

Procedure

Parents of children attending appointments with one of the 12 participating physicians were approached in the waiting room prior to their visit. Six pediatric gastroenterologists at a specialty practice and six pediatricians at a primary care pediatric practice participated. Parents were told that this study was investigating strategies for improving attention to psychosocial issues during regular medical visits. Informed consent for participation was obtained in the waiting room prior to data collection, in accordance with IRB guidelines.

There were three experimental conditions in the study: 1) no treatment Control, 2) Standard administration of the PSC, and 3) Modified administration of the PSC. After obtaining informed consent, all parents were asked to complete the Background Questionnaire prior to the

appointment. For parents who had an appointment with a physician in the No-Treatment condition, no forms other than the Background Questionnaire were completed prior to the appointment. Parents who saw a physician in the Standard condition completed the PSC prior to the appointment and returned it to the research assistant. The research assistant gave the PSC to a nurse or medical assistant to score it and clip it to or place it in the medical record. Parents who saw a physician in the Modified condition also completed the PSC prior to the appointment; however they maintained possession of it until they met with the pediatrician, and handed the scored questionnaire directly to the pediatrician. They were informed that the pediatrician also had scoring and interpretation information. Pediatricians in the Standard and Modified conditions were individually provided with verbal and written instructions on how to interpret the PSC scores during an approximately 5-minute in-service prior to the onset of experimental data collection. Following the appointment, parents in each condition completed the CQ, the Satisfaction Questionnaire, the HCCQ, and the TSRQ. Parents in the No-Treatment condition first completed the PSC following the appointment, and then the remaining questionnaires.

Experimental Design and Data Analyses

Prior to the experimental phase of the study, an assessment was conducted to evaluate the degree to which the 12 participating pediatricians discussed psychosocial problems during the medical visit. This assessment consisted of administering the PSC and the Communication Questionnaire to approximately 10 to 15 consenting parents per physician following the medical visit (N=169). For the experimental phase, a randomized block design was used to assign physicians to experimental conditions. Within the specialty and the primary care sites, the six participating pediatricians per site were stratified on the basis of their pre-experimental, baseline communication scores and then randomly assigned to each of the three experimental conditions.

This assured that there were two pediatric gastroenterologists and two primary care pediatricians in each experimental condition.

The authors of the PSC recommended that scores of 28 or higher suggest that the child might be experiencing clinically concerning emotional or behavioral problems and should be evaluated more thoroughly to determine whether mental health specialty services were needed (Jellinek, 1979). In the previous literature, approximately 12-14% of children were identified as clinically concerning by the PSC (Jellinek et al., 1999; Murphy et al., 1992; Murphy et al., 1996; Wildman et al., 2000); however the data in this sample were negatively skewed with only 7.5% of the children scoring 28 or above,

It is noteworthy that the general pediatric literature suggests a prevalence rate of approximately 20% for children with mental health problems that warrant a DSM-IV diagnosis (Horowitz et al., 1992; Kelleher et al., 2000; McCue Horwitz et al., 1998). For the participants in this study, the highest scoring 20% of children had scores of 20 or greater. Therefore, the sample was divided, with approximately 80% of the sample in the "low" PSC group (PSC<20), and approximately 20% of the sample in the "high" group (PSC$\geq$20).

In this investigation, the main effects of the intervention were determined for the entire sample of participants, and the interaction of intervention and PSC scores was examined using General Linear Modeling procedures with SPSS 12.0. Significant interactions were further examined using *t*-tests. Levene's Test for Equality of Variances was performed to test for unequal variances. Unequal variances were not assumed on analyses for which Levene's *F* statistic was significant ($p > .05$).

CHAPTER 3

RESULTS

Preliminary analyses and results. Preliminary analyses were conducted to compare the three groups on demographic variables that were assessed by the Background Questionnaire, such as age, race, and SES, as well as on the Communication Questionnaire data that were obtained in the screening phase. Between-groups comparisons of PSC scores were also conducted for the 3 experimental groups to ensure that differences observed between the three experimental conditions were not attributable to differences in children's level of psychosocial difficulties (see Table 1). No significant differences were found for these variables.

Communication: Were the items discussed? There were no statistically significant main effects for experimental condition on communication scores. However, the interaction of condition and PSC scores did significantly impact communication $F(2, 161) = 4.57$, $p=.006$ (see Figure 1). Planned pairwise comparisons conducted with the high PSC group indicated that the participants in the Modified group (M = -.52, SD = .60) and the Standard group (M = -.46, SD =.49) had significantly higher CQ scores than participants in the Control group (M = -.96, SD = .09) $t(12.52) = 2.62$, $p = .011$; and $t(11.66) = 3.50$, $p = .002$, respectively. The Modified and Standard groups did not differ significantly.

It was hypothesized that problematic behaviors that occur *often* might be more concerning to parents and more alarming to the physician reviewing the PSC than those that only occurred s*ometimes*. Therefore, another group of analyses were conducted using only the sum of the items for which parents marked "often" on the PSC. There were no statistically significant

main effects for experimental condition on communication about "often" items. However, the interaction of condition and PSC scores did significantly impact communication about items that the parents endorsed as occurring "often" $F(2, 64) = 2.49$, $p=.045$ (see Figure 2). Planned pairwise comparisons conducted with the high PSC group indicated that the Modified group ($M = -.42$, $SD = .66$) and the Standard group ($M = -.13$, $SD = .81$) communicated more about PSC items endorsed "often" than the Control group ($M = -.95$, $SD = .15$) $t(7.53) = 2.24$, $p = .029$; and $t(9.57) = 3.18$, $p = .005$, respectively. The Modified and Standard groups did not differ significantly.

