

Implementing an Evidence-Based Parent–Child Mental Health Program in a High-Risk Community

Fiona K. Miller and Daniel P. Keating
University of Michigan

ABSTRACT

This study reports the implementation of a program for early onset disruptive behaviour (Webster-Stratton & Hammond, 1997) through a hospital–community agency partnership in a demographically high-risk community traditionally underserved for mental health services. Sixty-four families at the clinic site and 19 at the community site completed the program at similar rates. The community sample had significantly higher demographic risk (income, immigrant status, parental education). Both groups showed significant improvement on parent-rated disruptive child behaviour and parenting stress. Staff interviews indicated strong support for program continuation and identified areas needing further attention. The findings are discussed in terms of possible approaches to mental health promotion in high-risk communities.

Keywords: disruptive behaviour disorder, evidence-based treatment, child mental health

RÉSUMÉ

Dans cet article, nous rendons compte de la mise en place d'un programme visant à régler, grâce à des soins offerts en partenariat par un hôpital et un organisme communautaire, les problèmes de comportements perturbateurs qui se manifestent dès la petite enfance (Webster-Stratton et Hammond, 1997) dans une communauté à haut risque où les soins de santé mentale avaient toujours été insuffisants. Soixante-quatre familles ont profité du programme à l'hôpital et 19 grâce à l'organisme communautaire ; toutes l'ont fait à un rythme semblable. Les familles qui ont fréquenté l'organisme communautaire présentaient un risque beaucoup plus élevé à cause de leur faible revenu et parce qu'elles étaient d'origine immigrante et que les parents avaient un faible niveau de scolarité. Dans les 2 groupes, on a observé une baisse importante des comportements

Fiona K. Miller, University Center for the Child and the Family, University of Michigan; Daniel P. Keating, Department of Psychology, University of Michigan.

The authors gratefully acknowledge the support of the Change Foundation of Ontario and the efforts of collaborators at the Centre for Addiction and Mental Health (CAMH) and the Regent Park Better Beginnings. During the period of data collection, the first author was a staff psychologist at CAMH, and the second author was in the Department of Human Development and Applied Psychology at the University of Toronto.

All correspondence concerning this article should be addressed to Fiona K. Miller, University Center for the Child and the Family, University of Michigan, 530 Church Street, Ann Arbor, MI 48103. Email: millerfk@umich.edu

perturbateurs chez les enfants (tels que rapportés par les parents) et du stress des parents. Des entretiens menés auprès du personnel ont montré que la volonté de poursuivre ce programme est grande, et ont permis d'établir comment on pourrait améliorer celui-ci. En conclusion, nous évaluons le programme en le considérant comme une piste de solution pour favoriser la santé mentale dans des communautés à haut risque.

Mots clés : trouble du comportement perturbateur, interventions fondées sur des résultats cliniques, santé mentale des enfants

An aspect of early development that has received substantial research attention is early onset of disruptive behaviour (Moffitt, 1993; Tremblay, 2011; Webster-Stratton & Reid, 2003; Webster-Stratton & Taylor, 2001). The long-term outcomes for children who display early conduct problems include elevated risks for anti-social behaviour and related problems (Moffitt, 1993; Tremblay, 2011). Early intervention has shown some long-term benefits, although elevated levels of disruptive behaviour remain predictive of greater criminal-justice-system involvement even among a treatment group (Webster-Stratton, Rinaldi, & Reid, 2011). A second consistent finding is the association between demographic risk factors, such as parental income and education, and both prevalence of risk behaviour and lower efficacy of interventions to address disruptive behaviour problems (Reyno & McGrath, 2006; Tremblay, 2011; Webster-Stratton et al., 2011).

Approaches to addressing these challenges include efforts to implement effective intervention programs in community settings, especially in traditionally underserved communities with low SES and/or minority status (e.g., Bell, 2007; Webster-Stratton, 2009). The success of these initiatives has been mixed. In a meta-analysis of parent-training efficacy for child externalizing behaviour problems, Reyno & McGrath (2006) reported overall positive results, but showed also a large effect size for SES such that lower SES parents and children showed less positive outcomes. A promising approach advanced by Cunningham (1996) aimed to increase effectiveness by utilizing community-based models; one such implementation for aggression management among 7- to 11-year-old children yielded mixed results (Lipman et al., 2006), while a community program aimed at preschoolers yielded more positive outcomes (Cunningham, Bremner, & Boyle, 1995).

Given the continued increase in the employment of evidence-based treatments and practices for common mental health difficulties among children, with better articulation between theory and practice (Kazdin, 2008), the efforts to include typically underserved populations merit attention. Implementing evidence-based treatment in any setting poses substantial challenges (Kazdin, 2004), including buy-in from clinicians (Aarons, 2005). The challenges are increased when implementing such programs in community settings and engaging community agencies as partners. Cunningham et al. (1995) noted that "social factors which increase the risk of childhood disorders represented barriers to participation at every stage of the Clinic/Individual program" (p. 1153). In addition to logistical barriers, they noted a defensive psychological attribution set in which lower SES parents were more likely to deny problems when formal social agencies were involved. Similarly, Bell (2007) reported greater participation of underserved populations in a general community program, although she also identified programmatic challenges when attempting to arrange interagency service delivery between therapeutically oriented clinicians and community development agency workers whose focus was more on community issues.

