

Social support and education groups for single mothers: a randomized controlled trial of a community-based program

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ABSTRACT

Background: Members of families headed by single mothers are at increased risk of psychosocial disadvantage and mental health problems. We assessed the effect of a community-based program of social support and education groups for single mothers of young children on maternal well-being and parenting.

Methods: We recruited 116 single mothers of children 3 to 9 years old through community advertisements. Eligible mothers were randomly assigned either to participate in a 10-week program of group sessions (1.5 hours per week) offering social support and education, with a parallel children's activity group, or to receive a standard list of community resources and the option to participate in group sessions at the end of the follow-up period. Interviewers blinded to the randomization collected assessment data from all mothers at baseline and at 3 follow-up visits (immediately after the intervention and at 3 and 6 months after the intervention). Outcome measures were self-reported mood, self-esteem, social support and parenting.

Results: Between February 2000 and April 2003, the program was offered to 9 groups of single mothers. Most of the mothers in the trial reported high levels of financial and mental health problems. In the short term (after the intervention), mothers in the intervention group had improved scores for mood ($p < 0.01$, standardized effect = 0.55) and self-esteem ($p < 0.05$, standardized effect = 0.29) compared with mothers in the control group; scores for the other 2 measures did not differ between the groups. Growth curve analysis of program effects over the follow-up period showed improvement in all 4 outcomes, with no significant difference between the intervention and control groups.

Interpretation: This community-based program of group sessions offering social support and education to low-income single mothers had positive short-term effects on mood and self-esteem but not on social support and parenting. Longer follow-up showed attenuation of these effects.

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Almost 1 in 8 Canadian children live in a family headed by a single mother.¹ Vastly overrepresented among families living below the poverty line,² such families are particularly vulnerable to health deficits. Compared with mothers in 2-parent families, single mothers experience higher levels of depression and family stress and lower levels of social support³⁻⁶ and access to mental-health services.⁷ Children of single mothers are at increased risk of emotional and behavioural problems, academic failure and social difficulties.^{6,8,9} Many of these children do not get help because services are unavailable,^{10,11} inaccessible or too expensive.¹²⁻¹⁴

Provincial governments in Canada have not made increased financial support of single mothers and their children a high priority.¹⁵ Instead, they have invested in nonfinancial programs,¹⁶⁻¹⁸ particularly community-based initiatives directed at low-income families. These programs attempt to address the developmental needs of families by strengthening parenting skills and the adaptive capacities of children as well as linking mothers and their children with existing services. Although these programs may serve the objectives of early identification and prevention of psychosocial problems, only limited evidence exists about their effectiveness.¹⁹ This lack of evidence, combined with the substantial cost of nonfinancial programs, provided the rationale for our evaluation. We adapted a program that offers social support and education to mothers seeking mental health services for children identified with emotional and behavioural problems.²⁰ This program has shown promise and is well suited for implementation in a community-based setting.^{21,22}

Existing research identifies the importance of social support and education — the 2 basic elements underlying our program. Social support exerts a broad positive influence on personal health,²³⁻²⁵ maternal-child relations, child psychosocial functioning and family functioning.²⁶⁻³⁰ Maternal education about child development can lead to improved child competence, academic test performance and intelligence quotients.³¹⁻³⁴ Parent management training, both group based and individually tailored, has been shown to have a positive effect on parenting and on children's emotional and behavioural adjustment.³⁵⁻⁴⁰

We conducted a randomized controlled trial to evaluate the effect of a community-based program of support and education groups for low-income single mothers of young children on maternal well-being and parenting.

Methods

This study was approved by the Research Ethics Board of the Faculty of Health Sciences at McMaster University, Hamilton, Ont.