Communication: Who initiated? Parents were asked to indicate who initiated discussion of a particular item: parents, children, or pediatricians. At times, parents reported 2 "initiators," and both initiators were included in these analyses. The main effects for experimental condition on pediatrician initiation scores were significant ($M_{modified} = .98$, $SD_{modified} = 1.52$; $M_{standard} = 2.02$, $SD_{standard} = 2.86$; and $M_{control} = .92$, $SD_{control} = 1.50$, respectively for the number of physician initiations) $F(2, 172) = 8.01$, $p=.000$. Bonferroni tests indicated that pediatricians in the Standard group initiated discussion significantly more than those in the Modified group and the Control group, $p=.019$; and $p=.009$, respectively. The main effect for PSC scores was also significant ($M_{low} = 1.07$, $SD_{low} = 1.86$; and $M_{high} = 2.15$, $SD_{high} = 2.73$, respectively) $F(2, 172) = 9.83$, $p=.002$.

The interaction of condition and PSC scores also significantly impacted pediatrician initiation $F(2, 172) = 3.05$, $p=.025$ (see Figure 3). Planned pairwise comparisons conducted with the high PSC group indicated that the pediatricians in the Modified group ($M = 2.07$, $SD = 1.98$) and the Standard group ($M = 3.98$, $SD = 1.15$) initiated discussion about items on the PSC more frequently than the pediatricians in the Control group ($M = .85$, $SD = .80$) $t(17.40) = 2.14$, $p =$

.024; and $t(11.82) = 2.41$, $p = .017$, respectively. Participants who had high PSC scores in the Modified and Standard groups did not differ significantly on the number of pediatrician initiations. There were no significant group effects for parent or child initiation. Viewing the interaction graph prompted an exploratory ANOVA analysis using the low-scoring PSC group. Data indicated that when children had few psychosocial problems, pediatricians in the Standard group communicated significantly more than those in the Modified group $F(2,132) = 3.47$, $p = .034$. There were no significant group differences or interactions for parent or child initiation.

The source of initiation (pediatrician, parent, or child) was not significantly related to the outcome variables of parent motivation, or intention to adhere. Parent satisfaction was affected by the source of initiation. Parents reported higher satisfaction when pediatricians initiated more discussion about psychosocial issues. This was true both for satisfaction variables that were directly targeted by the intervention $r(167) = .27$, $p = .000$ and those that were not targeted directly $r(166) = .20$, $p = .010$.

Communication: Was it discussed "enough?" In addition to measuring whether or not a PSC item was discussed, the parents' perceptions of whether items were discussed "enough" was assessed. There were no statistically significant main effects for experimental condition on whether the PSC items were discussed enough. However, the interaction of condition and PSC scores did significantly impact whether parents felt that items on the PSC were discussed enough $F(2, 110) = 3.36$, $p=.020$ (see Figure 4). Planned pairwise comparisons conducted with the high PSC group indicated that the parents in the Modified group ($M = 4.54$, $SD = 5.52$) felt that PSC items were discussed "enough" more than the parents in the Control condition ($M = .55$, $SD = 3.78$) $t(21) = 1.98$, $p = .030$. The Standard condition did not differ significantly from the Control condition or the Modified condition.

Parent internal motivation. There were no statistically significant main effects for experimental condition on parent internal motivation. However, the interaction of condition by PSC scores showed a trend $F(2, 164) = 1.62$, $p=.100$ (see Figure 5). Planned pairwise comparisons conducted with the high PSC group indicated that neither the Modified group nor the Standard administration group had significantly higher internal motivation scores than the participants in the Control condition. The Modified and Standard conditions also did not differ significantly.

Intention to adhere. The main effects for experimental condition on intention to adhere scores was significant ($M_{modified} = 6.82$, $SD_{modified} = .74$; $M_{standard} = 6.81$, $SD_{standard} = .60$; and $M_{control} = 6.95$, $SD_{control} = .22$, respectively) $F(2, 169) = 4.3$, $p=.015$. Post-hoc comparisons were non-significant. The main effect for PSC score was not significant.

The interaction of condition and PSC scores was also significant $F(2, 169) = 7.99$, $p=.000$ (see Figure 6). Planned pairwise comparisons conducted with the high PSC group indicated that parents in the Modified group ($M = 7.00$, $SD = .000$) and the Control group ($M = 6.92$, $SD = .289$) had more intention to adhere to pediatricians' recommendations than the participants in the Standard group ($M = 6.25$, $SD = 1.14$) $t(11) = -2.28$, $p = .021$, and $t(12.41) = -1.98$, $p = .036$, respectively. Participants in the Modified and Control groups who had high scores on the PSC did not differ significantly in their intention to adhere.

Mental health referrals and parent satisfaction. Altogether, only 7 parents reported receiving a referral for mental health services during the medical visit: 2 in the Standard condition, 1 in the Modified condition, and 4 in the Control condition. Receiving a referral for mental health specialty services was not significantly different for the three experimental conditions and was not related to the outcome variables (psychosocial communication, physician

initiation, motivation, or intention to adhere to pediatrician recommendations). There were no statistically significant group or interaction effects for parent satisfaction.

