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When the bough breaks: provider-initiated comprehensive care is more effective and less expensive for sole-support parents on social assistance

Gina Browne^{a,b,c,*}, Carolyn Byrne^{a,b}, Jacqueline Roberts^{a,b,c}, Amiram Gafni^{a,c,d}, Susan Whittaker^a

^a *System-Linked Research Unit on "Health and Social Service Utilization", McMaster University, Hamilton, Ont., Canada L8N 3Z5*

^b *School of Nursing, McMaster University, Hamilton, Ont., Canada L8N 3Z5*

^c *Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ont., Canada L8N 3Z5*

^d *Centre for Health Economics and Policy Analysis, McMaster University, Hamilton, Ont., Canada L8N 3Z5*

Abstract

This 5-year study conducted in Ontario, Canada is designed to assess the effects and expense of adding a mix of provider-initiated interventions to the health and social services typically used in a self-directed manner by sole-support parents and their children receiving social assistance in a national system of health and social insurance. Results from a 2-year interim analysis show that providing social assistance families with proactive comprehensive care (health promotion, employment retraining, and recreation activities for children) compared to allowing families to fend for themselves in a self-directed manner, results in 15% more exits from social assistance within 1 year and substantial savings to society in terms of social assistance payouts. It is no more expensive to provide health and social services in a comprehensive fashion, and equivalent reductions in parent mood disorder and child behavior disorders, as well as equivalent increases in parent social adjustment and child competence levels were also observed. This study presents clear evidence that providing comprehensive care to social assistance recipients produces tremendous short- and long-term financial gains and societal benefits. © 2001 Elsevier Science Ltd. All rights reserved.

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Introduction

Over the past decade, Canada has been challenged to maintain universally accessible programs in health care, social assistance, and childcare within the confines of economic restraint. Extensive reform initiatives have given rise to service cuts in a time of growing poverty and childhood problems. In the province of Ontario, provincial advisory groups emphasize the need to coordinate and target health and social assistance

services based on evidence about the most beneficial and efficient mix of service strategies (Advisory Group on New Social Assistance Legislation, 1991; Premier's Council on Health Strategy, 1991a, b; Ontario Ministry of Health, 1992; Ontario Ministry of Community and Social Services, 1992). However, there is little information available to inform policy makers as they attempt to restructure how health care, social assistance, and childcare are provided.

It is important to identify the various difficulties facing recipients of social assistance. Poverty and its deleterious consequences on adults and children have been well understood for some time (Premier's Council on Health Strategy, 1991a; Reitsma-Street, Carriere, Van de Sande, & Hein, 1993; Canadian Child Welfare Association et al., 1989; Child Poverty Action Group,

*Correspondence address: Faculty of Health Sciences, McMaster University, 1200 Main Street West, Room 3N46, Hamilton, Ont., Canada L8N 3Z5. Tel.: +1-905-525-9140, ext. 22293; fax: +1-905-528-5099.

E-mail address: browneg@mcmaster.ca (G. Browne).

Institute for the prevention of Child Abuse, & Ontario Association of Children's Aid Societies, 1990; McKay, Reid, Tremblay, & Pelletier, 1996). Specifically, financial hardships associated with persistent social assistance use have been linked to poor health and lower personal competence levels (O'Campo & Rojas-Smith, 1998). Independent of poverty, unrecognized, untreated, and under-treated mood disorders (depression and anxiety) extract an inordinate human and economic cost despite the availability of an extensive array of effective pharmacological and clinical interventions (Reiger et al., 1988; Browne et al., in press). Mood disorders, estimated to be 33% of the general population (Michels & Marzuk, 1993), are two and a half times more likely in individuals who are separated or divorced, occur at twice the rate in women compared to men (Weissman, 1987; Klerman et al., 1985), and can affect a parent's capacity to work, to parent, and to benefit from counseling or social assistance services.

Single mothers on social assistance are particularly vulnerable. In comparisons between single mothers and mothers in two-parent families, recent studies have shown that single mothers are more likely to be poor, have worse health status, have a higher prevalence of psychiatric disorders including chronic depression, have a higher risk of mental health co-morbidity, and use more mental health services (Lipman, Offord, & Boyle, 1997; Brown & Moran, 1997; Hope, Power, & Rodgers, 1999; Burstrom, Diderichsen, Shouls & Whitehead, 1999). Poor children in single-mother households have increased risk of maladjustment in childhood, mental health problems, antisocial behavior, co-morbid emotional and behavior problems, and abuse by their mother (Patterson, Kupersmidt, & Vaden, 1990; Samman, 2000; Gelles, 1989). Hall, Gurley, Sachs and Kryscio (1991) found that 59.6% of single mothers have depressive symptoms that predict parenting attitudes that in turn predict child behavior. In fact, increased levels of psychological distress in the single mother lead to greater psychological distress in the child (McLoyd & Wilson, 1990). It is clear that when both poverty and mood disorder are present in parents, the risk for children could be synergistic.

The most appropriate way of providing health and social services to people who are experiencing the combination of financial hardship, mental health problems, and single-parenthood has not been previously studied using rigorous scientific methodology. Although, there is some promising evidence from studies conducted to evaluate different programs designed to support people living on social assistance in the areas of health promotion case management, employment programs, and subsidized recreation/childcare (Achenbach, 1991; Olds & Kitzman, 1990; Fries et al., 1993; Wasik, Bryant, & Lyons, 1990; Halpern & Larner, 1988; Sweeny, 1988; The Canadian Council on Social Devel-

opment, 1991; ARA Consultants, 1987; Ball & Houser, 1989; Opie & DeSantis, 1991; Doherty, 1991; Howes, 1988, 1990; Goelman & Pence, 1988; Frankish, Milligan, & Reid, 1998; Zoritich, Roberts, & Oakley, 1998), there are methodological shortcomings in many of these studies. There is a lack of research that compares different approaches, documents the utilization of health and social services, or examines specific sub-groups of social assistance recipients who may be more vulnerable.

