DIFFERENCES BETWEEN IMMIGRANT WOMEN AND SPANISH WOMEN DURING THE POSTPARTUM PERIOD: THE IMPORTANCE OF PSYCHOLOGICAL AND EMOTIONAL SUPPORT

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Abstract:

Immigration is in itself a complex situation, but when it is accompanied by pregnancy and childbirth, it can become even morecomplicated. The objective of this research study was to ascertain whether there were differences in the main socio-demographic, obstetric, perinatal, and psychological variables in immigrant women and native-born women in Spain during and immediately after pregnancy. For this purpose, 103 female subjects (53 immigrants and 50 Spaniards) were obstetrically and psychologically evaluated 48 hours after childbirth.

Although in both groups, similar results were obtained for the obstetric and perinatal variables, significant differences were found in the psychological variables. For example, the female immigrants had higher scores for the dimensions or subscales obsessive-compulsive, interpersonal sensitivity, depression, phobic anxiety, paranoid ideation, and psychoticism. Significant differences were also found in the global severity index of the SCL-90. Accordingly, the sample of female immigrants had higher levels of psychological disorder in the postpartum period immediately after childbirth. Consequently, they required more psychological and emotional support from their families as well as from health care facilities.

Key words**:** immigrant women; mental health; pregnancy; childbirth; postpartum.

INTRODUCTION

Immigration is hardly a new phenomenon. Throughout history, for very diverse reasons, people have left their homes and traveled to other countries in search of a new life and future[1]. However, in recent decades, the context of immigration has changed dramatically. In today's world, there are increasing numbers offemale immigrants, and the list of possible destinations has expanded to include new countries. This indicatesthat we have now entered a new era of international migrations [2]. For example, over the last 20 years, the immigrant population in Spain has soared. This in itselfhighlights the urgent need to study this phenomenon.

According to data from the National Institute of Statistics [3], the immigrant population in Spain is5.7 million. Approximately63% of these immigrants are 16-44 years of age,and 27% are women. These mounting numbers have led to important changes from botha socio-demographic and a healthcare perspective. Because of the young age and percentage of females in the immigrant population, there is a greater demand for medical services related toprenatal and postnatal care.

Current legislation in Spain (i.e. Article 1 of Royal Decree 16/2012 of 20 April) [4]has enacted urgent measures to guarantee the sustainability of the national healthcare systemand to improve the quality and reliability of its services. Among other things, this law guarantees access to healthcare for all women before, during, and after pregnancy.One of the characteristics of the national healthcare programfor monitoring pregnancy, childbirth, and postpartum is that all of the healthcare activities and services in each stage of gestationshould be strictly complied with. Two quality indicators are the early incorporationof expectant mothers into the program before the 12^{th} week of their pregnancy as well as the number of visits to the obstetrician.

In the case of female immigrants, these goals are often difficult to achieve. Reasonsinclude the unfamiliarity of these women with the national healthcare system. This means that they are oftenunaware that theyare covered by it, and thus have the right to medical care. Important obstacles are the language barrier, theirrelative isolationbecause of questionable residency status, and the fear ofpossible legal problems stemming from this situation. Many of these women also have problems at work (e.g. inflexible schedules accompanied by the fear of losing their jobs). Other considerations

are that some of these women do not know that prenatal care is even necessary. Finally, in certain cases, these women have limited autonomy since they depend on their husband or partner to accompany them to the clinic or hospital for medical visits.

It should also be highlighted that pregnancy is not only a period of physical transformation, but also of dramatic psychological change. These changes oblige the expectant mother to adopt strategies that make it easier for her to bond with her baby [5-6]. Furthermore, the personality of the woman often influences the way in which she confronts and deals with maternity. According to Saisto et al. [7], a heightened fear of childbirth leads to pain-avoidance behavior (e.g. request for an elective cesarean section), whichis directly related to personality disorders.

The impact of pregnancy and childbirth on the perceived stress level of the woman and its influence on her psychological state has been widely studied [8, 9]. In fact, different instruments have been used to evaluate the mother in this respectboth during and after pregnancy. More specifically, in research using the Symptom Checklist SCL-90, expectant mothers had higher scores in the dimensions of depression, anxiety, somatization, and neuroticism [10]. Similarly, another study found that approximately 30% of the women had experienced some type of anxiety during their lives though such episodes tended to occur more frequently during pregnancy and the postpartum period [11].

Moreover, immigrant women also suffer more personality disorders. García-Campayo et al. [12] found that the most frequent psychological problems in the immigrant population were post-traumatic stress disorder, anxiety, depression, and somatizations. In certain extreme cases, subjects also experienced schizophrenia and paranoia.Achotegui [13] refers to the symptoms of anxiety, depression, and somatization suffered by immigrants as the Ulysses syndrome.