CHAPTER 4

DISCUSSION

A primary goal of this study was to evaluate the effects of the PSC on parent-pediatrician communication about children's psychosocial health during medical visits. It was hypothesized that the PSC would prompt both parents and pediatricians to talk about emotional and behavioral concerns more than they ordinarily would. This study also sought to extend the literature by introducing and evaluating a Modified version of the PSC, intended to reduce the administrative burden for health care personnel and increase parent involvement during the medical visit. The Modified version of the PSC was understood by parents and appropriately completed, indicating that it is a feasible alternative to the Standard PSC administration. The Modified PSC also successfully prompted physician-parent conversation about psychosocial issues during the medical visit at rates similar to the Standard version, suggesting its validity. Medical practitioners can therefore participate in using a psychosocial screening instrument without the added administrative burden of collecting and scoring it.

For children with high scores on the PSC, pediatricians in both the Modified and Standard version had similarly high rates of initiating discussion about the PSC items compared with pediatricians in the Control condition. However, when problem levels were low pediatricians in the Standard condition initiated discussion about PSC items significantly more than their colleagues in the Modified condition. This pattern indicates that the Modified PSC prompted pediatricians to initiate discussion about psychosocial issues most appropriately, as it increased discussion for children with potentially concerning problems, but did not manufacture

unnecessary psychosocial discussion for children who demonstrated more normal behavior. This finding is particularly important for pediatricians who may be concerned about a psychosocial screening tool lengthening the medical visit unnecessarily by generating discussions about child behavior that are within the normal range of functioning.

Parents in the Modified group also reaped benefits of feeling as if the items on the PSC were discussed "enough" significantly more than those in the control group. Parents in the Standard condition did not show this effect. Perhaps the Modified version invited parents to be collaborative partners in discussions about psychosocial issues, and reduced the likelihood that parents would feel "talked at" rather than "talked with." It is noteworthy that parents in all conditions generally reported feeling satisfied with psychosocially-related aspects of care. In spite of the high levels of overall satisfaction, there was a small but significant association indicating that more discussion about the children's psychosocial issues was related to greater parent satisfaction with different aspects of the medical visit.

One surprising finding was that the Standard version had the distinct disadvantage of being associated with a reduction in parents' intention to adhere to pediatricians' recommendations. In fact, parents in the Control group were more likely to report intending to adhere to their pediatricians' recommendations than those in the Standard group. Although the mechanism underlying this finding is unclear, it may be that placing the PSC in the medical record was analogous to providing the pediatrician with the results from a laboratory test. This may have enhanced the pediatrician's sense of expertise and advice-giving, thus reducing his or her listening and collaborative conversation with the parent. This interpretation is consistent with previous literature indicating that physicians who demonstrated good listening skills had patients with better adherence to recommendations and more appropriate health care utilization

(DiMatteo et al., 1986). This speculation is also supported by the high rates of pediatrician initiation in discussing the items on the PSC found in this study, suggesting that they may be approaching psychosocial topics with a greater sense of authority than the parents.

In summary, this study sought to develop and evaluate an intervention to facilitate parent-pediatrician communication about psychosocial problems in children. Previous researchers in this area identified several pediatrician barriers (i.e., knowledge, constraints on time and resources, and physicians' attitudes) that may decrease the likelihood that they will initiate discussions about children's emotional and behavioral health (Dulcan et al., 1990; Leaf, Leventhal, Forsyth, & Speechley, 1992; Lynch, Wildman, & Smucker, 1997; Sharp, Pantell, Murphy, & Lewis, 1992; Wissow, Larson, Anderson, & Hadjiisky, 2005). Use of the PSC addresses these barriers in part, as it provides a cost-effective, non-invasive way to inform the pediatrician about psychosocial problems that the parent might not disclose verbally and provides the pediatrician with a severity index to aid him or her in determining whether the problem warrants focused attention. The PSC also bypasses parents' reluctance to disclose concerns about their children's emotional or behavioral health (Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, and Leaf, 2000; Wildman, et al., 1999), as it integrates psychosocial assessment into routine practice. It is believed that this integration of the PSC into routine care will limit the degree to which parents' or pediatricians' attitudes toward mental health impair communication necessary to receive appropriate care. Finally, the PSC provides a clear, shared language that likely reduces the miscommunication that has been found to exist between parents and pediatricians (McCue Horwitz et al., 1998; Sharp et al., 1992).

This study had the advantage of using a sample of parents of children attending regular medical visits with experienced, practicing pediatricians rather than a more convenient strategy,

such as a simulated medical visit or a medical school training experience. This clinical population was chosen in order to enhance the external validity of the study. Clinical samples most accurately capture the environmental, attitudinal, and procedural qualities that are found in other true medical environments. However, compared with other studies in this area, this sample appeared atypically healthy. This may be due to the more affluent families attending these private group practices. In addition, the study did not provide child care, restricting participation to those parents who could simultaneously complete questionnaires and manage their children's behavior. Therefore, there may have been a selection bias in favor of parents with better-behaved children.

The small sample of pediatricians participating was a limitation of this study. With 12 pediatricians enrolled, and only 4 per condition, physicians' idiosyncratic attitudes, beliefs, and interpersonal behavior may have influenced the results. Of particular concern was pediatricians' typical psychosocial communication, as some pediatricians may routinely ask about emotional or behavioral health without the prompt of an instrument like the PSC. This limitation was addressed by the inclusion of a screening phase, stratification based on baseline levels of communication, and random assignment of physicians within blocks to the experimental conditions. Analysis of the screening communication scores indicated that these steps helped to minimize the likelihood that the most psychosocially savvy pediatricians would be assigned to any one condition.

