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The *SEEK* Model of Pediatric Primary Care: Can Child Maltreatment Be Prevented in a Low-Risk Population?

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Abstract

Objective—To examine the effectiveness of the *S*afe *E*nvironment for *E*very *K*id (*SEEK*) model of enhanced pediatric primary care to help reduce child maltreatment in a relatively low-risk population.

Methods—A total of 18 pediatric practices were assigned to intervention or control groups, and 1119 mothers of children ages 0 to 5 years were recruited to help evaluate *SEEK* by completing assessments initially and after 6 and 12 months. Children's medical records and Child Protective Services data were reviewed. The *SEEK* model included training health professionals to address targeted risk factors (eg, maternal depression), the Parent Screening Questionnaire, parent handouts, and a social worker. Maltreatment was assessed 3 ways: 1) maternal self-report, 2) children's medical records, and 3) Child Protective Services reports.

Results—In the initial and 12-month assessments, *SEEK* mothers reported less Psychological Aggression than controls (initial effect size = −0.16, 95% confidence interval [95% CI] −0.27, −0.05, $P = .006$; 12-month effect size = −0.12, 95% CI −0.24, −0.002, $P = .047$). Similarly, *SEEK* mothers reported fewer Minor Physical Assaults than controls (initial effect size = −0.16, 95% CI −0.29, −0.03, $P = .019$; 12-month effect size = −0.14, 95% CI −0.28, −0.005, $P = .043$). There were trends in the same positive direction at 6 months, albeit not statistically significant. There were few instances of maltreatment documented in the medical records and few Child Protective Services reports.

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Conclusions—The *SEEK* model was associated with reduced maternal Psychological Aggression and Minor Physical Assaults. Although such experiences may not be reported to protective services, ample evidence indicates their potential harm. *SEEK* offers a promising and practical enhancement of pediatric primary care.

Keywords

child maltreatment; prevention; primary care; screening; risk factors

CHILD ABUSE AND neglect are common problems in the United States, with approximately 794 000 or 10.6 per 1000 children identified as maltreated annually.[1] Maltreated children are at risk of many short- and long-term consequences, including further injuries, developmental problems, and psychological, learning and conduct disorders.[2–7] The effects of child maltreatment may persist into adulthood, manifesting in an array of physical, social, and mental health problems.[8–12] Individual and societal costs of child maltreatment are enormous; a recent estimate was $95 billion per year related to medical and mental health treatment, lost productivity, and crime.[13]

Effective programs to prevent child maltreatment are needed. Although many community-based programs have been developed and evaluated, few have been implemented in health care settings,[14] and still fewer focus on primary prevention of child maltreatment. Most young children in both high- and low-risk US populations attend at least some primary care visits, offering an excellent opportunity for helping prevent maltreatment.

One promising primary care-based program is *SEEK*—a Safe Environment for Every Kid, an intervention to identify and help address prevalent psychosocial problems that are risk factors for child maltreatment. Previously, in an inner-city resident clinic, *SEEK* resulted in one-third fewer families reported to child protective services than controls who received routine care. This finding was also supported by parental self-report and review of the children's medical records.[15]

Although *SEEK* was effective in preventing child maltreatment when used with pediatric trainees and a high-risk population, its generalizability to other health professionals (HPs) and lower-risk populations needs to be examined. In this study we hypothesized that the *SEEK* model of enhanced pediatric primary care would be more effective in reducing maltreatment than standard pediatric practice when implemented with trained pediatricians and nurse-practitioners in a predominantly middle income suburban population.

Methods

Study Design

Following assignment of practices to *SEEK* or control groups, *SEEK* HPs received the initial training and implemented the model described herein from June 2006 through January 2009 (Fig. 1). Control practices received no special training and provided standard primary care. They did not receive *SEEK* materials or social work support. A subset of mothers was then recruited during the 18-month period from both intervention and control practices for the evaluation of *SEEK*. These mothers completed surveys at the time of recruitment, as well as

6 and 12 months later. Time constraints (ie, a 3-year Centers for Disease Control and Prevention grant) demanded that we first implement the *SEEK* model before we could start recruiting the evaluation sample; it took more than 18 months to recruit more than 1100 mothers. Consequently, most of the mothers in the *SEEK* practices were recruited after they had been exposed to the model. Toward the end of the study, children's medical records and data from state Child Protective Services were reviewed.

