

## AOGS MAIN RESEARCH ARTICLE

# Mental health status in pregnancy among native and non-native Swedish-speaking women: a Bidens study

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## Key words

Depressive, ethnicity, mental health, posttraumatic stress, pregnancy

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## Conflict of interest

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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## Abstract

**Objectives.** To describe mental health status in native and non-native Swedish-speaking pregnant women and explore risk factors of depression and posttraumatic stress (PTS) symptoms. **Design and setting.** A cross-sectional questionnaire study was conducted at midwife-based antenatal clinics in Southern Sweden. **Sample.** A non-selected group of women in mid-pregnancy. **Methods.** Participants completed a questionnaire covering background characteristics, social support, life events, mental health variables and the short Edinburgh Depression Scale. **Main outcome measures.** Depressive symptoms during the past week and PTS symptoms during the past year. **Results.** Out of 1003 women, 21.4% reported another language than Swedish as their mother tongue and were defined as non-native. These women were more likely to be younger, have fewer years of education, potential financial problems, and lack of social support. More non-native speakers self-reported depressive, PTS, anxiety and, psychosomatic symptoms, and fewer had had consultations with a psychiatrist or psychologist. Of all women, 13.8% had depressive symptoms defined by Edinburgh Depression Scale 7 or above. Non-native status was associated with statistically increased risks of depressive symptoms and having  $\geq 1$  PTS symptom compared with native-speaking women. Multivariate modeling including all selected factors resulted in adjusted odds ratios for depressive symptoms of 1.75 (95% confidence interval: 1.11–2.76) and of 1.56 (95% confidence interval: 1.10–2.34) for PTS symptoms in non-native Swedish speakers. **Conclusion.** Non-native Swedish-speaking women had a more unfavorable mental health status than native speakers. In spite of this, non-native speaking women had sought less mental health care.

**Abbreviations:** aOR, adjusted odds ratio; EDS, Edinburgh Depression Scale; EPDS, Edinburgh Postnatal Depression Scale; OR, odds ratio; PTS, posttraumatic stress.

## Introduction

Migration to an industrialized Western country alters the composition and distribution of risk factors among pregnant women in relation to antenatal care, including psychosocial factors. Health and migration was studied in a large, randomly selected sample of foreign-born and native-born women of childbearing age in 1980 and 1990. A greater risk of poor self-reported health and psychosomatic complaints was found among women born in Southern Europe, refugee women and Finnish women, as compared with Swedish-born

## Key message

Non-native Swedish speaking women seem to be burdened with a poorer mental health status in pregnancy than their national counterparts. Enquiring about a woman's background might illuminate psychosocial factors, facilitating an opportunity to ease her depressive and posttraumatic stress symptoms.

women (1). In a USA study where ethnicity was defined by race, an increased adjusted risk of antenatal depression was found in black vs. non-Hispanic white women (2). Other studies of childbearing women have found correlations between ethnicity, psychosocial factors and risk of depression; between proficiency in the native language and access to maternal care; and between duration of residency and adverse birth outcomes (3–6).

Antenatal care provided by midwives is available free of charge to Swedish residents (all of whom have a personal identification number), through the public or private health sectors, and reaches 99% of all pregnant women. Immigrants are uniformly expected to attend Swedish-for-Immigrants classes as a requirement for access to the social welfare system. In 2008, women of reproductive ages in Malmö, the third largest city in Sweden, were represented by 173 nationalities. More than one-third of them were foreign-born, compared with the national average of 20% (7). Additional differences among childbearing women have been reported in a prospective study from the same catchment area, where an association between lack of social support and having babies who were small-for-gestational age was found in the case of women who have country of origin other than Sweden (8). Country of birth was also included in a national questionnaire-based study of depression during pregnancy (9). One of the findings was that non-native women were more likely to report being depressed than were native-born Swedish women. These differences may stem from non-native women having a disadvantaged social situation, lacking social support, experiencing negative life events and psychological distress, and suffering from mental illness (1–4). The above factors are also likely to be unevenly distributed. Nevertheless, few studies have assessed the broader spectrum of psychological symptoms and mental health status in pregnancy related to ethnicity and potential explanatory factors.

The aim of this study was to investigate mental health status in pregnancy, including the prevalence of depression and of posttraumatic stress (PTS) symptoms, by comparing native and non-native Swedish-speaking women, and to explore factors influencing differences between the two groups.