This investigation would have benefited from a longitudinal component that followed families over time to examine the impact of PSC use on health behaviors such as health care utilization, adherence to recommendations, or follow-through with referrals. An attempt to address this shortcoming was made, incorporating predictors of health behavior (e.g., intent to

adhere, parents' internal motivation) into the cross-sectional design. Future researchers in this area should consider a longitudinal design that tracks families' health behavior over time.

There are a number of important issues to address in future research in this important area of pediatric health care. First, the current study introduced an intervention that required only 3 to 5 minutes of parents' time during the waiting room period, and fewer than 5 minutes of training for each pediatrician. Although this proved to be an economical, and effective in-service, future studies should examine the incremental gains made from enhancing the PSC intervention with additional features such as providing more intensive physician training, or providing pediatricians with referral information for mental health specialists. Second previous studies have indicated that some pediatricians provide their own non-medical in-office interventions such as supportive counseling, behavior modification, or coping skills training (Williams et al., 2004). Future research in this area should examine the impact of the PSC on the occurrence of these informal interventions. Third, informal discussions with participating pediatricians and parents indicated that some might be reluctant to discuss psychosocial issues due to social taboos or beliefs that mental health is a private matter. Some parents expressed believing that one's pediatrician is not an appropriate source of information for mental health concerns. Collecting information about underlying physician and parent attitudes and beliefs about mental health in the context of a pediatric appointment could provide rich information about barriers to the assessment of pediatric mental health problems.

In summary, the PSC in either the Standard or Modified form improves various dimensions of psychosocial communication during medical visits for children with more psychosocial problems. These outcomes are important, as the PSC is a relatively brief and low-cost intervention. The Modified version of the PSC proved to be at least as successful as the

Standard version, and in some areas, it was superior. The Modified version relieved the medical personnel of any administrative burdens associated with scoring the scale and placing it in the medical record. Taken together, it appears that the Modified PSC provides a brief and simple strategy for improving children's health care at a low cost, and its routine use is supported by this investigation.

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APPENDIX A

QUESTIONNAIRES

Background Questionnaire

Please provide us with some information about the child who is attending today's appointment.

Child's age:_____

Child's gender (circle one): Male Female

Child's race (circle one): *African American Asian White Hispanic Native American Other:* _____

Child's grade in school: _____

Please list all individuals living with this child in household (mother, 2 brothers, cousin, etc.)_____

_____

The child's *primary* caregiver(s) (stepmother, father, etc.): _____

Other caregiver(s): _____

Please provide us with some information about you.

Your relationship to this child (mother, father, grandmother, etc.): _____

If you are *not* this child's primary caregiver, how frequently do you care for this child?

daily a few days a week once a week once a month less than monthly

Your marital status: *single married life partner separated divorced widowed*

Your occupation: _____

Your yearly household income (circle one):

Under $9,000 $10,000-24,000 $25,000-49,000 $50,000-74,000 $75,000-99,000 Above $100,000

Your education level (circle the most advanced one that applies):

some high school high school diploma/GED some college college degree professional degree

Please provide some information about today's visit:

Primary reason for this visit: _____

Expectation for this visit: _____

Number of previous visits with this physician (circle one): 0 1-3 4-10 more than 10

Please provide some information about your child's past and current health care (circle one):

The pediatrician we are seeing today is my child's usual/regular pediatrician.	yes	no	
My child currently sees a mental health professional (counselor, psychologist).	yes	no	
My child saw a mental health professional in the past, but not currently.	yes	no	
My child has health insurance.		yes	no
My child has health insurance that covers mental health services.		yes	no
My child's physician knows us...	very well	somewhat well	not well

What concerns do you have about your child's physical, behavioral, or emotional health?

Pediatric Symptom Checklist

Please mark under the heading that best fits your child.

	Never	Sometimes	Often
1. Complains of aches or pains			
2. Spends more time alone			
3. Tires easily, little energy			
4. Fidgety, unable to sit still			
5. Has trouble with a teacher			
6. Less interested in school			
7. Acts as if driven by a motor			
8. Daydreams too much			
9. Distracted easily			
10. Is afraid of new situations			
11. Feels sad, unhappy			
12. Is irritable/angry			
13. Feels hopeless			
14. Has trouble concentrating			
15. Less interested in friends			
16. Fights with other children			
17. Absent from school			
18. School grades dropping			
19. Is down on him or herself			
20. Visits doctor with doctor finding nothing wrong			
21. Has trouble sleeping			
22. Worries a lot			
23. Wants to be with you more than before			
24. Feels he or she is sad			
25. Takes unnecessary risks			
26. Gets hurt frequently			
27. Seems to be having less fun			
28. Acts younger than children his or her age			
29. Does not listen to rules			
30. Does not show feelings			
31. Does not understand other people's feelings			
32. Teases others			
33. Blames others for his or her troubles			
34. Takes things that do not belong to him or her			
35. Refuses to share			

PSC Information Sheet

General Description:
The PSC is a questionnaire for parents to provide information about their child's emotions and behavior. It was designed to alert pediatricians about parents' concerns in these areas so that they can be addressed during the medical visit. Your pediatrician is interested in understanding your child better so that he/she can provide your child with the best healthcare.

Please note that the PSC is NOT a diagnostic tool. Only a clinician, such as your pediatrician or a mental health specialist can determine a diagnosis for a child.