At the outset of this 5-year study, families receiving social assistance in Ontario, Canada were provided with health and social services under a national system of health and social insurance. Recipients received income maintenance and/or subsidized childcare, plus they had self-directed use of other health and social services. While a full array of services was in place, funding cutbacks had resulted in rationing and huge waiting lists. In the neighboring regions of Hamilton-Wentworth and Halton, 40% of adults living on social assistance were sole-support parents, 85% of these were women (Ewart et al., 1992), and 45% were known to have a depressive disorder (Byrne et al., 1996). This study was designed to examine the comparative effects and expense of proactively offering different mixes of provider-initiated health and social service packages to single parents and their children on social assistance (designated as sole-support families). Although they were a minority (3.3% of sample), sole-support families headed by a father were also included. The utilization of health and social services by each sole-support family on social assistance was documented.

Methods

The income maintenance workers with the Hamilton-Wentworth and Halton Regional Departments of Social Assistance approached sole-support parents who were newly approved to receive social assistance (income maintenance and/or subsidized childcare) for their willingness to participate in this study and to have their name forwarded to the project coordinator. The project coordinator contacted willing parents to explain the study and to obtain their informed consent to participate in the study and to be interviewed annually during the following 4 years. The rationing of community public health and social assistance services was agency policy; therefore, no consent was required for the randomization to additional services. The sole-support parents were randomized to one of five treatment strategies using a computerized randomization schedule that blocked after every fifth or tenth subject (household) to ensure equal numbers in all treatment groups. Recruitment occurred over a 12-month period commencing in October 1994. The final stages of 1-year interventions (health promotion and employment

retraining) were completed by the end of year two, while the recreation component was available to families for the entire duration of the study. Income maintenance workers and childcare workers who interacted with the study participants were not informed of the allocation. Interviewers, blinded to the purpose of the study, obtained baseline and follow-up outcome assessments from the parents and children. The full period of follow-up included measurements at 1 year, 2 years, and 4 years after enrollment. A 4-year follow-up was planned because it is known that the typical sole-support family remains on social assistance for approximately 3–4 years (Gorlick & Pomfret, 1991). This article documents the 2-year effects and expense of the different approaches to the provision of social assistance to sole-support parents and their children.

Study population

Study participants were drawn from two study centers located in the Departments of Social Assistance in the neighboring regions of Hamilton-Wentworth and Halton in central Ontario, Canada. All new applicants who had been approved to receive social assistance and who were sole-support parents (i.e., single parents sharing their home with at least one child) were eligible to be included in the study. Potential study participants were excluded if they refused to give informed consent, were unable to read/write English and an appropriate translator was not available, if they had plans to move outside the regions of Hamilton-Wentworth or Halton or if they were unwilling to participate for the entire 5-year follow-up period.

Study design

This was a five-armed randomized controlled trial of various mixes of provider-initiated services versus a self-directed approach to providing social assistance to the sole-support parent family. Provider-initiated services included health promotion (public health nurse case management), employment retraining, and recreation/childcare/skills development. A sample size of 765 households (153 adults per arm) was estimated to be sufficient to address the primary outcomes including an allowance of an additional 25% to offset drop-outs (one-tailed $\alpha = 0.05$; $\beta = 0.20$).

Interventions

All study groups received basic social assistance. In addition, Group 1 received a full package of services that included health promotion, employment retraining, and the recreation/childcare/skills development program (i.e., proactive, comprehensive, provider-initiated ap-

proach); Group 2 received health promotion; Group 3 received employment retraining; Group 4 received age-appropriate recreation/childcare/skills development programs; and Group 5 received no additional services (self-directed care). The interventions are described below.

Basic social assistance

During the time of this study, social assistance in Ontario was defined as the receipt of income maintenance and/or subsidized childcare. Because of growing caseloads (ratio of 1:220 workers to clients at study start-up), there was minimal case planning available, infrequent social service follow-ups, and only 3% of people living on social assistance received public health nurse visits (Browne et al., 1995b). Sole-support parents on social assistance were generally designated as unemployable, hence an employment retraining program was not offered to them and thus they were not eligible for subsidized childcare/recreation. The basic social assistance function consisted of a client-initiated intake, eligibility assessment in person, and regular ongoing eligibility assessment. Clients had self-directed use of other health and social services available under the national health and social insurance system in Canada.

Health promotion

An outreach public health nurse case manager visited the home to review the resources the family currently used, to assess their need for additional resources, and to build a relationship with the family using a problem-solving empowerment-enhancement approach (D'Zurilla, 1988). This 1-year intervention was designed to enable the parents to assess the (1) interplay of family stressors, (2) the underlying challenges, and (3) the usefulness and choice of a range of services. Intensive planning occurred during the initial 2–3 months, and specific 6- and 12-month goals were outlined.

Employment re-training

Regional Employment Counselors delivered the Municipal/First Nations Employment Program at a worker to client ratio of 1:50. The program consisted of one to six sessions during the initial 6-month period including a needs analysis, employment preparation, and resource inventory brokerage, followed by 6-month follow-up visits for up to 24 months.

Recreation

This subsidized age-appropriate, after-school recreation/childcare/skills development program was a collaborative effort between the YMCA and 21 other

youth-serving organizations. The basic components included active recruitment of children, the development of skills, integrating children into mainstream recreational programs, and parental involvement. This intervention was offered four terms per year (two encounters per week) and continued for the entire duration of the study (4 years).