## Material and methods

A questionnaire-based study of an unselected group of pregnant women at six public and two private antenatal clinics within the catchment area of a University Hospital in Southern Sweden, was done between 1 March and 30 November 2008. Women attending these clinics represent almost 80% of all delivering women at the hospital. All women in the second to third trimester, who spoke fluent Swedish while in contact with their midwife, were consecutively given a letter with information about the study. Data collection applied to consenting women when they had a routine glucose intoler-

ance test at 28–29 gestational weeks. Each woman was asked to complete the questionnaire in Swedish while at the clinic and place it in a sealed envelope together with her signed informed consent. Most women filled out the questionnaire during gestational weeks 27–30 (mean 28.6, SD  $\pm$  1.73). One question addressed ethnicity by asking, “Is your mother tongue other than Swedish? If so, please state the language”. Those reporting a language other than Swedish were categorized as non-native-speakers.

Participation in the study was voluntary. The clinical care a woman received was not affected in any way. A woman having intensified feelings of depression or stressful memories could contact her midwife while completing the questionnaire or at the next visit, in which case she would be assessed further or referred for psychosocial counseling. Records relating to non-participants were not allowed in accordance with the Swedish Privacy Protection Law.

The Regional Ethics Committee of Stockholm, Sweden, approved the study (Reg. no. 2006/354–31).

Our project was part of the Bidens study, a European investigation of life-time experiences, delivery expectations, and outcomes (10). The eight-page Bidens questionnaire included questions validated and applied in a Nordic study among gynecological patients addressing socio-demographic status, abuse history, self-estimated health, anxiety, psychosomatic and PTS symptoms. The item wording was already available in Swedish and the Nordic Abuse Questionnaire (NorAQ) has been validated in Swedish (11,12). Other questions of background characteristics, social support, and the use of medicine were adapted from the Norwegian Mother and Child study (13). We also incorporated the Swedish version of the modified questions of life event and additional background items that have been used previously by others (9,14,15).

Social support was measured by means of two questions: “Are you living with partner or not?” and “Do you have someone besides your husband or partner to confide in?” The answer alternatives were coded No (for no one) and Yes (for having one or more persons). Questions of negative life events experienced in the last 12 months included nine items: serious illness, accidents, injuries, death, divorce, problems with family and friends at home or work, or financial or employment difficulties affecting oneself or a relative. An affirmative reply was coded as Yes. Missing values ( $n = 40$ ) of the above events were coded as No. We used a cut-off point at two or more events for statistical analysis (9). Potential financial problems were further investigated by asking, “If you received a bill of SEK 20 000.00 (approximately USD 2850), how easy would it be for you to pay it within a week?” (15). Those indicating having no or some difficulties were recoded as No before statistical analyses. Others indicating it would be “very difficult” were defined as experiencing financial distress (1).

A history of seeking professional support due to personal problems was investigated. Contacts with a psychiatrist or psychologist prior to pregnancy were categorized as No (if the answer were “no”, or “yes, while pregnant”) or Yes (if the answer was “yes, previous to pregnancy”). An additional four items investigated medications taken during the past year, such as the use of sleeping pills, tranquilizers, antidepressants, or other psychotropic drug (missing values,  $n = 54$ ,  $n = 82$ ,  $n = 85$  and  $n = 84$ , respectively). Answers were categorized into No (“Not at all” or “rarely”) or Yes (“for a short time”, “for a long period” or “regularly”).

The Edinburgh Postnatal Depression Scale (EPDS) has been validated in Swedish and for the detection of depressive symptoms during pregnancy, with an optimal cut-off at  $\geq 13$  (16,17). We used the Swedish questions corresponding to the short version of the EPDS, EDS-5. It includes five items rated on a 0–3 scale, yielding a range of 0–15, with higher scores indicating more depressive symptoms for the week prior to the study. Compared with the full version containing 10 items, the correlation has been estimated at 0.96 (18). A cut-off at  $\geq 7$  was defined for having moderate and  $\geq 8$  for severe symptoms of depression. We chose  $\geq 7$  for the purpose of logistic regression. The EDS-5 score was computed only for those responding to all five items (missing = 22).