Instructions:

- ✓ Complete the questionnaire.
- ✓ Use the simple scoring guide at the bottom of the questionnaire to calculate your child's PSC score.
- ✓ If you have trouble with the instructions or questions about the PSC, please ask the research assistant who provided you with these forms.

Please keep this form with you and hand it directly to your child's pediatrician at the beginning of your appointment today. Your child's pediatrician has additional information about the PSC and is interested in discussing your questions and concerns about your child.

Pediatric Symptom Checklist

For each item, please circle the number that best fits your child, score the questionnaire, and give it to your pediatrician.

	Never	Sometimes	Often
1. Complains of aches or pains	0	1	2
2. Spends more time alone	0	1	2
3. Tires easily, little energy	0	1	2
4. Fidgety, unable to sit still	0	1	2
5. Has trouble with a teacher	0	1	2
6. Less interested in school	0	1	2
7. Acts as if driven by a motor	0	1	2
8. Daydreams too much	0	1	2
9. Distracted easily	0	1	2
10. Is afraid of new situations	0	1	2
11. Feels sad, unhappy	0	1	2
12. Is irritable/angry	0	1	2
13. Feels hopeless	0	1	2
14. Has trouble concentrating	0	1	2
15. Less interested in friends	0	1	2
16. Fights with other children	0	1	2
17. Absent from school	0	1	2
18. School grades dropping	0	1	2
19. Is down on him or herself	0	1	2
20. Visits doctor with doctor finding nothing wrong	0	1	2
21. Has trouble sleeping	0	1	2
22. Worries a lot	0	1	2
23. Wants to be with you more than before	0	1	2
24. Feels he or she is sad	0	1	2
25. Takes unnecessary risks	0	1	2
26. Gets hurt frequently	0	1	2
27. Seems to be having less fun	0	1	2
28. Acts younger than children his or her age	0	1	2
29. Does not listen to rules	0	1	2
30. Does not show feelings	0	1	2
31. Does not understand other people's feelings	0	1	2
32. Teases others	0	1	2
33. Blames others for his or her troubles	0	1	2
34. Takes things that do not belong to him or her	0	1	2
35. Refuses to share	0	1	2
Add each column			
TOTAL PSC SCORE			

Attention	Externalizing	Internalizing

Scoring Instructions

- Add each column and indicate the sum at the bottom of the page where it says "add each column."
- Add the sums from each column and write the total score in the bold box on the lower, left-hand side of the page.
- For each item that has an arrow, place your response for that item in the shaded oval.
- Sum each column of shaded ovals and write the sum in the large shaded oval at the bottom of the page.

PSC Interpretation Information

Again, the PSC is NOT a diagnostic tool. Only a clinician, such as your pediatrician or a mental health specialist, can determine a diagnosis for a child.

Ages 4-5: A total score of 24 or above is "clinically concerning"
A total score below 24 is in the "average range"

Ages 6-16: A total score of 28 or above is "clinically concerning"
A total score below 28 is in the "average range"

"Clinically Concerning"	"Average range"
• Your child's pediatrician should explore these issues further with you and your child to decide if there is need for an assessment by a specialist and/or treatment. • You and your pediatrician might decide on any one of a variety of plans, such as: ✓ Monitoring these concerns for a period of time and following up at your next appointment. ✓ Referral to a mental health specialist (i.e., psychologist/psychiatrist) for further assessment. ✓ Referral to a mental health specialist for treatment, such as psychotherapy or medication. ✓ Medication treatment (e.g., ADHD medication, antidepressant medication).	• Your child's emotions and behaviors appear to be similar to many other children. • However, talk about your concerns with the pediatrician regardless of your child's scores. • Also, there are times when significant problems are undetected by the PSC. In these cases, it is very important that parents voice their concerns during the medical visit. • Often, pediatricians can provide some simple suggestions that will help your child improve.

Subscales:

These subscales do not have cutoff scores. Rather, they are meant to be used descriptively to help you and your child's pediatrician determine the nature of your child's difficulties.

- "Attention" is a label for problems such as staying focused or being easily distracted.
- "Internalizing" is a label for problems such as frequent sadness, worrying, or aches and pains in response to stress.
- "Externalizing" is a label for problems such as acting out, being aggressive, or being overactive.

Please keep this form with you and hand it directly to your child's pediatrician at the beginning of your appointment today.

CQ

Please provide us with some information about your discussion with your child's pediatrician today.

	How often does your child…			***Was this discussed?***		***If so, who brought it up?***			***How well was it discussed?***	
	Never	Sometimes	Often	Yes	No	Me	Child	Dr.	Not well enough	Well enough
1. Complains of aches or pains										
2. Spends more time alone										
3. Tires easily, little energy										
4. Fidgety, unable to sit still										
5. Has trouble with a teacher										
6. Less interested in school										
7. Acts as if driven by a motor										
8. Daydreams too much										
9. Distracted easily										
10. Is afraid of new situations										
11. Feels sad, unhappy										
12. Is irritable/angry										
13. Feels hopeless										
14. Has trouble concentrating										
15. Less interested in friends										
16. Fights with other children										
17. Absent from school										
18. School grades dropping										
19. Is down on him or herself										
20. Visits doctor and finds nothing wrong										
21. Has trouble sleeping										
22. Worries a lot										
23. Wants to be with you more than before										
24. Feels he or she is sad										
25. Takes unnecessary risks										
26. Gets hurt frequently										
27. Seems to be having less fun										
28. Acts younger than children his or her age										
29. Does not listen to rules										
30. Does not show feelings										
31. Does not understand other people's feelings										
32. Teases others										
33. Blames others for his or her troubles										
34. Takes things that do not belong to him/her										
35. Refuses to share										