In the postpartum stage, hormone changes and predisposing psychosocial factors play an important role in the psychological state of the new mothers. This is often an extremely stressful period, and when the immigration factor is added, heightened anxiety can lead to a psychological disorder. This could even unleash a dysfunctional mode of dealing with the postpartum period that could affect the affective bond between mother and child.

Various authors affirm that immigrant women have poor perinatal [14] and psychological [15] results that are associated with their situation of vulnerability and poverty, not only during pregnancy but also after delivery. More concretely, the lack of

social support and an insufficient level of healthcare are the highest predictors of depression in immigrant women in the postpartum period immediately after childbirth. These factors are even more important than their acculturation and their status as an immigrant [16].

Nevertheless, not all authors agree with these affirmations since other studies have obtained quite different results. For examples, research in the United States [17] found that the obstetric data of first-generation Mexican immigrant mothers and of their newborn babies were basically the same as those of American women and their babies. This occurred despite thehigher risk profile of the Mexican women due to their lower socioeconomic status.Possible reasons for this were the existence of a close-knit social network of family and friends, healthy living habits, and the non-consumption of toxic substances. All of these elements protected the immigrant women and their children.

Based on these reasons and given the implications of immigration as well as pregnancy and childbirth for women, the objective of this research study was to discover whether there were significant differences between native-born Spanish women and immigrant women during pregnancy and childbirth, not only in the main socio-demographic, obstetric, and perinatal variables, but also in the psychological state of the women in the postpartum period.

METHOD

Subjects

The sample population was composed of 103 female subjects whose mean age was 29.34 (ST = 5.26), and who had recently given birth at the Maternity Hospital in Granada, Spain. These women were divided into two groups: (1) 50 Spanish nationals; (2) 53 immigrants.

All of the subjects in the sample fulfilled the same criteria of inclusion and exclusion. The inclusion criteria were the following: (i) a willingness to participate in the study; (ii) being older than 18; (iii) access to epidural analgesia; (iv) medical assistance during delivery at the same hospital and by the same personnel. Subjects were excluded if they did not know how to speak Spanish and if they worked at the hospital (since they would then be in a privileged situation because of their familiarity with the hospital and its context).

The study protocol was approved and authorized by the Clinical Research Ethics Committee of the *Virgen de las Nieves* University Hospital in Granada. Before the research was carried out, all subjects signed a written informed consent, which also included a section on the privacy and confidentiality of the data, according to Spanish Organic Law 15/1999 of 13 December on the Protection of Personal Data. In this regard, 100% of the subjects completed and responded to the items in the questionnaires.

Instruments

Data concerning the previously mentioned psychological variables were collected with questionnaires.Optimism was measured with the Life Orientation Test [18]. This questionnaire is composed of 12 items, eight of which specifically refer to optimism. The remaining four items are neutral. Response options range from 1 (completely agree) to 4 (completely disagree). The alpha coefficient of the questionnaire is 0.87, and test–retest reliability (over a 4-week interval) is 0.74. The Spanish population obtained an average score of 10.8 in this instrument. The questionnaire has been adapted and standardized in Spain.

Perceived Stress was measured onthe Perceived Stress Scale [19] in the validated Spanish version. This scale assesses the extent to which life situations are considered stressful. The questionnaire has 14 items with five response options, ranging from 1 (completely agree) to 5 (completely disagree). Subjects mark the option that best corresponds to their current situation (over the last month), using the following scale: 0 = never; 1 = hardly ever; 2 = sometimes; 3 = often; 4 = very often. Psychometric studies have shown this scale has adequate reliability ($\alpha = 0.81$; test–retest, $r = 0.73$), concurrent validity, and sensitivity. The Spanish population obtained an average score of 21 in this instrument.

Vulnerability to Stress was measured by the Stress Vulnerability Inventory [20] in its validated Spanish version. As its name implies, this questionnaireis used to evaluate the predisposition of individuals to feel stressed. It has 22 items, consisting of a list of frequent problems that most people encounter on a daily basis. After reading the list, the participants write an *S* if they think that the problem frequently affects them and an *N*if they believe that ithardly ever affects them or does not affect them at all. The questionnaire has a high internal consistency reliability (α=0.87). Regarding convergent validity, it has a statistically significant correlation with Trait Anxiety (State Trait

Anxiety Inventory–Revised; r=0.70), Depression (Beck Depression Inventory; r=0.69), Somatic Symptoms (Somatic Symptoms Scale–Revised; r=0.43), and stressful events (Survey of Recent Life Experiences); r=0.47) in chronic patients and healthy (disease-free) individuals. The average score on the Stress Vulnerability Scale was 12 for a sample of highly stressed Spanish subjects.