PTS symptoms in the last 12 months were addressed by three questions from the NorAQ: intrusive memories, avoidance of certain situations, and emotional numbness (19). Those answering “sometimes” or “often” to at least one of the three symptoms were defined as having suffered from PTS. Women indicating to have these symptoms “rarely” or not at all, or had missing values for the three items ( $n = 6 + 6 + 7$ ) were coded No before logistic regression of the PTS variable. Self-estimated symptoms of anxiety and of psychosomatic symptoms were assessed by the question: “During the last 12 months, have you suffered from anxiety to such an extent that you have found it hard to cope with your daily life?”, and “During the last 12 months, have you suffered from physical ailments (e.g. stomach-ache, headache, dizziness or muscular pain) to such an extent that you have had problems in with your daily life?” Women reporting having anxiety and psychosomatic symptoms “often” or “sometimes” were classified as Yes, or No, if the answer was not at all, “rarely”, or was missing (19).

### Statistical analysis

We analyzed nominal and categorical variables using Pearson’s chi-squared and Fisher’s exact test for differences between native and non-native speakers of Swedish. Student’s *t*-test was used for continuous variables. Missing values of background and independent variables were equally distributed in the two groups, and not included in the regression analyses. Crude odds ratios (OR) between selected psychoso-

cial characteristics and the dependent variables were estimated based on language status. We analyzed the adjusted risk estimates (aOR) of depression and PTS in non-native Swedish speaking women vs. native women as reference, using four models based on a priori selected covariates. Model 1 comprised the background variables of increasing age of the participants (in years, continuous variable), having had  $\leq 13$  years of education, and experiencing financial distress. Model 2 comprised age and social support (not living with a partner, and having no one to confide in). Model 3 comprised age and professional support (consultation with a psychiatrist or psychologist previous to pregnancy). All of the above factors were included in model 4.

All analyses were two-sided ( $p < 0.05$ ). We report 95% confidence intervals of the risk estimates. The SPSS 18.0 statistical software package (SPSS, Chicago, IL, USA) was used for the analyses.

## Results

In total, 1025 women filled out the questionnaire but 22 did not indicate mother tongue status and were excluded from analysis. Of the remaining 1003 women, 21.4% indicated their ethnic language to be other than Swedish as follows: other Nordic (2.8%); West Germanic/Northern European (4.8%); Slavic and Central European (6.0%); Arabic, Turkish, and Kurdish (4.5%); Asian or unspecified languages (3.4%).

Background characteristics are shown in Table 1. The mean age of the all participating women was 30.3 (SD  $\pm$  4.68), but was lower in non-native women, 29.0 (SD  $\pm$  5.11,  $p < 0.001$ ). Compared with native women, non-native Swedish-speaking women had fewer years of education and greater potential financial problems. Also unevenly distributed between the two groups were lack of social support, not living with a partner, and having no one in whom to confide. The total number of items categorized as negative life events did not differ, although reporting specific life events varied between the groups. Thus, native-speaking women were more likely to report having problems with family or having lost someone close to them ( $p = 0.009$ ). By contrast, non-native Swedish speakers were more likely to report having financial problems in the last 12 months ( $p < 0.000$ ) (data not shown).

Table 2 shows the proportion and measures of psychological symptoms, professional support, and reported use of medication during the last 12 months. A total of 13.8% of all women had moderate symptoms of depression, a condition that was more common in non-native women ( $p < 0.001$ ). The number of women with other Nordic and West Germanic languages who scored EDS  $\geq 7$  was respectively 6.2 and 7.9% higher native Swedish speakers, and were thus retained as non-ethnic Swedes (data not shown). PTS symptoms were reported by 12–30% of the women. More non-native women