Setting and Participants

Twenty-three private pediatric practices loosely associated with the University of Maryland were originally approached; 17 agreed to participate. Some HPs in these practices had trained at our medical or nursing school or had done their pediatric residency in our program; others had residents do their continuity clinics in their practice. Before *SEEK* training, practices were randomized into *SEEK* and control groups, stratified by size (small: ≤4 HPs n = 11; medium to large: >4 HPs, n = 7) by drawing paper lots. One *SEEK* practice withdrew before they recruited participants. Another *SEEK* practice had 32 HPs, creating an imbalance of HPs between groups. We therefore added 2 control practices so that 18 private practices participated in the study, 7 in the *SEEK* group and 11 in the control group. Practices contributed varying numbers of participants to the study. One solo practice contributed only 3 participants, whereas the largest practice contributed 288 (26%). Characteristics of the practices and HPs were similar across groups in many respects (profession; sex; percent of minority patients in practice; experience addressing child maltreatment; and previous training related to intimate partner violence, parental substance abuse, depression, and stress); however, *SEEK* HPs were younger, had fewer years in practice, worked in more urban settings, and had more patients receiving Medicaid (Table 1).

Our institutional research board approved the study. Families receiving care at each practice were recruited to evaluate *SEEK*. Identical recruitment methods were used in *SEEK* and control practices. Mothers bringing in their child(ren) for a regular checkup were informed of the study by fliers and posters in waiting rooms. Interested mothers signed a form, enabling the office to notify project staff, who later phoned them, screened them for eligibility, and described the study more fully. They were told that the overall aim of the study was to see how pediatric practices could be more responsive to the needs of many families. The Informed Consent described the sensitive areas that would be broached (eg, substance use, depression, violence). They were also informed of our need to report possible threats to their child's safety to the Department of Social Services. The study's large geographic area precluded obtaining consent in person. Mothers wishing to participate were given an ID number for the secure study website. The protocol began with informed consent where mothers could agree to participate. Study staff was available for questions. Those without internet access were mailed the protocol and 2 hard copies of the consent. They were asked to sign these and return one to our office; 15% responded this way, with similar proportions across groups. If they had more than one child, the youngest was selected as the study index child.

Figure 2 shows the Consolidated Standards of Reporting Trials (CONSORT) diagram for mothers' completion of each wave. Few eligible subjects (2% of mothers contacted to

participate in this study) refused participation; 5% were ineligible due to their child's age (>5 years). Of those eligible, 65% of the intervention group and 64% of controls completed the consent form and initial assessment. Characteristics of mothers who did not participate were not assessed, as information could not be collected before consent and practices do not readily have aggregate data on variables such as maternal age and marital status.

Characteristics of *SEEK* and control children and mothers are shown in Table 2. Mothers were primarily white, middle-class, married, and well educated. The children were, on average, just older than 2 years of age. Few (9%) were on Medicaid. *SEEK* and control families were similar on several measures (child's age and sex, number of children, and mother's marital and employment status); more *SEEK* families, however, were white, on Medicaid, less educated, and had lower incomes than control patients.

The *SEEK* Model

HP Training—HPs in *SEEK* practices attended a 4-hour, small group training conducted by an interdisciplinary team of pediatricians, a social worker, and a psychologist. The training, conducted in early evenings or on Saturday mornings, focused on the impact of the targeted problems (parental depression, substance abuse, major stress, and intimate partner violence) on children's health, development, and safety, how to *briefly* assess identified problems, and how to *initially* address them, including principles of motivational interviewing. Brief "booster" trainings were held for *SEEK* HPs approximately every 6 months. The training did not address recognition and reporting of maltreatment.

The Parent Screening Questionnaire (PSQ) is a 20-item self-report questionnaire screening for targeted problems that are risk factors for maltreatment listed previously. Parents in *SEEK* practices were given the PSQ by office staff after signing in for the visit and completed it while waiting for their child's (0–5) checkup. The introduction conveyed an empathic tone, that all parents were being screened, and an interest in their child's health and safety. Response options were yes/no and answering was voluntary. An earlier version of the PSQ had moderately good sensitivity, specificity, and predictive values.[16–18] For example, depression screening had 74% sensitivity, 80% specificity, 36% PPV, and 95% NPV.

Resources for SEEK HPs and Parents—A web-based, region-specific directory was developed for HPs. Practices were given parent handouts for each problem (eg, substance abuse), customized with local agency listings.

Social Worker—A licensed clinical social worker was present on-site for a half or full day per week at each *SEEK* practice and available by phone to *SEEK* HPs and parents during regular hours. She provided support, crisis intervention and facilitated referrals. HPs and parents together determined whether to enlist her help.

Evaluating SEEK

Self-report assessments of child maltreatment and associated risk factors were administered via an online survey completed at home–initially (immediately following recruitment) and

after 6 and 12 months. Fifteen percent completed hard copies instead. Toward the study's conclusion, medical students reviewed the children's medical records for possible maltreatment. They also observed HPs conducting 3 regular checkups at the start and end of the study while sitting in the office, and measured the time taken to address psychosocial issues. Child protective services reports were obtained from the state agency.

