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Training Latin American primary care physicians in the WPA module on depression: results of a multicenter trial

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Abstract

Background—In order to improve care for people with depressive disorders and to reduce the increasing burden of depression, the American Regional Office of the World Health Organization has launched a major region-wide initiative. A central part of this effort was directed to the primary care system where the diagnosis and treatment of depression are deficient in many countries. This study evaluated the materials developed by the World Psychiatric Association in a training program on depression among primary care physicians by measuring changes in their knowledge, attitudes, and practice (KAP).

Method—One hundred and seven physicians and 6174 patients from five Latin American countries participated in the trial. KAP were assessed 1 month before and 1 month following the training program. In addition, the presence of depressive symptoms was measured in patients who visited the clinic during a typical week at both times using the Zung Depression Scale and a DSM-IV/ICD-10 major depression checklist.

Results—The program slightly improved knowledge about depression and modified some attitudes, but had limited impact on actual practice. There was no evidence that the diagnosis of depression was made more frequently, nor was there an improvement in psychopharmacological management. The post-training agreement between physician diagnosis and that based on patient self-report remained low. The physicians, however, seemed more confident in treating depressed patients after training, and referred fewer patients to psychiatrists.

Conclusions—Traditional means of training primary care physicians in depression have little impact on clinical practice regardless of the quality of the teaching materials.

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DECLARATION OF INTEREST
None.

INTRODUCTION

Data on the current burden of depression have become familiar to health professionals and other stakeholders (WHO, 2001). Studies in various societies indicate that approximately one in six individuals suffers from major depression during their lifetime (Davidson & Meltzer-Brody, 1999). Unipolar major depression is currently ranked fourth among the global burden of disease (Disability Adjusted Life Years ;DALY), and projected to rank second by the year 2020 (Murray & Lopez, 1996). Depression in primary care is frequent. A World Health Organization (WHO) study of 15 primary care centers showed that 10.6%of all contacts were primarily due to depressive disorders (Ormel *et al*. 1994; Üstün & Sartorius, 1995). The prevalence rates in the two participating Latin American primary care centers, Santiago, Chile, and Rio de Janeiro, Brazil, were 15.8% and 29.5% respectively.

Although technologies are now available, the quest for a reduction of this burden remains unsolved. For example, in the USA and Europe, with relatively well developed mental health services, only one-fifth of individuals with a 12-month prevalence of depression sought treatment (Meltzer *et al*. 1995; Kessler *et al*. 1999). Furthermore, despite the relatively high prevalence of the disorder in the primary care setting, the diagnosis and treatment of depression is insufficient. This finding is of importance since most patients with depression are seen in the primary care setting while only a minority are cared for by mental health specialists (Lepine *et al*. 1997; Hans-Ulrich *et al*. 2001).

General practitioners fail to detect depression in over half of their patients, and provide adequate treatment to only about one-third of them (Badger *et al*. 1994; Coyne *et al*. 1995). The outcome of depression that is unrecognized or managed by an inadequately trained physician is worse than that of well managed cases (Schonfeld *et al*. 1997; Schulberg *et al*. 1997).