Symptoms of psychopathology were measured by the Symptom Checklist SCL-90-R as a way to rule out possible psychopathologies. The checklist is a self-report Likert scale consisting of 90 items. Each item of the questionnaire is rated by the patient on a five-point scale of distress from 0 (none) to 4 (extreme).Subjects respond to questions about how they have felt over the past seven days, including the day on which the questionnaire is administered. Answers are evaluated and interpreted in terms of nine primary dimensions (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism) and three global indices of psychological distress (Global Severity Index (GSI), Total Positive Symptoms (PS), and Positive Symptom Distress Index (PSDI)). The SCL-90-R has adequate reliability in terms of Internal Consistency Analysis and Test Retest, which indicates good internal consistency (from 0.73 to 0.88) and temporal stability (from 0.40 to 0.82), in a population sample with ages over 19 (M = 43.5; SD = 23.8), and with 41% females and 59% males [21]. Scores of around 50 are considered normal scores, and scores that are two standard deviations above the mean (i.e., over 70) are considered clinical scores.

Procedure

Data were obtained from two sources. First, socio-demographic and obstetric data were obtained from the subjects' medical history,maternity record, partogram, and the nursing assessment notes. Data not included in these documents were obtained in a personal interview with the new mother. The data concerning stress and psychological state were obtained fromthe Life Orientation Questionnaire, the Stress Vulnerability Inventory, the Perceived Stress Scale, and Symptom Checklist SCL-90-R.

The research study was performed in the *Virgen de las Nieves* University Hospital in Granada (Spain). The interview and questionnaires were administered in the postpartum period, 24 hours after childbirth. The research was explained to each future participant, who was then given the informed consent form. When the subjects agreed to participate in the study, they were shown how to fill out the questionnaires.

Statistical analysis

A descriptive study was performed of the data with mean values, standard typical deviation, and percentages and frequencies, depending on whether the variables were quantitative or qualitative. Subsequently, a bi-variate analysis was performed by contrasting means with the ANOVA, Student's *t*, Kruskal-Wallis, Chi-square, and Mann-Whitney U tests. The final tests were applied to the samples that did not fulfill the assumptions of normality. The confidence interval (CI) was 95%, and differences were considered significant when $p<0.05$.

RESULTS

1. Socio-demographic description of immigrant and native-born Spanish women

The results obtained in the questionnaires showed that at the moment of childbirth, the foreign-born women had been living in Spain for an average of 3.5 years. Regarding the immigrant group of subjects, 20.4% were from Europe, 18.4% were from Latin America, 9.7% were from Africa, and 2.9% were from Asia (see Table 1).

INSERT TABLE 1 HERE

When the socio-demographic variables of the two groups of women were compared, there were significant differences in regards to age, education level, profession, and job situation. The ages of the women in our study ranged from 18 to 41.

In the interview, the nationality and origin of the partner of each of the subjects were taken into account since this could affect their knowledge of the health system and access to its resources. It should be highlighted that the number of mixed couples was higher in the case of Europeans and Latin Americans. In contrast, mixed couples were considerably less frequent in the case of the Africans, whereas none of the Asian women had a partner that did not come from her same country,

2. Variables related to medical and obstetric histories, pregnancy and childbirth monitoring, and the newborn baby

In regards to their living habits, it was found that a high percentage (27.2%) of the women had smoked both during and after pregnancy. This percentage was the same for both immigrant women and Spanish women.

Another habit that can affect the health of both pregnant women and new mothers is alcohol consumption. Of the sample, 8.7% of the subjects admitted to drinking alcoholic drinks during pregnancy though no significant differences were found between the two groups. None of the women in either group admitted to consuming toxic substances.

In regards to the obstetric history of the subjects, both immigrants and Spaniards had experienced a similar number of pregnancies, miscarriages, childbirths, live births, and living children. Consequently, none of these variables were found to have significant differences.

INSERT TABLE 2 HERE

One of the objectives of this research study was also to discover whether there were differences between female immigrants and Spanish nationals in regards to prenatal care, childbirth monitoring, and the characteristics of the newborn baby. The results obtained showed that there were significant differences for the following variables: gestational week of the first visit to the obstetrician, number of ultrasounds received, and request for epidural analgesia.

In regards to maternity education, 52% of the Spanish women received this training compared to only 26.4% of the immigrant women. Of the immigrants, the Europeans were the group that most frequently attended these courses, followed by the African and Latin American women.

No differences were found between the two groups in variables related to type of childbirth: (i) natural delivery; (ii) difficult or obstructed delivery; (iii) cesarean section.Nor were there any differences between the newborn babies of the two groups of mothers in regards to birth weight or Apgar test results (see Table 3).