The present study reports a demonstration project that seeks to extend the research on community-based parent and child preventive intervention efforts using an interagency collaborative model between a hospital-based clinic and a (geographically proximate) community agency. The community agency has a long history in a neighbourhood with high social risk factors (Cunningham et al., 1995), including low income, low parental education, and a high proportion of immigrants and single parent families. The hospital setting was in a largely non-residential area, and was thus not itself located in a high-risk community. Its census for this program was drawn from the larger metropolitan area and was open to all referral sources.

The goal of the study reported here was to test whether an evidence-based prevention/intervention model for children with disruptive behaviour problems (Webster-Stratton, 1984; Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 2003) that had operated successfully in a hospital-based clinical setting could, in an effort to engage hard-to-reach families, be implemented in a demographically high-risk community setting. There is substantial evidence that despite progress much remains to be done to address children's mental health needs in Canada (Boyle & Georgiades, 2010). Both the clinic and community settings were located in a large Canadian city, and they were situated less than a mile apart geographically. Despite the proximity, virtually no families from the economically and socially stressed community setting made use of the nearby hospital-based clinical services, even though they were organized to encourage the inclusion of such families. Prior research (Cunningham et al., 1995) indicates it is likely that the barriers to participation were both logistical and psychological. For evidence-based programs to work well at the population level, the participation of all demographic groups needs to be addressed (Kazdin, 2008).

The study was designed to address four related questions:

1. Participation: Are the participants in the programs at the clinical versus the community site drawn from the same or different socioeconomic and demographic backgrounds?
2. Retention: Are demographically similar participants at the two sites more likely to complete the program in one site versus another?
3. Outcomes: Are the outcomes similar at the two sites? Using a research protocol derived from that used in the original clinical trials, we assessed changes in parent-reported child behaviour problems and parental stress.
4. Feasibility: Can the program, if effective, be continued beyond the period of external research funding?

METHODS

Participants

Recruitment into programs at the hospital site proceeded using the established protocol during the 18-month period of this study. This entailed drawing on referrals from a range of sources, including family physicians and pediatricians, as well as self-referrals. Intake screening directed referrals to the most appropriate placement in the range of available programs. At the community site, agency staff solicited families known to them who might benefit from the program, and also publicized the availability of the program. A similar screening protocol determined eligibility; about 60% of participants came from staff recruitment

and the balance from self-referrals. Procedures for participant recruitment and consent were reviewed and approved by the Research Ethics Boards of the University of Toronto and the Centre for Addiction and Mental Health. Parents provided their informed written consent, including the right to receive the services whether or not they agreed to participate in the research components, and their right to withdraw their consent at any point. All participating parents provided written consent for the data collection described below. Feedback to parents was provided in concordance with the established clinical protocols at the hospital setting, including progress and exit reports. A summary of results was provided as a copy of the final report to the funding agency.

A total of 83 identified children, with their families, participated over an 18-month period: 64 at the hospital clinic (78% males, mean age = 7 years, 0 months [sd = 12 months]), and 19 at the high-risk community site (84% males, mean age = 5 years, 4 months [sd = 17 months]). The higher proportion of boys presenting with early conduct problems is consistent with population evidence (Seedat et al., 2009). The significant age difference (Welch's $t[23] = 4.79, p < .01$) may be attributable to differences in recruitment, with more problematic referrals from physician sources compared to community-based recruitment. All children were within the target age range (3 to 8 years old) of the program, as described below.

Program

The program, designed and implemented in a number of studies by Webster-Stratton and colleagues (Webster-Stratton, 1984; Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 2003; Webster-Stratton, 2009), includes a parent training component (the Incredible Years Parenting Program – IYPP) and a child social skills training component (the Dinosaur School Social Skills Program – DSSP), both of which are delivered through structured group activities. Parents can elect participation in IYPP, DSSP, or both programs simultaneously. Both programs had been functioning successfully for some time at a hospital-based clinic setting prior to the initiation of this study, and a number of staff were already trained to deliver the programs. The community-based program initiated in this study was operated in partnership with a community agency that focused on young children. It was a general agency for young children and their families but was not a community mental health centre, nor had it previously been involved in the delivery of mental health services. The interest of the partner agency was in expanding services in an area of need in the community. The staff, who were not required to have formal child-services training, were trained for this research through the IYPP and DSSP manualized training program. A key aspect of the study was an attempt to maximize the complementary strengths in mental health and community services, respectively. In particular, partnership with an agency based in the community was seen as a potentially important component (Webster-Stratton, 2009).

