Characteristics of Depressed Patients Treated in Rural Areas of Chile[*#]

Ariel Castro-Lara[1†], Viviana Guajardo[2,3], Rosemarie Fritsch[2,4],
Ruben Alvarado[3], Graciela Rojas[2]

[1]Investigations Support Office, Clinical Hospital, Universidad de Chile, Santiago, Chile
[2]Clinical Hospital, Faculty of Medicine, Universidad de Chile, Santiago, Chile
[3]School of Public Health, Faculty of Medicine, Universidad de Chile, Santiago, Chile
[4]Psychiatry Department, Faculty of Medicine, Universidad de Los Andes, Santiago, Chile
Email: [†]acastro@hcuch.cl

Objective: To describe a group of depressed patients that participated in a clinical intervention to improve depression treatment in rural areas. Materials and Methods: It is a clinical intervention for depressed patients from 15 rural hospitals. The principal outcome is depressive symptomatology measured with the Beck Depression Inventory (BDI), and the secondary outcome is quality of life. The intervention consists of a collaborative program between primary care teams and specialized teams, with support from an electronic platform and a call center. Results: 254 subjects—13.8% men and 86.2% women—were recruited, with an age range between 18 and 65 years. The majority had a stable partner and attended high school. Homemakers made up 47.4% of the sample, and 38.7% were employed. The average BDI score was 29.8 (s. d. = 9.2). There was a history of previous depressive episodes in 42.9% of the cases, 37.4% presented severe suicide risk, and 59.1% had a comorbid anxiety disorder. Conclusion: It is a clinical sample of patients with severe depressive symptoms who are treated by primary care physicians in rural zones. The sample had comorbid anxiety and poor quality of life associated with their mental illness.

Keywords: Depression; Mental Health; Rural Health

Introduction

Depression is a highly disabling condition and a public health problem, due to its high prevalence, long duration, and recurrence. It is estimated that by 2012, depression will be the second leading cause of years lost to disability for both sexes worldwide (Murray & Lopez, 1996, 1997).

Population-level studies carried out in Chile have calculated a prevalence of approximately 5% in the general population and 30% in the population served by the public primary care system (Florenzano, Acuña, Fullerton, & Castro, 1998; Kohn et al., 2005; Rojas, Araya, & Fritsch, 2000; Sartorius et al., 1993).

In light of this issue, in 2001, the Chilean Ministry of Health created the "program for the detection, diagnosis, and treatment of depression in primary care," and in June 2006, as part of a health reform, depression care for individuals over 15 years of age was incorporated into the country's Explicit Health Guarantees (Law GES), thereby assuring universal access to depression treatment (Ministry of Health, 2012).

The Ministry of Health Clinical Guidelines for the Treatment of Individuals with Depression gives primary care teams the central role of detecting, diagnosing, and treating depression. The most complex cases are referred to specialized mental health centers, which also support the primary care teams with their work (Ministry of Health, 2009)

This article describes a sample of depressed patients treated in small, rural community hospitals, belonging to the regional health services of Reloncaví, Ñuble, and Coquimbo, Chile. The sample forms part of an investigation to measure the effectiveness of a collaborative telepsychiatry program between community hospital care teams and a specialized mental health team to improve the management of depression.

This study will characterize patients who received treatment for depression in rural zones of Chile, with the aim of supporting the adaption and optimization of the national recommendations for depression treatment in particular populations.

Metodology

A baseline evaluation was carried out with patients who entered depression treatment in each community hospital (N = 15) pertaining to the health services of Coquimbo, Ñuble, and Reloncaví, Chile. These establishments are not currently supervised by specialized mental health professionals.

The clinical trial measured the effectiveness of a collaborative telepsychiatry program between primary care teams of rural community hospitals and a specialized mental health team from the Clinical Hospital of the Universidad de Chile to improve the management of depression.

At the local level, teams from the community hospitals in charge of the depression management program invited patients who fit the ICD-10 criteria (WHO, 1992) for a depressive episode, who were between 18 and 65 years of age, and who had had not been in treatment in the past two weeks, to participate in the collaborative program. If they accepted, potential participants were carefully read the informed consent form, approved by the Ethics Committee of the Clinical Hospital of the Universidad de Chile, and if they agreed to participate, their data were entered into an online platform, designed for this study (**Figure 1**). A specially trained interviewer then contacted the patients by telephone to assess if they fit the study's inclusion and exclusion criteria, to evaluate their quality of life and depressive symptomatology—confirming the diagnosis of a depressive episode, and to collect socio-demographic data and information on any previous history of depression.

The baseline evaluation interview collected the patients' socio-demographic information and psychiatric history and included sections of the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998), for the psychiatric diagnosis; the Beck Diagnostic Inventory (BDI) (Beck, Steer, & Carbin, 1998), to assess depressive symptoms; and the Short Form Health Survey (SF-36) (Ware, Kosinski, & Keller, 1994), to measure quality of life.