Single mothers with young children were recruited through advertisements in community flyers at various locations (e.g., family physicians' offices, libraries, shelters) in Hamilton, Ont. The advertisements asked mothers if they were "feeling alone" and "parenting on their own." Interested mothers who contacted the research program coordinator were told about the study and were assessed for eligibility. Eligible mothers were those who had at least one child 3–9 years old, were able to speak English, had no acute psychi-

atric crisis (e.g., psychotic or suicidal behaviour) or threat of violence (e.g., stalking by ex-partner) and gave informed written consent to participate in the trial. They were asked to complete questionnaires during a home visit and were then randomly assigned to the intervention or control group. Randomization was done in blocks of 4, with numbers generated by a random-numbers table and sealed in opaque envelopes. It was not possible to conceal the group allocation from the participating mothers.

Mothers assigned to the intervention arm of the trial were asked to participate in a 10-week program of group sessions (1.5 hours per week) that provided social support and education; their children attended an activity-based group program during the sessions. Each support group comprised 6–10 women and 2 leaders, and sessions were held in a community location (e.g., public housing project, church hall). A manual was used to guide the structure, content and implementation of the program as well as the training of the leaders. Content covered 2 thematic areas: child-related (e.g., child development and behaviour, behaviour management, school involvement, child welfare agencies) and maternal (e.g., social isolation, stress and coping, personal care and development, relationships, grief, economic disadvantage). There was no specified order for introducing content; experience with similar groups^{20,22,41} has shown that all content areas are covered over the course of the program. We chose this format because it responds to maternal needs by allowing participants to bring urgent concerns to the group in a timely fashion. Leaders used group processes to create a therapeutic milieu, drew on cognitive behavioural techniques and provided structured group counselling. In our study, we used a pool of 3 leaders; each had previous group training and experience, underwent specific training for this program, participated in weekly supervision and, throughout the study, were videotaped at random leading their groups.

Group sessions were held on weekdays either in the morning (9:30–11:00 am) or in the evening (6:00–7:30 pm). To enhance participation in the group sessions, mothers received weekly phone reminders as well as bus tickets or taxi fare to assist with transportation. In addition, mothers and children attending sessions were given snacks (day groups) or dinner (evening groups).

Mothers allocated to the control arm of the trial were given a standard list of community resources and the option to attend the program of group sessions at the end of follow-up period.

Assessment data were collected from all participants by interviewers working in pairs; at least one of the interviewers was blind to the mothers' group allocation. Data were collected during home visits at baseline (before the intervention period) and at 3 follow-up visits (after the intervention period and at 3 and 6 months). At each visit, mothers and children received gifts of appreciation for their participation (e.g., retail gift certificates, children's books, craft supplies).

A total of 117 mothers were eligible and agreed to participate in the study; 59 were randomly assigned to the intervention arm and 58 to the control arm (Fig. 1). One mother in the control arm was withdrawn from the study immediately after randomization because she did not return calls. The sample size was selected to provide adequate power ($1 - \beta \geq 0.80$) to