The program for parents (IYPP) had been found to be efficacious in a number of randomized control trials (Webster-Stratton, 1984; Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 2003). This evidence-based parent management training program takes place in two-hour group meetings once per week over a 14-week period. The primary outcomes had been found to include increases in positive parental attitudes and parent–child interactions, and reductions in the use of violent and critical discipline. The program for children (DSSP) includes a two-hour meeting each week for 22 weeks for children from three to eight years old who have displayed a disruptive and/or aggressive behaviour pattern. Each session employs a

variety of activities, including videotaped modelling of behaviour, that are intended to teach problem solving and social skills. The efficacy of the DSSP program has also been shown in a number of randomized control trials, with demonstrated improvements in problem solving and conflict management. The benefits are stronger for children whose parents participated in the corresponding IYPP program (Webster-Stratton & Hammond, 1997).

Measures

Demographics. At the start of each program, parents were asked to complete a set of questionnaires to provide information on household income, parent education levels, marital status, and immigration status/ethnic affiliation. Each of these demographic markers has been viewed as a potential reason for families' lower participation in mental health services for children (Cunningham et al., 1995). For this study, immigrant status was defined as one or both of the child's parents not having been born in Canada. Parent education level was defined by the highest education attained by either parent, or by the custodial parent in single-parent households. This was scored as having versus not having post-secondary educational experience.

Retention. Program completion and retention rates were based on attendance at the final program session. Attendance records per session were not collected due to a concern raised by the community agency that this could be viewed as a compliance requirement that might inhibit participation.

Child and parent outcomes. Based on the protocol from previous IYPP or DSSP evaluations, the primary outcome measures included: (a) the Eyberg Child Behavior Inventory (ECBI), a 36-item parent rating scale that assesses the presence and intensity (each item rated from 1 = *Never* to 7 = *Always*, yielding a range of 36 to 252) of child behaviour problems that has demonstrated reliability and validity (Boggs, Eyberg, & Reynolds, 1990; Burns & Patterson, 2000; Eyberg & Pincus, 1999), and confirmation of validity specifically with low income and minority families (Gross et al., 2007); and (b) the Parenting Stress Index (PSI), a 101-item parent rating scale that assesses the level of parenting difficulties experienced, and has also demonstrated reliability and validity (Abidin, Flens, & Austin, 2006; Loyd & Abidin, 1985). Each form was completed as a paper-and-pencil questionnaire (with a researcher present to answer questions of clarification) upon entry to the program, and again at program completion to allow pre-post comparisons.

Feasibility for program continuation. In order to obtain a qualitative picture of likely program continuity beyond the funded research period, a structured 45-minute interview designed by the authors was conducted with 21 staff, managers, and researchers from both sites. The interviews were conducted in person after the study period was completed, by a researcher not previously affiliated with the study. The interviews inquired about the positive and negative aspects of the clinic-community partnership, the commitment to continue the partnership program, and suggestions for improvement of the program. The full interview protocol is shown in Table 1.

All research team members (group facilitators, managers, and researchers) were asked to participate, and all agreed; of those interviewed, the primary roles were: 53% group facilitators, 26% managers, and 21% researchers (there was some role overlap). For open-ended questions, a count of themes mentioned was assembled by the interviewer/researcher; the rating scales were used to calculate means; and a percentage response was used for the Yes/No item.

Table 1
Structured Interview Questions for Facilitators, Managers, and Researchers

Item Number	Item	Format
1	What was the best thing about the partnership?	Open ended
2	What was the worst thing about the partnership?	Open ended
3	What changes would you make in the partnership?	Open ended
4	Please rate your perceived support with respect to: organizational enthusiasm; organizational resources; managerial interest; managerial resources; research enthusiasm; research resource; collegial enthusiasm; collegial resources; partner organization enthusiasm; partner organization resources	Rating scale (3-point: 1 = low, 3 = high)
5	What were any barriers that hindered your work?	Open ended
6	What were aspects that facilitated your work?	Open ended
7	What would make the groups run more smoothly?	Open ended
8	What tasks would foster the partnership and better outcomes for children and families?	Open ended
9	What was your experience of: IYPP program contents; DSSP program contents; the partner's involvement in the effort	Rating scale (5-point: 1 = very negative; 5 = very positive)
10	Are you interested in working with the partnership in the future?	Open ended
11	If yes, why are you interested?	Yes/No
12	Do you think the partnership should be continued?	Yes/No
13	What are the necessary actions to sustain a meaningful partnership?	Open ended

RESULTS

Overview

The analysis plan is composed of five elements: (a) the characteristics of participation at each of the sites; (b) the demographic characteristics of the participants at the two sites, using Welch's *t*-tests for continuous variables (to adjust for different sample sizes and variances) and chi-square for frequency data,

and including a comparison to Census data to assess potential selection bias; (c) retention in the program, using chi-square to test for frequency differences; (d) child and parent outcomes, using ANOVA to test for pre-post and site differences, and their interactions, with the p -value set at .01 as a Bonferroni correction to adjust for multiple comparisons; and (e) feasibility for continuation of the program, using descriptive information from the qualitative interviews, mean responses to the scale ratings, and percent response to the Yes/No item (see Table 1).

