Cost-Effectiveness of a Primary Care Treatment Program for Depression in Low-Income Women in Santiago, Chile

Ricardo Araya, Ph.D., M.D.

Terry Flynn, Ph.D.

Graciela Rojas, M.D.

Rosemarie Fritsch, M.D.

Greg Simon, M.P.H., M.D.

Objective: The authors compared the incremental cost-effectiveness of a stepped-care, multicomponent program with usual care for the treatment of depressed women in primary care in Santiago, Chile.

Method: A cost-effectiveness study was conducted of a previous randomized controlled trial involving 240 eligible women with DSM-IV major depression who were selected from a consecutive sample of adult women attending primary care clinics. The patients were randomly allocated to usual care or a multicomponent stepped-care program led by a nonmedical health care worker. Depression-free days and health care costs derived from local sources were assessed after 3 and 6 months. A health service perspective was used in the economic analysis.

Results: Complete data were determined for 80% of the randomly assigned patients. After we adjusted for initial severity, women receiving the stepped-care program had a mean of 50 additional depression-free days over 6 months relative to patients allocated to usual care. The stepped-care program was marginally more expensive than usual care (an extra 216 Chilean pesos per depression-free day). There was a 90% probability that the incremental cost of obtaining an extra depression-free day with the intervention would not exceed 300 pesos ($1.04 U.S.).

Conclusions: The stepped-care program was significantly more effective and marginally more expensive than usual care for the treatment of depressed women in primary care. Small investments to improve depression appear to yield larger gains in poorer environments. Simple and inexpensive treatment programs tested in developing countries might provide good study models for developed countries.

Depression is likely to become the second leading global health burden by 2020 (1), and socially disadvantaged women bear much of this burden. Depression is highly prevalent in primary care where women are overrepresented among attendees (2). Primary care is the cornerstone of health care services in most countries. An effective and efficient management program for depression in primary care could have an important impact throughout the world.

However, the management of depression in primary care is often unsatisfactory and ineffective throughout the world (2). Some efficacy studies in developed countries have shown that improved treatment programs yield significantly better clinical outcomes when they are tested (3–6).

Several cost-effectiveness studies of depression treatment programs in primary care have been undertaken in the developed world (6–16). Patients treated in U.S. collaborative care programs showed 30% greater recovery rates than patients in usual care with an incremental outpatient cost of $250–$500 (U.S.) per case successfully treated. The costs of these improved treatment programs are a significant barrier to their implementation in the United States (17).

There has been little research in this field from the developing world. The lack of resources and the high prevalence of depression and its close association with poverty have created a rather nihilistic view about the treatment of depression in the developing world. Recent research challenges this view, however. An Indian study showed improvements with antidepressants at 2 months (18), and a study in Uganda found that group interpersonal therapy alone delivered by trained local health workers was effective at 6 weeks (19). These studies show that some improvements can be achieved even with limited resources and when treating extremely deprived populations.

We previously designed a stepped-care, multicomponent program for the management of depression among low-income women attending primary care clinics (20). We aimed to improve the efficiency with which scarce medical resources were used as well as the quality of treatment and the outcomes of patients. Patients in the intervention group showed significant clinical improvements in symptom and functional outcomes at 3 and 6 months relative to those in usual care. The objective of this study was to estimate the incremental cost-effectiveness of our stepped-care improvement program compared with usual care for the treatment of depressed women in primary care in Santiago, Chile.

Method

Setting

The study was conducted in three urban primary care clinics in Santiago, which were selected for practical reasons and represent typical clinics (21), with approximately six doctors serving 30,000 people from socially deprived areas. These clinics are run under tight budgets with a central government per capita allocation and variable contributions from the local municipalities. Primary care doctors are in short supply, and retention of these doctors in primary care is short-lived. Most clinics have social workers, nurses, and auxiliary nurses.