Assessments

Table 1 outlines the variables and their measures, followed below by a brief description of each. The sole-support parent was designated family respondent regarding measures of all members of the household.

Parent characteristics

Sociodemographic information describing the parent was obtained at baseline, including: gender, race, family constellation and size, first language, education, work history, prior social assistance applications, and employability status.

Engagement rate (measure of dose of interventions)

Attendance was considered compliance with and dose of each intervention. For health promotion and employ-

ment retraining, engagement was defined as at least one home or office visit equal to or greater than 10 min. For the recreation intervention, engagement occurred when at least one child per family engaged in one age-appropriate program per year. The outreach approach used to promote engagement was similar for all provider-initiated interventions: an initial phone call was made to the consenting sole-support parent by the corresponding intervention caseworker with the purpose of arranging a home visit. If the participant did not have a phone or the caseworker was unable to make contact by phone, a letter was sent out. If the parent did not contact the caseworker in response to the letter, the caseworker made several attempts to contact the parent in person.

Parental mood disorders

Parent mood (at baseline and at follow-up) was assessed using the University of Michigan Composite International Diagnostic Interview (UM-CIDI short form) (Kessler et al., 1994). The instrument uses a stem and branch structure that allowed those with mood disorder to proceed through the interview very quickly. This screening device is believed to be the best instrument to identify major depressive episodes, dysthymia, generalized anxiety disorders, phobias, panic attacks, and alcohol and substance abuse/dependence.

Table 1
Variables and their measures^a

Construct	Variable	Measure
Parent characteristics	Sociodemographic information (T_1)	Baseline questionnaire
Engagement rate (measure of dose of interventions)	Compliance and attendance at: Health promotion visits Job training sessions Recreation/childcare programs	Agency Attendance Records
Effects	Parental mood disorders (T_1, T_2, T_3, T_4)	UM-CIDI (Kessler et al., 1994)
	Adult social adjustment (T_1, T_2, T_3, T_4)	SAS Social Adjustment Scale (Weissman et al., 1978)
	Childhood behavior disorders (T_1, T_2, T_3, T_4)	Ontario Child Health Survey (Offord et al., 1987a, b)
	Child competence (T_3, T_4)	Child Behavior Inventory (Achenbach, 1991)
	Social independence (T_3, T_4)	% exits from social assistance for 12 months
Expense	Use of health and social services (T_1, T_2, T_3, T_4)	Dollar value of 12 months of Social Assistance services Health and Social Utilization Inventory translated into dollar values (Browne et al., 1995a)

^aNote: (T_1) = baseline; (T_2) = 1 year following enrolment; (T_3) = 2 years following enrolment; (T_4) = 4 years following enrolment.

Adult social adjustment

The Social Adjustment Scale — Self-Rated (SAS-SR) (Weissman, Prusoff, Thompson, Harding & Myers, 1978; Weissman & Myers, 1978) is a measure of social functioning over the previous two weeks on a 5-point scale measuring three broad areas of work, family and leisure functioning. It was chosen as a measure of adult adjustment because of its applicability to the population, prior use in studies of adults with mood disorder, high degree of reliability, validity, and test use across all samples with varying levels of mental, social, and vocational competence. In support of its validity, the SAS-SR has been shown to distinguish between depressed versus non-depressed people and to have good internal consistency and test-retest stability (Kocsis et al., 1988a, b).

Childhood behavior disorders

The Survey Diagnostic Instrument (SDI) of the Ontario Child Health Survey (Offord, Boyle & Jones, 1987a; Offord et al., 1987b) was developed from the Child Behavior Checklist (Achenbach & Edelbrock, 1983) which provided a basic pool of items to assess childhood psychiatric disorders: conduct disorder, hyperactivity, and emotional disorder (neuroses) in children 4–16 years old, and somatization in adolescents 12–16 years of age.

Child competence

Competence of school-aged children (ages 6 years and older) was introduced at the 2-year follow-up visit using the Achenbach Measure of Competence (Achenbach, 1991). The total child competence score comprises the sum of three scale scores: activities (sports, hobbies, organizations, groups, jobs, or chores), social (number of friends, contact with friends), and academic (for ages 6 and older, performance in reading or English, history or social studies, arithmetic or math, science, and other classes); the higher the score (0–26), the more competent the child. A total competence score cannot be calculated for younger children because they are not in the academic setting and hence, they do not have an academic score. Childhood competence is thought to be a more discriminating measure of a population that is 75–80% non-disordered at baseline.

Social independence

Social independence was defined as self-reported voluntary exit from social assistance for the previous 12 months. The percentage of participants who exited for 12 months was multiplied by the dollar value of 12 months of social assistance services.

Expense

The Health and Social Service Utilization Inventory (Browne, Arpin, Corey, Fitch, & Gafni, 1990) was used to tally the frequency of self-reported use of all types of other health and social services by all members of the family in the previous two weeks. The two-week frequency was annualized and multiplied by the dollar value of the service and summed as a per family dollar measure of utilization compared between groups (Browne, Gafni, Roberts, Goldsmith, & Jamieson, 1995a). Savings were defined as expenditures averted due to a self-reported exit from social assistance for the previous 12 months or a reduced need for health and social services.

Statistical methods

Participants who completed the 2-year follow-up assessment were compared to those who dropped out on baseline characteristics. Participants in each study group retained at 2 years were also compared on baseline characteristics. The direction and impact of any differences or biases on results were examined.

The frequency of using different types of planned and unplanned health and social services in each group were described and quantified as a dollar value. The hypotheses of effectiveness and efficiency were tested in a 5-group comparison of all sole-support parents who completed the 2-year follow-up. Analysis of variance was used to determine if there were any important effects due to the type of family and type of treatment.