Two of the following barriers, amongst others, obstruct timely detection and proper treatment; both lead to wide treatment gap and lag (Kohn *et al.* in press). First, the patients' help-seeking pattern is dependent on their knowledge of the disorder and the stigma attached to it (Goldman *et al*. 1999;Nutting *et al*. 2002). The view that depression is not a medical condition contributes to the treatment lag (Jorm *et al*. 1997*a*, *b*; Sheikh & Furnham, 2000). Second, the primary care physicians' ability to diagnose and adequately treat depressive disorders depends in part on their positive attitudes towards mental disorders (Main *et al*. 1993; Levinson & Roter, 1995; Dowrick *et al*. 2000). A WHO study conducted in six centers concluded that primary health care staff lacked training in mental health and hence had very limited knowledge of managing depression (Ladrido-Ignacio *et al*. 1983). Another study, which investigated the attitudes, knowledge, and self-reliance of primary care physicians to detect and treat depression in Campinas, Brazil, found that 42% of the 78 physician participants felt incompetent to differentiate between depression and unhappiness (Botega & Silveira, 1996). Even though 45% agreed that depression is a medical condition, 47% felt that depressive disorders originated solely from tragedies or adversities in the person's life. All of these studies concluded that training programs are needed to promote positive attitudes and increase knowledge with regard to the detection and treatment of depression; however, their utility remains controversial. Several studies have shown improvement in doctor–patient communication (Levinson & Roter, 1993; Roter *et al*. 1995) and short-term benefits in adhering to clinical guidelines (Rutz *et al*. 1990; Lin *et al*. 1997; Gerrity *et al*. 1999; Tiemens *et al*. 1999; van Os *et al*. 1999). One educational program resulted in cost savings via decreases in sick leave, reduction of need for in-patient treatment, reduced suicide, and increased psychopharmacological prescriptions (Rutz *et al*. 1992*a*). In contrast, other studies failed to demonstrate improvement in psychopharmacological prescribing habits, in diagnostic skills (Thompson *et al*. 2000; Lin *et al*. 2001), or in cost savings (Kendrick *et al*. 2001). In addition, studies aimed at modifying the

practice of primary care physicians in Health Maintenance Organizations (HMOs) using academic detailing and continuous quality improvement have led to unsatisfactory results (Goldberg *et al*. 1998; Brown *et al*. 2000).

The objective of this study was to evaluate the usefulness of materials developed in an educational training program for depression designed by the World Psychiatric Association (WPA) in collaboration with the Committee for the Prevention and Treatment of Depression (PTD) among a large group of Latin American primary care physicians. The WPA training program comprises four volumes ; the first three deal with substantive matters, which may be updated or adjusted to the local situation, and a fourth specifically addresses the questions of methods of training of general practitioners and others about mental disorders (http://www.wpanet.org/home.html). The program as a whole differs from others in that it was developed by an international group and sent for comment to experts in many countries. It has been translated into numerous languages and used both as a teaching resource book and as the basis for a variety of courses. The present study evaluated changes in knowledge, attitudes, and clinical practice including the recognition of depression.

METHOD

Study sites

The study was conducted in six urban sites in five Latin American countries (the number of respective participating clinics is in parentheses) : Buenos Aires, Argentina (2) ; Campinas, Brazil (6) ; Concepción, Chile (6) ; Medellín, Colombia (1) ; San José, Costa Rica (1) ; and Valparaíso, Chile (6). The primary health care clinics selected for the study either belonged to the health care system with which the psychiatrists who ran the field trials were affiliated (Argentina, Colombia, Costa Rica) or had working relationships (Brazil, Chile). Ninety-eight physicians completed the study out of 107 who were initially recruited. The studies were reviewed by the respective ethical review boards.

The WPA training program

The WPA training modules were used in a four-to eight-hour one-day seminar conducted by the site co-ordinator, an experienced psychiatrist. The time allotted to the training resulted from the time constraints prevailing in the services; on account of their considerable burden, the doctors were seldom allowed to be away from their practice beyond a few hours. The seminar focused on: (1) how to diagnose major depression; (2) the available treatment interventions; (3) appropriate dosing of antidepressants, and (4) the side-effects of specific psychopharmacological agents. The addition of case histories allowed for an interactive seminar. The attendees also received a printed copy of the materials reviewed.

Assessment of the training program

Phase 1—An assessment was made of the clinical practice of the physician during a typical working week 1 month prior to the educational program. All non-emergency patients aged 15 and older attending the clinics were administered a questionnaire, which included sociodemographic items, the Zung Depression Scale (Zung *et al*. 1965; Zung, 1969), and a symptom checklist from which DSM-IV and ICD-10 diagnoses for a major depressive episode could be derived. The physicians, blind to the patient's response, were asked to report on the presence of a psychiatric disorder. In addition, the physicians documented the prescription of psychotropic medications, the referral of the patient to a mental health specialist, and the provision of supportive therapy. The physicians were also given a questionnaire to assess their knowledge and attitudes about depression. The knowledge component consisted of eight multiple-choice questions based on a clinical vignette. The sum of correct responses was used to derive a score on the knowledge test. The 10 items investigating attitudes about depression

are listed in Table 1. The responses ranged from agree to disagree on a 10-point scale. The dosages and type of antidepressants dispensed in each of the clinic's pharmacies during the 1-week period were gathered.