Participation at the Two Sites

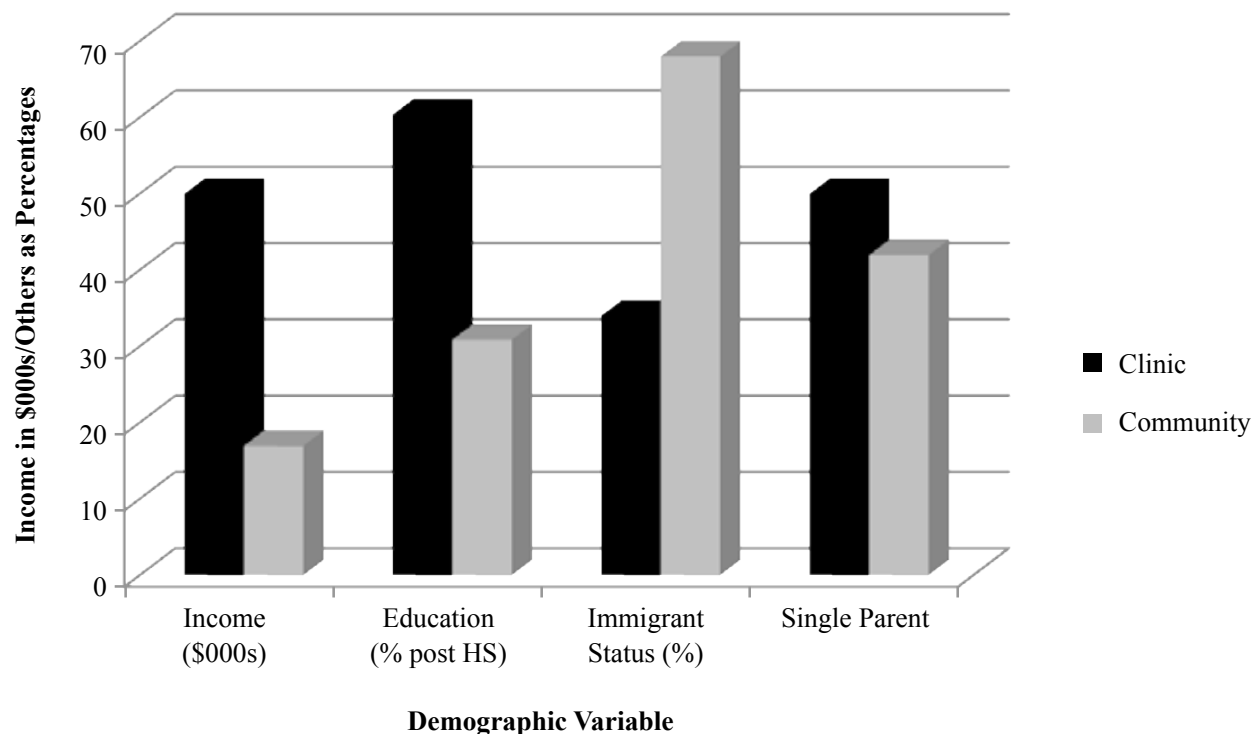
At the clinic site, six parent groups (IYPP) and seven child groups (DSSP) participated in the intervention program. At the community site, four parent groups (IYPP) and two child groups (DSSP) participated in the program. Program delivery was modified to include not only clinic staff as described above but also community agency staff. This partnership was seen as central to testing whether a community-based model could work and to ascertain whether this staffing model could improve or maintain participation of demographic groups who had not previously participated, show positive outcomes for children and parents, and demonstrate retention in the program. In both settings, some research funds were set aside for partial offsets of released time for staff participation.

Of the 64 children who participated in the program at the clinic site, 68% ($N = 43$) participated in the combined DSSP/IYPP. Of the 19 children who participated in the program at the community site, 75% ($N = 15$) participated in the combined DSSP/IYPP. Participation in the joint program (DSSP/IYPP) was essentially similar across sites. Group sizes for parents and children ranged from $N = 5$ to $N = 9$, and were not significantly different between sites.

Participant Demographics

As predicted, participants at the community site were drawn from households having significantly higher socioeconomic and demographic risk factors. The average household income was above \$50,000 for those participating in the hospital-based groups, and under \$17,000 for those participating in the community groups (Welch's $t[67] = 4.23, p < .001$). The distribution was quite different overall, with the top quartile of the community participants equivalent to the bottom quartile of the clinic-based group. These income statistics are comparable to the respective catchment areas for the different sites. The median income in the high-risk community was \$19,000 (from Census data), compared to the participants' median income of \$17,500. The city median income was \$50,000 (from Census data), compared to hospital site participants' median income of \$56,000. There appears to be no selection bias affecting participation within the two groups despite their differences from each other. Participants at the community site were nearly twice as likely to be immigrants compared with those at the hospital site, 62% to 38% ($\chi^2[1] = 2.5, p < .05$). Parent education level was substantially higher at the hospital-based clinic site, with 58% having some post-secondary education versus 28% at the community site ($\chi^2[1] = 5.09, p < .05$). The proportion of single-parent households was not significantly different across the two sites: 48% at the clinic site and 41% at the community site. These patterns are shown in Figure 1.