Results

Of the 1739 sole-support parent families eligible to participate in the study, a total of 765 (44%) were successfully recruited and randomized (700 refusals; 274 unable to contact). The study flow diagram (Fig. 1) summarizes the disposition of participants throughout the study. As indicated, the loss of 404 families by the 2-year follow-up resulted in a 53% drop-out rate (52% drop-out for single mothers; 72% drop-out for single fathers). Groups I and IV had significantly higher retention rates compared to Groups II, III, and V ($\chi^2(4) = 21.10$).

A comparison on parent baseline variables was done contrasting drop-outs and the participants retained at the 2-year follow-up (i.e., completers). Completers were similar to drop-outs ($p \leq 0.05$) in % intake from each geographical region (Halton and Hamilton-Wentworth), family size, prior use of social assistance, marital status, ethnicity, English speaking, religious orientation, health status, % worrying half or most of the time, % reporting

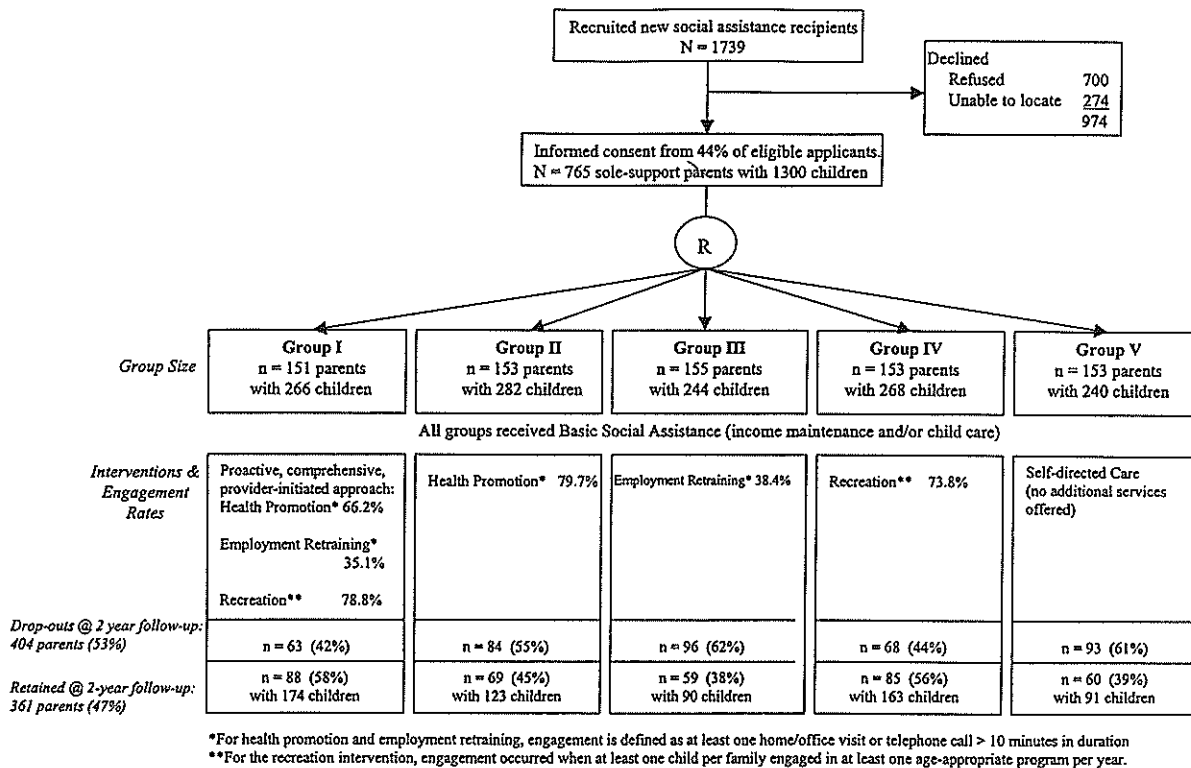


Fig. 1. Study flow diagram.

pain or physical discomfort limiting activities, % with two or more mental health problems. Completers were different from drop-outs ($p \leq 0.05$) with significantly more women as the sole-support parent, more had previously received family benefits allowance, greater prior length of time on social assistance, fewer respiratory problems, more general anxiety disorders, more desire for job training, poorer work adjustment scores, better extended family adjustment, higher users of physiotherapy services, and higher recipients of other government transfers (e.g. family benefits assistance, unemployment insurance). Table 2 presents additional details on selected parent baseline variables.

A comparison of the children who were retained at the 2-year follow-up with those that dropped out revealed that they were similar in the proportion with behavior disorders at baseline (23.1% versus 18.0%, $\chi^2(1) = 2.98$, $p = 0.08$) and the total direct expenditures for health and social services utilization ($t = 0.51$, $p = 0.61$).

Group comparisons on baseline variables of sole-support parents retained at the 2-year follow-up showed that parents in all groups were similar in most variables. As indicated in Table 3, compared to other groups, parents retained in Group II were approximately 3 years older and had the greatest number of children per family. Significantly more parents in Groups II–IV

reported they worried more than half the time at baseline compared to Groups I and V. Children of parents in Groups II and V used significantly greater total direct per child per annum expenditures for health and social service utilization at baseline compared to the children in the other groups. The use of analysis of covariance using baseline expenditures as the covariates in testing the hypotheses adjusted for the imbalances at the onset of the trial. Due to multiple testing, these differences could be attributed to chance.

Engagement rates

Engagement rates varied between 66 and 80% for health promotion, 74 and 79% for recreation, with the lowest engagement rates (35–38%) occurring in employment retraining (see Fig. 1).