Eligibility and Random Assignment

Consecutive female attenders ages 18–70 underwent a two-stage case-identification process; those scoring ≥5 points on the 12-item General Health Questionnaire on two successive occasions received the baseline assessment. The Mini International Neuropsychiatric Interview (22) was used to ascertain DSM-IV major depression. Patients with psychotic symptoms, serious suicidal risk, severe alcohol abuse, and a psychiatric consultation in the 3 months before the interview were excluded. The local faculty of medicine ethics committee granted ethical approval. All patients gave written informed consent after the baseline assessment. Random assignment was stratified by clinic and performed in blocks of 20 using computer-generated random numbers. Individuals recruiting patients were neither involved nor aware of the procedure used in generating the allocations.

Treatments

The stepped-care improvement program was a multicomponent program led by trained nonmedical health workers (two social workers and one nurse) who were responsible for delivering a group intervention, monitoring clinical progress and medication compliance, and coordinating further management with primary care physicians, if needed. These workers had previous experience working with groups in primary or mental health care and received 12 hours of training and 30 minutes of supervision per group session. The psychoeducational group intervention consisted of nine sessions with 20 patients lasting approximately 60 minutes each. Doctors were advised to consider antidepressants for severe depression (Hamilton depression scale score >19) at the outset or persistent depression (Hamilton depression scale score >12) following 6 weeks of group intervention. All doctors participated in the study, but only one was randomly chosen to monitor stepped-care improvement program patients. All doctors received 4 hours of training to deliver a brief, structured pharmacotherapy protocol to assure adequate dose and duration of treatment. Fluoxetine, amytriptiline, and imipramine were chosen because they were the only antidepressants available in these clinics. Doctors were told that the effectiveness of these antidepressants was similar but that fluoxetine had fewer side effects. Doctors were also advised to see patients soon after starting antidepressant regimens, but subsequent visits should be arranged at their clinical discretion. Health workers usually communicated with doctors through alert notes and arranging appointments for patients. Patients assigned to usual care had access to all services normally available in these clinics.

Clinical Effectiveness

Outcome assessments were undertaken 3 and 6 months after random assignment. The primary outcome measure was scored on the Hamilton depression scale (23), which was administered by independent clinicians blind to treatment assignments. The number of depression-free days was calculated using Hamilton depression scale scores at baseline and follow-up assessments (8) to estimate depression severity for each day during this interval. Days with a Hamilton depression scale score ≤7 points were considered depression-free, and days with a score ≥22 were considered fully symptomatic. All other values in between received intermediate scores, representing a linear interpolation between these two extreme scores (e.g., days with a score of 15 would be regarded as 50% depression-free). Values for each up interval were then added to yield the total number of depression-free days. We conducted a sensitivity analysis using different thresholds for depression-free (Hamilton depression scale score from 6 to 10) and fully symptomatic (Hamilton depression scale score from 20 to 24) days, which revealed a variation of less than 10%.

Service Use and Costs

We approached the economic analysis from a health system perspective for several reasons. First, this perspective was most relevant to our primary audience of health care decision makers. Second, most participants had household management and/or informal employment as their primary social roles. Although it is clear that there are costs incurred when these roles are impaired, attaching specific costs or wage rates to time in treatment or lost productivity is problematic in this group (24). Medical consultations and medication use (dose and duration) were assessed with a self-reported questionnaire covering 3 months preceding the assessments (2, 21). The use of health services is commonly assessed with reliable self-reported information, especially for short recall periods (25–27). Observer bias was unlikely, since the information was self-reported and interviewers were blind to random assignment and rotated frequently between clinics. Medical records in Chilean primary care clinics are often incomplete or unreadable. We did not attempt to determine whether primary care consultations were for physical or psychiatric reasons, but we estimated total medical outpatient consultations, including primary and secondary care. Since there were no major differences in the use of health services between the groups at baseline, we aggregated all medical consultations at follow-up, which provided a reasonable estimate of potential differences. We did not include data on hospitalizations because our main objective was to study the impact of the intervention on ambulatory care. Nonetheless, we can report that there was only one psychiatric hospitalization during the study, which was a patient in the stepped-care improvement program group. Equally, we did not inquire specifically about hospital referrals, but we did ask about any medical ambulatory consultation in general. Most primary care patients do not make any monetary contributions toward treatment, investigations, or medication.

