

Maternity, Migration, and Mental Health: Comparison Between Spanish and Latina Immigrant Mothers in Postpartum Depression and Health Behaviors

Lluïsa Garcia-Esteve, Anna Torres Giménez, M^a Luisa Imaz Gurrutxaga, Purificación Navarro García, Carlos Ascaso Terrén, and Estel Gelabert

Abbreviations

ABS	Primary health care (Spain)
AC	Autonomous community (Spain)
CatSalut	Catalan health service (Spain)
CBT	Cognitive behavioral therapy
CI	Confidence interval
CSMA	Community Adult Mental Health Center (Spain)
DSM-IV	Diagnostic and statistical manual of mental disorders

L. Garcia-Esteve, M.D., Ph.D. (✉) • A. Torres Giménez, B.S. • M^a.L. Imaz Gurrutxaga, M.D.
Perinatal Psychiatry and Gender Research Unit, Neuroscience Clinic Institute,
Hospital Clínic Universitari of Barcelona, Sabino de Arana 1, 08028 Barcelona, Spain

Institut d'Investigació Biomèdica August Pi i Sunyer (IDIBAPS), Barcelona, Spain
e-mail: lesteve@clinic.ub.es; atorresg@clinic.ub.es; mlimaz@clinic.ub.es

P. Navarro García, Ph.D.
Perinatal Psychiatry and Gender Research Unit, Neuroscience Clinic Institute,
Hospital Clínic Universitari of Barcelona, Sabino de Arana 1, 08028 Barcelona, Spain

Servei d'Atenció Psicològica, Regidoria de Polítiques de Gènere de l'Ajuntament de Terrassa,
Nou de Sant Pere 36, 08221 Terrassa, Barcelona, Spain
e-mail: purificacion.navarro@terrassa.cat

C. Ascaso Terrén, Ph.D.
Department of Public Health, University of Barcelona, Casanova 143, 08036 Barcelona, Spain
e-mail: carlosascaso@ub.edu

E. Gelabert, Ph.D.
Departamento de Psicología Clínica y de la Salud Facultad de Psicología,
Edificio B. Campus de la Universidad Autónoma de Barcelona, 08193 Bellaterra,
(Cerdanyola del Vallès), Barcelona, España

ECT	Electroconvulsive therapy
EPDS	Edinburgh Postpartum Depression Scale
ETI-SF	Early Trauma Inventory—Short Form
GHQ	General Health Questionnaire
GP	General practitioner
HRC	High resolution consultation
Idescat	Catalan Statistics Institute (Spain)
INE	National Statistics Institute (Spain)
ISA	Index of Spouse Abuse
LAI	Latin American immigrant women (Spanish speaking)
MBU	Mother–baby unit
NHS	National Health System (Spain)
NICE	National Institute for Clinical Excellence
OECD	Organisation for Economic Co-operation and Development
PASSIR	Sexual and Reproductive Health Assistance Program (Spain)
PBQ	Postpartum Bonding Questionnaire
PPD	Postpartum depression
RD	Royal decree
SCID	Structured clinical interview for DSM-IV Axis I disorders
STAI	State–Trait Anxiety Inventory
T-ACE	Tolerance, Annoyed, Cut down, Eye-Opener (alcohol screening test)
UK	United Kingdom
US	United States of America

Introduction

Traditionally, motherhood has been seen as a period of emotional wellness. However, the process of becoming a mother is associated with more physiological, hormonal, cognitive, and social changes than at any other time in a woman's life. Women who are unable to adapt to these changes may experience psychopathological symptoms, which are sometimes interpreted as part of the postpartum period. For many women who are experiencing postpartum depression (PPD), however, symptoms can go undetected by family doctors, gynecologists, and pediatricians. Until recently, Spain did not have a system of care designed to treat perinatal mental health. Still, detection of and assistance for women with perinatal depression in Spain are characterized by a lack of specificity and a need for more training in perinatal mood disorders. For this reason, assistance for women afflicted with perinatal depression is plagued with numerous barriers to detection and adequate treatment due, in part, to misconceptions by both healthcare professionals and mothers.

Migration is one of the major political and sociocultural phenomena of this century. Spain has traditionally been a country with relatively low rates of immigration and only in the last decade has experienced population growth due to migration into the country.

Between 1998 and 2007, the immigrant population in Spain grew from 1.9 to 11.5 % (National Statistics Institute [INE] 2012). Approximately half of the immigrants in Spain are women (49 %), most of whom were of childbearing age (84 % were between 15 and 49 years old) (INE 2012). In 2010, 34 % of immigrant women were from Latin American countries, making Latin America the second-largest contributor to Spanish immigration after the European Union.

Although it is not possible to consider “migrants” as a homogeneous group concerning the risk for mental illness (Carta et al. 2005), there are some reasons to believe that immigrants may have higher prevalence of psychiatric disorders than the natives of the host country (Fung and Dennis 2010). Given recent findings, we might expect differences in the expression and manifestation of depressive symptoms, in the number and types of risk and protective factors, and disparities in detection, diagnosis, and treatment of immigrant patients as well as in the variability in drug response (Burroughs et al. 2002). Despite the growing importance of understanding Spain’s immigrant population, epidemiological studies have not included this population. In order to address the unique needs of immigrant women in Spain, this population should be included in empirical research that examines issues related to women’s mental health.

This chapter has two objectives: first, to provide an overview of the Spanish Health System as it relates to initiatives designed to address the mental health needs of women suffering with PPD and second, to explore differences in rates of PPD and health behaviors between Spanish and Spanish-speaking Latin American immigrant (LAI) mothers.

National Health System of Spain

Spain has been a parliamentary monarchy since 1978, and it is a member of the European Union. It is located in the southwest of Europe, and it occupies most of the Iberian Peninsula. The country is divided into 17 Autonomous Communities (AC) where Spanish is the official language, and some ACs have also other official languages (Basque, Catalanian, Valencian, or Galician).

The Spanish National Health System (NHS) seeks to provide universal coverage with free access to health care for all, regardless of nationality or legal status. The Spanish NHS is supported predominantly through general taxation, allowing for the provision of medical service at little to no cost to patients. The Spanish NHS is largely decentralized, with each of the 17 Autonomous Communities (AC) responsible for their own health planning and healthcare services management (Ministry of Health and Social Policy 2010). The central government is responsible for the general organization and coordination of health services, as well as foreign health affairs and legislation of pharmaceutical products. The respective 17 AC Health Services have primary jurisdiction over the planning, organization, and delivery of health services and expenditure within their territory (Ministry of Health and Social Policy 2010) (Fig. 1).

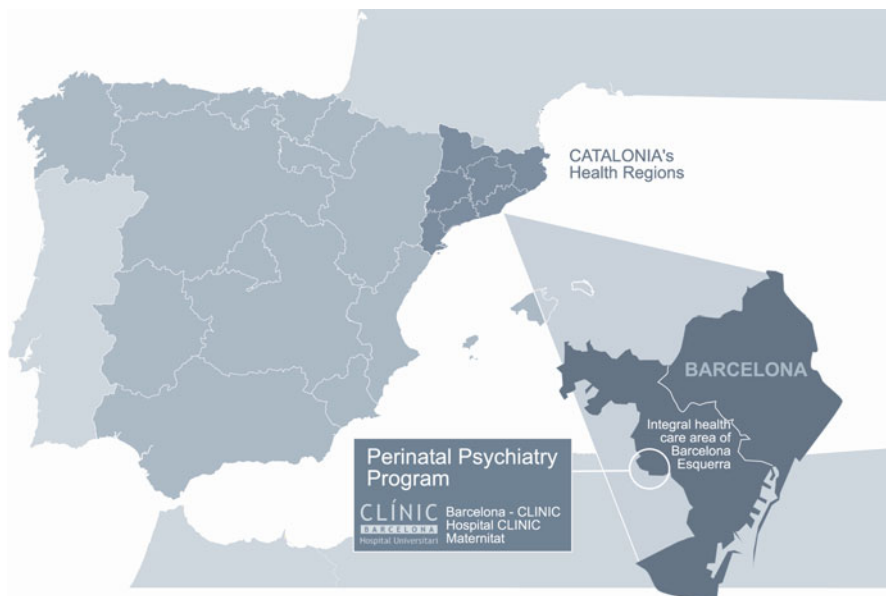


Fig. 1 Spanish autonomous communities, Catalonia's health regions, and basic health areas of Barcelona. *Note:* *PASSIR* Sexual and Reproductive Health Assistance Program, *CSMA* Community Mental Health Center

Although each AC uses different terms, the AC is functionally and organizationally divided into health regions based on geographic, socioeconomic, and demographic criteria. Each health region is organized in turn by health sectors, which comprise multiple basic health areas. The basic health area is the territorial unit around which Primary Care services are organized.