Parental mood disorders

As indicated in Table 4, across the five study groups, 42–52% of sole-support parents were assessed with mood disorder (depression or dysthymia) at baseline. After 2 years, this was reduced to 17.6–21% with no statistically significant differences in this reduction between groups. For the 45–55% across the five study

Table 2
Comparison of completers versus drop-outs on selected baseline variables

Variables	Total sample (N = 765)		Completed time 3 (N = 361)		Drop out at time 3 (N = 404)		Test statistics	
	N	%	N	%	N	%	χ^2	p-Value
Group								
I: Comprehensive	151	19.7	88	24.4	63	15.6	21.10	0.0003
II: Health promotion	153	20.0	69	19.1	84	20.8		
III: Employment retraining	155	20.3	59	16.3	96	23.8		
IV: Recreation	153	20.0	85	23.5	68	16.8		
V: Self-directed	153	20.0	60	16.6	93	23.0		
Region								
Halton	336	44.0	154	42.8	182	45.2	0.44	0.51
Hamilton-Wentworth	427	56.0	206	57.2	221	54.8		
Sex								
Male	25	3.3	7	1.9	18	4.5	3.77	0.05
Female	738	96.7	352	98.1	386	95.5		
Number of children in the family								
One	344	45.0	164	45.4	180	44.6	2.23	0.69
Two	241	31.5	107	29.6	134	33.2		
Three	127	16.6	66	18.3	61	15.1		
Four	37	4.8	16	4.4	21	5.2		
Five and above	16	2.1	8	2.2	8	2.0		
Age categories of children								
0–5	588	40.7	269	39.2	319	42.1	5.68	0.13
6–12	489	33.9	248	36.2	241	31.8		
13–18	258	17.9	112	16.3	146	19.3		
19 and above	108	7.5	57	8.3	51	6.7		
Total	1443	100.0	686	47.5	757	52.5		
Prior use of social assistance								
Yes	426	55.7	191	52.9	235	58.2	2.14	0.14
No	339	44.3	170	47.1	169	41.8		
Marital status								
Married/remarried/common law	12	1.6	7	1.9	5	1.2	5.02	0.28
Separated	343	44.8	156	43.2	187	46.3		
Divorced/annulled	171	22.4	91	25.2	80	19.8		
Widowed	10	1.3	6	1.7	4	1.0		
Never married	229	29.9	101	28.0	128	31.7		
Mental health disorders								
Major depression disorder	331	43.3	160	44.3	171	42.3	0.31	0.58
Dysthymia disorder	99	12.9	47	13.0	52	12.9		
Any affective disorders	350	45.8	171	47.4	179	44.3	0.72	0.40
Simple phobia disorder	274	35.8	126	34.9	148	36.6		
Social phobia disorder	137	17.9	65	18.0	72	17.8	0.004	0.95
Agoraphobia disorder	69	9.0	29	8.0	40	9.9		
Panic disorder	125	16.4	54	15.0	71	17.6	0.98	0.32
General anxiety disorder	78	10.2	45	12.5	33	8.2		
Any anxiety disorders	410	53.6	187	51.8	223	55.2	0.88	0.35
Alcohol disorder	33	4.3	14	3.9	19	4.7		
Drug disorder	25	3.3	10	2.8	15	3.7	0.54	0.46
Any mental health disorders	531	69.4	251	69.5	280	69.3		
Number of mental health disorders								
No Dx	234	30.6	110	30.5	124	30.7	1.78	0.88
One Dx	212	27.7	105	29.1	107	26.5		
Two Dx	146	19.1	63	17.5	83	20.5		
Three Dx	87	11.4	43	11.9	44	10.9		
Four Dx	45	5.9	20	5.5	25	6.2		
Five and above Dx	41	5.4	20	5.5	21	5.2		

Table 3
Differences at 2-year follow-up between groups on baseline variables^a

	Grp I	Grp II	Grp III	Grp IV	Grp V	<i>p</i> -Value
Retention rate	58.0%	45.0%	38.0%	55.0%	39.0%	0.0003 ($\chi^2_4 = 21.10$)
Maternal age (years)	33	36	32	32	32	0.03 ($F = 2.83$)
3 or more children/family	33.0%	36.2%	13.6%	22.3%	15.0%	0.04 ($\chi^2 = 26.78$)
Worried $\frac{1}{2}$ or more of time	17.5%	21.9%	24.2%	20.0%	16.7%	0.02 ($\chi^2_{12} = 23.96$)
Expenditures for children's services	\$2099	\$3626	\$1836	\$1146	\$3595	0.02 ($F = 2.81$)

^aNote: All groups received basic social assistance (income maintenance and/or subsidized childcare).

In addition, Group 1 participants received health promotion, employment retraining, and the recreation/childcare/skills development program (proactive, comprehensive, provider-initiated approach); Group 2 received health promotion; Group 3 received employment retraining; Group 4 received recreation/childcare/skills development program; and Group 5 received no additional services (self-directed care).