Outcome Measures

Child maltreatment was measured 3 different ways from 3 sources: Parent-Child Conflict Tactics Scale (CTSPC), children's medical records, and child protective services reports.

Parent-Child Conflict Tactics Scale—The CTSPC is a self-report measure of how parents resolve conflict with their child.[19] Maladaptive behaviors are measured by the Psychological Aggression, and the Minor, Severe, and Very Severe Physical Assault scales (see Appendix). As part of the computer-based or paper assessment, respondents reported the frequency of each behavior during the past year (initial assessment) or 6 months (6- and 12-month assessments). The recommended weighted scoring was used with more frequent behavior having a higher score.

Children's Medical Records—The medical records of all index children of families participating in the evaluation were reviewed by 2 medical students for possible child maltreatment. The students could not be blinded because of PSQs in *SEEK* children's records. We developed clear objective and specific guidelines to minimize subjective judgments. A study pediatrician met regularly with the students to resolve issues and uncertainties. Documentation by HPs of failure to thrive, delayed immunizations, noncompliance with medical recommendations, repeated injuries, and ingestions were recorded as potential markers of neglect.[20] Child protective service involvement and other indicators of abuse were also recorded. We were able to ascertain whether problems occurred before or during the *SEEK* project.

Child Protective Services Reports—State records were obtained on lifetime child protective services reports involving study families. Given that *SEEK* addresses problems within the family, we were interested in all protective service involvement between June 1986 (first report involving a study family) and April 2009. We excluded ruled-out reports (ie, investigated, but no supporting evidence of maltreatment) and combined substantiated and unsubstantiated reports; few differences have been found in terms of outcomes and recidivism.[21] Reports before June 2006 were considered pre-*SEEK*; later reports were considered during *SEEK*.

Time Spent Addressing Psychosocial Issues—Medical students measured the time HPs spent addressing psychosocial issues during 3 randomly selected checkups as well as the total visit time.

Data Analysis

We used mixed effects multiple regression models (PROC MIXED in SAS[22]) to examine the impact of *SEEK* on CTSPC scores initially and at 6 and 12 months. Given that, despite

randomization, there were some socio-demographic differences between the groups, analyses controlled for these differences. Because of clustering of patients within practices and a possible influence of practice on outcomes, a random effect for practice was included in the statistical models. We also examined intraclass correlation coefficients to probe possible influence by one or more practices. To account for repeated measures on the same mother, a random effect for mother was also included. Similarly, we used a binary mixed effects regression model (PROC GLIMMIX in SAS[22]) to assess group differences in child maltreatment documented in the medical records. We report standardized beta estimates to indicate the strength of the differences between *SEEK* and control practices, where appropriate.

To assess *SEEK*'s impact on the rate of child protective service reports, we based the analysis on 2 groups: 1) families who had a child protective service report only before the study and 2) families who only had reports after the study began. Then we compared the *SEEK* and control groups with respect to the relative sizes of these 2 groups by using the Fisher exact test.

Some mothers in the *SEEK* practices were not exposed to *SEEK* before their initial assessment. In a supplementary analysis, we compared these mothers to mothers in the *SEEK* group who had previous exposure to *SEEK* with respect to their initial assessments.

Results

As expected, nearly 95% of *SEEK* mothers had brought their child for at least one well child visit before recruitment and were therefore exposed to the model before the initial assessment; 70% had more visits. Thus, responses to the initial survey probably reflect early effects of *SEEK* rather than a baseline. The mean CTSPC score for Psychological Aggression and Minor Physical Assault was greater in the control group than the *SEEK* group at each time point (Table 3). In multivariable analyses in which we controlled for potential confounders (mother's education, age, marital status, family income, and child's ethnicity) and accounted for the clustering of observations within participants and practices, *SEEK* mothers reported less frequent Psychological Aggression (effect size = −0.16, $P = .006$) and fewer Minor Physical Assaults (effect size = −0.16, $P = .019$) initially and 12 months later (Psychological Aggression, effect size = −0.12, $P = .047$; Minor Physical Assault, effect size = −0.14, $P = .043$; Table 3). Findings at 6 months were in the same direction, albeit not statistically significant. The frequencies of reported Severe and Very Severe Physical Assault were extremely low (<1% of the sample) and were excluded from the analyses. The intra-class correlations within practice estimated from these models were very low (0 for Psychological Aggression, 0.01 for Minor Physical Assault), suggesting that after adjustment for socioeconomic differences, there was no association between practice and these outcomes.