In the course of the month following the initial assessment, the physicians participated for one day in an educational program using the WPA materials. Upon conclusion of the training, the physicians completed a questionnaire about their opinion of the training program.

Phase 2—An evaluation was conducted 1 month following the educational program using the same methods as were used before the course. There was no attempt to exclude patients in Phase 2 who may have been also screened in Phase 1, as this would have created bias against detecting major depression in chronically or more seriously ill users.

In Concepción, Chile, a control group was included to investigate whether the improvements in knowledge, attitudes, and practice (KAP) were a result of repeated measures. The control group did not undergo the educational program, and were evaluated across two time-periods 1 month apart. In this site, nine physicians completed the training program and 10 acted as controls.

Statistical procedures

Change in the doctors' knowledge and attitudes between Phases 1 and 2 were evaluated using paired *t* tests. Changes for individual knowledge items were evaluated using McNemar's χ^2. Differences in clinical practice across the two phases were determined by Pearson's χ^2. Diagnostic agreement was assessed using the kappa statistic, to correct for chance agreement. *t* tests, analysis of variance (ANOVAs), and Pearson correlations were used to examine the relationship between physician demographic and clinical profiles and KAP indicators. Change scores for knowledge, attitudes, and rate of clinical indicators were created to examine physician characteristics across the two phases. The change score permitted adjustment for baseline differences between the physicians.

Differences in knowledge and attitudes between the control and the trained physicians in Concepción, Chile, were assessed using independent *t* tests. Changes in clinical practice in diagnosis, prescription of antidepressants, and referral were evaluated by creating an interaction term between phase of the study and belonging to the intervention or control group using logistic regression.

RESULTS

Demographic and practice characteristics

A total of 98 physicians completed both phases of the study (Buenos Aires, Argentina, 14; Campinas, Brazil, 17; Concepción, Chile, 19; Medellín, Colombia, 12; San José, Costa Rica, 18; Valparaíso, Chile, 18). The physicians, evenly divided by gender, had a mean of 33.9±8.0 years of age. On average, they had been practicing for 7.1±6.7 years, and worked in their respective clinics for 3.6±4.4 years. Nearly all, 80.2%, were employed full-time. The number of patients evaluated reached 3084 before training, and 3090 after training. Using a paired *t* test there were no statistically significant differences by site for the number, gender, and marital status of patients evaluated on the two occasions. There were differences, however, in age, education, and occupation between the two time periods (Table 2).

Knowledge and attitudes

Seventy-two per cent of the doctors recognized that their medical education did not equip them to diagnose depression, and 88.5% stated that they did not have the knowledge necessary to

treat depression. There was a modest but statistically significant increase in knowledge following the training (Phase 1: 6.0±1.3; Phase 2: 6.3±1.4; paired *t* test=−2.2, df=87, $p<0.03$). Importantly, physicians who initially had low scores in knowledge showed the largest increase ($r=-5.0$, $n=88$, $p<0.0001$). Only two of the knowledge questions independently showed a statistically significant improvement: giving the appropriate diagnosis of an affective disorder to a clinical vignette (McNemar's $\chi^2=7.35$, $p< 0.01$); and the efficacy of prescribing serotonin reuptake inhibitors in depressed patients following a cardiac event (McNemar's $\chi^2=13.5$, $p<0.001$).

Four of the attitudinal questions were significantly different following the educational program, after Bonferonni correction for multiple comparisons ($p<0.005$). The physicians agreed more often with the statements : ' It was easy to differentiate between sadness and depression', 'Feel comfortable addressing problems of depressed patients', and 'Antidepressants are helpful '. After training the number of those who stated that only psychiatrists should administer antidepressants decreased (Table 1).