In 2012, the Spanish population was approximately 46.2 million, including 5.7 million immigrants. In Spain, all are entitled to health protection and public health care regardless of citizenship. Although the healthcare system is universal, immigrants may still face sociocultural and linguistic barriers to care, although the linguistic barrier is not an issue for Spanish-speaking immigrants from Latin America (LAI) and the Philippines (García-Armesto et al. 2010). However, access among illegal immigrants may change in the coming years, as the issue is currently under discussion (RD 16/2012).

The Spanish NHS is organized into two levels of care: Primary Health Care and Specialist Care. Primary Health Care provides basic health services to the population living within a 15-min radius of the Primary Care Centers. These centers are staffed by multidisciplinary teams consisting of family physicians, pediatricians, nurses, administrative staff, and in some cases also social workers, midwives, and physiotherapists and are responsible for health promotion, disease prevention, and assistance with common health problems. Specialist Care, on the other hand, is responsible

for the treatment and diagnosis of more complex conditions requiring more costly resources (Ministry of Health and Social Policy 2010). Specialist Care is offered in hospitals and specialty centers on an inpatient or outpatient basis. Patients may only access Specialist Care with a referral from a primary health care provider. Patients who have receive services through Specialist Care are then referred back to their primary care physician, who uses their medical history and the recommendations of the specialist to provide any needed clinical and/or therapeutic supervision, as well as continuity of care (Ministry of Health and Social Policy 2010).

Specialist Care includes hospital care, psychiatric and mental health care, drug-dependency care, and sexual and reproductive health assistance, as well as other specialist care resources. Sexual and reproductive health assistance is responsible for health care during the pregnancy and postpartum periods, in addition to other functions such as attention to sexual health, reproductive counseling, and issues of gender violence. The sexual and reproductive health assistance programs are staffed by obstetricians, gynecologists, midwives, nurses, and psychologists.

Psychiatric and Mental Health Care is organized into community mental health centers, with separate facilities for adults and for children and adolescents. These centers are territorially based and provide outpatient mental health treatment, are responsible for the continuity of psychiatric care, and centralize access to other sector-based mental health services (i.e., inpatient psychiatric units, psychiatric emergency care, day hospitals, rehabilitation units, psychosocial rehabilitation day centers). In parallel, some supra-sectorial programs have been developed for the specialization of specific pathologies or treatments (i.e., eating disorders units, bipolar programs, pathological gambling programs, perinatal psychiatry programs).

The Spanish NHS is able to provide quality health services in an efficient manner, achieving above average health indicators. Total expenditures on health in Spain are close to the average reported by Organisation for Economic Co-operation and Development (OECD) countries (9.6 % of gross domestic product), spending an average of 1,399 Euros per capita (Organisation for Economic Co-operation and Development [OECD] 2012). Spain has the second highest figures of any country in the OECD for life expectancy at birth in the female population (85.3 years), behind Japan (86.4 years). The male life expectancy at birth is also above average among OECD nations (79.1 years vs. 77 years) (OECD 2012). The infant mortality rate is 3.2 per 1,000 births, lower than the OECD average (4.3/1,000 births), and Spain also has lower than average levels for potential years of life lost, behind Iceland, Luxemburg, and Japan, in this order (OECD 2012). Finally, the rate of maternal mortality (6/100,000) is below average among OECD nations (24.7/100,000) (OECD 2012).

The study described in this chapter was conducted in Catalonia, an Autonomous Community of Spain. Catalonia is composed of 7.5 million citizens. It is divided into seven health regions (Fig. 1) (Catalan Health Service [CatSalut] 2012). Both Spanish and Catalan are the official languages of Catalonia. Spanish is currently the most spoken language in Catalonia and especially in the Barcelona metropolitan area (Catalan Statistics Institute [Idescat] 2008). All the study described below was conducted in Spanish language.

The Status of Perinatal Mental Health in Spain

There are no nationally agreed quality assurance standards for perinatal mental health assistance in Spain. The availability of specialized care services in perinatal mental health in Spain is variable, and in most areas, it is absent. Mental disorders in the perinatal period are attended usually in the general mental health network. The initiatives to create specialized services emerge in Spain in the last decade, mainly from the national public health system, as the Perinatal Psychiatry Program Barcelona-Clinic (Hospital Clínic Maternitat, from Barcelona), the Hospital Puerta de Hierro Majadahonda, and the Consorci Sanitari de Terrassa, and some private initiatives, such as the USP Instituto Universitario Dexeus (Appendix I). While there may be more initiatives in Spain, we will refer to four national programs that have recently begun a stable collaboration within the newly created Spanish Marce Society (Olza-Fernández et al. 2011).

The perinatal liaison mental health service in the Consorci Sanitari de Terrassa (Barcelona) was developed in 2007. This service arises from the adult psychiatry section and provides specialized support to the mental health network of a specific health sector. It has developed an outpatient consultation for the psychopharmacological treatment of mental disorders (depression, bipolar disorder, etc.) in pregnancy, as well as a coordinated monitoring with obstetricians and neonatologists of pregnancy, childbirth, and immediate postpartum.

The perinatal liaison mental health service in Hospital Puerta de Hierro Majadahonda (Madrid) was developed in 2009. The service has two outpatient consultations: a perinatal psychiatry consultation (specifically for pregnant and postpartum or breast-feeding mothers with mental disorders) and an infant psychiatry consultation (from birth to 6 years old, addressing relational pathologies and early feeding disorders). The program arises from the child psychiatry section, and there is a close liaison with Neonatology and Obstetrics services. The program provides psychiatric service to pregnant and postpartum women hospitalized in the maternity and babies admitted to neonatal or pediatrics and their families.

Within the private sector, the perinatal psychiatry and reproductive unit of the USP Instituto Universitario Dexeus in Barcelona in 2009 was developed. It combines specialized consultations aimed at preventive care and psychological and psychiatric treatment during pregnancy and the postpartum period, with specific protocols for fear of pregnancy, panic disorder, fetal death, and PPD. The program also includes assisted reproduction, from the perspective of reproductive dysfunction, infertility treatments and pregnancy and postpartum period, and treatment failures and repeated abortions. The program also addresses the ongoing decision-making and subsequent course of recipient couples of donated gametes. Recently, it has developed a web-based system for the routine screening of PPD, using the self-administered Edinburgh Postnatal Depression Scale (EPDS) at 4–6 weeks postpartum period. Subsequently, it offers a telephone consultation for assessment and referral for clinical diagnosis and treatment.

Perinatal Psychiatry Program Barcelona-Clinic

The first Perinatal Psychiatry Program developed in Spain was started in 2000 modeled after other international perinatal psychiatry programs (Hospital Clinic Barcelona 2012). The Perinatal Psychiatry Program Barcelona-Clinic is located in the building of the Hospital Clínic Maternitat, along with Maternal-Fetal Medicine, Neonatology and Genetics programs. The Hospital Clínic Maternitat is the referral maternity hospital for more than 500,000 inhabitants, with approximately 3,000 births/year (Navarro et al. 2008) (Fig. 1).

The Perinatal Psychiatry Program Barcelona-Clinic is a supra-sectorial outpatient program and provides services to those in the health sector (Integral Health Care of Barcelona Esquerra), always in coordination with professionals with special training from community mental health centers and maternity services. Consultations with professionals from other health sectors are provided through a high resolution consultation (HRC). The HRC is an early visit (less than 15 days from receipt of the request) to develop an individualized treatment plan and report, which is given to the original referring physician. Hospitalization, Day Programs, and psychosocial rehabilitation Day Centers are provided through the respective health sectors.