To assess whether differences between the study groups in CTSPC initial outcomes might have been the result of uncontrolled differences between the groups (rather than an early effect of *SEEK*), we compared the CTSPC scores on the initial assessment for the 547 families exposed to *SEEK* before the initial assessment to those of 28 families in the *SEEK*

group who were unexposed to *SEEK* at the time of the initial assessment. "Unexposed" refers to those who had not had a checkup in a *SEEK* practice or had not completed a PSQ before the initial assessment. Exposed and nonexposed *SEEK* families differed only on child age; exposed children averaged 15 months younger. We thus controlled for child's age in the analyses. Within the *SEEK* group, nonexposed mothers reported more Psychological Aggression (Mean score = 14.0, $SD = 11.6$) initially than did exposed mothers ($M = 5.8$, $SD = 9.8$; $P = .03$). Nonexposed mothers reported more incidents of Minor Physical Assault ($M = 5.2$, $SD = 7.5$) than did exposed mothers ($M = 2.5$, $SD = 6.7$), although this difference was not statistically significant ($P = .201$). Comparing *SEEK* nonexposed mothers and controls (n = 28 and 48, respectively), we found no differences in terms of reported Minor Physical Assault (B = −.03, $P = .915$) and Psychological Aggression (B = 1.69, $P = .566$). These findings supported using the initial data as an early outcome.

Before *SEEK*, 46 (8%) intervention families and 25 (5%) controls had one or more problems related to possible abuse or neglect documented in the medical records. During the project, the proportions were 85 (14%) and 45 (9%), respectively. This difference was not statistically significant ($OR = 1.14$, $P = .76$) after adjusting for the random effect of practice and the number of pre-study problems.

There were relatively few child protective service reports (Table 4). Most reports were for neglect (50%) or physical abuse (32%). After taking into consideration pre-*SEEK* differences, we found no statistically significant difference between groups during *SEEK* ($P = .69$).

The time HPs in *SEEK* and control practices spent discussing psychosocial concerns during the study was nearly identical (median, 37.0 vs 37.5 seconds; interquartile range, 59.5 vs 60.0, respectively). There was also no significant difference in the average total time spent on visits (*SEEK* 17.5 minutes vs controls 16.3 minutes, $P = .18$).

Discussion

These findings provide further evidence that the *SEEK* model of enhanced pediatric primary care may help prevent maltreatment. It is especially important that this was in a relatively low-risk population. *SEEK* mothers reported less Psychological Aggression and fewer Minor Physical Assaults at the initial and 12-month assessments, with moderate effect sizes.[23] For example, at 12 months, the assault rate was 0.2 SD lower in the *SEEK* group compared with controls. Although many of these instances may not meet legal definitions of maltreatment, ample evidence indicates that experiences such as hitting children (ie, corporal punishment) jeopardize their development.[24–29] Psychological maltreatment is defined by the American Academy of Pediatrics as a repeated pattern of damaging interactions between caregiver and child[30]; it may be the most damaging of all forms of maltreatment, even though it seldom leads to child protective service involvement.[31]

It is clear that protective services reports reflect only a small fraction of the maltreatment children experience; they are guided by state laws that generally focus on relatively egregious circumstances. We suggest that the definition of maltreatment be based on

scientific evidence of what harms children. Psychological Aggression and Minor Physical Assault were prevalent and potentially damaging; there is a need to reduce these experiences that at a minimum constitute harsh punishment, and may indicate maltreatment.

As expected, child maltreatment was infrequent—when measured by child protective service reports or documentation in medical records. This poses a challenge for evaluating efforts to prevent maltreatment With a relatively low base rate in all but the greatest-risk populations it is very difficult to show decreased rates of reported or documented maltreatment. Direct observation is naturally very difficult, making researchers mostly reliant on self-report measures. These too have their limitations, especially when ascertaining socially undesirable information.

The previous *SEEK* study was conducted in a very high-risk urban, mostly African-American population. *SEEK* reduced maltreatment—measured by self-report, medical records and child protective service reports.[15] Findings in the current study involving mostly middle-income white families were statistically significant, but not as strong.[15] This raises the question of whether the model should be used only in high-risk populations. However, even modest reductions in potentially damaging experiences can have valuable, far-reaching benefits at a population level; the present sample likely represents many American families. It is noteworthy that even in this relatively low-risk population, whereas some risk factors were reported infrequently (eg, intimate partner violence), others were quite prevalent (eg, alcohol abuse: 8%). Furthermore, even if a significant reduction in child protective service reports is difficult to demonstrate, helping address prevalent psychosocial problems such as maternal depression or alcohol abuse should strengthen families, support parents, and improve children's health, development and safety.[32,33]