The BDI is a self-administered instrument, with 21 items,

that measures depressive symptomatology. It has been widely used around the world, and its psychometric properties are well known. In Chile, it has been previously applied in primary care (Alvarado, Vega, Sanhueza, & Muñoz, 2005).

The SF-36 is a self-administered questionnaire, used to assess quality of life. It has 36 questions that measure 8 health concepts or dimensions—physical functioning, physical role functioning, bodily pain, general health perceptions, vitality, social role functioning, emotional role functioning, and mental health—and the perception of change in health status over the past year. The standard version—the validated questionnaire validated in Chile by Inostroza and used in primary care (Inostroza, 2006)—uses a recall period of four weeks.

The MINI, SF-36, and BDI have also been previously used in Chile by some of the investigators who carried out the current study (Rojas et al., 2007; Rojas, Araya, & Lewis, 2005).

Results

The sample consisted of 254 patients (86.2% women and 13.8% men), with an average age of 41.3 years (s. d. = 12.5), ranging between 18 and 65 years. The majority of the participants had a stable partner (41.3% married and 11.0% cohabitating). In terms of education, 44.1% had completed secondary school, 37.8% primary school, and 14.6% higher education, while 3.5% reported being illiterate. Homemakers made up 47.4% of the sample, and 38.7% worked (**Table 1**).

(a)

(b)

Figure 1.
Electronic platform of the intervention.

Table 1.
Socio-demographic characteristics of the sample N = 254.

Factor		% (N)
Sex	Men	13.8 (35)
	Women	86.2 (219)
	Age (Range)	41.3 (18 - 65)
Marital status	Single	22.8 (58)
	Cohabiting	11.0 (28)
	Married	41.3 (105)
	Divorced/Separated	19.3 (49)
	Widowed	5.5 (14)
Education level	Illiterate	3.5 (9)
	Incomplete Primary	24.0 (61)
	Complete Primary	13.8 (35)
	Complete Secondary	32.3 (82)
	Incomplete Secondary	11.8 (30)
	Post-Secondary	14.6 (37)
Occupation	Homemaker	47.4 (120)
	Student	4.0 (10)
	Employed	38.7 (98)
	Unemployed	8.3 (21)
	Retired/on pension	1.6 (4)

The sample had an average BDI score of 29.8 points (s. d. = 9.2), and according to the instrument, 8.4% of the participants had a mild depressive episode, 22.2% had a moderate depressive episode, and 68% had a major depressive episode. A history of previous depressive episodes was reported by 42.9% of the participants.

The results of the MINI revealed that 192 of the participants (75.6% of the sample) were at risk of suicide: 26.4% had low risk, 11.8% had moderate risk, and 37.4% had high risk. Additionally, 59.1% of the sample had a comorbid anxiety disorder (**Table 2**).

According to the SF-36, the sample scored an average of 49.0 points in the social functioning dimension, 22.8 points in the emotional role functioning dimension, 49.4 points in the mental health dimension, and 52.1 points in the vitality dimension (**Table 3**). The average SF-36 mental component of health summary score was 29.2 (s. d. = 9.2), and the average physical component of health summary score was 48.0 (s. d. = 8.3).

Table 4 and **Figure 2** show that the relationship between the average BDI scores of the sample and the SF-36 mental component of health summary score is inverse and statistically significant (Pearson Correlation = −0.212, bilateral p-value = 0.001).

A linear prediction model was applied, using the BDI score as the independent variable and the mental health component as the dependent variable, to obtain a statistically significance relationship. This adjustment resulted in the following parameters for the mental component of health: $b_0 = 35.6$ and $b_1 = -0.213$ (F = 11.428; $p = 0.001$).

Discussion

This study was carried out in rural community hospitals located in small towns in the northern, southern, and central

Table 2.
Clinical characteristics of the sample N = 254.

Variable		% (N)
History of Depressive Episodes		42.9% (109)
Comorbid Anxiety Disorder		59.1% (150)
Suicide Risk	No Risk	24.4 (62)
	Low Risk	26.4 (67)
	Moderate Risk	11.8 (30)
	High Risk	37.4 (95)

Table 3.
Quality of Life variable scores related to mental health (SF-36).

Dimension	Average Score (CI 95%)
Vitality	52.1 (50.26 - 53.89)
Social Functioning	49.0 (47.45 - 50.61)
Emotional Role	22.8 (18.71 - 26.92)
Mental Health	49.4 (47.75 - 51.05)
Mental Health Summary Component	29.2 (28.09 - 30.40)

Table 4.
Quality of Life variable scores related to mental health (SF-36).