All unit costs for medical consultations, time for nonmedical health care workers, and medication were derived from the Chilean Ministry of Health price lists in Chilean pesos. A group session involved 2 hours of nonmedical health care worker time (1,420 pesos/hour) and 30 minutes of psychiatric supervision (6,570 pesos). We also included one-half hour per week of physician time (2,910 pesos) and nonmedical health care worker time to review patients in the stepped-care improvement program group. The costs of training nonmedical health workers in the stepped-care improvement program group were included, but we excluded the costs of the physician training because this was given to all doctors as part of their continuing medical education. Three group leaders received 12 hours of training plus 12 hours for studying (2,166 pesos per patient). The costs of antidepressants (20 mg of fluoxetine: 4.0 pesos; 25 mg of amytriptiline: 3.5 pesos; and 25 mg of imipramine: 4.8 pesos) and benzodiazepines (10 mg of diazepam: 4.0 pesos; 10 mg of chlorodiazepoxide: 3.5 pesos; 0.5 mg of clonazepam: 17.9 pesos; 0.5 mg of alprazolam: 2.9 pesos) were multiplied by the dose and length of duration. It was not possible to estimate compliance with prescribed medication other than by asking the patients themselves. We did not include the cost of screening because this procedure was included

TABLE 1. Sociodemographic and Clinical Profile at Baseline of Women in a Stepped-Care Improvement Program or Usual Care

Characteristic	Stepped-Care Improvement Program (N=96)		Usual Care (N=95)	
	Mean	SD	Mean	SD
Age (years)	44.1	12.1	42.0	13.7
Number of dependent children	3.0	1.6	2.7	1.6
Hamilton Rating Scale for Depression score	19.8	3.0	19.8	4.2
36-Item Short Form Health Survey Social Functioning Scale score	34.0	26.2	35.9	24.9
	N	%	N	%
Marital status				
Single	13	14	9	10
Married	55	57	51	54
Co-habiting	14	15	13	14
Previously married[a]	14	15	22	23
Occupation				
Housewife	83	87	80	84
Student	1	1	2	2
Employed	12	13	13	14
Chronic illness	21	22	29	31
Previous depression	52	54	54	57

[a] Separated and widowed.

mainly for research case identification and used in both groups. However, this is a procedure that can be undertaken by a receptionist with minimal training or omitted when the program is implemented. No discounting was applied because of the short duration of the trial. We present a few examples in U.S. dollars that were calculated using purchasing power parity conversions based on international data for the period (28).

Statistical Analysis

Data analysis of clinical outcome was conducted in accordance with CONSORT guidelines. As in other cost-effectiveness studies (6, 9, 10, 13, 14, 18, 29, 30), we restricted our main analysis to comparisons between groups of patients for whom there were complete clinical and cost data (N=191). The clinical and sociodemographic characteristics in this study (Table 1) were almost identical to those in a previous study (20). Missing clinical data were small and similar in both the stepped-care program group and the usual care group. Further sensitivity analyses of the clinical effectiveness using complete data and replacing missing values with the last observation carried forward and linear interpolation produced almost identical results (Figure 1). There were only seven cases with missing cost data, all of them in the usual care group. We conducted further sensitivity analysis, replacing missing cost data with the least and most expensive values for this group.