SEEK involves a modest yet substantive change in current practice. For example, screening for parental depression seldom occurred prior to the study or in control practices (data not shown).[34] The study required a commitment to attend training sessions and complete periodic questionnaires. It is very encouraging that 75% of practices agreed to participate, as did all the HPs in those practices. This reflects substantial interest among pediatricians and nurse practitioners to respond to the psychosocial problems facing many families.[31,35–37] With such interest, changes to pediatric primary care practice are clearly possible, particularly since implementing *SEEK* was mostly straightforward. There are naturally challenges. Finding time for training is not easy, nor is changing practice behavior. Importantly, *SEEK* HPs showed improvement in their comfort level and perceived competence addressing the targeted problems, sustained 36 months after the initial training.[34]

In developing *SEEK*, we were very practical, recognizing cost and time constraints in a busy practice. Having assistance from a social worker seemed important, complementing HPs efforts to address identified problems. To limit costs, the social worker divided her time among the 7 *SEEK* practices, while being available to *SEEK* HPs and parents during regular hours. Surprisingly, despite excellent working relationships, she was underused, and, much of her work was by phone. It may be possible to lower program costs by having a social worker cover more practices and provide assistance only by phone. Data support the

effectiveness of such psychosocial phone interventions.[38,39] Alternatively, it is possible that the HP or someone else in the practice could perform the key function of facilitating appropriate referrals.

Despite AAP recommendations for screening,[40,41] pediatricians often raise concerns about the time required to address identified problems. Using waiting room time takes good advantage of this opportunity, that is, having parents complete the PSQ while they are waiting should save time during the visit and enable HPs to efficiently focus on identified problems. Indeed, we found that *SEEK* did not add time to visits. A comparable study in which primary care pediatricians were trained to address children's behavior problems did not find significant increases for any of the four levels of office visits or for health maintenance visits.[42]

How may *SEEK* have influenced the outcomes? We previously reported that *SEEK* HPs had significant and sustained improvements in attitudes and behavior regarding addressing the targeted psychosocial problems compared to controls.[34] For example, screening for depression occurred far more frequently in *SEEK* practices, and when problems were identified, some action was almost always documented. At 12 months, *SEEK* mothers reported significantly greater satisfaction with their parenting (P =.02), with a trend (P = .06) in same direction at 6 months. There were also encouraging findings regarding intimate partner violence. At 6 months, *SEEK* mothers reported fewer physical assaults by them toward their partners (odds ratio [OR] 0.44, P = .049) and at 12 months by their partners toward them (OR 0.47, P = .045) compared with controls. These findings may partially explain the apparent effectiveness of *SEEK*. There remains a need to better elucidate how *SEEK* may effect change.

There are several strengths to this study. We used the conservative intention to treat approach; some families had relatively little exposure to *SEEK*. We had excellent retention of practices, HPs and participants during a 30-month period. We were unsure whether HPs might resent the time required or if parents might find the PSQ intrusive. However, there were very few complaints and *SEEK* was well accepted. We used rigorous statistical approaches to minimize potential limitations, such as carefully controlling for group differences and potential confounders.

Study Limitations

The study also has several limitations. We could not collect baseline data; the 18 months needed to recruit the sample precluded waiting to implement *SEEK*. Thus, most participants were exposed to the model before the initial survey. However, nonexposed *SEEK* mothers reported more Psychological Aggression than those exposed and nonexposed *SEEK* mothers and controls did not differ in terms of this outcome or Minor Physical Assault. These findings support the early influence of the model and the use of the initial assessment as early outcome data. Given more power, the trend for Minor Physical Assault would probably also have been significant. It is also possible, however, that the initial findings reflect baseline differences between groups. The power was also limited for the outcomes that occurred rarely, such as reports to child protective services. Thus, the lack of a significant finding does not rule out possible impact of *SEEK*.

Randomization was not entirely successful. We needed to add 2 control practices to have a similar number of HPs across groups. Also, there were some socioeconomic differences between the groups. We adjusted for differences between the groups with respect to measured variables (income, education, marital status, ethnicity, age) by using a regression model. The very low intraclass coefficients indicate no association between practice and the outcomes. In addition, we adjusted for unmeasured differences between the practices by including a random effect for practice in the model. The greater adversity in the *SEEK* group, however, makes the findings more remarkable; differences between the groups favored the null hypothesis.