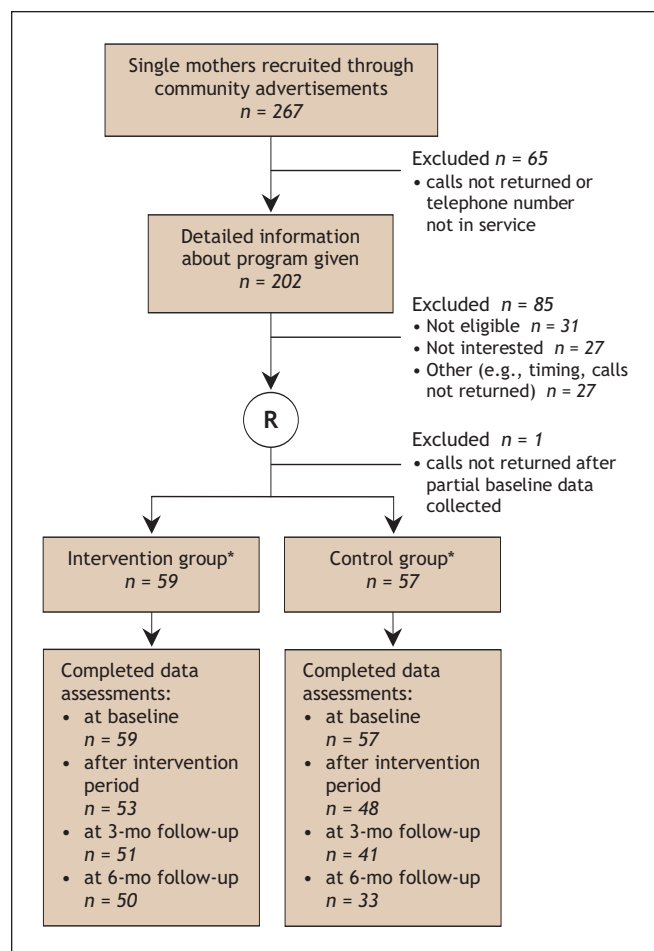


Fig. 1: Flow of participants through the trial. R = randomization. *Mothers in the intervention arm attended 10 weekly group sessions (1.5 hours per week) during which they received social support and education; mothers in the control arm were given a standard list of community resources and the option to attend group sessions at the end of the follow-up period.

detect medium standard effects (0.50), allowing for 20% attrition and some clustering of effects within groups.

The concepts and outcome measures used in the study are described in an online appendix (available at www.cmaj.ca/cgi/content/full/173/12/1451/DC1). The outcome measures were maternal well-being (mood,^{42,43} self-esteem⁴⁴ and social support⁴⁵) and parenting;⁴⁶ the measures were chosen for their relevance to the program objectives and for the simplicity, brevity, acceptability and general applicability.

We estimated means and variances for selected variables and compared them between the intervention and control groups. In addition, we used linear regression analysis to test differences in outcome measures before and after the program; we adjusted for group differences by including “treated for nerves or nervous condition” and “wages or salaries as source of financial support” as covariates (participants who did not report whether they had been treated for nerves were coded as the modal value [yes]).

To assess the effect of the program over the follow-up period, we used MLwiN⁴⁷ to model growth trajectories. In growth curve analysis, developmental outcomes are modelled as a function of time to establish individual-level trajectories, showing a starting point (baseline) and change per unit of time or growth (slope) for each person.⁴⁸ This modelling made it possible to compare differences between the intervention and control groups in their baseline values and the rates of change. Because of the extended follow-up period and nonlinear pattern of growth (decelerating rates of change), we used the square root of time (in months) to model outcomes. The covariates “treated for nerves” and “wages or salaries as source of financial support” were included in the models at baseline.

Results

Between February 2000 and April 2003, the program was offered to 9 groups of single mothers. Among the 116 participants, assessment data were available for 87% (intervention 90% [53/59], control 84% [48/57]) after the intervention period (first follow-up assessment). At the second and third follow-up visits (which occurred at a mean of 13.7 and 20.2 months after baseline respectively), assessment data were available from 79% (intervention 86%, control 72%) and 72% (intervention 85%, control 58%) of the mothers respectively (Fig. 1).

Table 1 shows the baseline characteristics of the participants. Differences between the intervention and control groups were generally small except for reports of being treated for nerves in the last 6 months and wages or salaries as a source of financial support.

Table 2 shows the levels of functioning at each of the follow-up assessments. At baseline, there were only small differences between the 2 groups. Results before and after the intervention period were examined using regression analysis of functioning at the first follow-up assessment ($n = 101$; mean 7.0 [standard deviation 3.5] months from baseline to the first follow-up visit). At this follow-up assessment, mothers in the intervention group showed significant improvements in

Table 1: Baseline characteristics of single mothers randomly assigned to participate in a 10-week program of group sessions offering social support and education (intervention group) or to receive a standard list of resources (control group)

Characteristic	Group; % of mothers*	
	Intervention $n = 59$	Control $n = 57$
Age, mean (SD), yr	32.4 (6.7)	32.3 (6.1)
Treated for “nerves” or nervous condition in last 6 mo†	70	46§
Maternal education		
Some secondary or less	25	25
Completed secondary	19	30
Some postsecondary	12	14
Completed postsecondary	44	32
Employed in past year	51	65
Income < \$15 000	56	54
Financial pressure‡	85	84
Source of financial support in past year		
Wages or salaries	49	68§
Social assistance	81	70
Other	46	47

Note: SD = standard deviation.