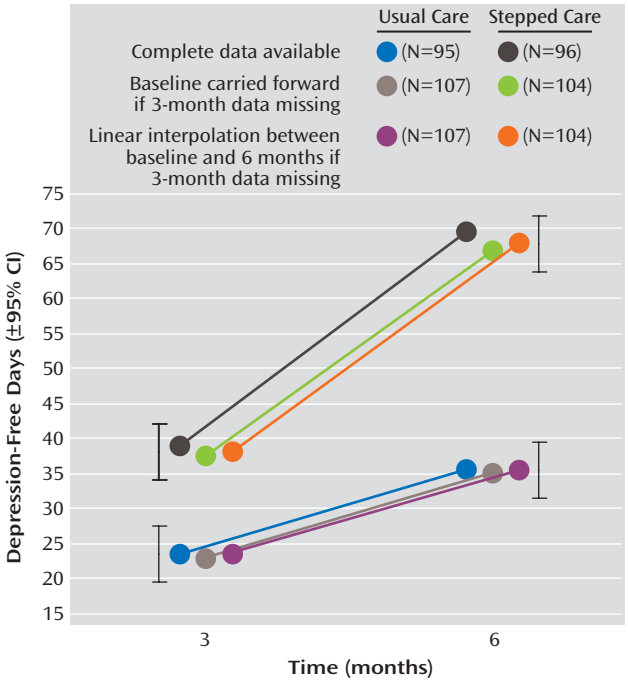
We estimated depression-free days and aggregated all direct health care costs for both the stepped-care program group and the usual care group. All direct costs, including training, were measured separately and then calculated to yield total medical outpatient treatment costs. Adjusted differences in costs and clinical effectiveness between the stepped-care improvement program and usual care groups were estimated using standard regression models (31), adjusting for baseline severity, age, presence of chronic disease, and clinic. Mean costs with corresponding 95% confidence intervals (95% CIs) were also calculated for both groups. Although most costs tend to have a skewed distribution, logarithm-transformed data cannot be used to estimate cost-effectiveness accurately (32). Therefore, we used the bias-corrected nonparametric bootstrap (resampling with 1,000 draws) to estimate all confidence intervals (33, 34). The incremental cost-effectiveness ratio was estimated, where the numerator represents the difference in costs and the denominator represents the difference in the number of depression-free days between the two treatment groups. The 1,000 bootstrap estimates of the incremental cost-effectiveness ratio were ranked and plotted against the percentiles of the distribution to produce a cost-effectiveness acceptability curve. This graph allows us to read the probability that the treatment program (stepped-care improvement program) would be cost-effective for various values of the maximum acceptable cost-effectiveness ratio, and it is consistent with the net-benefit approach (35). One of the reasons we chose this methodology is because the most recent cost-effectiveness studies for the treatment of depression have used this approach facilitating comparisons (6, 10, 12–14, 18). All statistical analyses were performed using STATA version 8.0 (36).

Results

Approximately one out of five patients was identified as potential cases after screening. All of them were sent appointments for baseline assessments, but only 375 were interviewed before completing recruitment of 240 women needed for the trial. Of the 135 women who were not included, 110 did not meet DSM–IV criteria for major depression. Patients who received baseline interviews had similar scores on the 12-item General Health Questionnaire than those who were not interviewed (20) (Figure 2).

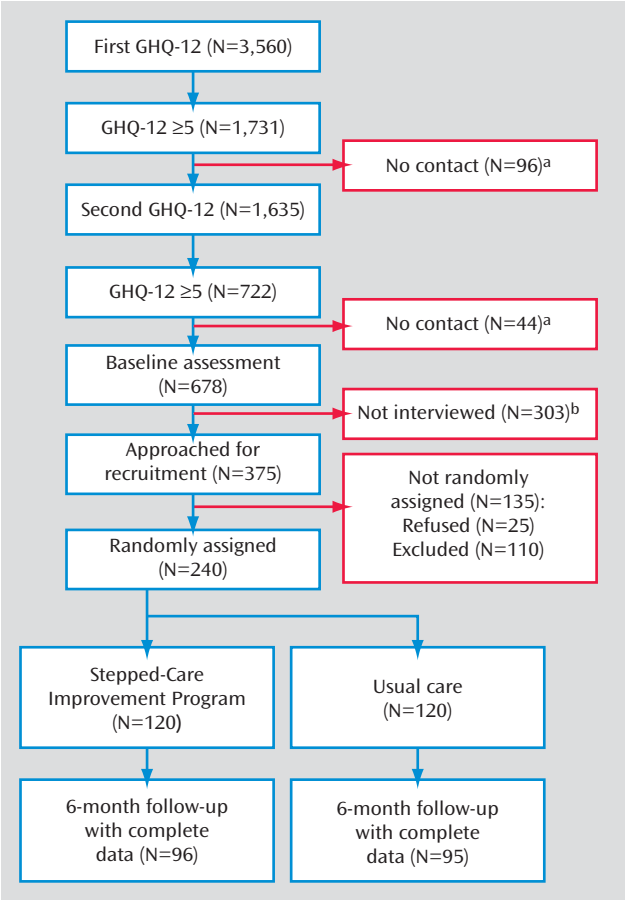
Table 1 shows that those patients who were randomly assigned to usual care and the stepped-care improvement program and included in this analysis were similar in demographic and baseline clinical characteristics. The great majority were married housewives with average Hamilton depression scale scores, suggesting moderate to severe depression with high levels of social dysfunction. Of those assigned to the stepped-care improvement program, the mean number of sessions attended was 7.27 (CI=6.76–7.78). There were notable differences in the proportion of women receiving medication, the dosage, and duration (Table 2). In the stepped-care improvement program group, 80% (N=77 of 96) of patients received antidepressants, compared with 56% (N=53 of 95) in the usual care group. Generally speaking, patients in the stepped-care improvement program received similar doses of antide-