The Perinatal Psychiatry Program Barcelona-Clinic incorporates a gender approach, taking into account the specificity of gender in relation to the nature and course of mental disorders, the treatment, the risk and protective factors, and the impact of perinatal mental disorders. The program's objectives are to provide assessment, care, treatment, training, supervision, and research. Assessment objectives include a prepregnancy psychiatric consultation, as well as the examination of the course and characteristics of the illness; the clinical evolution; the precipitating factors; the specific risk factors (perfectionism, vulnerable personality); the exposure to gender violence; the exposure to childhood adversities, including childhood abuse; the emotional state during pregnancy; the level of social support and division of household tasks; and a systematic assessment of emotional state using the EPDS at different times of pregnancy and at 6–8 weeks postpartum. The assessment also includes the evaluation of mother–infant bonding disorders using the Brockington's scale (Postpartum Bonding Questionnaire, Brockington et al. 2001) and questions for the bonding disorder diagnosis based on the criteria for disorders of the mother–infant relationship of Brockington (Brockington et al. 2006). Care objectives include changes in lifestyles such as substance use, smoking cessation, or dietary interventions. Pregnant women with severe mental health problems require special care. Treatment objectives include an individualized psychiatric and psychological treatment during pregnancy, delivery, postpartum, and breast-feeding. It aims to develop an individualized treatment plan for pregnant and postpartum women depending on the type of disorder they present and the course and current status of their illness. The best evidence regarding the use and safety of psychiatric medications during pregnancy and postpartum is applied (NICE 2009; Beyondblue 2011). The decision-making process is based on balancing risks and benefits of drug treatment. The psychological treatment includes a group cognitive behavioral therapy for panic

disorder in pregnant and postpartum women, psychological therapy for depressive and posttraumatic stress symptoms after pregnancy loss, cognitive behavioral therapy for women with obsessive fears about harming her baby, and intervention for mother–infant interaction. With respect to teaching and in line with the deficiencies in specific training in perinatal psychiatry, training activities are being developed for professionals from Primary Care teams, Specialized Care, midwives, residents of psychiatry, psychology and mental health nursing, and undergraduates. Although it is less frequent, training activities are also offered to Latin American mental health professionals. Regarding supervision, Primary Care professionals and midwives may receive consultancy and peer supervision to improve detection of women with perinatal mental health disorders and provide brief interventions for mild mental health problems and mother–child relationship and help to identify situations requiring referral to General Practitioner or to Secondary Care.

The program has received funding from public agencies to carry out research projects on the epidemiology of mental disorders in the postpartum period, the validation of screening instruments for anxiety and depressive symptoms in the postpartum period (EPDS, Garcia-Esteve et al. 2003; General Health Questionnaire [GHQ], Navarro et al. 2008), course of psychiatric disorders during pregnancy and postpartum (Garcia-Esteve et al. 2007), prognostic factors for recovery from PPD, and the study of the effects of the pathologies and psychiatric treatment on pregnancy, delivery, and the newborn in the short and medium term (Roca et al. 2011). The program has also lines of research on mental health and gender violence (Index of Spouse Abuse [ISA], Torres et al. 2010).

In the Fig. 2, a detailed summary of the Program's assessment and intervention procedures is shown.

Postpartum Depression in Spain

In Spain, scientific interest in PPD in recent years has led to research on prevalence of PPD, on its risk, genetic and personality factors, and on validation of detection tools.

Prevalence figures of PPD in Spain obtained using clinical structured interviews are similar to those observed in other developed countries, where the point prevalence estimate ranged from 6.5 to 12.9 % at different months in the first year postpartum (Gavin et al. 2005). In a previous study, we found an estimated prevalence of PPD of 10.15 % (3.6 % major depression, 6.5 % minor depression) at 6 weeks postpartum based on an SCID interview (Ascaso et al. 2003). In a multi-centric study conducted in seven teaching hospitals in Spain, the incidence of major depression during the first 32 weeks postpartum was 12.7 % (Sanjuan et al. 2008).

The risk factors for PPD found in studies conducted in Spain are similar to those observed in other developed countries. PPD has been associated with polymorphic variations (5-HTTLPR and VNTR) in the serotonin transporter gene (Sanjuan et al. 2008), clinical factors such as past depressive episodes, premenstrual symptoms and depressive symptomatology during pregnancy (Garcia-Esteve et al. 2008;

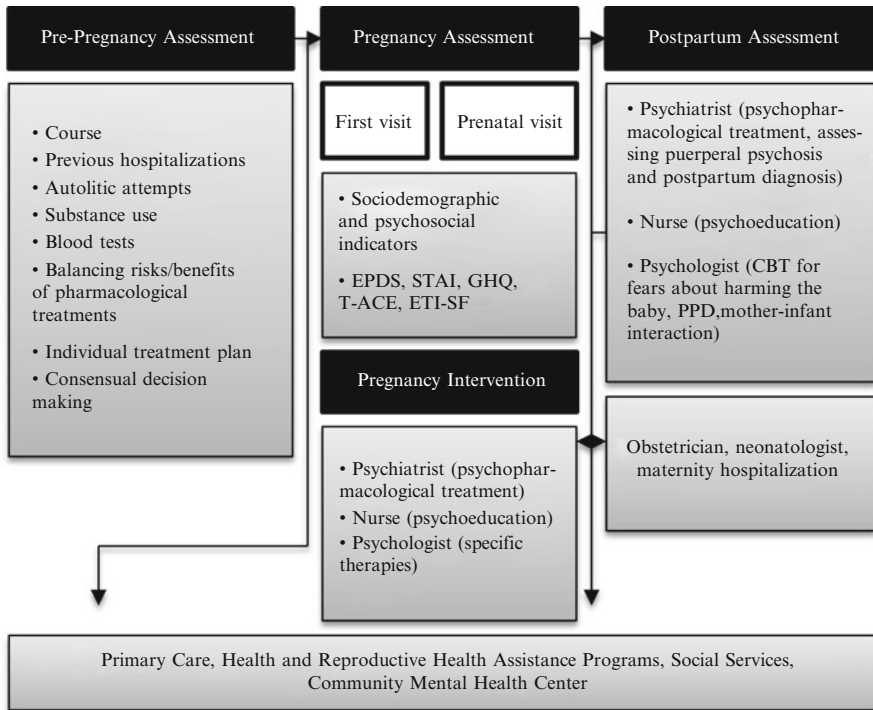


Fig. 2 Perinatal Psychiatry Program Barcelona-Clinic: summary of the program’s assessment and intervention procedures. *Note: EPDS* Edinburgh Postnatal Depression Scale, *GHQ* General Health Questionnaire, *STAI* State–Trait Anxiety Inventory, *T-ACE* tolerance, annoyed, cut-down, and eye-opener, *ETI-SF* early trauma inventory—short form, *PPD* postpartum depression, *CBT* cognitive behavioral therapy, *PBQ* Postpartum Bonding Questionnaire

Escribà-Agüir and Artazcoz 2011), personality factors such as neuroticism or perfectionism (Gelabert et al. 2012; Martín-Santos et al. 2012), and psychosocial factors such as poor partner relationship, low social support, family caregiver role, negative life events, being on sick leave, or traumas such as childhood physical abuse (Garcia-Esteve et al. 2008; Escribà-Agüir and Artazcoz 2011; Vilella et al. 2012; Plaza et al. 2012).

Too often, PPD is dismissed as a normal or a natural consequence of childbirth. Screening of all mothers during the antepartum and postpartum period may help to identify women with PPD. The EPDS is a 10-item, self-rated questionnaire that is easy to use and with high acceptability, becoming an excellent tool for use by health professionals and midwives for detection of PPD. The EPDS was translated into Spanish and validated in a Spanish sample by our team (Garcia-Esteve et al. 2003). The cutoff for detecting PPD in Spanish mothers was determined to be 10/11, with a sensitivity of 79 %, a specificity of 95.5 %, and a positive predictive value of 63 % (Garcia-Esteve et al. 2003). This validation has allowed the implementation of systematic screening from Primary Care to increase rates of identified PPD. For use as