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INSERT TABLE 3 HERE

Finally, in regards to breastfeeding habits, significant differences were found between the two groups of women. More precisely, over half of the Spanish women opted

for exclusive breastfeeding, in contrastto the immigrant women, for which the percentage was somewhat lower. Of the immigrants, the Africans tended to breastfeed their children more frequently (70%).However, a higher percentage of immigrants chose the mixed feeding option that combined breastfeeding and bottle-feeding.

3. Psychological variables

Regarding the psychopathological and psychological variables, it should be highlighted that in the immediate postpartum period, both the Spanish women and the immigrant women obtained above-average values for the psychopathologies evaluated with the SCL-90 (see Figure 1).

For the variables of Optimism, Perceived Stress, and Vulnerability to Stress, no statistically significant differences were found between the two groups of women. Nevertheless, there were statistically significant differences in the SCL-90 subscales of interpersonal sensitivity, obsessive-compulsive, depression, phobic anxiety, paranoid ideation, and psychoticism. More specifically, in the *obsessive-compulsive* subscale (p=0.005), the scores of the immigrant women were higher (70.7) than those of the Spaniards (60.5). Furthermore, in regards to *interpersonal sensitivity* (p=0.001), the immigrants obtained a mean value of 70.35 and the Spaniards, 57.76.

For both *obsessive-compulsiv*e and *interpersonal sensitivity*, the immigrant scores exceeded clinical values. The same was true for *depression*(p=0.001) in which the immigrants obtained a score of 68.4 and the Spaniards, a score of 52.9. Similarly, on the subscale of *phobic anxiety* (p=0.001), the immigrant women also obtained a higher score (64.71) than the Spaniards (48.74).

Finally, there were also differences between the two groups on the subscales of *paranoid ideation* (p=.005) and *psychoticism*(p=0.005). In both cases, the group of immigrant women also obtained higher scores. For *paranoid ideation*, the immigrants obtained a score of 63.92 and the Spaniards, a score of 47.5. For *psychoticism*, the immigrants had a score of 65.02 in contrast to Spanish nationals with a score of 51.12. There were no differences observed between both groups on the other subscales.

DISCUSSION

The objective of our study was to assess the psychological state of immigrant women during the immediate postpartum period. For this purpose, the psychological state of a group of female immigrants, now living in Spain, was compared with that of a group

of Spanish nationals. Also compared were the main variables related to pregnancy and childbirth. Firstly, a socio-demographic profile was obtained as well as a description of the health habits of these women during the immediate postpartum period.

Regarding the health habits of the subjects, the greatest divergenceswithin the immigrant group were found in alcohol consumption during pregnancy. The consumption of alcoholic beverages was fairly common in the Latin American subjects since over a third engaged in this type of behavior, though this could be explained because of the lack of health education. In contrast, the religious and cultural context was probably the reasonwhy the (mostly Moslem) African womenand the Asians did not consume alcohol.

None of the subjects in the population sample had suffered a serious pathology either previous to pregnancy or during the postpartum period. In the case of the immigrants, this could be explained by the fact that women who decide to emigrate are generally healthy [22-23]. Another consideration is that the age of the sample population was relatively young, rarely exceeding 45 years of age, and with few illnesses.

However, differences were found in prenatal care since the Spanish women began to visit the obstetrician in the eighth week of pregnancy, whereas the immigrant women did not do so until the eleventh week. In other words, the immigrants began monitoring their health during pregnancy three weeks later. They thus did not visit the doctor as often, received fewer prescription drugs on a regular basis, and did not have as many ultrasounds.

In contrast, all of the subjects coincided in the number of cardiotocographic records taken after the 38^{th} week. This can be explained by the fact that both the Spanish women as well as the immigrant women were already enrolled in a healthcare program. These results agree with those in Sánchez-Fernández et al. [24], who also found that immigrants had fewer medical visits than Spaniards.

Regarding the attendance of maternity courses offered at all of the healthcare centers, there were differences between both groups. For one thing, the number of Spanish women that received this training duplicated the number of immigrants. These figures could be explained by the daily hardships experienced by these women stemming from their lack of social and family networks and even a lack of job stability that would make it difficult for them to participate in maternity courses.

In regards to the variables relative to the newborn baby, no differences were found between the two groups of subjects. However, there is a certain controversy regarding

birth weight[23, 25] since not all authors have obtained the same results. More concretely, our data coincided with García-García et al. [26] and Martínez et al. [27]who did not detect any differences in the birth weight of the newborn babies of Spanish and immigrant women. Furthermore, studies performed in the United States also confirm these results and justify them by factors such as the traditional culture of the immigrants along with healthy habits and the help provided by the family or community network [28].