Future Directions

There is great interest to find promising strategies to help prevent child maltreatment. After 2 rigorous studies, the *SEEK* model appears to be one, and, by addressing prevalent family problems it may also enhance children's health, development, and safety. This fits well with the mission of pediatrics and Bright Futures.[35–37] There has been considerable interest in the United States in replicating this model. Some may argue the evidence is not enough to justify going to scale. Others may think it is more than adequate and may also point to many areas of practice based on scant evidence. Importantly, the model does not appear to have negative outcomes and should substantially enhance pediatric primary care, especially as it did not involve more professional time, and there is evidence that the program may in fact be cost saving.[43]

There are many practical issues to consider. How do we encourage those providing pediatric primary care to adopt this model? Possible approaches include developing online training and ongoing support and technical assistance. Another issue concerns the social worker in the model, a challenge for many given the finances of pediatric primary care. As suggested previously, the facilitation of referrals could probably be accomplished by HPs and/or office staff. Such questions raise the issue of fidelity to the model tested. In developing *SEEK* we recognized the heterogeneity among HPs and practices and deliberately sought to make the model somewhat flexible. Nevertheless, some core components do appear important: preparing HPs to help address the targeted problems, the PSQ (or similar tool) to screen systematically, ability to link families needing help to community resources, and the availability of necessary resources. In sum, it seems reasonable to cautiously disseminate and replicate the *SEEK* model, without over-promising, while continuing to assess its effectiveness.

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APPENDIX

Sample Conflict Tactics Scale, Parent–Child Scale Items

Psychological Aggression
Shouted, yelled, or screamed at him or her.
Called him or her dumb or lazy or some other name like that.
Minor Physical Assault
Slapped him or her on the hand, arm, or leg.
Shook him or her.
Slapped him or her on the face or head or ears.

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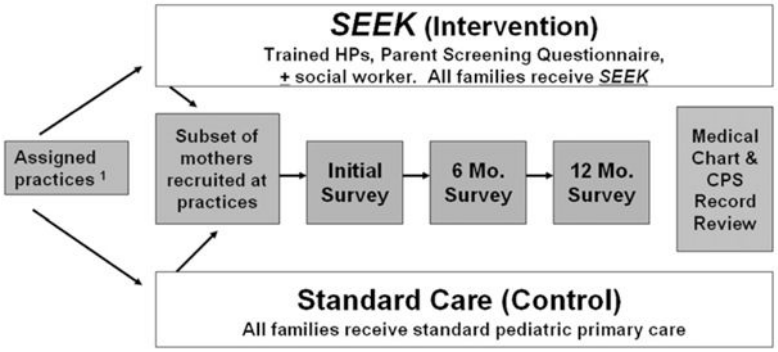
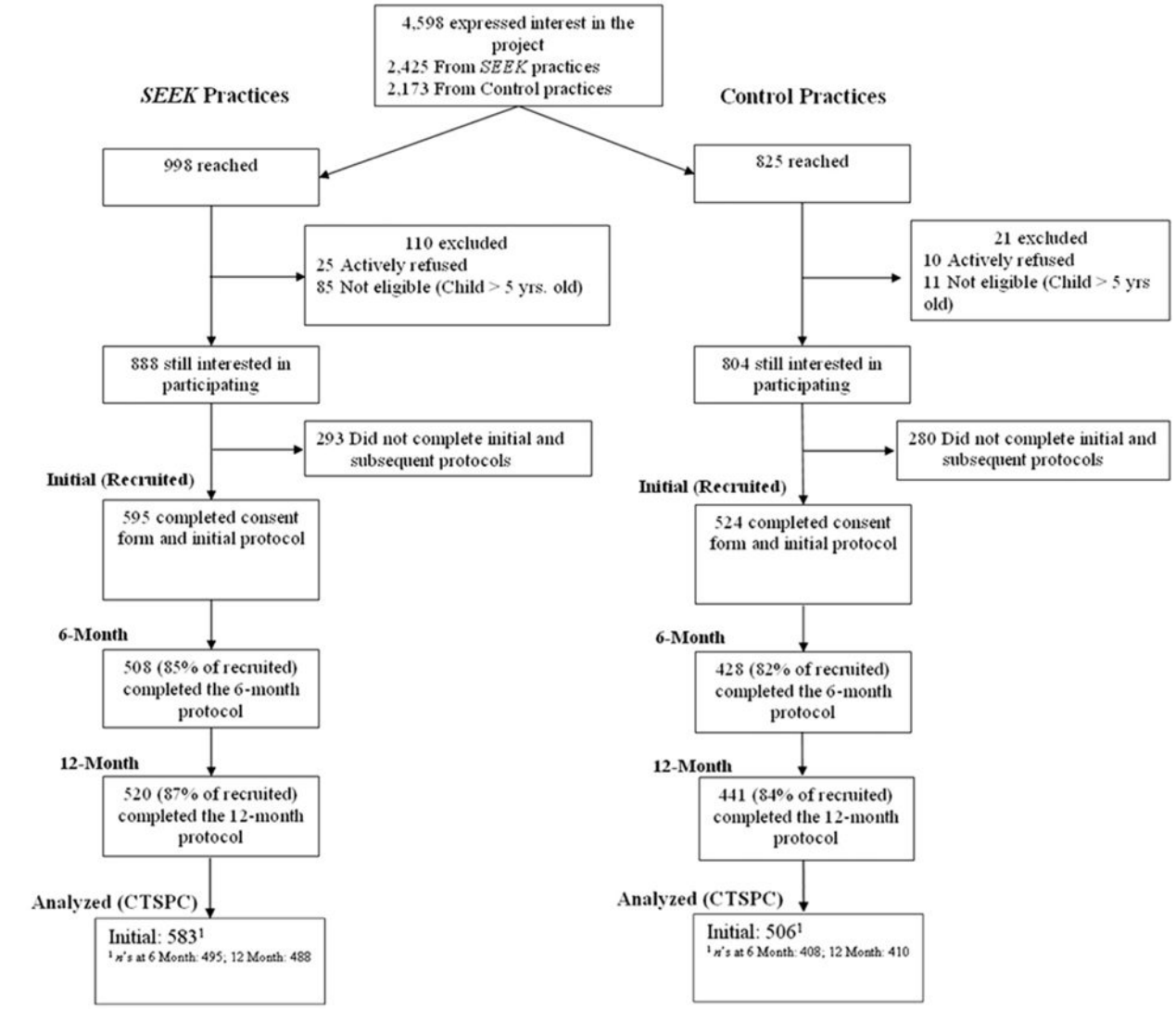
What's New