*Unless stated otherwise.

†Information provided by 93 mothers (intervention 47, control 46).

‡Information provided by 100 mothers (intervention 52, control 48).

§Between-group difference significant at $p < 0.05$.

scores for mood ($\beta = -6.55$ [standard error (SE) 2.27]; $p < 0.01$; standardized effect = 0.55) and self-esteem ($\beta = -1.48$ [SE 0.72]; $p < 0.05$; standardized effect = 0.29) compared with the mothers in the control group. Loss to follow-up at this point was relatively small (15 [13%]) and showed only weak, nonsignificant associations with the participants' baseline functioning scores and sociodemographic characteristics.

The estimated growth curves showing changes in functioning over time and the differences between the intervention and control groups at baseline and at the third follow-up assessment (mean 20.2 months after baseline) are presented in an online table (available at www.cmaj.ca/cgi/content/full/173/12/1451/DC2). Both the intervention and the control groups showed improvements in all 4 measures of functioning, with no statistically significant differences between them. For example, at baseline, the adjusted mean mood scores in the control and intervention groups were 18.38 and 15.44 respectively, for a difference of 2.94. By the third follow-up visit, these estimates were 12.22 and 9.92 respectively, for a difference of 2.30. The rate of change in mood from baseline to the third follow-up visit was -1.45 in the control group and -1.30 in the intervention group, for a difference of 0.15. Fig. 2 illustrates the growth curve models for the 4 measures of functioning.

Sample losses at the third follow-up assessment differed between the 2 groups (intervention 15% [9/59] v. control 42%

Table 2: Estimated mean scores for outcome measures at baseline and at follow-up assessments*

Outcome†	Estimated mean scores (SD)							
	Baseline		First follow-up visit‡		Second follow-up visit‡		Third follow-up visit‡	
	Intervention n = 59	Control n = 57	Intervention n = 53	Control n = 48	Intervention n = 51	Control n = 41	Intervention n = 50	Control n = 33
Mood	24.1 (11.4)	24.2 (12.5)	17.0 (12.0)	22.0 (12.6)	19.1 (13.1)	17.1 (12.8)	17.8 (11.7)	16.1 (11.3)
Self-esteem	22.6 (4.9)	21.7 (5.5)	20.8 (4.2)	21.0 (5.4)	20.2 (5.6)	19.9 (5.6)	19.9 (4.5)	19.8 (5.8)
Social support	49.4 (10.3)	48.2 (11.7)	46.0 (13.2)	44.4 (10.3)	42.9 (11.3)	42.7 (11.9)	42.7 (11.3)	42.3 (10.0)
Parenting	98.1 (19.8)	96.6 (19.0)	92.0 (19.6)	92.3 (16.3)	93.0 (19.0)	91.5 (19.5)	91.9 (19.9)	90.2 (20.8)

Note: SD = standard deviation.

*See the online appendix (at www.cmaj.ca/cgi/content/full/173/12/1451/DC1) for details about the outcome measures.

†All outcomes were scored to reflect poor functioning (higher score is worse).

‡Mean 7.0 (SD 3.5) months from baseline to first follow-up visit (after intervention period); mean 13.7 (SD 4.1) months from baseline to second follow-up visit; mean 20.2 (SD 6.5) months from baseline to third follow-up visit.

[24/57]). We investigated this difference using logistic regression analysis and modelled nonresponse at the third follow-up assessment as a binary outcome (1 = response, 0 = nonresponse). The predictors included in the model were the sociodemographic characteristics of the participants and their baseline functioning scores. The only predictor significant at $p < 0.05$ was group allocation (intervention v. control).

Interpretation

We evaluated a community-based program in which vulnerable single mothers of young children were randomly assigned to participate in group sessions offering social support and education or to receive a standard list of community resources. The participants were especially vulnerable in terms of income (household income fell below the poverty line⁴⁹ in two-thirds of these families) and mood.