Physicians' sociodemographic and practice-related profiles, for example study site, gender, age, years in practice and number of years working in the clinic, were unrelated to their knowledge and to subsequent changes. Physician characteristics were related to attitudes at baseline. At baseline, being older and having more years in practice were statistically associated with stating that antidepressants should be prescribed by psychiatrists ($r=-0.22$, $p<0.04$; $r=-0.21$, $p<0.05$). The belief that depression was a character flaw was greater at baseline the longer the physician worked in the clinic ($r=-0.24$, $p<0.03$). Physicians' gender and study site were unrelated to baseline attitudes or to attitudinal change. Older physicians and those having been in practice longer were less likely to show a change in the belief that antidepressants should be prescribed only by psychiatrists ($r=0.24$, $p<0.03$; $r=0.30$, $p<0.006$). The longer the physician worked in the clinic the less likely a change was found in the pessimistic attitude about the benefit of psychotherapy ($r=0.27$, $p<0.02$).

Time constraints to attend to emotional problems was the chief reason given as the main barrier to diagnosing depression (Table 3). This was followed by limited education about the disorder, and the masking somatic equivalents of the disorder. Stigma and the associated vegetative symptoms of the disorder were ranked the lowest. With regard to these diagnosis-related barriers, after training there were fewer physicians who ranked time as the primary problem (68.2%*v*. 48.8%; paired *t* test=−3.12, df=85, $p<0.002$).

Overall, the participants found the program useful and were satisfied with it. Most of the respondents, 85.3%, stated that they would repeat the program, 97.9% would recommend it to a colleague, and 90.5%would use it to train others. A majority of the physicians, 87.4%, believed that their ability to treat depressed patients had improved. Participants were extremely or highly satisfied with most aspects of the educational program based on a five-point Likert scale : the materials, 80.0%; the content, 79.0%; the facilitators, 93.7%; in changing attitudes, 79.8%; the acquisition of knowledge, 69.5%; applicability, 69.5%; in making referrals to mental health specialists, 68.1%; participation, 66.3%; in making a diagnosis, 62.1%; the management of depression, 59.0%; improving knowledge of psychopharmacology, 45.7%; and improving knowledge of psychotherapy, 33.7%. Only one of the original 107 physicians did not participate in the educational component.

Changes in clinical practice

The physicians diagnosed depression in approximately 12%of the patients in both phases. Over 30% of the patients reported a level of depressive symptoms consistent with the diagnosis using one of the three diagnostic criteria (Phase 1: DSM-IV, 33.3%; ICD-10 mild, 7.8%; ICD-10 moderate, 20.6%; ICD-10 severe, 23.3%; Zung Depression Scale mild, 30.1%; Zung

Depression Scale moderate, 38.3%; Zung Depression Scale severe, 17.9%). Agreement between physician diagnosis and the three diagnostic criteria based on patient self-report was poor; sensitivity ranged from 10.8% to 21.8%; specificity ranged from 88.2% to 92.2%; and kappa ranged from 0.02 to 0.17. The rate of physicians' diagnoses did not change following the training sessions. Curiously, the patients' self-reported rate was significantly lower for most diagnostic categories in the group assessed after the training. The rate of diagnosis fell by 0.3% for the physicians after training, whereas the self-reported patient rate fell substantially more, for example for DSM-IV criteria, 3.8% (χ^2=10.27, df=1, p<0.002). Agreement between the physician and patient diagnosis based on the self-reported symptoms remained poor and showed no improvement following the educational program. Kappa values at Phase 1 measuring agreement between physician diagnosis and patient diagnosis based on DSM-IV, ICD-10, and Zung Depression Scale were 0.14, 0.11, and 0.02 respectively. For Phase 2, kappa values were 0.03, 0.13, and 0.02 respectively.