This is the first such study to rigorously evaluate a model for enhancing pediatric primary care by addressing prevalent risk factors for child maltreatment in a low-risk population. The findings offer encouraging support that the *SEEK* model is a practical and promising approach.



[1] 16 participating practices were randomly assigned; 2 additional control practices were subsequently added.

Figure 1.
Model of the *SEEK* II Study Design.



Note: CTSPC = Parent-Child Conflict Tactics Scales (Straus et al., 1998).

Figure 2.
Course of study participants.

Table 1

Health Professional Characteristics by Group

	SEEK* n = 52 n (column %)	Control n = 43 n (column %)	*P*
Profession			.42
Pediatrician	35 (70)	31 (78)	
Nurse practitioner	15 (30)	9 (22)	
Years in practice			.001†
<5	23 (45)	3 (8)	
5–10	6 (12)	9 (23)	
11–20	13 (26)	15 (38)	
>20	9 (18)	13 (33)	
Age in years, mean (SD)	41.9 (10.6)	47.0 (8.0)	.014†
Sex, female	37 (71)	27 (68)	.71
Community			.004†
Urban, inner city	1 (2)	0 (0)	
Urban, not inner city	15 (31)	3 (8)	
Suburban	31 (63)	37 (93)	
Rural	2 (4)	0 (0)	
% of patients estimated to be receiving medical assistance			.023†
<25%	36 (74)	38 (95)	
25%–50%	10 (20)	2 (5)	
>50%	3 (6)	0 (0)	
% of patients in practice estimated as minority			.19
<25%	35 (71)	22 (57)	
25%–50%	14 (29)	16 (42)	
>50%	0 (0)	0 (0)	
Cases of child maltreatment in past year, median (interquartile range)	2 (5)	2 (4)	.93
Previous training, hours, median (interquartile range)			
Intimate partner violence	0 (2)	0 (2)	.62
Parental substance abuse	0 (1)	0 (1)	.70
Parental depression	0 (2)	0 (2)	.57
Parental stress	0 (1)	0 (1)	.73
Experience in past year, cases, median (interquartile range)			
Intimate partner violence	1 (5)	2 (3)	.61
Parental substance abuse	5 (8)	3 (9)	.55
Parental depression	10 (12)	10 (15)	.12
Parental stress	12 (20)	20 (75)	.07

Notes: numbers varied slightly because of missing data. Eight HPs did not complete baseline HPQs. Percentages may not equal 100 because of rounding.

**SEEK* = *S*afe *E*nvironment for *E*very *K*id; HPQ = Health Professional Questionnaire.

[†]Statistically significant.