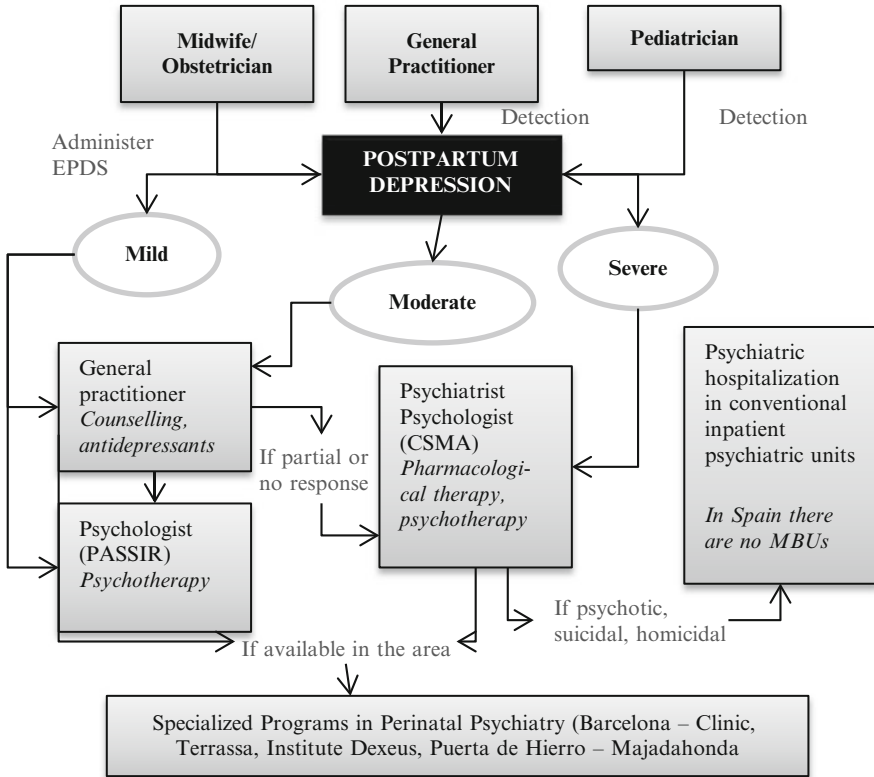


Fig. 3 Care management of postpartum depression. *Note:* ABS primary health care, PASSIR Sexual and Reproductive Health Assistance Programs, CSMA Community Mental Health Center, MBU mother-baby unit

a screening tool, the health professionals received training in the administration, detection, and referral. This questionnaire has been administered to both native Spanish and LAI mothers. In recent years, it has promoted the use of the EPDS (Cox et al. 1987) as a systematic tool for identifying women at risk for PPD by Primary Care and Sexual and Reproductive Health practitioners of its health sector. It also helps organize appropriate referral circuits for the health sector according to the severity of need and the type of mental health resources that already exist. Midwives usually administer the EPDS. If the EPDS score is 11 or greater or if item 10 “The thought of harming myself has occurred to me” is positive, the midwife may refer the patient to the General Practitioner for assessment and treatment (Fig. 3). Once detected, the case management depends on the general practitioner (GP) who can start the treatment if depressive symptoms are mild to moderate, together with the psychologist of the Sexual and Reproductive Health Program. If the depressive symptoms are moderate to severe, the GP refers to the general mental health center. Inpatient hospitalization may be necessary for severe PPD, and in this case the

patient is referred to a general psychiatric inpatient unit. To date, there are no psychiatric inpatient mother–baby units in Spain.

In the event that specialized services are available, several treatment options are available for PPD, including pharmacological and nonpharmacological treatments, psychological therapies, and psychosocial interventions (Fitelson et al. 2011). There have been few medication trials specifically evaluating the effectiveness of antidepressant medication, but the available evidence suggests that medications typically used to treat major depression in the general population are equally effective in PPD (Payne 2007). Decision-making about initiating antidepressant medication during breast-feeding and the choice of agent must be made on a case-by-case basis, taking into account the woman’s characteristics (e.g., age, weight, ethnicity), her mental health history and tendency to relapse, the severity of the depressive symptoms, prior response to medications, the risk to the infant, the risk to undertreating or not treating depression, and the patient’s preferences. The infant’s pediatrician should be made aware of the possible exposure, and the infant should be monitored for changes in feeding patterns, sleeping patterns, sedation, irritability, and other signs of drug toxicity. Electroconvulsive therapy (ECT) is an option for depressed postpartum women with treatment-refractory major depression or with severe symptoms such as psychotic symptoms, catatonia, or strong suicidal urges. Anesthetic agents used in ECT are rapidly metabolized and risk of transmission in breast milk can be minimized by timing breast-feeding accordingly.

An example of psychological intervention for PPD is developed in the Perinatal Psychiatry Program Barcelona-Clinic (see section “[Perinatal Psychiatry Program Barcelona-Clinic](#)”), based on the Milgrom’s cognitive behavioral program (Milgrom et al. 1999). It includes psychoeducation, increasing positive activities, relaxation training, assertive training, cognitive restructuring, problem solving, exposure and response prevention, and the preparation for return to work and baby separation. Psychoeducation includes information regarding PPD, specific risk factors, and stigmatized beliefs. It seeks to increase positive activities, such as self-care, time for herself, increasing previous social activities, or new activities with the baby, or finding the balance between the mother’s and the baby’s needs. The assertiveness training helps to seek support when needed or have the right to maintain her baby rules. Cognitive restructuring aims to restructure unrealistic attributions and expectations about maternity. Problem-solving techniques are used for resolving problems about balancing work and parenting or parenting and housework. They are also helpful for resolving interpersonal conflicts, such as problems with the couple about parenting. Psychological treatment of PPD is performed in conjunction with psychopharmacological treatment.

Barriers to Detection and Treatment

There are multiple barriers in the detection and treatment of perinatal depression. Professional barriers to detection include a lack of training in perinatal mental health, making detection and treatment difficult. Moreover, screening instruments

are not used systematically by health providers. Professional barriers also include stigmatized beliefs about women. In this sense, there may be a tendency to attribute depressive symptoms to negative personal characteristics such as lack of maturity, infantilism, and dependency or a way of seeking attention, obtaining a secondary benefit, or receiving financial help. Not infrequently, depressive symptoms are interpreted as a lack of family support rather than a legitimate mental health problem.

Barriers to treatment among depressed mothers may include misconceptions as well as structural barriers. Barriers to help-seeking by depressed mothers, as Wisner (2010) suggest, include the tendency to attribute symptoms to external causes such as stress. It is also common for mothers to be unfamiliar with PPD and assume that the symptoms presented are inherent in pregnancy and postpartum. Mothers tend to believe that depressive symptoms will resolve on their own, not knowing that PPD treatments work or that psychiatric and psychological care is beneficial. Furthermore, depressive symptoms are often seen as a sign of weakness, so embarrassment and fears of being stigmatized and rejected may also make it difficult to seek care. Additionally, women may be reluctant to take medication if they are breast-feeding. This has led to a delay in the onset of treatment and, consequently, in the therapeutic response, with an average of a year to achieve full remission (Garcia-Esteve et al. 2006). Structural barriers include difficulties in going to appointments during work hours (in Spain, visits are mostly in the public sector, and this is done primarily in the morning) or in balancing the many demands of work, caring for a newborn, and medical visits.

System-based barriers to treatment include the lack of availability of specific psychological treatments. In Spain, interpersonal psychotherapy is not implemented in most mental health programs, nor are therapies focused on mother–infant interactions available. Another issue is the lack of inpatient mother–baby units in Spain, which complicates the management of mothers with suicidal or infanticidal thoughts or psychotic symptoms. These mothers usually are hospitalized in conventional inpatient psychiatric units.

There are also specific barriers to assessment and treatment of perinatal depression in immigrant women. In addition to responses found among native-born mothers, immigrant mothers may not be used to asking for help, or they may think that services are for other native-born women not for them. For cultural reasons, some women may not describe psychological symptoms or will refer to somatic symptoms rather than psychological ones. They may not talk about these symptoms with a health professional for fear of being judged, which is heightened in illegal immigrant mothers who also fear being deported. Regarding structural barriers, these women may have greater financial difficulties that prohibit them from seeking medical care, including limited transportation and difficulty taking time off from work. These women tend to work as caretakers and often cannot take maternity leave. Similarly, they have less support from their partners and nuclear families, which are often in the country of origin (Fung and Dennis 2010). Regarding professional barriers, health professionals tend to interpret depressive symptoms in Latin American mothers as a strategy to get attention, a way to get a secondary benefit, or an attempt to take advantage of the universal healthcare system.

Maternity, Migration, and Postpartum Depression

Are There Differences in Prevalence Rates of PPD Among Spanish and Latin American Immigrant Mothers?

Outside Spain, few studies compare PPD prevalence between immigrant and native-born mothers, and results are controversial. While some studies have not found differences (e.g., Yoshida et al. 1997), others have found a higher prevalence of PPD in immigrant mothers compared to those who are native-born (e.g., Zekowitz and Milet 1995). Furthermore, to our knowledge, studies comparing PPD rates between Spain-born and Spanish-speaking LAI mothers are lacking.