Did the pediatrician provide a referral for mental health services (psychology, psychiatry, counseling) today? YES NO

TSRQ

The reason I would follow the recommendations from my child's pediatrician is…

	not at all true			**somewhat true**			**very true**
1. Because I feel that I want to take responsibility for my child's health.	1	2	3	4	5	6	7
2. Because I would feel guilty or ashamed of myself if I did not follow pediatrician recommendations.	1	2	3	4	5	6	7
3. Because I personally believe it is the best thing for my child's health.	1	2	3	4	5	6	7
4. Because others would be upset with me if I did not.	1	2	3	4	5	6	7
5. I really don't think about it.	1	2	3	4	5	6	7
6. Because I have carefully thought about it and believe it is very important for many aspects of my child's life.	1	2	3	4	5	6	7
7. Because I would feel bad about myself if I did not follow pediatrician recommendations.	1	2	3	4	5	6	7
8. Because it is an important choice I really want to make.	1	2	3	4	5	6	7
9. Because I feel pressure from others to do so.	1	2	3	4	5	6	7
10. Because it is easier to do what I am told than think about it.	1	2	3	4	5	6	7
11. Because it is consistent with my life goals.	1	2	3	4	5	6	7
12. Because I want others to approve of me.	1	2	3	4	5	6	7
13. Because it is very important for my child to be as healthy as possible.	1	2	3	4	5	6	7
14. Because I want others to see I can do it.	1	2	3	4	5	6	7
15. I don't really know why.	1	2	3	4	5	6	7
I intend to follow through with recommendations that my child's pediatrician has made today.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

PSQ

Please rate the degree to which you were satisfied with each of the following aspects of today's visit on the following scale:

	Very Dissatisfied		Neutral		Very Satisfied
1. The amount of time spent waiting	-2	-1	0	1	2
2. The amount of information gathered about my child	-2	-1	0	1	2
3. The quality of information gathered about my child	-2	-1	0	1	2
4. The amount of time spent interacting with medical personnel (nurses, lab technicians, receptionist, etc.)	-2	-1	0	1	2
5. The quality of interactions with medical personnel (nurses, lab technicians, receptionist, etc.)	-2	-1	0	1	2
6. The amount of time spent interacting with the pediatrician	-2	-1	0	1	2
7. The quality of interaction with the pediatrician	-2	-1	0	1	2
8. Opportunities to ask questions about my child's physical health	-2	-1	0	1	2
9. Opportunities to ask questions about my child's emotional or behavioral health	-2	-1	0	1	2
10. The pediatrician's responsiveness to questions about my child's physical health	-2	-1	0	1	2
11. The pediatrician's responsiveness to questions about my child's emotional or behavioral health	-2	-1	0	1	2
12. The degree to which the pediatrician understands my child’s needs	-2	-1	0	1	2
13. The pediatrician's attention to my child as a person, rather than a “case”	-2	-1	0	1	2
14.The degree to which I was involved in medical decisions/treatment plans	-2	-1	0	1	2
15. The degree to which my expectations for this visit were met	-2	-1	0	1	2
16. Overall, my level of satisfaction with this visit was…	-2	-1	0	1	2

APPENDIX B

TABLES AND FIGURES

Table 1
Demographic Information and PSC Scores

	Overall (N=174)		Standard (n=60)		Modified (n=55)		Control (n=59)				
	n_{total}	$\%_{total}$	$N_{standard}$	$\%_{standard}$	$N_{modified}$	$\%_{modified}$	$N_{control}$	$\%_{control}$	*F*	*df*	*p*
Gender									.167	2, 170	.88
Male	95	55	32	53	29	54	34	58			
Female	78	45	28	47	25	46	25	42			
Race									1.29	2, 169	.28
White	130	75	41	68	43	78	46	78			
African American	33	19	15	25	8	15	10	17			
Hispanic	2	1	2	3	0	0	0	0			
Other	7	4	1	2	3	2	3	5			
Caregiver									1.60	2, 173	.21
Mother	162	93	57	95	52	95	53	86			
Father	10	6	3	5	2	4	6	15			
Marital Status									.336	2, 166	.72
Single	10	6	4	7	0	0	6	10			
Married	144	83	51	85	47	86	46	78			
Separated	3	2	1	2	1	2	1	2			
Divorced	12	7	4	7	4	7	4	7			
Income									.58	2, 156	.56
Less than $9,000	3	2	1	2	1	2	1	2			
$10,000-$24,000	8	5	3	5	3	6	2	3			
$25,000-$49,000	21	12	5	8	6	11	10	17			
$50,000-$74,000	27	16	9	15	11	20	7	12			
$75,000-$99,000	23	13	7	12	5	9	11	19			
$100,000 or more	77	44	31	52	22	40	24	41			
	M=	*SD*=	*M*=	*SD*=	*M*=	*SD*=	*M*=	*SD*=			
Age	9.25	3.63	9.38	3.80	9.81	3.16	8.59	3.82	1.67	2, 170	.19
Baseline comm. score	-.79	.43	-.80	.39	-.74	.53	-.82	.36	.43	2, 134	.65
PSC score	14.03	9.63	13.23	8.92	15.44	9.76	13.54	10.20	.87	2, 171	.42

Note. Descriptive data for the entire sample and the 3 experimental conditions are noted. Differences among experimental conditions are noted in the 3 columns on the right. Baseline comm. score= Communication score from screening phase of the study. PSC = Pediatric Symptom Checklist collected during the study.