Over the short term (from baseline to the first follow-up assessment at the end of the intervention period), we found that the program significantly improved mood and increased self-esteem among the single mothers but had no reliable effect on levels of social support and parenting. Over the longer term, growth curve analyses indicated that program effects on mood and self-esteem attenuated, with no significant differences between the intervention and control groups at 18 months of follow-up. In general, the growth curve analyses showed improved outcomes among all of the participants, irrespective of their group allocation. This finding may indicate a generalized response among the mothers consistent with a natural descent from peak periods of stress and conflict observed at enlistment.

Our study had limitations. First, the participants came from a population of low-income single mothers living in an urban setting who responded to community advertisements. This method limits our inferences to similar families who would agree to participate in such a trial. Second, attrition at the final follow-up assessment was 28% overall, with greater losses in the control group than in the intervention group (42% v. 15%). Our analysis suggests that differences between groups in numbers lost to follow-up is an unlikely explana-

tion for the absence of long-term program effects; however, without actual assessments, we cannot rule out this bias. Third, the measures selected to evaluate program effects may have been insensitive to change. However, all measures exhibited change over time, and some program effects (positive changes in depressed mood and self-esteem) were detected at program completion. The selection of some of the measures or methods of data collection may also have been flawed, and alternate measures or methods may be superior to describe program effects. Fourth, poor compliance or attendance at group sessions may have influenced the results. However, overall, only 8 (14%) of the 59 mothers in the intervention group attended less than half of the group sessions, which suggests that compliance was generally good. Fifth, there may have been variation in the fidelity of program delivery by the group leaders, although this was not seen to be a problem during weekly group supervision sessions. Finally, our study evaluated the effectiveness of the program in real conditions (as opposed to an efficacy study using ideal conditions). We made no specific attempt to prevent mothers in the intervention group from receiving additional interventions (cointerventions) that may have influenced the study outcomes, nor did we try to prevent mothers in the control group from receiving a similar intervention program (contamination). Our broad tracking of service use among the participants identified no appreciable differences between the intervention and control groups; therefore, it is unlikely that service use outside of the program influenced the results. Similarly, participation of the mothers' children in the activity groups may have augmented the intervention effects, but this is unlikely since child attendance varied greatly across the families.

In summary, the results from our randomized controlled trial indicate that participation in this community-based program of group sessions offering social support and education to single mothers accelerated improvements in depressive mood and self-esteem during the intervention phase but had no significant differential effect on levels of social support or parenting. In the longer term, significant differences in outcomes between the intervention and control groups were not