Nevertheless, Armandáet al. [29] in Madrid (Spain) as well as Martínez et al. [30] in Almería (Spain)did find differences in the birthweight of the newborns of the two groups. Both studies underline a greater prevalence of normal birth weight among the Spanish woman than among the immigrant women. However, for the Apgar test scores, no differences were found between the newborn babies of mothers in the two groups. In this regard, our results coincide with those of Martínez et al. [30].

Another result worth highlighting is the differences in feeding options chosen. The majority of the Spanish women opted for breastfeeding their babies whereas most of the immigrants chose to combine breastfeeding with bottle-feeding. Although a more in-depth study would be needed, two factors could explain this result: (i) the lack of health education in the case of the immigrant women; (ii) greater job instability that made breastfeeding more difficult in the period immediately after childbirth.

In regards to the psychological variables, the postpartum period is a period of adaptation for all women, and the stressfulness of this process can have an impact on their mental state. The similarity of the results concerning *optimism*for both groups of subjects is not surprising because optimism is understood as generalized favorable expectationsregarding the events in one's life. These expectations are stable dispositions (features), and are thus less susceptible to be modified by changing life situations. Thisis known as *dispositional optimism*[31]. In all likelihood, the high scores obtained for optimism could be explained by the fact that having a baby is a landmark event in the life of a woman, whichmay increase optimism despite the usual stability of that psychological trait.

Regarding the state of psychopathological symptoms found in the population, it should be underlined that all the subjects had higher than average scores on the SCL-90 subscales. Curiously, there were no differences between the two groups for Stress and Vulnerability to Stress, as we had found in previous studies [32, 33]. Despite the similar

results found for these parameters, differences were found between the two groups on the subscales of interpersonal sensitivity, depression, obsessive-compulsive, phobic anxiety, paranoid ideation, and psychoticism. On some of these subscales, the immigrant women obtained clinical scores.

In order to understand the mechanisms involved in the increase in psychopathology in the immigrant women in the immediate postpartum period, it would be necessary to transcend explanations based on the endocrine regulation of the women and instead to consider psychosocial factors in which confrontational style, social support, religion, and culture probably have a determining role [34].

Numerous publications have shown that postpartum is a period of great vulnerability in which the risk of psychological disorders is greater than during any other period in life [9]. In the postpartum period, a significant number of adaptive resources are activated to respond to the demands of the new situation. In a parallel way, an intense hormone modulation occurs as a response to the new biological demands of the situation. According to our results, these psychopathological disorders worsen when migratory process is present as an additional stressor.

CONCLUSIONS

The birth of a baby as a stressful life event should explain the high levels of psychopathological symptoms in women immediately after childbirth. The migratory process helps to understand the significantly statistical differences between immigrant women and Spanish women during the postpartum period. In fact, the migration process, as a national and international reality, should be studied from a political, social, healthcare, and anthropological perspective.

It is necessary to take into account socio-economic, cultural, and gender variables affecting immigrant women in order to implement measures that will reduce the inequalities affecting this group. For this purpose, specific strategies need to be created for information diffusion and active recruitment for the pregnancy-monitoring program through immigration services. It is necessary to adapt healthcare during pregnancy to the concrete needs of pregnant immigrant women through mediators, booklets, and leaflets written in different languages, etc.

At the clinical and healthcare levels, awareness of the impact of psychological factors on pregnancy, childbirth, and postpartum improve the care provided to new or expectant mothers. This will ultimately make these women feel more satisfied not only

with their pregnancy and its results, but also with the healthcare system because of the quality of the care provided. An improvement in the psychological situation of the immigrant women during pregnancy could reduce subsequent complications such as the early cessation of breastfeeding.

The data obtained do not allow us to derive conclusions applicable to the whole of the Spanish healthcare system. However, they constitute one more step, along with similar studies carried out in other regions, which contribute to a comparative analysis of the situation of immigrant women during pregnancy, delivery, and postpartum.

REFERENCES

1. Lafuente P. Mediatización del fenómeno migratorio: la inmigración en España vista a través de El País, El Mundo y ABC. Buenos Aires: Libros en Red.2011.

2. Arango J. Inmigración y diversidad humana. Rev. Occident. 2003;268:5.

3. Instituto Nacional de Estadística. (2011)- [acceso en: 22 de agosto 2011]. Disponible en: http://www.ine.es/prodyser/pubweb/espcif/pobl11.pdf

4. Real Decreto-ley 16/2012, de 20 de abril, de medidas urgentes para garantizar la sostenibilidad del Sistema Nacional de Salud y mejorar la calidad y seguridad de sus prestaciones. Boletín Oficial del Estado núm.98 24 de abril 2012.