After the training program the physicians were less likely to refer patients diagnosed with depression to mental health professionals (24.2% *v*. 16.9%; χ^2=5.94, df=1, p<0.02). There was a significantly higher rate of prescribing antidepressants after training (35.5% *v*. 49.2%; χ^2=14.18, df=1, p<0.0002), but less supportive therapy was provided to the patients (42.2% *v*. 31.5%; χ^2=9.22, df=1, p<0.003). The use of benzodiazepines among depressed patients did not significantly decrease (17.2%*v*. 12.6%; χ^2=3.13, df=1, p<0.08), although the rate of users receiving only benzodiazepines without antidepressants was reduced, but not significantly (9.0% *v*. 5.6%; χ^2=3.24, df=1, p<0.07).

At baseline, no difference was seen in the overall rate of diagnosis, use of antidepressants, referral to a mental health specialist, or provision of supportive therapy with regard to gender or age of physicians, number of years as a doctor, years working in the clinic, or physician attitudes. The rate of prescribing antidepressants per depressed patient differed by site at baseline (F=2.53, df=5, 85, p<0.04). The greater the baseline knowledge score the more likely the physician would prescribe antidepressants to those diagnosed (r=0.31, p<0.003). Change in rate of diagnosis, use of antidepressants, referral to a mental health specialist, or provision of supportive therapy across the two phases was not related to gender, site, number of years as a physician, or years working in the clinic. Younger physicians were found to have the greatest increase in prescribing antidepressants (r=−0.27, p<0.02) and in providing counseling (r=0.29, p<0.009). Change in knowledge score was not related to change in physician practice. A decrease in the attitude item that depression was away of dealing with life problems was associated with lower rates of referral to specialists across the two phases (r=−0.26, p<0.04). In addition, a decrease in the attitude that working with depressed patients was difficult correlated with an increase in prescribing antidepressants (r=0.29, p<0.02). Those physicians who had a decrease in the belief that antidepressants should be prescribed only by psychiatrists were found to increase their rate of antidepressant use among those diagnosed with depression (r=0.24, p<0.05).

Examination of prescriptions filled in the pharmacies of the participating clinics during the study period showed that in four of the six sites tricyclics were the primary antidepressant used, while in Buenos Aires and Concepción serotonin reuptake inhibitors were favored (Table 4). The prescription of tricyclic antidepressant was evenly divided between imipramine and amitriptyline while the dose used in both study periods was 50 mg or less for over 80% of patients.

Control sample in Concepción, Chile

There were no statistically significant differences between the sociodemographic or practice features between the 10 physicians in the control sample and the nine who underwent the educational program. The latter group did have a significantly higher improvement in

knowledge compared to the control group (t test=2.12, df=17, $p<0.05$). A significant change among the 10 items tapping attitudes was only found for the statement that 'Depression is a way that weak people confront life's problems '. Those who underwent training were less likely to endorse such a statement (t=2.24, df=16, $p<0.04$). Logistic regression with phase-by-intervention control group interaction suggested that the use of antidepressants for the patients whose physicians thought that they were depressed did increase following the training program (β=− 1.63, S.E.=0.87, $p<0.06$). This interaction term was not significant for improving the diagnostic rate of depression or changing the rates of referrals to mental health specialists (Table 5).

DISCUSSION

There was evidence that the educational program using the WPA/PTD materials was effective in improving knowledge about depression and in changing some of the negative attitudes about the disorder; however, its impact on clinical practice was limited. Only a few of the attitude items were found to change with the training program. The change in knowledge, although significant, was small. Practice profiles associated with affiliation to an older cohort of physicians, whose medical education took place when awareness with regard to depression was limited, were less amenable to change in attitudes and clinical practice following training.

Positive changes in attitudes about the benefits of psychotherapy and antidepressants appeared to correlate with higher rates of diagnosis and prescribing antidepressants. In the clinical practice, there was no evidence that the rate of diagnosis increased, while the prescription of antidepressant medication remained insufficient. Agreement remained low between the diagnosis made by the physician and the one generated by the patient's self-reported depressive symptoms. Of those diagnosed by the physician, approximately 45% did not meet DSM-IV criteria and 25% did not have any of the ICD-10 categories as measured by the symptom checklist ; additionally, 10% did not endorse even mild depressive symptoms as measured by the Zung Depression Scale.

