Depression Program in Primary Health Care
The Chilean Experience

ABSTRACT: Chile is a middle income country in the process of demographic transition, where mental health problems contribute significantly to the disease burden. In 2001, Chile introduced gradually the Program of Treatment for Depression in Primary Health Care (PTDPHC), which includes a multicomponent care model according to the severity of the medical profile: integral evaluation by a team of professionals, antidepressant drug treatment, individual psychotherapy, psychoeducational group intervention, and monitoring visits. In 10 years of operation, this program has attended more than 1 million adults. We have conducted several evaluations of this program, and our results show that PTDPHC is effective in decreasing depressive symptoms and comorbidity, has positive effects on the patient and their partners, and is independent of the center; the greatest threat to achieving effectiveness is the rate of treatment dropout. In the future, the manager of this policy must meet the following challenges: the continuous training of primary care teams, the incorporation of techniques that have been shown to improve compliance, and the extension of coverage to remote areas, where telepsychiatry could be a good idea.
General Description of the Country Context

Chile is a middle income country (gross domestic product per capita around US$16,000 in 2011), with a population of nearly 17 million, which is concentrated in urban areas (only 13 percent live in rural areas) and in mixed aged population (22.3 percent are under 15 and 9.0 percent are over 65). Its population has good access to basic services: 94.1 percent have drinking water, 84.4 percent are connected to sewer, and 99.4 percent are connected to electricity [1, 2].

The country has reduced poverty in a systematic way in the last two decades: in 1990, 38.6 percent of the population had incomes under the poverty line, and in 2009, this percentage was 15.1 percent [1–3]. However, the country has an inequitable distribution of income that has not improved in two decades: the Gini index was 0.57 in 1990 and 0.55 in 2009, and the ratio between the highest income quintile and lowest quintile was 13.9 in 1990 and 15.7 in 2009, showing a deterioration of the situation [1–3].

The country has presented a sustained improvement in its health indicators [1], for example, in 2008, the general mortality rate was 5.4 per 1,000 people, the infant mortality rate was 7.8 per 1,000 newborn, and the maternal mortality rate was 16.9 per 1,000 newborn [1, 2]. Chile has a mixed health system: public and private. More than 70 percent of its inhabitants are covered by the public health sector, which has a network of 156 hospitals of various complexity and 589 primary health centers (PHCs). These centers have general physicians, dentists, nurses, social workers, nutritionists, psychologists, and nursing aides.

Description of the Treatment Program for Depression in Primary Health Care in Chile

The Program of Treatment for Depression in Primary Health Care (PTDPHC) was introduced gradually from 2001 and reached national coverage in 2003. Three antecedents were important for the decision to initiate a program of this type within primary care. The first refers to three studies that showed that depressive disorders were highly prevalent in Chile and represented a major disease burden for the population [4–6]. The second relevant antecedent was the knowledge that there were effective pharmacotherapy and psychotherapies [7], but that their effectiveness was lower when they were not applied in an organized manner by health teams, differentiating the use of interventions according to clinical severity and coordinating actions between the different professionals. Previous experience in other countries had shown the need for integrated programs to strengthen the skills of physicians, increase patient adherence to treatment, and change the way care is provided [8–12]. In addition, two systematic reviews have found that these programs significantly improve the clinical picture (depressive symptoms), the quality of medical prescriptions (adherence to protocols for clinical care), the patient adherence to medication prescribed, and the satisfaction with the services received [13, 14].
The third important previous antecedent was a controlled trial in primary care clinics that evaluated the effectiveness of a comprehensive multicomponent treatment program for depression, which included participation in a structured psychology education group, systematic monitoring of clinical progress, and drug treatment [15]. This program was much more effective and slightly more expensive than the usual care. People receiving this improved care program obtained a recovery rate of 70 percent, compared with 30 percent in the usual treatment group.

In this program, the detection of a potential case was done by any primary care professional while being seen for other health problems. If depression was suspected, the person was referred to a physician or a psychologist at the primary care center, who was responsible for confirming the diagnosis and starting a structured program of care. Clinical diagnosis was based on the ICD-10 (International Statistical Classification of Diseases and Related Health Problems, tenth revision) criteria, which includes the severity of symptoms that determine the type of attention to be delivered and the range of psychosocial conditions that are considered risk factors (e.g., low social support, domestic violence, recent vital events, and personal history of a previous depressive episode).