We carried out a cross-sectional study with two phases aimed at answering this question. The study was conducted at the Hospital Clínic Maternitat, a teaching hospital, in Barcelona (Spain) with an average of 3,000 births/year. All mothers who received a routine checkup at 6 weeks postpartum in the Department of Obstetrics and Gynecology during a 1-year period were eligible to participate. Illiterate women, as well as women whose children died after birth, were excluded. The study protocol was approved by the Hospital Clinic Review Board with written informed consent from all participants.

The study included two phases, which were carried out on the same day. In phase 1, all mothers who met the inclusion criteria were approached by a trained clinical research assistant who explained the study; collected data regarding sociodemographic, obstetric, and health behaviors; and administered the Spanish validated version of the EPDS (Garcia-Esteve et al. 2003). Participants were stratified into four levels according to their EPDS score as follows: <7; =7 and <10; =10 and <13; and =13. In phase 2, approximately 30 % of participants in the previous phase were randomly selected using a stratified multistage sampling design (Table 1). In order to ensure adequate rates of minor and major depression, a random sample including 15 % of women with EPDS score <7; 50 % with EPDS score =7 and <10; 60 % with EPDS score = 10 and <13; and 100 % with EPDS score = 13 were selected. All participants in phase 2 were interviewed with the non-patient version of the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I) (First et al. 1997) in order

Table 1 EPDS score distribution in the two-phase sampling

EPDS scores	Native Spain (N=1,214)			Sample weight	Latin American (N=164)			Sample weight
	Phase 1 (n)	Phase 2 (n)	%		Phase 1 (n)	Phase 2 (n)	%	
0–6	889	121	13.60	7.35	93	9	9.70	10.33
7–9	137	70	51	1.96	32	13	40.60	2.46
10–12	78	45	57.70	1.73	16	9	56.30	1.78
13≥	110	104	94.50	1.06	23	19	82.60	1.21
Total (n)	1,214	340			164	50		

Note: EPDS Edinburgh Postnatal Depression Scale

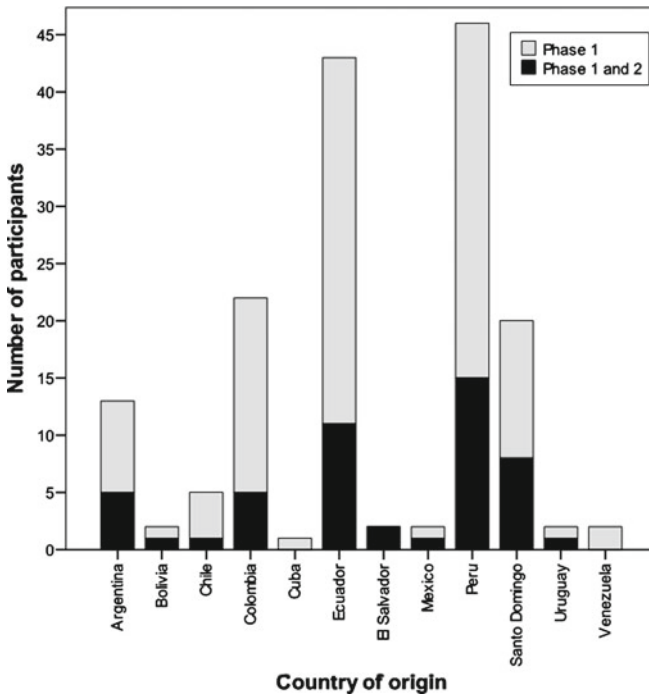


Fig. 4 Distribution of the Latin American immigrant (LAI) mothers by country of origin

to establish a diagnosis of minor and major PPD. The PPD prevalence and 95 % confidence intervals were estimated using weighted logistic regression with the observed sampling fractions of participants (Spanish and LAI mothers) in phase 2 as sample weights as explained in our previous work (Navarro et al. 2008).

The sample recruited in phase 1 comprised 1,378 mothers: 1,214 native Spanish and 164 LAIs. Figure 4 shows the distribution of LAI mothers by country of origin. The majority of immigrants were from Peru and Ecuador, followed by Colombia, Santo Domingo, and Argentina. Table 2 shows the sociodemographic characteristics of the study sample. LAI mothers, in comparison to native mothers, were younger, had higher education, had a higher proportion of single motherhood and poor partner relationships, had more financial problems, and had a higher percentage of employment without contract (Table 2).

Figure 5 represents the weighted prevalence rates of major, minor, and combined (major and minor) PPD for native Spanish mothers and LAI mothers. LAI mothers had a 17.3 % prevalence of combined PPD (major and minor) and 11.4 % of major PPD. In contrast, native Spanish mothers had a prevalence of 11 % and 7.7 %, respectively. The prevalence of PPD found in Spanish mothers was similar to that obtained in our previous work (Ascaso et al. 2003).

The immigrant LAI mothers had a higher prevalence of PPD than native-born mothers. A recent systematic review of PPD in refugee, asylum seeker, and

Table 2 Sociodemographic characteristics of the study sample

	Native Spain (n=1,214)		Latin American (n=164)		χ^2 (df)
	n	%	n	%	
Educational level					
Primary	465	38.4	21	12.8	42.86 (2)***
Secondary	434	35.8	76	46.3	
University	313	25.8	67	40.9	
Stable partner	1,198	98.7	152	92.7	26.12 (1)***
Poor partner relationship	63	5.3	20	13.2	16.14 (1)***
Number of children					
1	729	60	98	59.8	0.01 (1)
≥2	485	40	66	40.2	
Employment status					
Employed	959	79	111	67.7	57.52 (3)***
Unemployed receiving benefits	64	5.3	3	1.8	
Unemployed not receiving benefits	25	2.1	21	12.8	
Housewife	166	13.7	29	17.7	92.11 (1)***
Employment without contract	104	8.6	56	34.1	
Financial problems	137	11.3	89	54.6	196.54 (1)***
Age					
18–24	108	8.9	39	23.8	36.36 (2)***
28–34	764	62.9	96	58.5	
>34	342	28.2	29	17.7	

Note: *** $p < 0.001$

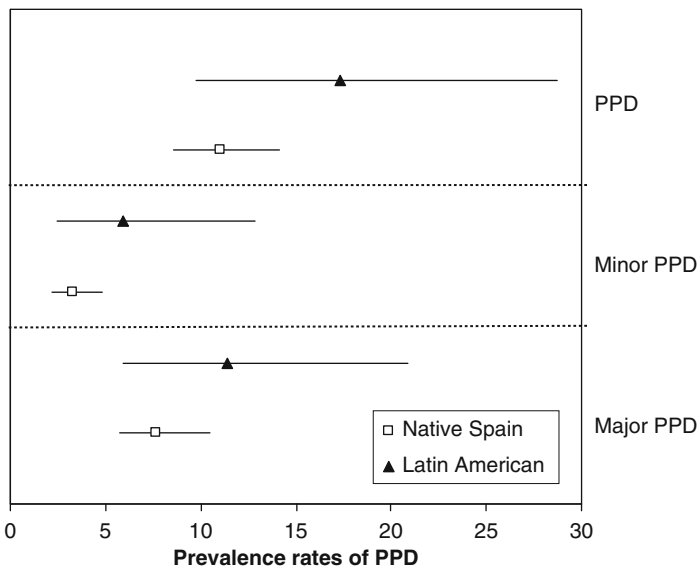


Fig. 5 Prevalence rates of postpartum depression (PPD) among LAI mothers and Spanish mothers. Note: PPD postpartum depression. The horizontal lines indicate 95 % confidence interval

immigrant mothers that included studies from Canada and Australia found that immigrant mothers had higher risk of PPD than the native-born mothers, with rates ranging from 24 to 42 % (Collins et al. 2011). In contrast, US researchers such as Yonkers et al. (2001) did not find differences in prevalence rates of PPD between Latina, African American, and Caucasian mothers. In addition, some studies have found a lower rate of PPD in foreign-born Latina mothers when compared to US-born Latinas, suggesting a negative influence of higher acculturation (Fung and Dennis 2010; Huang et al. 2007). These mixed results highlight the complex relationship between immigrant status and PPD, which may be mediated by multiple factors including ethnic, social, and cultural factors, the characteristics of the host country.