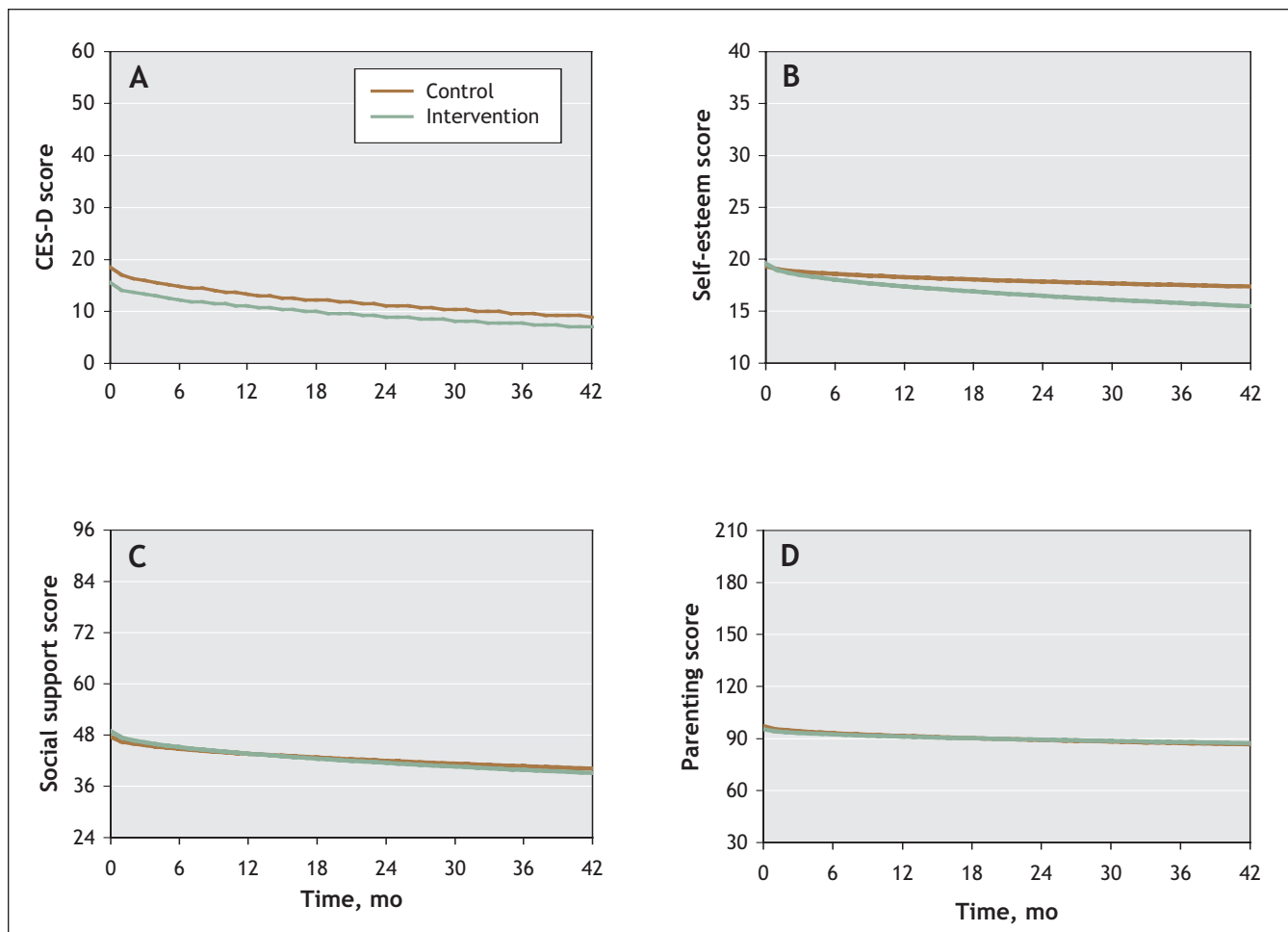


Fig. 2: Growth curves for changes in depressive mood (A), self-esteem (B), social support (C) and parenting (D). CES-D = Center for Epidemiologic Studies Depression Scale. For details about the scales and score ranges see the online appendix at www.cmaj.ca/cgi/content/full/173/12/1451/DC1.

evident. Since many single mothers have to cope with many acute and chronic stresses in their lives, it is possible that this intervention is insufficient to bring about enduring long-term effects.⁵⁰ Our analysis may have underestimated some of the positive short-term effects of the program because of delays in collecting data owing to lost contact (e.g., moving, telephone disconnected) and the need to trace families. Nevertheless, it appears that focused, time-limited, group-based support programs, on their own, have limited potential to improve the quality of life of low-income single mothers over the longer term. Alternative approaches, such as more intensive nonfinancial programs and increased financial support, should be rigorously evaluated.

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Editor's take

- A lack of evidence about the effectiveness of community-based programs designed to address the developmental needs of low-income families spurred the authors to conduct a randomized control trial to evaluate a program for single mothers that showed promise.
- Single mothers with young children were recruited and 116 were randomly assigned to receive the intervention (10 weekly group sessions offering social support and education) or a standard list of community resources. Mothers were followed up 3 times and asked to complete questionnaires measuring 4 areas of functioning (mood, self-esteem, social support and parenting).
- The program had positive effects on mood and self-esteem among the mothers in the intervention group compared with those in the control group, but longer follow-up (mean 20 months after baseline) showed attenuation of these effects.

Clinical implications: Programs providing more intensive social support and parenting education than the one evaluated here might be needed to improve the quality of life of low-income single mothers and their children over the long term.