FIGURE 1. Comparing Depression-Free Days in Stepped-Care Improvement Program Patients and Usual Care Patients at 3 and 6 Months[a]



[a] Usual Care 1/Stepped-Care Improvement Program 1=Only women with complete data (N=95/96). Usual Care 2/Stepped-Care Improvement Program 2=Baseline carried forward if 3-month assessment missing (N=107/104). Usual Care 3/Stepped-Care Improvement Program 3=Liner interpolation between baseline and 6-month assessment when 3-month assessment missing (107/104). Bars are 95% confidence intervals.

FIGURE 2. Flow Diagram of Participant Progress Via Trial



[a] Losses due to nonattendance.
[b] Not approached since target sample size was already obtained.

pressants, with the exception of imipramine, but for a much longer duration. A much larger proportion of women were receiving benzodiazepines in the usual care group (45% [N=43 of 95] versus 13% [N=12 of 96]), but the length of time on the drug was similar in both groups (30 days [95% CI=28–33] versus 31 days [95% CI=23–40]).

The mean (unadjusted) costs obtained with bootstrapping for the two groups is shown in Table 3. Additional costs for the stepped-care improvement program were mainly concentrated on group intervention, liaison with doctors, and antidepressants. The mean number of medical consultations was similar in both groups. At 6 months, total costs in the stepped-care improvement program were approximately 40% higher than for the usual care group.

Table 4 displays the covariate-adjusted difference in depression-free days and cost-effectiveness. The stepped-care improvement program group achieved 50 more depression-free days than the usual care group after adjusting results for age, presence of chronic disease, and initial severity. This improved clinical outcome in the stepped-care improvement program group was achieved at an additional cost of 10,855 pesos ($37.6 U.S.) per person over and above the costs of usual care. The incremental cost-effectiveness ratio for the stepped-care improvement program relative to usual care was 216 pesos ($0.75 U.S.). In other words, the stepped-care improvement program was more costly but also more effective, with a cost of 216 pesos to obtain an extra depression-free day, relative to usual care.

We conducted some sensitivity analysis to explore the impact of missing data. We replaced missing cost data using extreme values (lowest and highest value) and ran models with complete clinical data (N=197) and with missing clinical data replaced with the last observation carried forward (N=211). When using complete clinical and cost data (N=197), the incremental cost-effectiveness ratios per extra depression-free day fluctuated between 173 pesos (range: 67–278) and 236 pesos (range: 126–347). When using data sets with replaced missing clinical and cost data (N=211), the incremental cost-effectiveness ratios varied between 169 pesos (range: 63–275) and 245 pesos (range: 134–357). The cost-effectiveness acceptability curve for all these models showed similar patterns, with a 90% probability of a cost-effective stepped-care improvement program at 300 pesos ($1.04 U.S.).