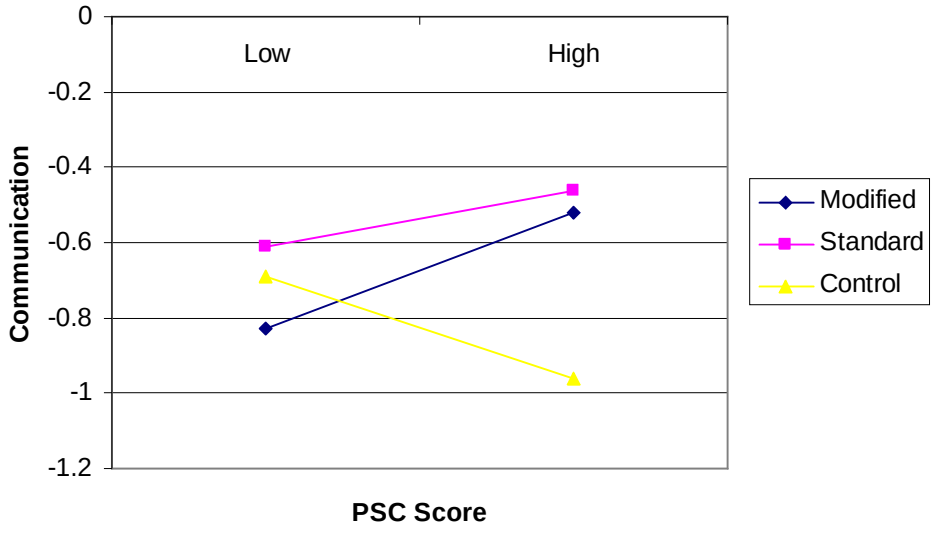

Figure 1. The effects of experimental condition and low vs. high PSC score on the communication score for items that were endorsed on the PSC.

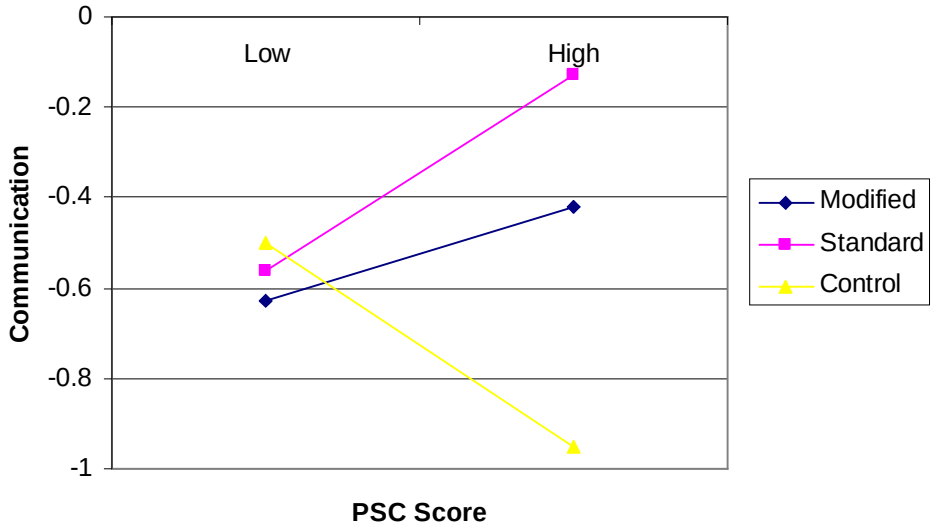

Figure 2. The effects of experimental condition and low vs. high PSC score on communication about psychosocial issues that were endorsed as occurring "often" on the PSC.

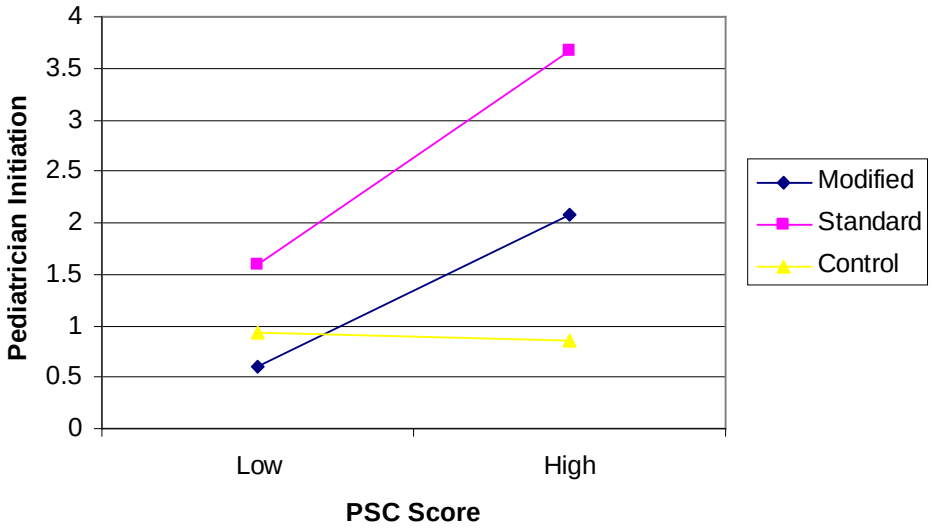

Figure 3. The effects of experimental condition and low vs. high PSC score on the frequency with which pediatricians initiated communication about items that were endorsed on the PSC.