Figure 1
Demographics of Families at Clinic and Community Sites



Retention

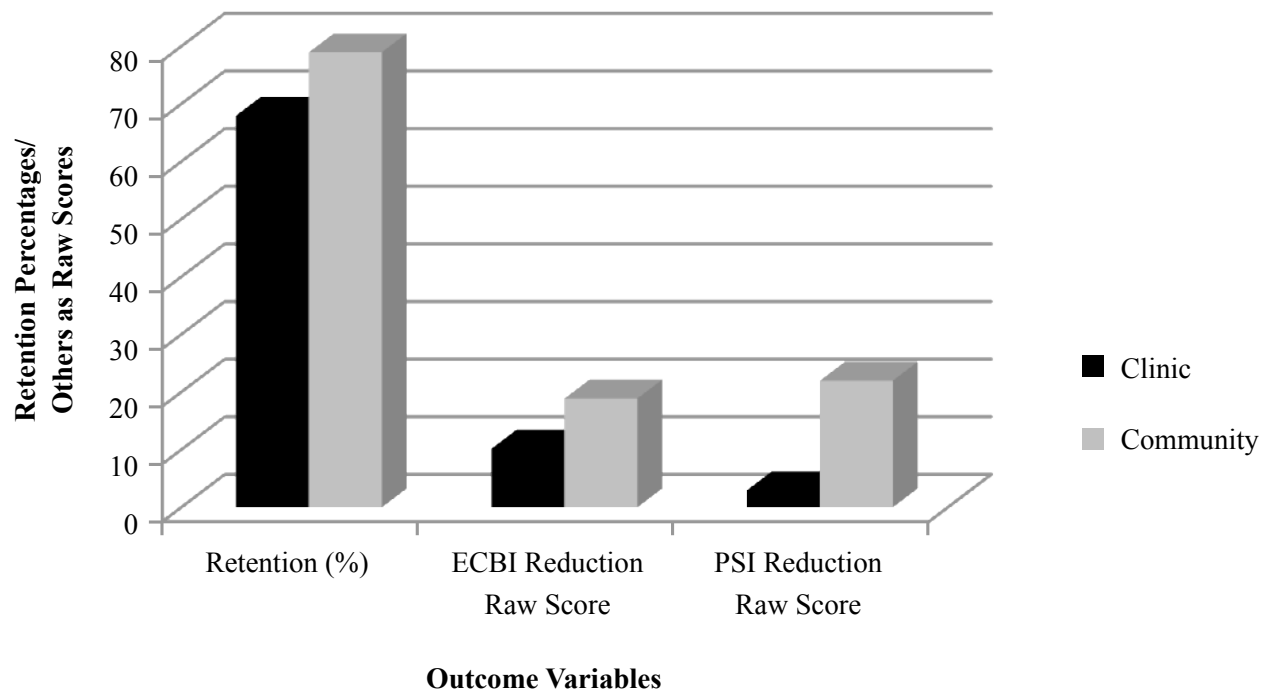
A planned comparison between similarly high-risk participants at the two sites in terms of retention was not possible to complete, because the demographic risk profiles by site were virtually non-overlapping (see Figure 1). An overall retention rate was thus calculated for each site in total, using attendance at the final meeting as the measure of completion. Retention rates for all participants at the two sites were not significantly different, at 79% (19/24) in the community groups and 68% (64/94) in the hospital groups, as shown in Figure 2.

Outcomes

The pre-test and post-test means and standard deviations for all outcome measures are shown in Table 2.

The ECBI problem score and the intensity score were the child behaviour outcome measures. On the measure of the presence of problem behaviours, there was a significant pre-post difference ($F[1,32] = 11.34$,

Figure 2
Program Retention, Child Outcomes, and Parenting Stress Outcomes at Clinic and Community Sites



$p < .01$), but no effect of site or of interaction between site and pre-post difference, suggesting a similar reduction in reported child behaviour problems at both sites. On the more sensitive measure of intensity of problem behaviours, the children at the clinic site were rated at the 86th percentile upon entry to the program, and were rated after treatment at the 79th percentile, a reduction of 10.2 points on the raw score scale. This pattern is shown in Figure 2. At the community site, the children were rated upon entry at the 45th percentile, and after the treatment at the 34th percentile, a reduction of 18.9 points. Overall, there was a significant reduction in reported intensity of behavioural problems ($F[1,32] = 9.12, p < .01$). Despite the demographic differences, the children at the community site were initially rated as having less-intense behavioural problems than those at the clinic site ($F[1,32] = 10.13, p < .01$). This may be attributable to differential recruitment patterns, differential perceptions of parents from higher versus lower risk settings, or differential willingness to provide negative ratings (Cunningham et al., 1995). Although the absolute improvement from treatment was somewhat higher at the community site, suggesting that it was at least as efficacious as at the clinic site, the interaction of improvement and site was not significant. The evidence suggests that the program worked well in both settings with respect to child outcomes.