TABLE 2. Dose and Duration of Antidepressants Prescribed Over 6 Months for Women Receiving a Stepped-Care Improvement Program or Usual Care

	Stepped-Care Improvement Program			Usual Care		
Antidepressant	N	Mean	95% CI	N	Mean	95% CI
Fluoxetine	71			39		
Dose (mg/day)		25	23–28		23	21–26
Duration (days)		141	127–153		51	42–65
Amytriptiline	2			9		
Dose (mg/day)		50[a]			39	29–53
Duration (days)		63[a]			42	21–87
Imipramine	4			5		
Dose (mg/day)		75[a]			35	25–50
Duration (days)		92[a]			33	23–53

[a] Number is too small to provide meaningful confidence intervals.

TABLE 3. Use of Health Care Resources and Mean Costs[a,b] Per Patient Among Low-Income Women Randomly Assigned to 6 Months of a Stepped-Care Improvement Program or Usual Care

	Stepped-Care Improvement Program (N=96)				Usual Care (N=95)			
Service	Use		Cost[a]		Use		Cost[a]	
	Mean	95% CI[c]	Mean	95% CI[c]	Mean	95% CI[c]	Mean	95% CI[c]
Primary care consultation	4.7	4.1–5.4	13,640	11,836–5,801	4.5	3.8–5.2	13,018	11,155–15,190
Psychiatry consultation	0.3	0.0–0.9	1,711	158–5,934	0.3	0.1–0.4	1,660	632–3,039
Group sessions 1	7.3	6.7–7.8	1,710	1,580–1,830	0		0	
Group psychoeducational training	Fixed		2,166		0		0	
Patient support and group psychoeducationl liaison 2	Fixed		3,776		0		0	
	N	Range	Mean	95% CI[c]	N	Range	Mean	95% CI[c]
Benzodiazepine prescriptions	13	7–20	0.68	0.26–1.34	45	36–55	2.12	1.36–3.18
Antidepressant prescriptions	80	72–89	647	545–761	56	47–66	176	124–240
Total costs			25,362	22,791–29,854			14,856	12,420–17,469

[a] All costs are given in Chilean pesos ($1 U.S.=288.7 pesos using purchasing power parity [28]).
[b] Unit costs are given in the text.
[c] Bias corrected estimates.

Figure 3 shows the cost-effectiveness acceptability curve for the complete data obtained from bootstrap estimates of the incremental cost-effectiveness ratio. When the 1,000 bootstrap estimates of cost-effectiveness were ranked, there was a 90% probability that the incremental cost of obtaining an extra depression-free day by introducing the stepped-care improvement program would not exceed 300 pesos.

Discussion

To our knowledge, this is the first successful randomized controlled trial of a stepped-care program for the treatment of depression in primary care from a developing country. Our program was significantly more effective than usual care, and this was achieved with modest cost increases. A national program based on our intervention has now been introduced in Chile, turning this study into one of the few examples of research assisting a major mental health policy decision in the developing world.

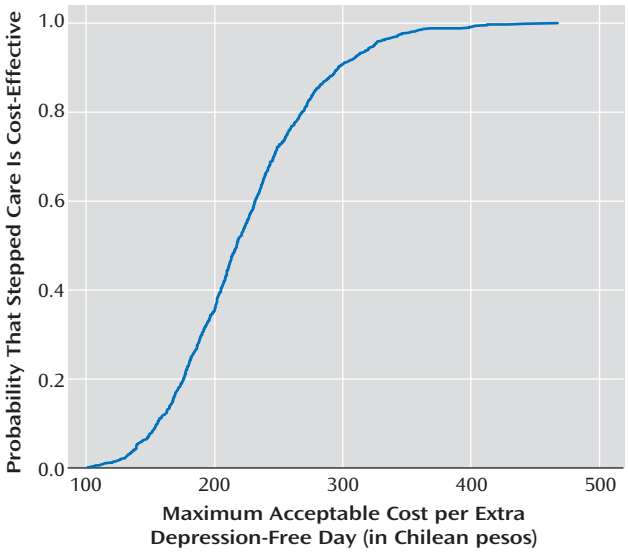
Our analyses were restricted to 6 months. Several U.S. studies (11, 13, 37) suggest that the costs of improved depression care tend to occur early and benefits continue to accrue. Cost-effectiveness ratios may be more favorable over periods of 12 months or longer. It is impossible to completely rule out some contamination between the groups, but other similar U.S. studies have found little evidence in support of this (38, 39) and, even if it was present, it would have reduced the differences between the groups. There are difficulties when comparing cost-effectiveness studies across countries because of differences in treatments, unit costs, resources, and so on. However, common clinical outcomes, such as depression-free days, allow for some cautious comparisons. The women in our stepped-care improvement program achieved 50 incremental depression-free days over 6 months, relative to women in the usual care group, which compares favorably with the increments of 17 depression-free days or less seen in similar U.S. studies (13). Comparisons across countries are often of little interest for local decision making; more