Table 4
Group comparisons of parental mood disorders, social independence, and adult social adjustment at baseline and 2-year follow-up

	Comprehensive		Health promotion		Employee retraining		Recreation		Self-directed		Test statistics						
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	χ^2	<i>p</i> -Value					
<i>Parental mood disorders</i>																	
Baseline: Present	43	48.9	29	42.0	31	52.5	42	49.4	26	43.3	2.04	0.73					
Absent	45	51.1	40	58.0	28	47.5	43	50.6	34	56.7							
2 years: Present	16	18.2	15	21.7	12	20.3	15	17.6	11	18.3	0.57	0.97					
Absent	72	81.8	54	78.3	47	79.7	70	82.4	49	81.7							
<i>Social independence (exit rates): use of social assistance in past 12 months</i>																	
Yes	66	75.0	54	78.3	47	79.7	68	80.0	54	90.0	5 groups	5.27	0.26				
No	22	25.0	15	21.7	12	20.3	17	20.0	06	10.0				Group I	5.23	0.02	
versus V																	
<i>Adult social adjustment</i>																	
	Comprehensive			Health promotion			Employee retraining			Recreation			Self-directed			Test statistics	
	<i>N</i>	mean	SD	<i>N</i>	mean	SD	<i>N</i>	mean	SD	<i>N</i>	mean	SD	<i>N</i>	mean	SD	χ^2	<i>p</i> -Value
Weissman-Total score (T_1) ^a	88	1.97	0.41	69	2.03	0.42	59	2.01	0.36	85	1.94	0.29	60	1.96	0.37	0.72	0.58
Weissman-Total score (T_3) ^b	88	1.79	0.43	69	1.80	0.46	59	1.76	0.41	85	1.80	0.32	60	1.82	0.46	0.17	0.96
Weissman-Total score ($T_1 - T_3$)	88	0.18	0.42	69	0.23	0.51	59	0.25	0.39	85	0.14	0.32	60	0.13	0.38	1.03	0.39

^aTime 1 (T_1): baseline.

^bTime 3 (T_3): 2-year follow-up.

groups who suffered from one or more anxiety disorders at baseline, there was a reduction ranging from 13–26% at 2 years with no statistically significant difference in the reduction between groups.

Adult social adjustment

All five groups were similar with respect to improvements in the total social adjustment scores from baseline to 2-year follow-up ($p = 0.39$). Although there was no

significant difference in the total improvement score between Groups I and V specifically, there was a statistically significant improvement in the sub-score for parent's economic adjustment at 2 years favoring Group I compared to Group V ($p = 0.03$).

Childhood behavior disorders

The behavior of children in all five study groups improved over the 2 years with a concurrent reduction in

the number of disorders per child. There was no statistically significant difference in the 8.7–25% of children that improved (reduction in the number of disorders per child) between study groups (see Table 5).

Child competence

Children offered recreation experienced an increase in activities and skills ($p = 0.03$), compared to children not offered these recreation services, although this statistical difference is not viewed as clinically important (see Table 5). Of interest, children with any behavior disorder at baseline had higher competence rates if they received the recreation component compared to those who did not ($p = 0.04$). The favorable effect of quality recreation on the competence of children with a behavior disorder at baseline is documented in a separate article (Browne et al., 1999).

Social independence

As shown in Table 4, at 2-year follow-up, a statistically significant greater proportion of parents

who received comprehensive care (25%) reported that they had not used any form of social assistance in the entire previous 12 months compared to 10% in the self-directed care group (Group I versus V, $\chi^2 = 5.23$, $p = 0.02$).

Expense

The five study groups were similar at baseline in per parent annual expenditures for utilization of health and social services. Two years later, most groups had at least a 50% reduction in per parent expenditures except for Group III (employment retraining) which consumed statistically significantly more health and social services largely due to hospital costs ($p = 0.04$). When hospital costs are excluded, the five study groups were similar as illustrated in Fig. 2 ($p = 0.87$). By 2 years, the cost of health and social services used by the self-directed group was equivalent to the cost of providing these services proactively to Group I.

For children, at baseline there were differences in total direct annual per child expenditures for use of direct services; however, 2 years later, there was no statistical

Table 5
Group comparisons of children's behavior disorders and children's competence at baseline and 2-year follow-up

Number of children's behavior disorders	Comprehensive ($n = 92$)		Health promotion ($n = 71$)		Employee retraining ($n = 41$)		Recreation ($n = 87$)		Self-directed ($n = 45$)		Test Statistics	
	n	%	n	%	n	%	n	%	n	%	χ^2	p -value
	Baseline: None	76	82.6	56	78.9	27	65.9	66	75.9	33	73.3	11.10
1 disorder	6	6.5	11	15.5	10	24.4	13	14.9	9	20.0		
2 disorders	7	7.6	2	2.8	3	7.3	5	5.7	2	4.4		
3 disorders	3	3.3	2	2.8	1	2.4	3	3.4	1	2.2		
2 years: None	67	72.8	58	77.5	35	85.4	62	72.4	36	80.0	8.81	0.72
1 disorder	13	14.1	12	16.9	4	9.8	16	18.4	5	11.1		
2 disorders	8	8.7	3	4.2	0	0.0	6	6.9	3	6.7		
3 disorders	4	4.3	1	1.4	2	4.9	2	2.3	1	2.2		
Baseline – 2 years											11.62	0.17
Better	8	8.7	9	12.7	10	25.0	12	13.8	6	13.3		
Same	68	73.9	52	73.2	29	72.5	61	70.1	35	77.8		
Worse	16	17.4	10	14.1	1	2.5	14	16.1	4	8.9		

Children's competence score ^a at 2-year follow-up	Comprehensive ($n = 54$)		Health promotion ($n = 50$)		Employee retraining ($n = 23$)		Recreation ($n = 54$)		Self-directed ($n = 33$)		Test statistics	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F -test	p -Value
	Activities Score (0–10)	6.07	1.79	5.82	1.66	5.61	2.13	6.72	1.60	5.73	1.66	2.90
Social score (0–10)	6.31	2.07	6.32	2.49	5.87	2.62	5.78	1.85	5.67	2.25	0.87	0.49
School score (0–6)	4.70	1.28	5.00	1.02	5.09	0.67	4.89	1.04	4.85	1.12	0.73	0.58
Competence score (0–26)	17.1	3.69	17.14	3.92	16.57	4.42	17.39	3.15	16.24	3.32	0.62	0.65

^a Note: Competence score is the sum of activities score, social score and school score; the higher the score, the more competent the child.