Table 2
Means and Standard Deviations for the Child and Parent Outcome Measures

Group	ECBI Problem Score Pre-test Mean (SD)	ECBI Problem Score Post-test Mean (SD)	ECBI Intensity Score Pre-test Mean (SD)	ECBI Intensity Score Post-test Mean (SD)	PSI Pre-test Mean (SD)	PSI Post-test Mean (SD)
Clinic Site (<i>N</i> = 64)	17.3 (8.6)	13.2 (9.1)**	219.2 (22.7)	209.0 (24.1)*	103.7 (23.6)	92.6 (27.9)*
Community Site (<i>N</i> = 19)	8.5 (6.9)	4.7 (4.0)**	81.7 (15.9)	71.5 (15.8)*	88.7 (12.7)	68.5 (14.6)**
Possible Scale Range	1 to 36	1 to 36	36 to 2552	36 to 252	0 to 101	0 to 101

Notes. ECBI is the Eyberg Child Behavior Inventory raw scores; PSI is the Parenting Stress Index.

* $p < .05$; ** $p < .01$ (for the pre–post differences)

On the PSI, the pre–post difference was also significant ($F[1,38] = 23.67, p < .01$). Parents at the community site reported less overall parenting stress at the beginning of the program ($F[1,38] = 10.83, p < .01$), but also showed greater reduction in reported parental stress after the program completion (interaction of improvement with site, $F[1, 38] = 6.92, p < .01$).

Feasibility

A final question of the study was the feasibility of the clinic–community partnership beyond the period of research funding. The structured interview of 21 facilitators, managers, and researchers from both sites revealed unanimous support for continuation (100% answered Yes to Item 12, Table 1). The two most cited reasons for continued involvement (Item 11, Table 1) were (a) that it provided a needed service that had benefitted the community, and (b) that it was a valuable opportunity for professional development of the staff at both sites. Clinic staff noted the opportunities to gain expertise in service delivery in community settings, and the community staff highlighted the opportunity for training and practice in an evidence-based mental health promotion/prevention program. The perceptions of the collaboration were highly positive, at a mean of 4.1 (positive, on the 5-point scale) for program content and the partnership (Item 9, Table 1). Foremost among the challenges or barriers to continuation (Item 5, Table 1) were the availability of dedicated resources for this initiative, both in terms of allocation of clinical staff time and availability of time for staff at the community agency given competing demands.

The establishment of a more permanent relationship between the clinic and the community agency was identified as a goal by staff and managers at both sites, with the potential to increase the scope and diversity of services offered in a partnership arrangement (Item 8, Table 1). This was viewed as challenging given differing institutional constraints and cultures, but worth pursuing nonetheless. Staff identified effective communication between the sites, including a clear definition of roles, as the most important area needing improvement. In particular, increasing the level of collaboration and communication among front-line workers from the clinic and from the community agency was seen as crucial, rather than exclusively managerial-resources-focused collaborative arrangements (Item 8, Table 1). Respondents viewed the support for the partnership favourably on all dimensions (Item 4, Table 1), with all responses above 2 on the 3-point scale, and a mean rating of 2.45. At the same time, a desire for enhanced managerial commitment to the importance of the partnership was also identified by many respondents. At the study's conclusion, administrative arrangements to institutionalize the partnership were underway, including an emerging partnership with the local school that would situate some program delivery there.

DISCUSSION

Providing mental health services that combine the advantages of being simultaneously evidence-based, accessible to communities that are traditionally underserved, efficacious in those non-traditional settings, and sustainable in terms of staffing and fiscal constraints poses multiple challenges. The success of mental health promotion at a population level, however, probably rests to a significant extent upon meeting those challenges (Sawyer, Borojevic, & Lynch, 2011). Efforts aimed at achieving this goal for young children may be especially important, given the extensive evidence on the life course consequences of early developmental

difficulties (Boyce & Keating, 2004; Hertzman & Boyce, 2010; Keating, 2009, 2011; Keating & Hertzman, 1999), and the evidence that addressing problems early may have substantial downstream positive effects (Keating & Simonton, 2008; Webster-Stratton & Taylor, 2001).

The study reported here describes the implementation of an evidence-based model to reduce disruptive behaviour among 3- to 8-year-old children in a demographically high-risk community setting, as a partnership between a hospital clinic that had conducted the manualized program (Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 2003) for over 4 years, and a community agency that had not previously been engaged in mental health service delivery. The hospital and the high-risk community were geographically proximate, less than one mile apart.

The findings showed that the participation of demographically high-risk families was substantially enhanced in the community setting, engaging families that were significantly more distressed economically, more likely to be immigrants, and more likely to have lower levels of parental education than in the hospital-based program. The demographic characteristics of each group reflected their respective catchment areas, that is, the high-risk community versus the city in general. The implication of the almost complete lack of overlapping demographics is that these services were unlikely to be used by higher-risk families in the clinic setting, and much more likely to be used in the community setting. The features in the program design that were intended to foster this outcome included easier logistics, that is, situated in the community agency that had operated in that location for a number of years and was used by the community for multiple services; recruitment by community-based staff who had established social connections with local families; and partnership in program delivery with those staff. The research design did not include a formal evaluation of which of those features were most responsible for the participation of families in the community, but anecdotal reports from participants and staff suggested that each of them probably played a role. These findings are consistent with previous research (Bell, 2007; Cunningham et al., 1995) that identified barriers to participation in socially high-risk communities and the potential role of prior community engagement to enhance such participation.