TABLE 4. Incremental Costs[a,b] and Incremental Cost-Effectiveness Over 6 Months for Women Receiving a Stepped-Care Improvement Program Relative to Usual Care

Analysis	Mean	95% CI[c]
Incremental cost (total additional cost [in pesos] per person receiving stepped-care improvement program rather than usual care)	10,855	7,084–15,578
Incremental effect (additional depression-free days when in stepped-care improvement program rather than usual care)	50.4	36.7–62.0
Incremental cost-effectiveness ratio (additional cost [in pesos] per extra depression-free day gained when in stepped-care improvement program rather than usual care)	216	130–343

[a] All costs are given in Chilean pesos ($1 U.S.=288.7 pesos using purchasing power parity [28]).
[b] All estimates are covariate adjusted.
[c] Bias corrected estimates.

FIGURE 3. Cost-Effectiveness Acceptability Curve of Stepped-Care Improvement Program[a]



[a] All costs are given in Chilean pesos ($1 U.S.=288.7 pesos using purchasing power parity [28]).

important seems to be the cost-effectiveness of a program in relation to local needs, resources, and political climate.

We feel that our stepped-care improvement program involved a modest increase in costs relative to usual care. Incremental costs per an extra depression-free day with the stepped-care improvement program were 216 pesos, and there was a 90% probability of achieving an extra depression-free day for 300 pesos, which is equivalent to the cost of a one-way bus fare in Santiago. We feel that the relatively low costs of our program might have been influenced by the following:

1. Delegating as much responsibility as possible to nonmedical health workers who are paid lower wages. Enlarging the role of these workers is something that developing countries have been practicing for a long time (40).

2. Using a group intervention rather than costly individual therapies supplied by well-trained professionals. There is little research on group interventions for depression in primary care in the more developed world, and, when tried, attendance has been poor (41).

3. Choosing lower-cost antidepressants without affecting effectiveness. Fluoxetine is out of patent status, and its market price is fairly low in most developing countries (18).

One of the most striking differences between the groups in our study was the less frequent use of antidepressants in the usual care group and, when prescribed, the shorter duration. Incidentally, physicians in both groups received similar treatment guidelines and training at the onset of the study, which is further evidence that guidelines alone are not sufficient to improve treatment practices or outcome (42). We were unable to establish with clarity the relative contribution of each treatment component, although our analysis suggests that antidepressants and the number of group sessions seem to have made independent contributions to recovery (20).

It is likely that systematic follow-up, active engagement, and support might have also contributed to the recovery rates, as found in a similar U.S. study (4). The likelihood of achieving clinically significant results is higher with multicomponent programs, something that must not be underestimated when local decision makers are skeptical on the merits of investing more resources toward treating depression. It is also important to recognize that treatment often involves the use of more than one component in routine clinical practice. Thus, the evaluation of practical multicomponent interventions is probably of greater importance to service providers and policy makers than the dissection of specific treatment components.