Our results are in line with those that found the immigrant mothers to be at high risk for PPD (Collins et al. 2011; Fung and Dennis 2010). Common risk factors associated with PPD in immigrant mothers are stressful life events prior or during their pregnancy, including premigration stressful events, and low social support, including poor marital quality (Collins et al. 2011; Zelkowitz et al. 2008). In our sample, LAI mothers showed a higher rate of single motherhood and poor partner relationships compared to native-born mothers. As suggested by Fung and Dennis (2010), marital quality may be especially important in this population due to the lack of support from the extended family that is not geographically accessible. The higher rates of PPD in LAI mothers may be explained by a higher exposure to well-known risk factors associated with PPD (e.g., stressful events, including traumatic events, low social support, poor partner relationship) and culture-related risk factors. More research is needed to elucidate the specific contributors to PPD in LAI mothers.

Are There Differences in Prevalence Rates of Reproductive Health Behaviors Among Spanish and Latin American Immigrant Mothers?

The last aim of the study described above was to examine differences in reproductive health behaviors (alcohol, coffee, and tobacco use during pregnancy and breast-feeding, unplanned pregnancy, and previous voluntary abortions) between Spanish and LAI mothers. Prevalence rates with 95 % confidence intervals (CI) for each reproductive health behavior in Spanish and LAI mothers were computed using the sample recruited in phase 1.

Figure 6 shows the prevalence rates and CI for each health behavior in both samples. LAI mothers had higher rates of unplanned pregnancy and previous voluntary abortions than native-born participants. There were also group differences in prevalence rates of breast-feeding, favoring immigrant mothers. Spanish mothers had higher prevalence of tobacco and coffee use during pregnancy.

Our results indicate that immigrant mothers breast-feed their children at higher rates than Spanish mothers. Similar trends have been found in the USA where

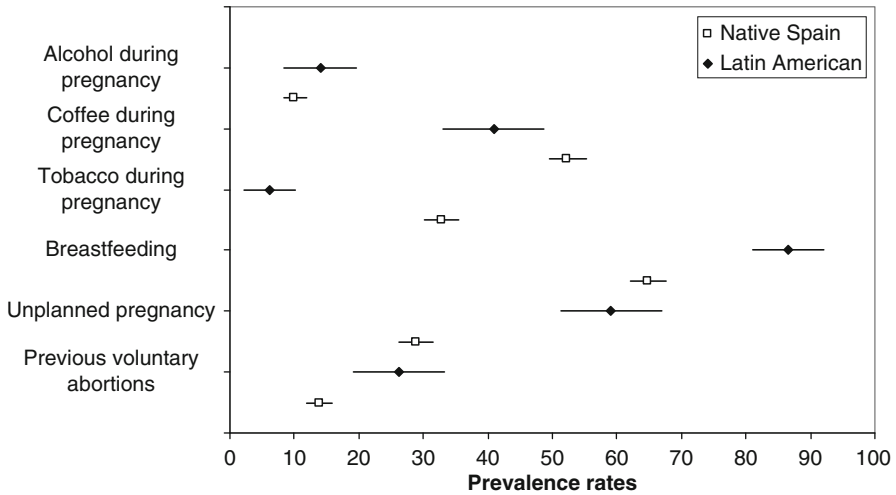


Fig. 6 Prevalence rates of health behaviors among LAI mothers and Spanish mothers. *Note:* The horizontal lines indicate 95 % confidence interval

breast-feeding rates among Hispanics are higher than in “white American” women (Beck et al. 2002). Other studies have shown a gradual abandonment of breast-feeding practices as immigrants acculturate (Gibson et al. 2005). In Spain, Spanish mothers have lower breast-feeding rates than immigrants. It is possible that the differences observed between the two populations in this study respond to differing cultural and economic patterns. Immigrant mothers retain an upbringing model in which breast-feeding is essential for infant survival. In fact, women who cannot breast-feed tend to look for wet nurses. In previous studies in the US population, the identification with Latin American Hispanic culture and low rates of acculturation were related to higher rates of breast-feeding in Hispanics, pointing out the importance of breast-feeding in the Latin American culture model (Gill 2009). The high cost of formula is another important reason that might explain disparities in breast-feeding rates given that immigrant mothers tend to experience more economic difficulties.

The rate of unplanned pregnancies in LAI mothers is higher than that observed in Spanish native mothers. In a US sample, the rate of unplanned pregnancy in Hispanic women was 40 %, vs. 32 % in white women, and the rate of unwanted pregnancy was 7 % in Hispanics, compared to 5 % in white women (Kost and Forrest 1995). However, in another study, Hispanic American women living in the USA showed the same rate of unplanned pregnancies as non-Hispanics, as high as 30.4 % (Henshaw 1998). Planning a pregnancy is a learned health behavior designed to control conception. These are behaviors that are facilitated by information in schools, visits to health centers, and dissemination of health policies aimed at greater control of pregnancies by women. While Spain is far from having satisfactory rates of planned parenthood, the results suggest that the level of conception control in Spanish mothers is higher than in LAI mothers.

The relationship between unplanned pregnancy and PPD has been shown in previous research (Garcia-Esteve et al. 2005). Planning involves the adoption of healthier behaviors, so pregnancy can occur in the best possible conditions. An unplanned pregnancy can affect mother–child bonding, which impacts future interactions which are necessary for the emotional and cognitive development of the newborn (Barber et al. 1999).

LAI mothers report a higher rate of induced abortions than native-born Spanish mothers in the study. Although data from other countries shows a higher prevalence of induced abortions in Hispanic samples (Henshaw and Kost 1996), we believe that abortion is a result of poor planning, not to be associated with a social or cultural group. In many countries its use is conditioned by religious beliefs and legal issues. This increased abortion practice in LAI mothers probably represents poor health habits in which abortion is used as a form of contraception when other birth control methods fail or have not been used.

Although the figures for smoking during pregnancy are very high in Spanish mothers, they are consistent with larger studies of this population (Martinez-Frias et al. 2005). The lower prevalence rate of smoking during pregnancy in the LAI group corresponds with results from other studies in which smoking during pregnancy is lower among immigrant mothers than in European or American mothers. For example, Mexican immigrant women smoked less than the US-born mothers and Mexican mothers born in the USA (Zambrana et al. 1997). In the UK, women of Afro-Caribbean, Asian origin smoked less during pregnancy than European women (Waterson and Murray-Lyon 1989). In the USA, smoking prevalence among Hispanic Americans is less than that of other racial/ethnic groups and varies from 1.8 to 8.2 % depending on the state (Beck et al. 2002). The lower prevalence of tobacco use in LAI mothers may be associated with the influence of social norms and cultural traditions that these women bring with them.

We did not find differences in prevalence rates of alcohol consumption among Spanish and LAI mothers. In a study of the general population, the Spanish National Health Survey found lower rates of smoking but higher rates of alcohol consumption in immigrant women in comparison to native-born women (National Statistics Institute [INE] and Ministry of Health and Social Policy 2006). Given the well-known teratogenicity of alcohol (e.g., fetal alcohol syndrome), alcohol intake during pregnancy by more than 10 % of the study population is a striking figure. Furthermore, substance use, including alcohol and tobacco consumption, has been associated with depressive symptomatology in pregnancy and postpartum (Melo et al. 2012; Le Strat et al. 2011; Quelopana et al. 2011).

Recommendations Based on Our Data

LAI mothers are a socioeconomically disadvantaged group; they are younger, have less support from their partners, and have more economic problems than Spanish mothers. We found that 17 % of LAI mothers developed PPD, and specifically,

11 % had a major depressive episode in the postpartum period. LAI mothers in our study have poorer reproductive health habits than native Spanish mothers; they have a higher risk of unplanned pregnancies and induced abortions. As described previously, these poorer health habits, especially unplanned pregnancy, have been associated with PPD. In contrast, LAI mothers show a greater likelihood of breast-feeding. LAI women should be a target population for psychoeducational health programs aimed at improving self-detection of depressive symptoms in the postpartum period and family planning habits. It would be advisable to study the barriers to detection and treatment of perinatal depression in LAI immigrant women, as well as the barriers to access to family planning programs.