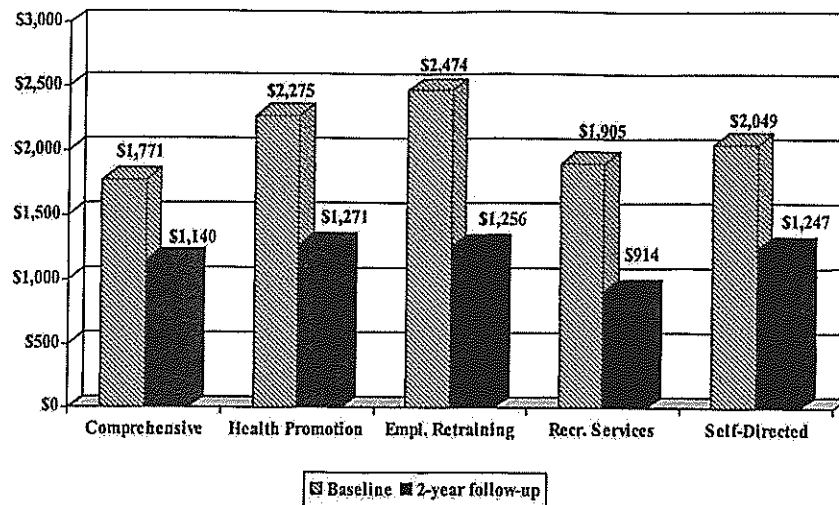


Fig. 2. Group comparisons of per person annual expenditures for health and social services utilization (excluded hospital expenditures) between baseline and 2-year follow-up.

difference across study groups ($p = 0.08$). The provision of provider-initiated services to parents and children had no effect on changing (increasing or decreasing) children's self-directed use of other health and social services at 2-year follow-up. As expected, there were significant differences in the expenditures for the use of recreation services in Groups I and IV reflecting the cost of the recreation/childcare intervention.

Discussion

This is the first randomized trial to report on the effects and expense of adopting a proactive comprehensive approach to providing social assistance to sole-support parents and their children. The study predates the current social policy introduced by Ontario Works (Ministry of Community and Social Services, 2000) and it occurred at a time when single-parent mothers on social assistance were not required to work. The study was conducted to illustrate the effects of offering proactive comprehensive care in a system where it was not mandatory for a recipient of social assistance to actively participate in a program designed to move them as quickly as possible to a job.

Intuitively, social assistance caseworkers have long recognized the linkages between poverty, mental health disorders, single parenthood and childhood problems. There is a general awareness that providing income support to sole-support families is, on its own, most often not enough to help them break out of the welfare cycle. Instead, addressing the multiple needs of the family to treat their whole circumstance is an alternative that needed to be investigated. The results

of this study clearly demonstrate that compared to self-directed care, providing an upfront comprehensive, provider-initiated package of services to sole-support families receiving social assistance is more effective in terms of % exits from social assistance and dollars saved due to more exits. In addition, it is no more expensive to provide health and social services in a comprehensive fashion than to allow parents to access services in a self-directed manner. Furthermore, over a 2-year period, compared to self-directed care, comprehensive care produces equivalent reductions in parent mood disorders and child behavior disorders, as well as equivalent increases in parent social adjustment and child competence levels.

We were also eager to identify any particular types of sole-support parents who benefited more from the comprehensive approach compared to self-directed care. We examined parent characteristics (e.g., age, gender, presence of mood disorder, number of children) that may have interacted with the approach to treatment. We found an across the board decrease in mood scores and a concomitant increase in social adjustment scores for all types of parents across all study groups. These results may have limited generalizability since this study took place in two well-developed urban regions in central Ontario which may not render the results transferable to recipients of social assistance living in rural areas or other environments.

Although, our large sample size and the long-term follow-up were major strengths of this study, a major limitation was the large drop-out rate by the 2-year follow-up. This loss of subjects was disappointing; however, this is typical of community trials involving social assistance populations with long-term follow-ups

(Social Research and Demonstration Corporation, 1996). In this situation, a large number of participants became lost to follow-up because they moved and we were unable to locate them; some new addresses were identified, however we were unable to make contact by phone, letter, or by randomly stopping by their homes. As the results show, the sole-support parents who were retained in the study at 2-year follow-up were somewhat more disadvantaged and more entrenched in the welfare system in that they were higher recipients of other forms of government assistance. When comparing drop-out rates, we found that 72% (18/25) of sole-support fathers dropped out compared to 52% (381/733) of sole-support mothers. We were very interested to determine the reason for the higher drop-out rate in the small group of sole-support fathers who enrolled in the study; however, we were unable to locate the 18 fathers. Generally, the two highest retention rates were for the comprehensive package (58%) and the recreation package (55%). It seems that higher retention rates were achieved when the program involved recreation for the children. It may be that parents had more incentive to stay involved when they perceived that their children were benefiting.

If comprehensive care actually makes any difference, it should really have been most evident when comparing the results of Groups I (comprehensive package) and V (self-directed care). Although the changes in parent mood scores and total social adjustment scores were equivalent between these two groups, participants in Group I did have a statistically significant higher voluntary exit from social assistance compared to Group V (25% versus 10%). This 15% difference in exit rates between the two groups has major implications. Exiting social assistance earlier than the usual 3–4 years (Gorlick & Pomfret, 1991) results in substantial savings. In addition, over the 2 years from baseline to 2-year follow-up, study results showed equivalent reductions in the use of other health and social services across groups commensurate with improvements in mental health. After including the cost of all proactive care, it was no more expensive to help them proactively than to rely on their on-demand use of more expensive hospital/physician services. In addition, due to the savings resulting from more rapid exits from social assistance, it can be argued that it is actually less expensive to society to provide comprehensive care.