If the depression was diagnosed as severe, the person was referred to an outpatient specialized center to be evaluated by a psychiatrist. However, if the depression was diagnosed as mild or moderate, the person was managed in a primary care setting following the criteria of a clinical practice guideline [16], which includes a multicomponent program that varies according to the severity of the medical profile: integral evaluation by a team of professionals, antidepressant drugs treatment, individual psychotherapy, psychoeducational group intervention, and monitoring visits. If the resulting clinical outcome was inadequate, the patient was reevaluated by a psychiatrist in the PHC, and if it was necessary, the patient was referred to a specialized center (currently this occurs in about 15 percent of cases). Patients with a good response completed their treatment at their PHCs for a period of not less than 6 months [16]. According to an external evaluation and using the ICD-10 criteria, 11.9 percent of cases presented with mild depression, 62.7 percent with moderate depression, and 25.4 percent with severe depression [17]. Primary care teams, on the other hand, tend to underestimate the severity of the clinical profile, diagnosing a lower frequency of cases with severe depression (5.4 percent only) [17].

Regarding treatment, 21.4 percent of cases received only pharmacological treatment, 36.6 percent of cases were treated both with pharmacological treatment and psychoeducation group intervention, 7.6 percent received pharmacotherapy and individual psychotherapy, while the remaining 34.4 percent were treated with the three types of interventions (pharmacotherapy, psychoeducation group intervention plus individual psychotherapy) [18]. The pharmacological treatment achieved the best compliance (73.3 percent) followed by individual psychotherapy (47.4 percent) and psychoeducation group intervention (37.8 percent) [18].

In July 2006, this program was included into the Regime of Explicit Health Guarantees as part of the Chilean Health Reform started in 2005, which offers an
explicit subset of guarantees in terms of access, quality, opportunity, and financial coverage for a selected list of 70 priority diseases. In 2001, 18,224 people with depression started treatments, rising to 91,313 in 2005 and 146,797 in 2010 (see Figure 1). Public spending for this program rose from US$557,320 in 2001 to US$6,261,850 in 2005, and grew further in 2011 with a budget of US$22,378,387. The implementation of PTDPHC in all the PHCs in Chile through a structured program of care (similar to other chronic diseases, such as hypertension or diabetes), with its enhanced treatment coverage and primary care resolution, can be successfully replicated in other developing countries [19].

**Evaluation of the PTDPHC**

We have performed two evaluations of PTDPHC: the first one from 2001 to 2002 during the implementation in some regions of the country [18, 20] and the second from 2003 to 2004 when the program was applied throughout Chile [17]. The first study was based on a follow-up of a cohort of 169 patients who had entered the treatment program for depression between August and September 2001 in eight PHCs in four cities. The patients were evaluated at admission and 3 months later [18].

The first relevant result concerned the pertinence of the diagnosis. In response to the program’s detractors who argued that the program would allow the intake
of many people without meeting diagnostic criteria for depressive disorders, we found that 1) 95.6 percent of patients who were admitted into the program had a real depressive disorder, 2) concordance about the clinical severity between PHC physicians and external evaluators was near 50 percent (higher concordance was observed in cases with high severity), and 3) there was a tendency to underestimate the severity of the clinical profile by PHC physicians [18]. In relation with this last point, we observed a high frequency of anxious and somatoform symptoms and disorders (87.8 percent and 76.4 percent, respectively) among people with severe depression as well as a significant correlation between the intensity of depressive symptoms and the intensity of anxiety symptoms ($r = 0.65$) and somatoform symptoms ($r = 0.45$). Moreover, a high percentage of women had a history of previous depressive episode (60.7 percent), poor social support (55.7 percent), and history of domestic violence (51.4 percent). The conclusion that was reached was that most of the cases experienced high clinical and psychosocial difficulties, necessitating the intervention of well-trained professionals in the PHCs [9].

During the follow-up at 3 months, the dropout rate for the treatment program was found to be 19.5 percent. Almost half of them (42.4 percent) deserted the treatment because of personal reasons. Women who left the program tended to be younger with less psychosocial risk situations, less anxiety, and fewer somatoform symptoms; they also had greater dissatisfaction with the clinical and personal attention they received [18].

Clinical changes in depressive symptoms in the group who remained in treatment were evaluated using the Beck Depression Inventory (BDI). Seventy-seven percent of patients had a decrease in their BDI scores, and 3.7 percent remained unchanged. The treatment group achieved a significant reduction in the intensity of depressive symptoms after 3 months (the average BDI score decreased from 26.2 ± 9.9 points to 18.5 ± 10.3 points, which was statistically significant), and this decrease was more pronounced in those who entered with more severe clinical profiles. Another important result was a significant reduction in anxiety and somatoform symptoms, parallel to the reduction of the depressive symptoms [18].