There were no differences between Spanish and LAI mothers with respect to alcohol consumption during pregnancy, which was found in up to 10 % in this sample. However, smoking in pregnancy was less frequent in LAI than Spanish mothers. Given the rates of substance use in our study, these recommendations should be considered: (a) disseminate information on the well-known effects of tobacco, alcohol, and coffee consumption during pregnancy, (b) screen for substance use in both Spanish and LAI mothers, and (c) provide strategies for the cessation of alcohol in both populations given that previous studies show that consumption of substances, such as alcohol and tobacco, has been associated with perinatal depressive symptomatology and also given the teratogenic potential. In recent years, Spain has designed public health programs aimed at cessation of smoking in pregnancy (Department of Health 2006) and the cessation of alcohol and illegal drugs consumption during pregnancy (Department of Health 2010).

In conclusion, over the last decade, there has emerged in Spain a marked scientific interest in the subject of perinatal mental health. This has led to the development of outpatient specialized services, the launching of training activities for basic health and mental health professionals, and the promotion of screening programs for the detection of DPP. Multidisciplinary relationships have been established in order to create networks that facilitate the care of mental health problems during the perinatal period. All these achievements respond to the concerns of professionals who work in different services. It is suggested that the government should adopt perinatal mental health policies and establish a network based on a model of collaborative care. There is a need to include evidence-based knowledge about mental health problems in training and continuing education of health professionals. Finally, perinatal mental health needs should be addressed taking into account the specificity of different sociocultural groups of women, such as Latin American immigrant mothers.

References

- Ascaso, C., Garcia-Esteve, L. L., Navarro, P., Aguado, J., Ojuel, J., & Tarragona, M. J. (2003). Prevalence of postpartum depression in Spanish mothers: Comparison of estimation by mean of the structured clinical interview for DSM-IV with the Edinburgh Postnatal Depression Scale [Spanish]. *Medicina Clinica, 120*(9), 326–329.

- Barber, J. S., Axinn, W. G., & Thornton, A. (1999). Unwanted childbearing, health, and mother-child relationships. *Journal of Health and Social Behavior*, *40*, 231–257.
- Beck, L. F., Morrow, B., Lipscomb, L. E., Johnson, C. H., Gattfield, M. E., Rogers, M., et al. (2002). Prevalence of selected maternal behaviors and experiences, Pregnancy Risk Assessment Monitoring System (PRAMS), 1999. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, *51*(2), 1–22.
- Beyondblue. (2011). *Clinical practice guidelines for depression and related disorders—Anxiety, bipolar disorder and puerperal psychosis—in the perinatal period. A guideline for primary care health professionals*. Melbourne, VIC: Beyondblue: The National Depression Initiative.
- Brockington, I. F., Fraser, C., & Wilson, D. (2006). The Postpartum Bonding Questionnaire: A validation. *Archives of Women's Mental Health*, *9*, 233–242. doi:10.1007/s00737-006-0132-1.
- Brockington, I. F., Oates, J., George, S., Turner, D., Vostanis, P., Sullivan, M., et al. (2001). A screening questionnaire for mother-infant bonding disorders. *Archives of Women's Mental Health*, *3*, 133–140.
- Burroughs, V. J., Maxey, R. W., & Levy, R. A. (2002). Racial and ethnic differences in response to medicines: Towards individualized pharmaceutical treatment. *Journal of the National Medical Association*, *94*(10S), 1–26.
- Catalan Health Service [CatSalut]. (2012). *Getting closer to you*. Retrieved September 27, 2012, from http://www10.gencat.cat/catsalut/eng/coneix_lesregions_apr.htm
- Catalan Statistics Institute [Idescat]. (2008). *Survey on language uses of the population [Catalonian]*. Online document. Barcelona, Spain: Catalan Statistics Institute. Retrieved December 14, 2012, from <http://idescat.cat/p/eulp2008>
- Carta, M. G., Bernal, M., Hardoy, M. C., Haro-Abad, J. M., & Report on the Mental Health in Europe Working Group. (2005). Migration and mental health in Europe (the state of the mental health in Europe working group: Appendix 1). *Clinical Practice and Epidemiology in Mental Health*, *1*, 13. doi:10.1186/1745-0179-1-13.
- Collins, C. H., Zimmerman, C., & Howard, L. M. (2011). Refugee, asylum seeker, immigrant women and postnatal depression: Rates and risk factors. *Archives of Women's Mental Health*, *14*(1), 3–11. doi:10.1007/s00737-010-0198-7.
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry*, *150*, 782–786. doi:10.1192/bjp.150.6.782.
- Department of Health. (2006). *Clinical guideline for promoting smoking cessation during pregnancy [Catalonian]*. Online document. Barcelona, Spain: Department of Health. Retrieved October 20, 2012, from <http://www.saveva.com/domamPlus/pub/depsalut/pdf/catalegcatdef-set06.pdf>.
- Department of Health. (2010). *Catalog of services of the public health agency of Catalonia [Catalonian]*. Online document. Barcelona, Spain: Department of Health. Retrieved October 20, 2012, from http://www20.gencat.cat/docs/salut/Home/EI%20Departament/Organitzacio/Organismes/Agencia_Salut_Publica/documents/arxiu/aps_cataleg.pdf
- Escribà-Agüir, V., & Artazcoz, L. (2011). Gender differences in postpartum depression: A longitudinal cohort study. *Journal of Epidemiology and Community Health*, *65*(4), 320–326. doi:10.1136/jech.2008.085894.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1997). *Structured clinical interview for DSM-IV axis I disorders. Research version, non-patient edition (SCID-I/NP)*. New York: Biometrics Research, New York State Psychiatric Institute.
- Fitelson, E., Kim, S., Baker, A. S., & Leight, K. (2011). Treatment of postpartum depression: Clinical, psychological and pharmacological options. *International Journal of Women's Health*, *3*, 1–14. doi:10.2147/IJWH.S6938.
- Fung, K., & Dennis, C. L. (2010). Postpartum depression among immigrant women. *Current Opinion in Psychiatry*, *23*(4), 342–348. doi:10.1097/YCO.0b013e32833ad721.
- García-Armesto, S., Abadía-Taira, M. B., Durán, A., Hernández-Quevedo, C., & Bernal-Delgado, E. (2010). Spain: Health system review. *Health Systems in Transition*, *12*(4), 1–295.