|	Pearson Correlation	p-value (Bilateral)
Beck Total Basal	1	
PCS—Baseline	−0.052	0.421
MCS—Baseline	−0.212	0.001
Physical Functioning—Baseline	−0.317	<0.001
Social Functioning—Baseline	0.085	0.186
Physical Functioning Role—Baseline	−0.163	0.011
Mental Functioning Role—Baseline	−0.300	<0.001
Mental health—Baseline	−0.065	0.309
Vitality—Baseline	0.187	0.003
Pain—Baseline	−0.001	0.982
General Health—Baseline	0.982	
Change in Health—Baseline	0.280	<0.001
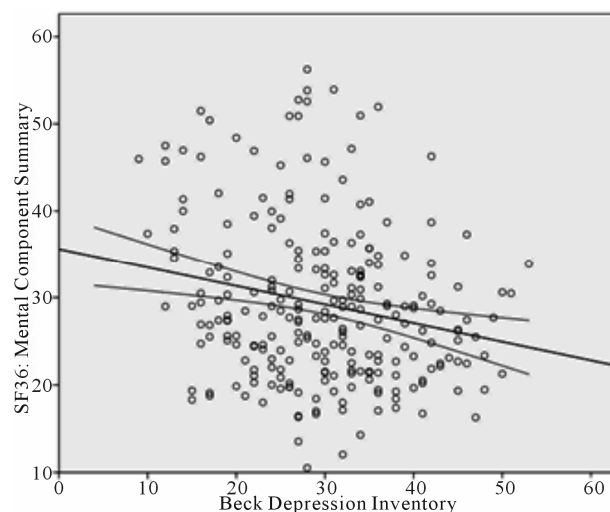
Figure 2.
Association between total Beck score (BDI and the Mental Component Summary score of the SF-36).

zones of Chile that provide both inpatient and outpatient care services. There is currently no published data on the patient population treated in these rural centers, which do not receive specialized supervision for the detection, diagnosis, and treatment of depressed patients.

The sample of this study is only made up of the 15 participating community hospitals, and thus, the results are not generalizable, as the sample is not representative of all community hospitals throughout the country.

The majority of patients treated in these centers are women, consistent with the national and international literature, which indicates that women are more likely to suffer from depression than men are (Patel, Araya, De Lima, Ludermir, & Todd, 1999) (Rojas, Araya, & Lewis, 2005) and that women seek treatment more often than men do (Gómez Gómez, 2002). Furthermore,

past research has shown that, in Chile, these depression risk and treatment access gaps between women and men are greater than in European countries. Nevertheless, it is probable that, in addition to the aforementioned points, this difference is explained by the barriers men face to access treatment, due to the health centers' hours of operation.

The study sample is clinically complex, with depressive episodes accompanied by suicide risk, comorbid anxiety disorders, significant associated disability, and a previous history of depression. Upon comparison to the 2011 study by Alvarado et al., which evaluated the national depression program in urban primary care clinics (Alvarado & Rojas, 2011), the sample from this study, treated in rural community hospitals, had a higher percentage of severe depression, a finding which should be taken into account when designing methodologies to optimize depression treatment for this particular population.

It is likely that in more rural zones, where these community hospitals are located, patients face obstacles to access specialized treatment, given that two known treatment barriers are distance and cost considerations (Luo & Wang, 2003; Mendonza-Sassi & Béria, 2001; Rosenberg, 1998).

Only 24.4% of patients in the sample did not present suicide risk. A study carried out by Escobar and Rojas found that 2.6% of the 2008-2009 discharges from a rural hospital were patients with suicidal behavior, approximately 70% of whom were women. In addition, close to 60% of the patients had a history of psychiatric disorders, and of those, 26.5% had a previous depressive episode. Strikingly, only 24.48% of the patients hospitalized in the rural community hospitals were evaluated by a specialized mental health professional (Escobar & Rojas, 2010). The high rate of attempted suicide in Chile has been previously described (Moyano Díaz & Barría, 2006; Tomas Baader et al., 2011). Sociopolitical explanations attribute this phenomenon to economic indicators of increasing inequality, job insecurity, interpersonal distrust, and weakening social networks (Moyano Díaz & Barría, 2006).

This study found a correlation between the intensity of depressive symptoms, according to the BDI, and the SF-36 quality of life components. The sample's SF-36 scores revealed significant degrees of disability, and as the participants' severity of symptoms increased, they had worse quality of life. It is noteworthy that the majority of previous studies that have shown this correlation between depressive symptomatology and the SF-36 were carried out in urban populations (Friedman, Conwell, & Delavan, 2007).

These results indicate that primary care teams in these rural health centers, with little mental health skills training, are treating clinically complex patients, necessitating collaboration and networking with specialized professionals. There has yet to be sufficient research into what treatment alternative is most effective and what barriers exist to achieve collaboration with specialized secondary care teams and to ensure successful referral of complex cases. Collaborative initiatives between primary care and mental health professionals have shown positive results in terms of reduced referral time, treatment duration, number of visits, and costs associated with treatment (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006; Van Orden, Hoffman, Haffmans, Spinhoven, & Hoencamp, 2009). Similar initiatives, which have also incorporated telemedicine, have produced good results in terms of improved mental health status, quality of life, and user satisfaction (Fortney et al., 2007).

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