Applying what was learned from our study results, we have developed a costing scenario (expressed in Canadian dollars) to estimate the savings that could be achieved by providing comprehensive care to social assistance recipients based on the following assumptions:

- There are approximately 8000 sole-support families in Hamilton-Wentworth/Halton regions.
- It costs, on average, \$20,000 per year to provide social assistance to a sole-support family (\$12,000 in

income support and \$8000 for benefits) resulting in a cost of approximately \$160 million per year for 8000 families.

- Study results show that it costs no more to proactively provide a comprehensive package compared to allowing parents to fend for themselves and to access services in a self-directed manner; therefore, it is not necessary to include the cost of the program in the costing scenario since from a cost perspective, it makes no difference to society how the services are delivered (Fig. 2).
- Engagement rates might vary between 35.1 and 78.8% depending on the intervention.
- The retention rate, once engaged in a comprehensive package is 58%.
- Twenty-five percent of parents receiving comprehensive care will not use social assistance in the previous year compared with 10% when parents direct their own care; therefore, we can expect a 15% difference (more) in exit rates due to comprehensive care.

Using these assumptions, if providing comprehensive care triggers 100% engagement and causes 15% more families to exit social assistance, then we would expect 1200 of 8000 families to exit. This would result in a \$24 million per year ($1200 \times \$20,000$) reduction in social assistance payouts. Recent re-investment initiatives in Ontario have been introduced with the goal of providing low-income families with support as they move into the workforce (Ministry of Community and Social Services, 1999). If current recipients of social assistance were to retain the benefits portion of their subsidy when they exited social assistance (approximately \$8000 per year), then the amount saved in social assistance payout would now be reduced to \$12,000 per year instead of \$20,000. If there was a 15% exit rate, the 1200 exits would result in a \$14.4 million ($1200 \times \$12,000$) annual reduction in total social assistance payout. Therefore, even with continuing to provide benefits to the families exiting social assistance there would still be a \$14.4 million annual savings to the system.

Taking into account that we cannot expect that all 8000 families will engage in the comprehensive service package or that all who engage will continue to participate in the program, we calculated how engagement and retention rates could affect the above estimations. Specific engagement rates in our study varied: 73.8–78.8% for the recreation component; 66.2–79.7% for the health promotion component; and 35.1–38.4% for the employment retraining component. The lowest engagement rates for each component (73%, 66%, 35%) have been plugged into the costing scenario. Fifty-eight percent has been used as the retention rate since, of those who engaged in the comprehensive package, 58% were retained at 2-year follow-up.

If we assume an engagement rate of 73%, we would expect 5840 of 8000 families to engage in any given year. If 58% of these were retained, 3387 families would receive the benefits of the comprehensive package. If 15% of these exit social assistance due to receiving the comprehensive package, then 508 families would exit. Using the complete cost of providing both income maintenance and benefits (\$20,000), if 508 families exit, we would expect an annual savings of \$10.2 million. On the other hand, if those who exited social assistance retained \$8000 in benefits, there would still be a savings of \$6.1 million ($508 \times \$8000 = \4.1 million; $\$10.2$ million – $\$4.1$ million = $\$6.1$ million).

In comparison, an engagement rate of 66% would result in \$5.5 million–\$9 million savings in social assistance payout depending on whether \$12,000 or \$20,000 in reduced social assistance was used in the calculation. Even an engagement rate as low as 35% (2800 families) results in annual social assistance savings between \$2.9 million and \$4.9 million.

Clearly, this costing scenario demonstrates the potential for major savings in social assistance payouts when sole-support families on social assistance receive a comprehensive package of provider-initiated services. These estimates are considered conservative given that there was a large drop-out rate and due to lack of evidence, we are forced to assume that all of those who dropped out of the study received absolutely no benefit from their participation, that they did not voluntarily exit social assistance as a result of the intervention, and that they did not have reduced utilization of health and social services. This may, in fact, not be the case and it is disappointing that we could not measure the impact that the interventions ultimately had on these drop-outs.

Another interesting finding of this study is that, similar to the Canadian Self-sufficiency Project (Social Research and Demonstration Corporation, 1996), one-third of the sole-support parents who were offered employment retraining elected to attend at least one session. As a rule, social policy designates these parents as unemployable; however, if as seen in this study, sole-support parents are willing to attend retraining sessions and this accelerates their return to work, it seems a strategy that merits further examination.

In summary, our study results demonstrate that a comprehensive package of care provided to sole-support parents receiving social assistance is both more effective and less expensive to society as a whole, in terms of more exits and dollars saved in reduced social assistance payouts. Furthermore, the returns on the investment with comprehensive care are greater than when individual services are offered in a diluted fashion. In fact, our findings suggest that underserving sole-support parents and allowing them to direct their own use of services is considerably more expensive since it results in a sustained reliance on social assistance by a greater

number of parents over the long term. A comprehensive approach provides sustained support that addresses the needs of the entire family. Considering that it costs no more to provide services to social assistance recipients in a comprehensive fashion compared to a self-directed manner, that we can expect equivalent improvements in parent mood disorder and social adjustment, and that parents will make a quicker exit to the workforce, it is clear that comprehensive care provides tremendous short- and long-term financial gains and societal benefits. Lessons learned from this study have been enthusiastically endorsed by community stakeholders and are currently being used to inform municipal reinvestment strategies in an Ontario initiative to reduce child poverty and to promote employment for low-income and welfare families by providing income supplements and essential benefits and services to families as the parent re-enters the workforce (Ministry of Community and Social Services, 1999).

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