Table 2

SEEK * and Control Mother and Child Demographic Characteristics

	***SEEK* (*n* = 595)**	**Control (*n* = 524)**	***P***
Child			
Age in months, mean (SD)	25.0 (19.5)	26.7 (20.1)	.156
Ethnicity, *n* (%)			.006†
Asian	11 (2)	26 (5)	
African American	22 (4)	34 (7)	
White	509 (86)	394 (75)	
Latino	7 (1)	6 (1)	
Bi-or multiracial/other	46 (8)	63 (12)	
Female, *n* (%)	295 (50)	247 (47)	.415
On medical assistance, *n* (%)	69 (12)	33 (6)	.002†
No. of children in home mean (SD)	2.0 (1.0)	2.1 (1.0)	.673
Mother			
Age in years, mean (SD)	33.4 (5.7)	34.5 (5.2)	.001†
Marital status, n (%)			.083
Single (ie, never married)	52 (9)	26 (5)	
Married	515 (87)	477 (91)	
Separated/divorced	27 (5)	20 (4)	
Widowed	1 (<1)	1 (<1)	
Family annual income, *n* (%)			<.001†
Less than $15 000	21 (4)	5 (1)	
$15 000 to $24 999	24 (4)	9 (2)	
$25 000 to $49 999	91 (15)	57 (11)	
$50 000 to $74 999	146 (25)	135 (26)	
$75 000 or more	313 (53)	317 (61)	
Currently employed, *n* (%)	323 (54)	293 (56)	.584
Education, *n* (%)			<.001†
Less than high school	6 (1)	1 (<1)	
High school	77 (13)	17 (3)	
Some college	143 (24)	90 (17)	
College graduate	201 (34)	171 (33)	
Some graduate or professional school	42 (7)	43 (8)	
Graduate or professional school graduate	126 (21)	202 (39)	

Numbers differed slightly because of missing data. Percentages may not equal 100 because of rounding.

* *SEEK* = *S*afe *E*nvironment for *E*very *K*id; HPQ = Health Professional Questionnaire.

† Statistically significant.

Table 3

Parent–Child Conflict Tactics Scales (CTSPC) Scores Comparing *SEEK*[*] and Control Maternal Parenting Behaviors Initially and at 6 and 12 Months

		Mean (SD)[†] *n*				
CTSPC Scale	**Time Point**	***SEEK***	**Control**	**Standardized *B* est.[‡, §]**	**95% CI**	***P***
Psychological Aggression	Initialk[//]	6.2 (10.0), 577	7.8 (11.4), 506	−0.16[¶]	−0.27, −0.05[¶]	.006 [¶]
	6 months	5.4 (8.6), 495	6.1 (8.5), 408	−0.06[¶]	−0.18, 0.06	.306
	12 months	5.7 (8.0), 488	7.0 (9.3), 406	−0.12[¶]	−0.24, −0.002[¶]	.047[¶]
Minor Physical Assault	Initial[//]	2.7 (6.7), 583	3.4 (6.8), 502	−0.16[¶]	−0.29, −0.03[¶]	.019[¶]
	6 months	1.8 (4.6), 493	1.9 (4.6), 406	−0.08	−0.22, 0.05	.245
	12 months	2.1 (4.7), 487	2.6 (5.6), 410	−0.14[¶]	−0.28, −0.005[¶]	.043[¶]

[*] SEEK = *Safe Environment* for *Every Kid*; CI = confidence interval.

[†] Data represent raw number of incidents within the past year (initially) or 6 months (6- and 12-month waves). Higher numbers represent more incidents of child maltreatment within the past year (at Initial) or the past 6 months (at 6 and 12 months).

[‡] Standardized *B* estimates reflect mean differences between the groups in standard deviation units. Negative Standardized *B* estimates indicate that mothers in the *SEEK* group reported lower rates of that behavior than controls. Standardized *B* estimates are interpretable as effect sizes. For example, initial self-reports of Psychological Aggression by *SEEK* mothers were, on average, 0.16 standard deviations lower than those reported by control mothers.

[§] Models are multivariate analyses that control for family income, mother's marital status and education, child's ethnicity and age, and the random effects of participant and practice.

[//] Initial differences represent an early effect of SEEK, not a baseline.

[¶] Statistical significance.

Table 4

Number and Proportion of *SEEK*[*] and Control Families in the Four CPS Reporting Categories

	No CPS Reports	CPS Reports (Pre-*SEEK* Only)	CPS Reports (During *SEEK* Only)	CPS Reports (Pre and During *SEEK*)
Group	***n* (Row %)**	***n* (Row %)**	***n* (Row %)**	***n* (Row %)**
SEEK	565 (95)	16(3)	8(1)	6(1)
Control	515 (98)	7(1)	2 (0.4)	0 (0)

P = .69 for difference between groups with respect to decline in CPS reports during *SEEK*, on the basis of the Fisher exact test.

[*] *SEEK* = *S*afe *E*nvironment for *E*very *K*id; CPS = Child Protective Services.