The rate of antidepressant use was shown to rise significantly after training. This finding was replicated in the Concepción, Chile, intervention/control study. The use of supportive therapy between the two phases, however, fell. The reason for this was unclear, and it was a topic where the participants rated the educational program as unsatisfactory. A likely indication that the physicians had more confidence in treating patients with depression was noted in the reduction of referrals to mental health specialists. Unfortunately, there was no evidence that there was an improvement in the psychopharmacological management of patients ; the dosage used for tricyclics remained low.

The participants reported that the educational program was beneficial. Perhaps the limited increase in knowledge was due to the small variance resulting from the measures used.

This study had several limitations. The change in physicians' clinical care was examined across two cross-sectional points in time. Such an approach permits evaluation of improvement in rates of clinical diagnoses, prescribing habits and referral patterns, but does not provide longitudinal data on whether the management of individuals identified with depression has changed. The measure used to study diagnostic agreement was of limited value. A better measure would have been the use of a confirmatory structured diagnostic interview ; however, this was not feasible because of the number of patients recruited and lack of personnel. The study was limited to only a one-month follow-up of the physicians. Although some modest changes were noted following the educational training it remains unclear whether this will be sustained over time. Studies that have examined the sustainability of educational programs over time have been negative and recommended periodic retraining to maintain the gains (Rutz

et al. 1992*b*; Lin *et al*. 1997; Tiemens *et al*. 1999). However, the benefit of additional training beyond the original educational program is not substantiated fully in the literature.

Initiatives that have included physician training with other enhancements to promote detection and continued management of depression may be more promising. Programs that have incorporated patient education of diagnosed individuals to promote treatment adherence (Katzelnick *et al*. 2000; Rost *et al*. 2001), a clinical expert in the practice setting to detect depression (Wells *et al*. 2000), a psychiatric consult-liaison component (Bodlund *et al*. 1999), or a depression detection screening tool for the physician (Brody *et al*. 1998) have proven to be beneficial. Many of these approaches may not always be available in areas with underserved populations resulting from a general shortage of mental health care resources, or where the psychiatric reform whereby the mental health services move into the community has not been implemented. Providing treatment guidelines in isolation as a means to improve quality of care fails to promote change in clinical practice (Upton *et al*. 1999); therefore programs with a strong educational component which adapts to the resources available in the community are more promising.

Programs designed as continuing medical education are advantageous, particularly for the younger cohorts that have been exposed to a more modern approach to mental problems and technologies. These programs need to include active trainee participation, be of sufficient duration (our program was limited in time owing to work constraints), and reinforced by repeated boosters to effect meaningful change in skills and attitudes (Hodges *et al*. 2001).

Programs, however, purported to include more effectively the primary care practitioner in an overall effort to reduce the treatment lag and gap with regard to depression may not suffice. We submit that a more effective approach towards the reduction of the treatment lag and gap of depression requires a public health model that includes multiple dimensions of action, whereby one component potentiates or complements another. This is what is intended with the use of the model adopted by the Pan American Health Organization, the regional office of the World Health Organization (PAHO/WHO) to control depression in the region (Fig. 1). Improving quality of care for depression requires not only training, but also addressing the health care system in which the doctors work. Conceivably, the primary care practitioner may operate more adequately if his or her work is supported by a mental-health-culture-friendly context in both the health services and in society at large. This will, among other factors, enable information on depression to be made available to the public ; serve to reduce the stigma attached to mental disorders, which delays consultation; facilitate communication with a mental health specialist by equipping the consumer with a language that does not shun psychological complaints ; and allow the consumer to obtain support from a nurse similarly trained in the identification and management of depression in the clinic (Moreno *et al*. 2003).

The limited clinical knowledge and skills to care for depression may arise for several reasons, among them the unsuitability of the setting where the medical education of the future physician takes place. Often, physicians in Latin America are trained in mental hospitals, settings where patients and their problems are of a nature entirely different to the one the general practitioner will encounter in daily practice. PAHO/WHO has repeatedly called the attention of medical educators to this deficiency, largely to no avail (Levav, 1989).