- García-Esteve, L. L., Ascaso, C., Ojuel, J., & Navarro, P. (2003). Validation of the Edinburgh Postnatal Depression Scale (EPDS) in Spanish mothers. *Journal of Affective Disorders*, 75(1), 71–76. doi:10.1016/S0165-0327(02)00020-4.
- García-Esteve, L. L., Navarro, P., Ascaso, C., Aguado, J., & Torres, A. (2007). Major depressive episode in postpartum: A prospective 1-year naturalistic follow-up. In A. I. Rosenfeld (Ed.), *New research on postpartum depression* (pp. 85–104). New York: Nova.
- García-Esteve, L., Navarro, P., Aguado, J., Martín-Santos, R., Plaza, A., Gelabert, E., et al. (2006). Prospective 1-year naturalistic follow-up of postpartum major depression: Preliminary analysis. *European Psychiatry*, 21(Suppl 1), S129–S190.
- García-Esteve, L. L., Navarro, P., Ascaso, C., Torres, A., Aguado, J., Gelabert, E., et al. (2008). Family caregiver role and premenstrual syndrome as associated factors for postnatal depression. *Archives of Women's Mental Health*, 11(3), 193–200. doi:10.1007/s00737-008-0012-y.
- García-Esteve, L. L., Torres, A., Navarro, P., Aguado, J., & Ascaso, C. (2005). Unplanned pregnancy and psychological morbidity, an avoidable risk [Spanish]. *Revista de Psiquiatría de la Facultad de Medicina de Barcelona*, 32(3), 111–118.
- Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal depression: A systematic review of prevalence and incidence. *Obstetrics and Gynecology*, 106, 1071–1083. doi:10.1097/01.AOG.0000183597.31630.db.
- Gelabert, E., Subirà, S., García-Esteve, L. L., Navarro, P., Plaza, A., Cuyàs, E., et al. (2012). Perfectionism dimensions in major postpartum depression. *Journal of Affective Disorders*, 136(1–2), 17–25. doi:10.1016/j.jad.2011.08.030.
- Gibson, M. V., Diaz, V. A., Mainous, A. G., & Geesey, M. E. (2005). Prevalence of breastfeeding and acculturation in Hispanics: Results from NHANES 1999–2000 study. *Birth*, 32, 93–98. doi:10.1111/j.0730-7659.2005.00351.x.
- Gill, S. L. (2009). Breastfeeding by Hispanic women. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 38(2), 244–252. doi:10.1111/j.1552-6909.2009.01013.x.
- Henshaw, S. K. (1998). Unintended pregnancy in the United States. *Family Planning Perspectives*, 30, 24–29.
- Henshaw, S. K., & Kost, K. (1996). Abortion patients in 1994–1995: Characteristics and contraceptive use. *Family Planning Perspectives*, 28, 140–158.
- Hospital Clinic Barcelona. (2012). Retrieved December 14, 2012, from <http://www.hospitalclinic.org/Asistencia/AtencionHospitalaria/Neurociencias/tabid/153/language/es-ES/Default.aspx>
- Huang, Z. J., Wong, F. Y., Ronzio, C. R., & Yu, S. M. (2007). Depressive symptomatology and mental health help-seeking patterns of U.S.- and foreign-born mothers. *Maternal and Child Health Journal*, 11(3), 257–267. doi:10.1007/s10995-006-0168-x.
- Kost, K., & Forrest, J. D. (1995). Intention status of U.S. births in 1988: Differences by mothers' socioeconomic and demographic characteristics. *Family Planning Perspectives*, 27, 11–17.
- Le Strat, Y., Dubertret, C., & Le Foll, B. (2011). Prevalence and correlates of major depressive episode in pregnant and postpartum women in the United States. *Journal of Affective Disorders*, 135(1–3), 128–138. doi:10.1016/j.jad.2011.07.004.
- Martín-Santos, R., Gelabert, E., Subirà, S., Gutierrez-Zotes, A., Langorh, K., Jover, M., et al. (2012). Research letter: Is neuroticism a risk factor for postpartum depression? *Psychological Medicine*, 42(7), 1559–1565. doi:10.1017/S0033291712000712.
- Martínez-Frías, M. L., Rodríguez-Pinilla, E., & Bermejo, E. (2005). Tobacco smoking during pregnancy in Spain: An analysis according to years, autonomous communities and maternal characteristics [Spanish]. *Medicina Clínica*, 124, 86–92.
- Melo, E. F., Jr., Cecatti, J. G., Pacagnella, R. C., Leite, D. F., Vulcani, D. E., & Makuch, M. Y. (2012). The prevalence of perinatal depression and its associated factors in two different settings in Brazil. *Journal of Affective Disorders*, 136(3), 1204–1208. doi:10.1016/j.jad.2011.11.023.
- Milgrom, J., Martin, P. R., & Negri, L. M. (1999). *Treating postnatal depression: A psychological approach for health care practitioners*. Chichester, England: Wiley.
- Ministry of Health and Social Policy. (2010). *National health system of Spain, 2010*. Online document. Madrid, Spain: Ministry of Health and Social Policy, Health Information Institute. Retrieved September 27, 2012, from <http://www.msps.es/en/organizacion/sns/libroSNS.htm>

- National Statistics Institute [INE]. (2012). *INEbase*. Retrieved September 27, 2012, from <http://www.ine.es>
- National Statistics Institute [INE], & Ministry of Health and Social Policy. (2006). *National health survey 2006*. Retrieved September 27, 2012, from <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=/t15/p419&file=inebase&L=1>
- Navarro, P., García-Esteve, L. L., Ascaso, C., Aguado, J., Gelabert, E., & Martín-Santos, R. (2008). Non-psychotic psychiatric disorders after childbirth: Prevalence and comorbidity in a community sample. *Journal of Affective Disorders, 109*(1–2), 171–176. doi:10.1016/j.jad.2007.10.008.
- NICE. (2009). *Antenatal and postnatal mental health. NICE clinical guideline 45*. London: National Institute for Clinical Excellence.
- Olza-Fernández, I., Garcia-Esteve, L. L., Lasheras, G., & Farré, J. M. (2011). Spanish section of Marcé society: Promoting perinatal mental health [Spanish]. *Medicina Psicosomática y Psiquiatría de Enlace, 100*, 50–54.
- Organisation for Economic Co-operation and Development [OECD]. (2012). *OECD health data 2012*. Retrieved September 27, 2012, from <http://www.oecd.org>
- Payne, J. L. (2007). Antidepressant use in the postpartum period: Practical considerations. *The American Journal of Psychiatry, 164*(9), 1329–1332.
- Plaza, A., Garcia-Esteve, L. L., Torres, A., Ascaso, C., Gelabert, E., Imaz, M. L., et al. (2012). Childhood physical abuse as a common risk factor for depression and thyroid dysfunction in the earlier postpartum. *Psychiatry Research, 200*, 329–335. doi:10.1016/j.psychres.2012.06.032.
- Quelopana, A. M., Champion, J. D., & Reyes-Rubilar, T. (2011). Factors associated with postpartum depression in Chilean women. *Health Care for Women International, 32*(10), 939–949. doi:10.1080/07399332.2011.603866.
- Roca, A., Garcia-Esteve, L. L., Imaz, M. L., Torres, A., Hernández, S., Botet, F., et al. (2011). Obstetrical and neonatal outcomes after prenatal exposure to selective serotonin reuptake inhibitors: The relevance of dose. *Journal of Affective Disorders, 135*(1–3), 208–215. doi:10.1016/j.jad.2011.07.022.
- Royal Decree 16/2012 [RD 16/2012] (2012, April 24). On urgent measures to guarantee the sustainability of the National Health System and improve the quality and safety of its services [Spanish]. *Boletín Oficial del Estado*. Retrieved September 27, 2012, from <http://www.boe.es/boe/dias/2012/04/24/pdfs/BOE-A-2012-5403.pdf>
- Sanjuan, J., Martín-Santos, R., Garcia-Esteve, L. L., Carot, J. M., Guillamat, R., Gutierrez-Zotes, A., et al. (2008). Mood changes after delivery: Role of the serotonin transporter gene. *The British Journal of Psychiatry, 193*(5), 383–388. doi:10.1192/bjp.bp.107.045427.
- Torres, A., Navarro, P., García-Esteve, L. L., Tarragona, M. J., Ascaso, C., Herreras, Z., et al. (2010). Detecting domestic violence: Spanish external validation of the index of spouse abuse. *Journal of Family Violence, 25*, 275–286. doi:10.1007/s10896-009-9290-z.
- Vilella, E., Albarca, G., Martín-Santos, R., Garcia-Esteve, L. L., Guillamat, R., Sanjuan, J., et al. (2012). Employment during pregnancy protects against postpartum depression. In M. G. Rojas-Castillo (Ed.), *Perinatal depression* (pp. 81–96). Rijeka, Croatia: InTech Open Access. doi:10.5772/30874.
- Waterson, E. J., & Murray-Lyon, I. M. (1989). Alcohol, smoking and pregnancy: Some observations on ethnic minorities in the United Kingdom. *British Journal of Addiction, 84*(3), 323–325.
- Wisner, K. L. (2010). SSRI treatment during pregnancy: Are we asking the right questions? *Depression and Anxiety, 27*(8), 695–698. doi:10.1002/da.20729.
- Yonkers, K. A., Ramin, S. M., Rush, A. J., Navarrete, C. A., Carmody, T., March, D., et al. (2001). Onset and persistence of postpartum depression in and inner-city maternal health clinic system. *The American Journal of Psychiatry, 158*, 1856–1863. doi:10.1176/appi.ajp.158.11.1856.
- Yoshida, K., Marks, M. N., Kibe, N., Kumar, R., Nakano, H., & Tashiro, N. (1997). Postnatal depression in Japanese women who have given birth in England. *Journal of Affective Disorders, 43*(1), 69–77.

- Zambrana, R. E., Scrimshaw, S. C., Collins, N., & Dunkel-Schetter, C. (1997). Prenatal health behaviors and psychosocial risk factors in pregnant women of Mexican origin: The role of acculturation. *American Journal of Public Health, 87*(6), 1022–1026.
- Zelkowitz, P., & Milet, T. H. (1995). Screening for post-partum depression in a community sample. *Canadian Journal of Psychiatry, 40*(2), 80–86.
- Zelkowitz, P., Saucier, J. F., Wang, T., Katofsky, L., Valenzuela, M., & Westreich, R. (2008). Stability and change in depressive symptoms from pregnancy to two months postpartum in childbearing immigrant women. *Archives of Women's Mental Health, 11*(1), 1–11. doi:10.1007/s00737-008-0219-y.