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

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OBJECTIVE: To examine the effectiveness of the Safe Environment for Every Kid (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 [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.

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

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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.

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, 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.

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

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

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

### Table 1. Health Professional Characteristics by Group

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

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

*SEEK = Safe Environment for Every Kid; HPQ = Health Professional Questionnaire.

†Statistically significant.
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. 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 SAS42) to examine the impact of SEEK on CTSPC scores initially and at 6 and 12 months. Given that, despite randomization, there were some sociodemographic 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) 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 baselined 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 intraclass 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 = −0.3, 𝑃 = .915) and Psychological Aggression (𝐵 = 1.69, 𝑃 = .566). These findings supported using the initial data as an early outcome.

**Table 3.** Parent–Child Conflict Tactics Scales (CTSPC) Scores Comparing SEEK and Control Maternal Parenting Behaviors Initially and at 6 and 12 Months

<table>
<thead>
<tr>
<th>CTSPC Scale</th>
<th>Time Point</th>
<th>SEEK</th>
<th>Control</th>
<th>Standardized 𝑆𝑡𝑎𝑛𝑑𝑎𝑟𝑑𝑖𝑠𝑒𝑡administration</th>
<th>95% CI</th>
<th>𝑃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Aggression</td>
<td>Initial</td>
<td>6.2 (10.0), 577</td>
<td>7.8 (11.4), 506</td>
<td>−0.16, .03</td>
<td>−0.27, −0.05</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>5.4 (8.6), 495</td>
<td>6.1 (8.5), 408</td>
<td>−0.06, .03</td>
<td>−0.18, 0.06</td>
<td>.306</td>
</tr>
<tr>
<td></td>
<td>12 months</td>
<td>5.7 (8.0), 488</td>
<td>7.0 (9.3), 406</td>
<td>−0.12, .04</td>
<td>−0.24, −0.002</td>
<td>.047</td>
</tr>
<tr>
<td>Minor Physical Assault</td>
<td>Initial</td>
<td>2.7 (6.7), 583</td>
<td>3.4 (6.8), 502</td>
<td>−0.16, .01</td>
<td>−0.29, −0.03</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>1.8 (4.6), 493</td>
<td>1.9 (4.6), 406</td>
<td>−0.08, .01</td>
<td>−0.22, 0.05</td>
<td>.245</td>
</tr>
<tr>
<td></td>
<td>12 months</td>
<td>2.1 (4.7), 487</td>
<td>2.6 (5.6), 410</td>
<td>−0.14, .04</td>
<td>−0.28, −0.005</td>
<td>.043</td>
</tr>
</tbody>
</table>

*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 𝑄 estimates reflect mean differences between the groups in standard deviation units. Negative Standardized 𝑄 estimates indicate that mothers in the SEEK group reported lower rates of that behavior than controls. Standardized 𝑄 estimators 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.
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. 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. Psychological maltreatment is defined by the American Academy of Pediatrics as a repeated pattern of damaging interactions between caregiver and child; it may be the most damaging of all forms of maltreatment, even though it seldom leads to child protective service involvement.

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. Findings in the current study involving mostly middle-income white families were statistically significant, but not as strong. 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.

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). 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. 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.

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
STUDY LIMITATIONS

minimize potential limitations, such as carefully control-
well accepted. We used rigorous statistical approaches to
SEEK the time required or if parents might find the PSQ intrusive.
month period. We were unsure whether HPs might resent
retention of practices, HPs and participants during a 30-
had relatively little exposure to
SEEK conservative intention to treat approach; some families
had significant and sus-
HPs had significant and sus-
tained improvements in attitudes and behavior regarding
addressing the targeted psychosocial problems compared
to controls. 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 re-
ported 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 =
.049) and at 12 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 control-
ling 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 re-
ported 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 differ-
ces 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 differ-
ces between the groups with respect to measured vari-
ables (income, education, marital status, ethnicity, age)
by using a regression model. The very low intraclass coeffi-
cients indicate no association between practice and the
outcomes. In addition, we adjusted for unmeasured differ-
ces 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 remark-
able; 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 preva-
 lent family problems it may also enhance children’s health,
development, and safety. This fits well with the mission of
pediatrics and Bright Futures. 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.

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 neces-
sary 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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REFERENCES

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.
- Shocked him or her.
- Slapped him or her on the face or head or ears.

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