In conclusion, this module of WPA has proved beneficial in part. Further modifications are required to improve its effectiveness, if primary care physicians are to become true agents of change. The experience from this study and others in fact led the WPA to develop a fourth module of materials dealing with techniques of training general practitioners incorporating these and other principles.

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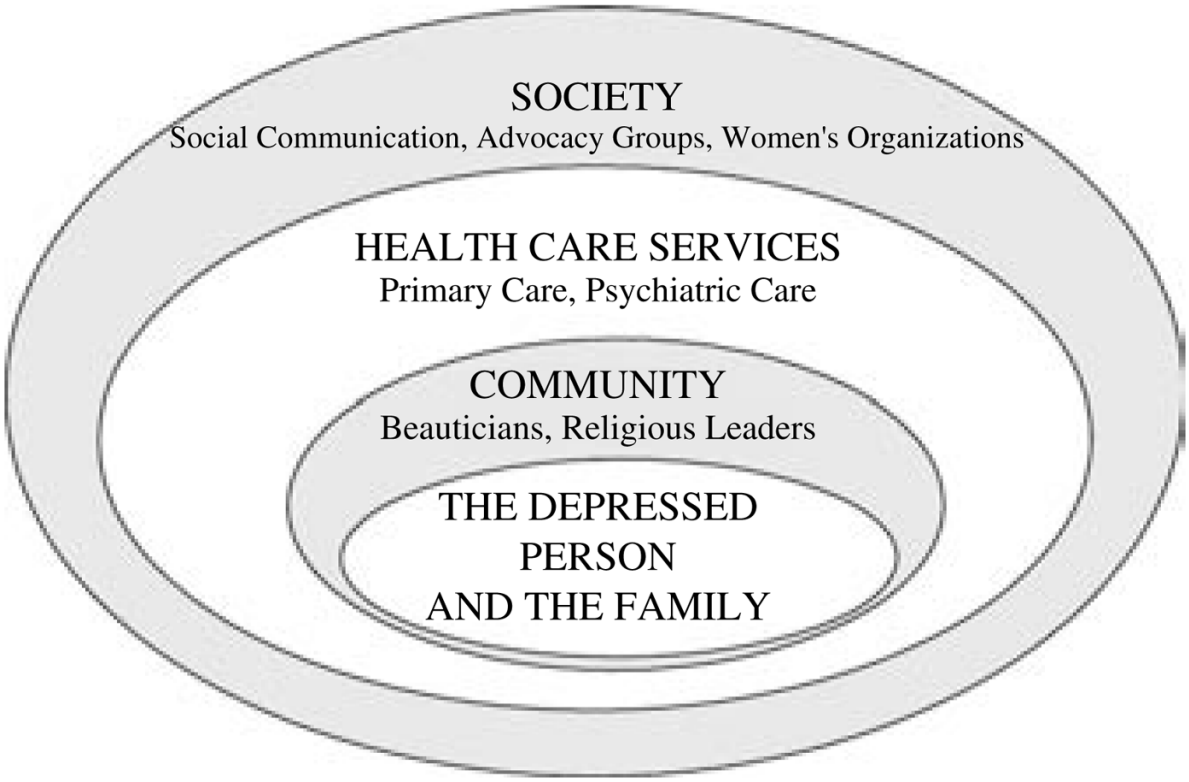

Fig. 1.
Target groups in the PAHO/WHO initiative on depression in the Americas.