Another important unpublished result came from the follow-up of the patients’ partners, who showed a statistically significant reduction of emotional distress (reduction of 45.7 percent in the GHQ-30 [General Health Questionnaire-30] score, with $p = 0.006$), an improvement in their satisfaction with their relationship with the patients (12.4 percent, $p = 0.073$) and with their sexual life (18.3 percent, $p = 0.038$). These last two points were also described concomitantly by the patients, confirming the results. Finally a cost analysis of the services provided to the patients was performed and concluded that the average monthly cost for each person treated was US$7.9, ranging between US$3.3 and US$13.9 among the different centers, a 4.2-fold difference. The most important financial factor was the cost of human resources, which represented about 85 percent of the total cost, ranging between 75.6 percent and 94.1 percent among the different centers.

In summary, people who were treated within the PTDPHC showed a significant
improvement in depressive and anxious symptoms, a reduction of somatoform symptoms, a positive effect on their interaction with their sexual partners, and a reasonable cost for the interventions delivered. These results were known by the Ministry of Finance during the budget negotiations of 2004, after which a further increase in resources was approved to extend the activities of the program throughout Chile.

Subsequently, a second study was performed, which consisted of the follow-up of a new cohort of 166 patients, who had entered the PTDPHC between August 2003 and August 2004 at seven PHCs in three different cities. Patients were interviewed face-to-face on admission and at 3 and 6 months under treatment. In addition, to improve the follow-up rate and data quality, women were contacted by telephone during the first and second month of the treatment [17]. In this study, the group had an average age of 44 ± 11 years. Most of the women had a stable partner (63.2 percent); 40.3 percent had completed primary school and 41.3 percent secondary school; and 66.2 percent did not have a paid job and of the remaining 33.8 percent, 52.9 percent of them had stable jobs and 22.1 percent worked occasionally. Finally, the women had a median of two children.

Again, the PHC physicians’ diagnoses showed a tendency to underestimate the intensity of depressive symptoms. The rate of concordance with an external interviewer about the intensity of clinical symptoms was 54.8 percent, but in 33.1 percent of cases the diagnosis was underestimated [17]. In this cohort, antidepressant medication was indicated from the beginning of the treatment to 86.8 percent of the patients. Additionally, individual psychotherapy was indicated to 46.5 percent of them and psychoeducation group intervention was indicated to 33.9 percent. An interesting fact is that no association was found between the intensity of depressive symptoms and the indication of drug therapy or individual psychotherapy or group intervention, which means that the treatment program was not being done in a stepped manner.

Regarding compliance with the treatment program, 60.8 percent of the persons remained in the program at 6 months (101 cases) and 34.9 percent had dropped out sometime during this period (58 cases). In the first group, 42.2 percent continued in the program on a regular basis (i.e., attended more than 90 percent of appointments) and 18.6 percent did it irregularly (i.e., attended less than 90 percent of appointments). Only one case was referred to a specialized center (0.6 percent), and six of them were discharged from the program (3.6 percent) [17].

Regarding their clinical outcomes, Table 1 shows the average score and standard deviation of the BDI scores for each of the three groups (i.e., those who were regular attendees, irregular attendees, and dropped out) in the three evaluation periods. The BDI score declined 40.0 percent in the regular attendee group in 6 months (from an average of 23.6 points to 14.3 points) and 37.8 percent in the irregular attendee group (from 30.9 to 19.2 points). In contrast, the BDI scores of the group of women that abandoned the program declined only 13.3 percent (from 21.8 to 18.9 points). An analysis of multiple comparisons showed significant differences
between the regular and irregular attendee groups and the dropout group \((p < 0.001)\). However, there was no significant differences between both groups that remained in the program \((p = 0.436)\) [17]. Therefore, both groups that remained under control, regardless of their attendance, achieved a significantly greater reduction in BDI score relative to the dropout group, whose rate of decline was only about a third of the one observed in the other two groups. Finally, the regular attendee group achieved most of their BDI score decrease during the first 3 months (from 23.6 to 16.9 points, representing a decline of 28.4 percent). On the other hand, the irregular attendee group achieved a smaller reduction in this period (from 30.9 to 24.4 points, representing a decline of only 21.1 percent).