5. Canals J, Esparó G, Fernández-BallartJ.How anxiety levels during pregnancy are linked to personality dimensions and sociodemographic factors. Pers Individ Dif. 2002;33(2):253-9.

6. Canals J, Esparó G, Fernández–Ballart J. How anxiety sensitivity as predictor of labor pain. Eur J Pain.2006;10(3):263-70.

7. Saisto T, Halmesmaki E. Fear of childbirth: a neglected dilemma. Acta Obstet Gynecol Scand. 2003;82(3):201-8.

8. Cardwell MS. Stress: Pregnancy Considerations. Obstet Gynecol Surv. 2013;68(2):119-129.

9. Hillerer KM, Neumann ID, Slattery DA. From stress to postpartum mood and anxiety disorders: How chronic peripartum stress can impair maternal adaptations. Neuroendocrinology. 2011;95(1):22-38.

10. Borjesson K, Ruppert S, Bagedahl-Strindlund M.A longitudinal study of psychiatric symptoms in primiparous women: relation to personality disorders and sociodemographic factors. Arch Women Ment Health. 2005;8(4):232-42.

11.Heron J, O'Connor TG, Evans J, Golding J, Glover V.The ALSPAC Study Team. The course of anxiety and depression through pregnancy and the postpartum in a community sample. J Affect Disord. 2004;80(1):65-73.

12. Garía Campayo J, Sanz Carrillo C. Salud mental e inmigrantes: un nuevo desafío. Med Clin. 2002;118(5) :187-191

13. Achotegui J. El síndrome del inmigrante con estrés crónico y múltiple el Síndrome de Ulises. A Tarlarn (comp.) Globalización y salud mental. Barcelona: Herder. 2007;487-524.

14. Acevedo-García D, Soobader MJ, Berkman LF. The differential effect of foreign-born status on low birth weight by race/ethnicity and education. Pediatrics. 2005;115:e20-30.

15. Maureen O'Mahony J, Truong Donnelly T, Raffin Bouchal S, Este D. Cultural Background and Socioeconomic Influence of Immigrantand Refugee Women Coping with Postpartum Depression. J Immigr Minor Health. 2013;15:300–314.

16. Kuo W-H, Wilson TE, Holman S, Fuentes-Afflick E, O´Sullivan MJ, Minkoff H. Depressive symptoms in the immediate postpartum period among Hispanic women in three US cities. J Immigr Health.2004;6(4):145-153.

17. Cervantes A, Keith L, Wyshak G. Adverse birth outcomes among native-born and immigrant women: replicating national evidence regarding Mexicans at the local level. Matern Child Health.1999;3: 99-109.

18. Ferrando P, Chico E, Tous J. Propiedades psicométricas del test de optimismo Life Orientation Test. Psicothema. 2002;14:673-680.

19. Remor E. Psychometric properties of a European Spanish Version of the Perceived Stress Scale (PSS). Span J Psicol. 2006;9:86-93.

20. Robles-Ortega H, Peralta-Ramírez M, Navarrete-Navarrete N. Validación de la versión española del inventario de vulnerabilidad al estrés de Beech, Burns y Scheffield. Congreso sobre Avances en Psicología de la Salud, Avances en psicología de la salud. Granada: Ediciones Sider.2006.

21. Derogatis LR. SCL-90-R. Administration, scoring procedures manual-11.Towson: Clinical Psychometric Research. 1983.

22. Pérez Cuadrado S, Muñoz Ávalos N, Robledo Sánchez A, Sánchez Fernández Y, Pallás Alonso CR, De la Cruz-Bértolo J. Características de las mujeres inmigrantes y de sus hijos recién nacidos. An Pediatr. 2004;60(1):3-8

23. Agudelo-Suárez AA, Ronda-Pérez E, Gil-González D, González-Zapata LI, Regidor E. Relation-ship in Spain of the Length of the Gestation and the Birth Weight with Mother's Nationality during the Period 2001-2005. Rev. Esp. Salud Publica. 2009;82(2):331-337.

24. Sánchez-Fernández Y, Muñoz-Ávalos N, Pérez-Cuadrado S, Robledo-Sánchez A, Pallás-Alonso CR, De la Cruz- Bértolo et al. Mujeres inmigrantes: características del control prenatal y del parto. Prog Obstet Ginecol. 2003;46(10):441-7.

25. Martín Ibáñez I, López Vílchez MA, Lozano BlascoJ, Mur Sierra A. Resultados perinatales de las gestantes inmigrantes. An Pediatr. 2006;64(6)550-556.

26. García-García J, Pardo-Serrano C, Hernández-Martínez A, Lorenzo-Díaz M, Gil-González D. Diferencias obstétricas y neonatales entre mujeres autóctonas e inmigrantes. Prog Obstet Ginecol. 2008;51(2):53-62.