In a number of developed countries, such as the United States, there are some agreed upon thresholds ($50,000 per quality adjusted life years gained [43]), suggesting that it could be worthwhile to invest in an intervention. However, no such thresholds have been estimated or agreed upon in Chile, and it would be unreasonable to extrapolate thresholds across countries with clearly different socioeconomic development levels. Nonetheless, a simple calculation could shed some light onto the possible costs in Chilean pesos per quality adjusted life years gained. For instance, if we estimated that recovery from fully symptomatic depression to full remission is associated with a health utility gain of 0.2 to 0.4 (44, 45), then our cost-effectiveness ratio of 216 pesos per depression-free day would

Patient Perspectives

"Maria" was a 46-year-old woman, separated from her husband, with 3 adult children and a son age 4 living with her at home. She was a casual worker, cleaning offices whenever needed. Whenever she had to work, her eldest daughter, age 26, would stay home looking after her younger son. She admitted that she did not know she was ill. She thought that she was just unhappy with her life, felt tired because of hard work, and had lost weight because of "stress." She described that she was quite irritable and would easily get into heated arguments with her children. She consented to participate in the study and stated, that it "changed my life; it is as if I had been reinvented." Regarding the group sessions, she stated, "I came to realize that I was experiencing a lot of this list of symptoms; it was only then that I realized that I was ill, and the name of my illness was depression." Reluctantly, she accepted medication and stated, "This was the best decision I have ever made because all these symptoms went away within weeks. Now I have a much better relationship with my children. I am still taking the tablets, but I don't care because I feel well. My only worry is what I would do if the clinic could not give me the medication for free." She was much more energetic, and she didn't wake up with what she described as that "awful feeling of having to face another day." Her family was very appreciative of the help that she received. She was also very grateful for the support the group leader provided and stated that "She was there when I needed that extra push."

"Leticia" was a 43-year-old married, housewife, with 3 young dependent children living at home. She had been unhappy for quite some time but did not know that it was because of an illness. She felt that her social situation was tough and her marital relationship was a "disaster" and that there was nothing that could be done about it. She felt low and anxious, especially when her husband was around, found it difficult to fall asleep, and her appetite was gone. She expressed strong feelings of worthlessness and vague suicidal ideas. She participated actively in the groups, although she found it difficult to get to the sessions because she did not have the money to do so. She was found to be severely depressed at the first assessment and offered medication immediately. She accepted without hesitation because she was feeling rather desperate. During the sessions, she talked a lot about being the victim of domestic violence, but she also admitted mutual physical aggression with her husband. She improved only marginally after 12 weeks, and it was believed that a formal psychiatric assessment was necessary. She was admitted into the hospital after her assessment and left the hospital still symptomatic after 2 months. Her relatives said that her husband forced the admission because he convinced her that it was her illness that made her violent.

translate into a ratio of between 197,100 pesos ($683 U.S.) to 394,200 pesos ($1,365 U.S.) per quality adjusted life years gained.

Scientific knowledge tends to travel more easily from the developed world to the developing world. However, it is possible that something could be learned from studies using simple interventions with less intensively trained personnel (46). Some of the lessons learned from this are as follows:

1. There is no good reason to hold nihilistic views about the treatment of depression with deprived populations; these are precisely the groups that have the most to gain with modest investments to improve the treatment of depression as demonstrated in countries with various levels of development (4, 19).

2. It is possible to deliver affordable yet successful multicomponent stepped-care programs in poorer and richer countries.

3. Engaging patients and providers in a course of effective treatment seems to be essential, especially in deprived populations (4). In keeping with this, nonmedical health care workers, in our study, were responsible for systematic follow-up of patients as well as regular liaisons with treating physicians.

4. Some effective mental health interventions can be delivered in groups, which are also seen in studies for other health problems in the developing world (47, 48).

In resource-poor settings where there is little to treat depression, testing simple and inexpensive interventions might be more acceptable for people than in countries accustomed to more choices. The diversity in populations, health systems, resources, costs, or treatments across countries may conspire against the generalizability of findings, but these differences have not been an impediment for developing countries to learn from the experiences of the developed world.

From the Division of Psychiatry, University of Bristol; MRC Health Services Collaboration, Department of Social Medicine, University of Bristol; the Hospital Clinico, Facultad de Medicina, Universidad de Chile, Santiago; and Group Health Cooperative Puget Sound, Seattle. Address correspondence and reprint requests to Dr. Araya, Division of Psychiatry, University of Bristol, Cotham House, Cotham Hill, Bristol BS6 6UJ; R.Araya@bris.ac.uk (e-mail).

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