Table 1

Attitudes about depression : means and standard deviations, paired t test results

Item	Phase 1	Phase 2	*t* test	df	*p* value
It is easy to differentiate between a patient who is sad and one who is depressed	4.6±2.4	5.8±2.5	−3.61	82	0.0001
Depression is a way that weak people confront life's problems	1.6±2.4	1.4±2.1	0.82	82	0.413
I am comfortable addressing the problems of patients with depression	4.6±2.7	5.8±2.3	−4.10	82	0.0001
Depression reflects a personality characteristic in the patient that is not easy to change	2.0±2.6	1.9±2.1	0.31	79	0.761
Working with depressed patients is difficult	5.5±2.8	5.8±2.6	−1.07	82	0.287
It is gratifying to invest time in treating depressed patients	6.1±2.5	6.7±2.2	−2.16	82	0.033
Psychotherapy has no place for depressed patients	2.1±2.6	2.2±2.6	−0.26	82	0.792
Antidepressants produce satisfactory results in treating depressed patients	6.9±2.0	7.8±1.5	−3.85	82	0.0001
Psychotherapy of depressed patients should be left to the specialist	4.8±3.5	4.5±3.0	0.93	82	0.357
It is better that a depressed patient who needs antidepressants is treated by a psychiatrist	3.9±3.0	2.9±2.5	3.27	82	0.002

Table 2

Patients by sociodemographic characteristics, Phase 1 and Phase 2

Variable	Phase 1 (%)	Phase 2 (%)	χ^2	df	*p* value
Gender					
Male	27.8	27.7	0.01	1	0.94
Marital status					
Never married	23.2	21.4	10.67	5	0.06
Married	50.0	52.6			
Common-law	7.8	6.5			
Widowed	11.1	12.0			
Separated	5.4	5.5			
Divorced	2.4	2.0			
Education					
None	6.7	7.6	12.43	4	0.01
1–4 years	22.4	24.6			
5–8 years	37.4	34.1			
9–12 years	26.8	25.8			
⩾ 13 years	6.7	7.8			
Occupation					
Professional	2.0	2.2	18.74	8	0.02
Semi-professional	3.0	3.4			
Administrative	11.6	10.4			
Skilled manual	8.7	9.0			
Unskilled manual	59.3	59.1			
Student	4.0	3.6			
Other	1.1	0.7			
Retired	6.3	8.5			
Unemployed	4.0	3.2			
	Mean (S.D.)	Mean (S.D.)	*t* test	df	*p*
Age (years)	45.9±17.4	47.4±17.5	−3.5	6162	0.001

Table 3

Barriers to diagnosing major depression in primary care: means and standard deviations, paired t test results (percent ranked as primary reason in parentheses)

Item	Phase 1	Phase 2	*t* test	df	*p* value
Lack of time to attend to emotional problems	1.5±0.9 (69.8)	2.0±1.3 (48.8)	−3.12	85	0.002
Lack of continuing medical education	2.3±1.2 (32.6)	2.5±1.3 (25.6)	−1.72	85	0.090
Somatic equivalents of the disorder	2.8±1.2 (11.6)	2.7±1.2 (18.6)	0.71	85	0.478
Symptoms of the illness, such as loss of energy	3.7±1.1 (1.2)	3.7±1.1 (5.8)	−0.79	85	0.937
Stigma associated with the illness	3.7±0.7 (10.5)	3.8±1.3 (8.1)	−0.77	84	0.446

The ranking was based on 1=primary reason and 5=least important reason; some respondents ranked more than one choice as the primary barrier to diagnosis.

Table 4

Administration (%) of antidepressants per pharmacy by site

	Phase 1		Phase 2	
Site	**Tricyclics**	**SSRIs**	**Tricyclics**	**SSRIs**
Buenos Aires	3.2	96.8	0.0	100.0
Campinas	93.8	6.2	85.0	15.0
Concepción	26.7	73.3	40.0	60.0
Medellín	100.0	0.0	97.3	2.7
San José	100.0	0.0	100.0	0.0
Valparaíso	98.8	1.2	99.0	1.0

Table 5

Clinical practice by physicians in the trained and control groups, Concepción, Chile

	Phase 1		Phase 2	
	Trained	Control	Trained	Control
No. of patients	240	378	367	350
Diagnosed with depression by physician (%)	7.5	8.5	5.4	10.0
Use of antidepressant (%)	27.8	37.5	60.0	31.4
Referral to mental health specialist (%)	55.6	75.0	10.0	45.7