27. Martínez F, Monzón A, Falcón A, Pardo A. Partos de inmigrantes y jóvenes inmigrantes en el Hospital Clínico Universitario de Zaragoza (España). Index Enferm. 2002;38:15-7.

28. Jones ME, Bond ML. Predictors of birth outcome among Hispanic immigrant women. J. Nurs Care Qual. 1999;14:56-62.

29. Armandá MI, Alonso T, Alonso P. Aspectos epidemiológicos en los hijos de madres inmigrantes nacidos en el Hospital Clínico San Carlos de Madrid. Toko Gin Pract. 2006;10: 33-8.

30. Martínez E, López AF. Diferencias de morbilidad asociadas al embarazo y de resultados obstétricos y perinatales entre mujeres inmigrantes y autóctonas. Matronas Profesión. 2004;5:12-8.

31. Scheier M, Carver CS. Optimism, Coping, and Health: Assessment and Implication of Generalized Outcome Expectancies. Health Psychology. 1985;4:219-247.

32. Hidalgo-Ruzzante N, Peralta-Ramírez MI, Robles-Ortega H, Vilar-López R, Pérez García M. Estrés y psicopatología en mujeres inmigrantes. Repercusiones sobre la calidad de vida. Psicol. Conduct. 2009;17(3):595-607.

33. Pérez- Ramírez F, García- García I, Peralta-Ramírez MI. The Migration Process as a Stress Factor in Pregnant Immigrant Women in Spain. J Transcult Nurs.2013;24(4):348-354.

34. Razurel C, Kaiser B, Sellenet C, Epiney M. Relation Between Perceived Stress, Social Support, and Coping Strategies and Maternal Well-Being: A Review of the Literature. Women & Health. 2013;53(1):74-99.

Table I: Main socio-demographic variables of immigrant women and Spanish women

Variables	Total	Other European countries (%)	Latin-American (%)	African (%)	Asian (%)	Immi-grants Total (%)	Spanish (%)	*p*[a] Immig. and Span.
Origin	103	21 (20.4)	19 (18.4)	10 (9.7)	3 (2.9)	53	50 (50)	
Age	29.34 (5.26)	29.33 (5.29)	28.26 (5.2)	27.10 (3.10)	24.67 (3.78)	28.26 (4.88)	30.48 (5.45)	**0.032**
Marital status								
– Married or with a partner	102 (99)	21 (100)	19 (100)	10 (100)	3 (100)	53 (100)	49 (98)	0.485
– Single	1	0	0	0	0	0	1	
Education level								
– None	1 (1)	1 (4.8)	0	0	0	1 (1.9)	0	**0.001**
– Incomplete primary school	31 (30.1)	6 (28.6)	9 (47.4)	6 (60)	3 (100)	24 (45.3)	7 (14)	
– Primary school	26 (25.2)	4 (19)	7 (36.8)	1 (10)	0	12 (22.6)	14 (28)	
– High school	20 (19.4)	0	2 (10.5)	1 (10)	0	3 (5.7)	17 (34)	
– University	25 (24.3)	10 (47.6)	1 (5.3)	2 (20)	0	13 (24.5)	12 (24)	
Profession								
– Skilled	55 (53.4)	11 (52.4)	9 (47.4)	0	0	20 (37.7)	35 (70)	**0.001**
– Unskilled	48 (46.6)	10 (47.6)	10 (52.6)	10 (100)	3(100)	33 (62.3)	15 (30)	
Job situation								
– Legal with contract	46 (44.7)	10 (47.6)	5 (26.3)	2 (20.0)	0	17 (32.1)	29 (58.0)	**0.001**
– Unemployed	32 (31.1)	3 (14.3)	4 (21.1)	7 (70.0)	1 (33.3)	15 (28.3)	17 (34.0)	
– Illegal without contract	25 (24.3)	8 (38.1)	10 (52.6)	1 (10.0)	2 (66.7)	21 (39.6)	4 (8.0)	
Administrative situation[b]								

– Legal	46 (86.8)	18 (85.7)	16 (84.2)	9 (90)	3 (100)		NA	
– Illegal	7 (13.2)	3 (14.3)	3 (15.8)	1 (10)	0		NA	
Origin of husband:								
– Spanish	70 (68)	14 (66.7)	4 (21.1)	3 (30)	0	21 (39.6)	49 (98)	**0.000**
– Latin-American	15 (14.6)	1 (4.8)	14 (73.7)	0	0	15 (28.3)	0	
– Other European countries	7 (6.8)	6 (28.6)	1 (5.3)	0	0	7 (13.2)	0	
– African	8(7.8)	0	0	7 (70)	0	7 (13.2)	1 (2)	
– Asian	3(2.9)	0	0	0	3 (100)	3 (5.7)	0	