The second set of findings addressed the retention of participants to program completion, and these were found to be substantial in both groups and not significantly different between the two settings. The findings on program outcomes were similar to those for program retention. Children's disruptive behaviour, as rated by parents on the ECBI, declined significantly in both settings. Parental stress, assessed in parent self-report on the PSI, also showed a reduction in both settings, although significantly more so in the community setting. Taking all these findings together, the results from this demonstration study suggest that the implementation of this clinic-based program in a community setting was successful in recruiting families with higher-risk demographic profiles, in retaining those families through program completion, and in achieving similar improvements in reducing child disruptive behaviour and parental stress in line with the prior evidence on this intervention from a number of studies (Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 2003).

These positive findings are encouraging, but they lead to the question of whether such a clinic-community partnership approach is feasible in the longer term. This feasibility hinges on the commitment of the partners to continue, and the prospects for embedding the partnership in regular activities of community institutions. The evidence available at the study's conclusion was promising in both respects. In follow-up

structured interviews with staff, managers, and researchers from both settings, there was unanimous support for continuation of the partnership, in principle. All viewed this as a beneficial and needed service, and a valuable opportunity for enhanced professional development for both groups: stronger contact with underserved populations by clinical staff, and expanded training opportunities for community agency staff. Most respondents, however, acknowledged that enhancement of the collaborative model among both front-line workers and managers from both sites would be critical to the perceived success of the partnership effort. In addition, at the study's conclusion, an expansion of the partnership to include the community's elementary school was confirmed, enhancing the prospects for institutional stability.

There are a number of important limitations of this demonstration study that are worthy of note. First, it would be desirable to assess the program characteristics in a larger sample size over a longer time span in order to provide more rigorous estimates of program effects (Sawyer et al., 2011). Second, the virtual absence of demographically high-risk families from the clinic setting, although a core issue that this study was designed to rectify, did not allow a planned contrast of benefits from the program while controlling for demographic risk. Third, the lower level of behavioural problems and the younger age of children participating in the community setting limits the generalizability of the findings. It is possible that the referral sources for the clinic (located in a university-based teaching hospital) generated a higher-severity clientele. The community referral process (general publicity and community worker recruitment) may have focused on younger children and thus possibly less-severely affected children, because of the community service providers' judgements about likely uptake and prospects for improvement. The study design did not address differences that were not anticipated *a priori*. A longer-term study with larger samples would be worth undertaking to determine if earlier intervention in the community setting is indeed advantageous.

Ideally, a design that afforded contrasts among families at higher and lower demographic risk, with children at higher and lower presentation of behavioural problems, would more precisely specify the active components of the program for subgroups of the population. Substantively, the different behavioural risk profiles in the two communities merits further investigation. On one hand, it may indicate that the community-based approach did not reach the highest risk cases, for reasons that this research design cannot address. On the other hand, the inclusion of families at much higher demographic risk, combined with the positive evidence on retention and program outcomes, suggests that a community-based approach may be effective in redirecting developmental trajectories before the problems become harder to address.

Despite these limitations, these results show promise as one method for enhancing the delivery of mental health-promoting targeted programs in high-risk communities that are typically not included in more traditional clinic-based programs. Complementing prior research with similar goals and outcomes (Bell, 2007; Cunningham et al., 1995; Webster-Stratton, 2009), the demonstration study reported here indicates the potential value of local clinic-community partnerships, where such resources are available, as another method for advancing mental health promotion. These findings provide support for efforts to bring evidence-based approaches to the promotion of children's mental health through partnerships of traditional mental health service providers and community agencies that have not previously focused on mental health.

Future research building on these findings should address the limitations of sample size, the absence of random assignment (within the constraints of demographic possibilities), and recruitment to achieve greater

equivalence of referral sources and pre-program severity and developmental level. In addition, a more detailed assessment of the nature of the clinic–community partnership arrangements and challenges would be helpful in evaluating the longer-term promise of such approaches.