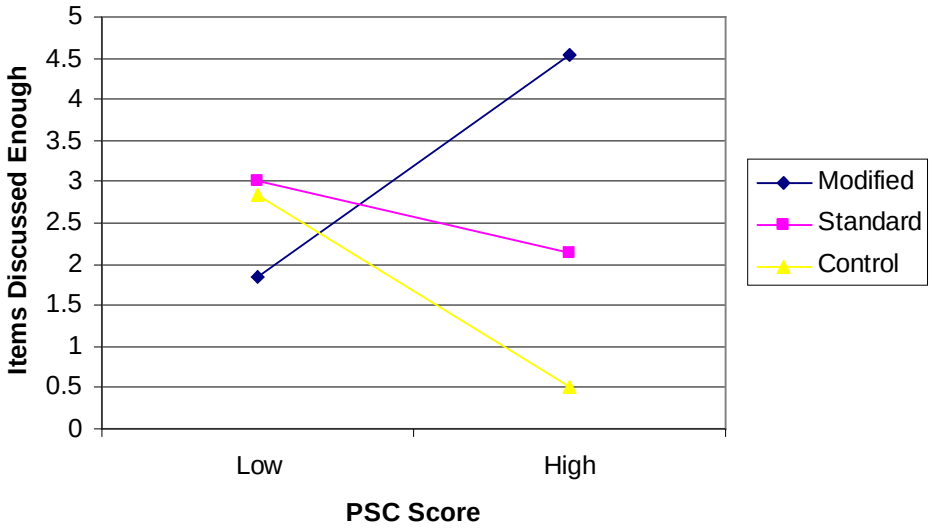

Figure 4. The effects of experimental condition and low vs. high PSC score on parents' perceptions of whether items were discussed "enough."

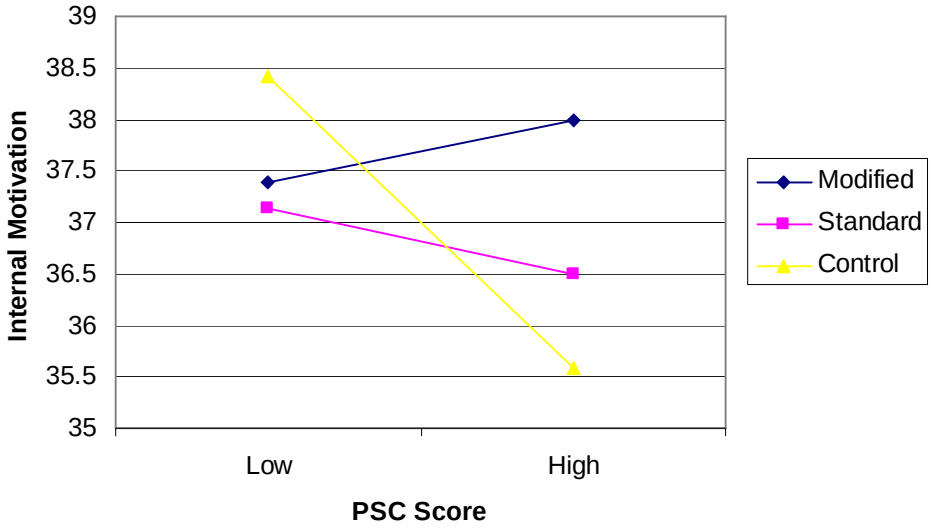

Figure 5. The effects of experimental condition and low vs. high PSC score on parents' internal motivation to follow through with pediatrician recommendations.

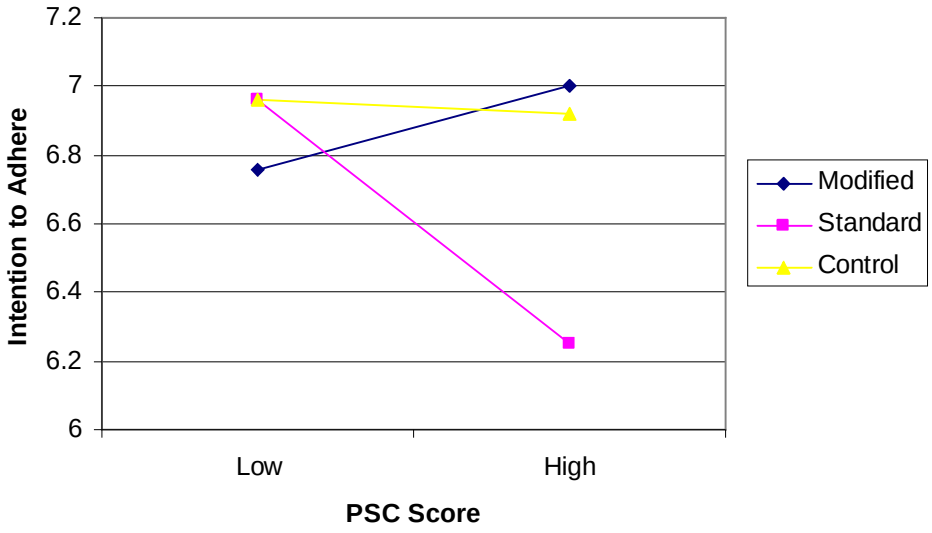

Figure 6. The effects of experimental condition and low vs. high PSC score on parents' intention to adhere to pediatrician recommendations.