[b] Only immigrant women

[a] p between immigrants and Spanish nationals

NA: not applicable

Table 2: Data of Spanish and immigrant women for variables concerning health habits, illnesses before pregnancy, and maternities

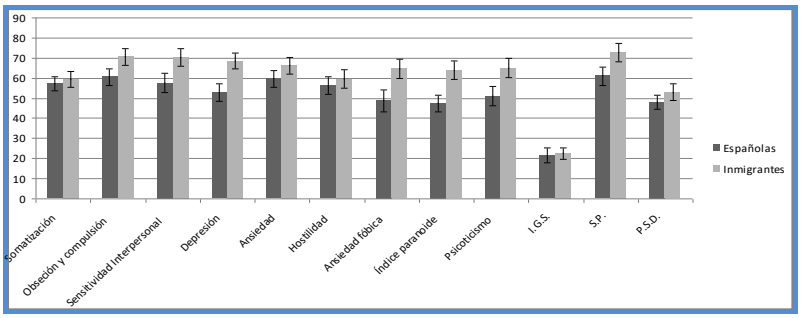
Variables	Total (%)	Immigrants	Spaniards	p
Origin	103	53 (51.5)	50 (48.5)	
Cigarette consumption	28 (27.2)	14 (26.4)	14 (28.8)	0.857
Alcohol consumption	9 (8.7)	7 (13.2)	2 (4)	0.098
Illnesses previous to pregnancy	14 (13.6)	8 (15.1)	6 (12)	0.647
Number of pregnancies				
– One	53 (51.5)	23 (43.4)	30 (60)	
– Two	27 (26.2)	17 (32.1)	10 (20)	0.218
– Three or more	23 (22.3)	13 (24.5)	10 (20)	
Number of miscarriages				
– None	73 (70.9)	34 (64.2)	40 (80)	
– One	21 (20.4)	15 (28.3)	6 (12)	0.145
– Two or more	7 (6.8)	4 (7.5)	3 (6)	
Number of childbirths[c]	1.48 (0.778) [1-5]	1.51 (0.750) [1-4]	1.44 (0.812) [1-5]	0.653

[c] Average Student's *t* (dt) [Minimum-Maximum]

Table 3: Pregnancy monitoring, depending on origin of subjects (%)

Variables	Total (%)	Immigrants (%)	Spaniards (%)	p
Pregnancy monitoring	98 (95.1)	49 (92.5)	49 (98)	0.190
No monitoring	4.9	7.5	2	
Gestational week of first doctor's visit	9.90 (5.67)	11. 56 (6.96)	8. 44 (3.21)	**0.004**
Number of ultrasounds	3.91 (2.28)	3.08 (1.53)	4.8 (2.6)	**0.000**
Gestational week of childbirth	39 (1.45)	39 (1.13)	40 (1.74)	0.724
Start of labor				
- Spontaneous	54 (52.4)	27 (50.9)	27 (54)	
- Induced	29 (28.2)	15 (28.3)	14 (28)	0.972
- Elective cesarean section	6 (5.8)	3 (5.7)	3 (6)	
End of labor				
- Natural birth	54(52.4)	31(58.5)	23(40)	
- Obstructed birth	17(16.5)	10 (18.9)	7 (14)	0.172
- Cesarean section	32 (31.1)	12(22.6)	20(40)	
Accompaniment during dilation and labor				
- No companion	25 (24.3)	17 (32.1)	8 (16)	0.068
- Accompanied by partner				
Epidural analgesia	85 (82.5)	37 (69.8)	48 (96)	**0.000**
Birth weight of newborn	3.123 (436.42)	3.170 (430.40)	3.073 (441.62)	0.266
Apgar				
- 1 minute	9.05 (0.59)	9.03 (0.64)	9.07 (0.54)	0.72
- 5 minutes	9.54 (0.59)	9.52 (0.63)	9.56 (0.54)	0.78
Feeding method				
- Exclusive breastfeeding	52 (50.5)	24 (45.3)	28 (56)	
- Breastfeeding combined with bottle-feeding	43 (41.7)	28 (52.8)	15 (30)	**0.013**
- Bottle-feeding	8 (7.8)	1 (1.9)	7 (14)	

Graph 1: Scores on each of the SCL90 subscales


90
80
70
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50
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30
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Somatización
Obsesión y compulsión
Sensitividad Interpersonal
Depresión
Ansiedad
Hostilidad
Ansiedad fóbica
Índice paranoide
Psicoticismo
I.G.S.
S.P.
P.S.D.
Españolas
Inmigrantes