REFERENCES

- Aarons, G.A. (2005). Measuring provider attitudes toward evidence-based practice: Consideration of organizational context and individual differences. *Child and Adolescent Psychiatric Clinics of North America*, 14, 255-271.
- Abidin, R., Flens, J.R., & Austin, W.G. (2006). The Parenting Stress Index. In R.P. Archer (Ed.), *Forensic uses of clinical assessment instruments* (pp. 297-328). Mahwah, NJ: Lawrence Erlbaum Associates.
- Bell, M. (2007). Community-based parenting programmes: An exploration of the interplay between environmental and organizational factors in a Webster-Stratton project. *British Journal of Social Work*, 37(1), 55-72.
- Boggs, S.R., Eyberg, S., & Reynolds, L.A. (1990). Concurrent validity of the Eyberg Child Behavior Inventory. *Journal of Clinical Child Psychology*, 19(1), 75-78.
- Boyce, W.T., & Keating, D.P. (2004). Should we intervene to improve childhood circumstances? In S. Ben-Shlomo & D. Kuh (Eds.), *A life course approach to chronic disease epidemiology* (pp. 415-445). Oxford, England: Oxford University Press.
- Boyle, M.H., & Georgiades, K. (2010). Perspectives on child psychiatric disorder in Canada. In J. Cairney, D.L. Streiner, J. Cairney, & D.L. Streiner (Eds.), *Mental disorder in Canada: An epidemiological perspective* (pp. 205-226). Toronto, ON: University of Toronto Press.
- Burns, G., & Patterson, D.R. (2000). Factor structure of the Eyberg Child Behavior Inventory: A parent rating scale of oppositional defiant behavior toward adults, inattentive behavior, and conduct problem behavior. *Journal of Clinical Child Psychology*, 29(4), 569-577.
- Cunningham, C.E. (1996). Improving availability, utilization, and cost efficacy of parent training programs for children with disruptive behavior disorders. In R.V. Peters & R. McMahon (Eds.), *Preventing childhood disorders, substance abuse, and delinquency* (pp. 144-160). Thousand Oaks, CA: Sage.
- Cunningham, C.E., Bremner, R., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behaviour disorders: Utilization, cost effectiveness, and outcome. *Journal of Child Psychology and Psychiatry*, 36(7), 1141-1159.
- Eyberg, S.M., & Pincus, D. (1999). *The ECBI & SESBI-R: Eyberg Child Behavior and Sutter-Eyberg Student Behavior Inventory-Revised: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Gross, D., Fogg, L., Young, M., Ridge, A., Cowell, J., Sivan, A., & Richardson, R. (2007). Reliability and validity of the Eyberg Child Behavior Inventory with African-American and Latino parents of young children. *Research in Nursing and Health*, 30(2), 213-233.
- Hertzman, C., & Boyce, T. (2010). How experience gets under the skin to create gradients in developmental health. *Annual Review of Public Health*, 31, 329-347.
- Kazdin, A.E. (2004). Evidence-based treatments: Challenges and priorities for practice and research. *Child and Adolescent Psychiatric Clinics of North America*, 13, 923-940.
- Kazdin, A.E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *American Psychologist*, 63(3), 146-159.
- Keating, D.P. (2009). Social interactions in human development: Pathways to health and capabilities. In P. Hall & M. Lamont (Eds.), *Successful societies: Institutions, cultural repertoires and population health* (pp. 53-81). New York, NY: Cambridge University Press.
- Keating, D.P. (2011). Society and early child development: Developmental health disparities in the nature-and-nurture paradigm. In D.P. Keating (Ed.), *Nature and nurture in early child development* (pp. 245-291). New York, NY: Cambridge University Press.
- Keating, D.P., & Hertzman, C. (Eds.). (1999). *Developmental health and the wealth of nations: Social, biological, and educational dynamics*. New York, NY: Guilford Press.

- Keating, D.P., & Simonton, S.Z. (2008). Developmental health effects of human development policies. In J. House, R. Schoeni, H. Pollack, & G. Kaplan (Eds.), *Making Americans healthier: Social and economic policy as health policy* (pp. 61-94). New York, NY: Russell Sage.
- Lipman, E.L., Boyle, M.H., Cunningham, C., Kenny, M., Sniderman, C., Duku, E., . . . Waymouth, M. (2006). Testing effectiveness of a community-based aggression management program for children 7 to 11 years old and their families. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45(9), 1085-1093.
- Loyd, B.H., & Abidin, R.R. (1985). Revision of the Parenting Stress Index. *Journal of Pediatric Psychology*, 10(2), 169-177.
- Moffitt, T.E. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674-701.
- Reyno, S.M., & McGrath, P.J. (2006). Predictors of parent training efficacy for child externalizing behavior problem: A meta-analytic review. *Journal of Child Psychology and Psychiatry*, 47(1), 99-111.
- Sawyer, M., Borojevic, N., & Lynch, J. (2011). Evaluating population-level interventions for young people's mental health: Challenges and opportunities. *Early Intervention in Psychiatry*, 5(Suppl. 1), 46-51.
- Seedat, S., Scott, K., Angermeyer, M.C., Berglund, P., Bromet, E.J., Brugha, T.S., . . . Kessler, R.C. (2009). Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys. *Archives of General Psychiatry*, 66(7), 785-795.
- Tremblay, R.E. (2011). Origins, prevention, and development of aggressive behavior. In D. P. Keating (Ed.), *Nature and nurture in early child development* (pp. 169-187). New York, NY: Cambridge University Press.
- Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology*, 52(4), 666-678.
- Webster-Stratton, C. (2009). Affirming diversity: Multi-cultural collaboration to deliver the Incredible Years parent programs. *International Journal of Child Health and Human Development*, 2(1), 17-32.
- Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology*, 65(1), 93-109.
- Webster-Stratton, C., & Reid, M. (2003). Treating conduct problems and strengthening social and emotional competence in young children: The Dina Dinosaur treatment program. *Journal of Emotional and Behavioral Disorders*, 11(3), 130-143.
- Webster-Stratton, C., Rinaldi, J., & Reid, J.M. (2011). Long-term outcomes of Incredible Years parenting program: Predictors of adolescent adjustment. *Child And Adolescent Mental Health*, 16(1), 38-46.
- Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0 to 8 years). *Prevention Science*, 2(3), 165-192.