A multilevel analysis was carried out to identify a potential cluster effect (i.e., primary care center), having as an outcome the difference in BDI scores between admission and 6 months and six independent variables: months of treatment, patient’s age, years of study, having a partner, having a job, and BDI score at admission to treatment. A multilevel analysis of exchangeable correlation matrix was applied to construct a multiple linear regression model. Subsequently, less significant variables were removed, and the Akaike test was applied to evaluate the goodness of fit. Finally, we obtained the best fit model (Akaike information criterion = 1200.8) with an intraclass coefficient correlation (ICC) of 0.03839. We concluded that women who were treated in the seven PHCs had more variation in their BDI scores (i.e., greater improvement in their depressive symptoms) the longer they stayed under control, having fit for the other control variables that were studied. In addition having a job and a higher BDI score on admission were associated with better clinical outcomes.

The ICC value indicated that only 3.8 percent of the variance in the BDI change scores was attributable to differences between the primary care centers, indicating that this has a negligible effect on the results of the women who attended the program. In conclusion, our studies and analyses show that PTDPHC is effective

---

**Table 1**

<table>
<thead>
<tr>
<th>Groups</th>
<th>n</th>
<th>At admission</th>
<th>3 months later</th>
<th>6 months later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular attendees (A)</td>
<td>70</td>
<td>23.6 ± 8.7</td>
<td>16.9 ± 10.0</td>
<td>14.3 ± 9.7</td>
</tr>
<tr>
<td>Irregular attendees (B)</td>
<td>31</td>
<td>30.9 ± 8.9</td>
<td>24.4 ± 11.0</td>
<td>19.2 ± 13.9</td>
</tr>
<tr>
<td>Dropouts (C)</td>
<td>58</td>
<td>21.8 ± 7.7</td>
<td>19.1 ± 10.0</td>
<td>18.9 ± 10.9</td>
</tr>
</tbody>
</table>

*Source:* Adapted from [17].

*Notes:* Analysis of multiple comparisons (Bonferroni method): Group A with Group B, \(p = 0.4357\); Group A with Group C, \(p = 0.0003\); and Group B with Group C, \(p = 0.0006\).
and has positive effects on the patients and their partners. This effect is independent of the center and the greatest threat to ameliorating one’s depression is dropping out of the treatment.

**Future Challenges**

These studies showed three weaknesses in the PHC depression program: 1) the diagnosis of the severity of the clinical profile of the patients is not being carried out properly by PHC physicians, with a tendency to underestimate the severity; 2) the different treatments options (pharmacotherapy, psychotherapy, and psychosocial group support) are not being used according to the severity of the clinical profiles; and 3) there is a high rate of treatment dropout. The first and second weaknesses should be improved through continuous training of PHC clinical teams, the caveat being the high professional turnover rate [9, 11, 13], as well as through periodic (e.g., once a month) consultations with psychiatrists, psychologists, or other mental health specialists at the PHCs to support them with the management of the most difficult patients.

The third aspect, treatment dropout, is a common problem in all chronic diseases (such as diabetes or hypertension) and is one of the main barriers impeding the effectiveness of these programs. To overcome this barrier, it is necessary to incorporate techniques that have been shown to improve compliance, such as telephone follow-up, as well as the use of rescue measures for patients (e.g., home visits or contacts with family). Successful experiences using such methods have been described both in other countries [12, 21, 22] and in Chile [23].

An important barrier for the implementation of health reform in Chile is the low number of specialists in the public system [24, 25]. This problem is particularly important in public health services located outside the capital city and other urban centers [25]. This means that people suffering from depression have reasonably good access to PHCs, but if they need specialized treatments, they will be referred sometimes to the collapsed regional mental health services.

In order to deal with these problems, we are developing a new strategy based in telepsychiatry. Telemedicine is the use of telecommunications technology where distance and/or time separate the patient from the health care provider [26]. Telepsychiatry has been used with different populations with mental health problems, for example, to manage posttraumatic stress disorder [27], geriatric cases [28], adolescent cases [29, 30], and depression [31–33]. Studies have demonstrated that telepsychiatry and face-to-face interventions can be equally effective [34, 35].

**References**

2. *Instituto nacional de estadísticas, Chile* [National Institute of Statistics, Chile].


y psicosociales en mujeres que ingresan al programa para el tratamiento integral de la depresión en atención primaria, en Chile [Clinical and psychosocial needs in women who enter the program for the comprehensive treatment of depression in primary health care, in Chile]. Revista de Psiquiatría y Salud Mental, 22(1–2), 83–92.