**Table 1.** Background characteristics of native and non-native Swedish-speaking women.

	All women, <i>n</i> = 1003		Native, <i>n</i> = 788	Non-native, <i>n</i> = 215	<i>p</i> -value <sup>a</sup>
	<i>n</i>	(%)	(%)	(%)	
Age in years					
<25	112	11.2	8.4	21.4	0.001
25–29	321	32.0	31.5	34.0	
30–35	443	43.2	46.1	32.6	
>35	137	13.7	14.1	12.1	
Education ( <i>n</i> = 990)					
≤13 years	339	34.2	30.8	47.1	<0.000
≥14 years	651	65.8	69.2	52.9	
Financial distress ( <i>n</i> = 977)					
No	701	69.9	77.5	50.5	
Yes, some	186	18.5	16.4	28.8	
Yes	90	9.0	6.1	20.7	0.002
Social support ( <i>n</i> = 1000)					
Living w/partner	963	96.0	97.1	92.1	
Not living with partner	40	4.0	2.9	7.9	0.002
No one to confide in	37	3.7	1.8	10.8	0.004
Confide in one to two persons	330	32.9	30.4	42.7	
Confide in several	633	63.3	67.9	46.5	
Negative life events ( <i>n</i> = 963)					
No events	472	47.1	47.7	54.3	
Life event 1	232	23.1	25.2	19.8	
Life events ≥ 2	259	25.8	27.2	25.9	

<sup>a</sup>Comparing native and non-native Swedish-speaking women by Pearson chi-squared or Fisher's exact test, level of significance  $p < 0.05$ .

**Table 2.** Self-reported symptoms of mental health status and treatment indicators among native and non-native Swedish-speaking women.

	All women, <i>n</i> = 1003		Native, <i>n</i> = 788	Non-native, <i>n</i> = 215 (%)	<i>p</i> -value <sup>a</sup>
	<i>n</i>	(%)	(%)	(%)	
EDS-5 past week <i>n</i> = 981					
≥7 points	138	13.8	11.5	21.9	<0.001
≥8 points	89	9.1	6.7	18.4	<0.001
Symptoms in the past 12 months					
No, PTS	697	69.5	72.3	59.1	
Yes, PTS	306	30.5	27.7	40.9	<0.001
Yes, anxiety	185	18.2	15.6	28.8	<0.001
Yes, psychosomatic	203	20.3	15.6	37.2	<0.001
Medication during the past year: short/long periods or regularly					
Yes, antidepressants	54	5.8	5.8	6.0	
Yes, tranquilizers	38	4.1	3.2	7.5	0.014
Yes, sleep medication	32	3.5	3.2	4.5	
Yes, other psychotropic drugs	14	1.5	1.4	2.0	
Seen psychiatrist/psychologist					
Never	677	67.5	65.0	76.7	
Yes, during pregnancy	57	5.7	5.7	5.6	
Yes, previous to pregnancy	265	26.4	28.9	17.2	0.004

<sup>a</sup>Comparing native and non-native Swedish-speaking women by Pearson's chi-squared or Fisher's exact test, level of significance  $p < 0.05$ . EDS, Edinburgh Depression Scale-5; PTS, posttraumatic stress.

reported having at least one of three PTS symptoms, compared to native Swedish-speaking women ( $p < 0.001$ ). More non-native than native Swedish speakers had used tranquilizers ( $p = 0.014$ ). Antidepressants were taken by about 6% of

both groups. Few women had used any other psychotropic medication.

Women who were younger, were experiencing financial distress, were not living with a partner, had no one to

confide in, and had previously consulted a mental health care professional showed significantly increased crude ORs for depressive and PTS symptoms in the case of both native and non-native women. Lacking higher education was associated only with depressive symptoms. Table 3 shows adjusted risk estimates of depression and PTS symptoms. The elevated aORs of mental health status in non-native women were only partly explained by background or social support factors and not by previously having seen a psychiatrist or psychologist.

## Discussion

In studying depressive and PTS symptoms among pregnant women in a multicultural city population in Sweden we identified a high overall prevalence of poor mental health. Self-estimated symptoms of depression and PTS, anxiety and psychosomatic symptoms were significantly more common among non-native than native Swedish-speaking women. Furthermore, non-native women were less likely to have seen a psychiatrist or psychologist prior to pregnancy. Their reported use of antidepressant medication was the same as in native Swedish-speaking women.

Among the limitations of this study was its cross-sectional design, which did not allow any casual explanation of the associations. All women communicating with their midwife in fluent Swedish were invited. Some declined participation after seeing the questionnaire. Missing data were evenly distributed between the two ethnic groups. Questions about mental health that inquired into the last 12 months may have resulted in some misclassification due to memory bias. The questions about mental health status (except the EDS-5 instrument) were taken from the NorAQ (12). This particular part of the Bidens study questionnaire would have benefitted from incorporation of other validated instruments of anxiety, psychosomatic symptoms and PTS (20). Since this was not done, the results must be interpreted with caution. One previous study did use the same three PTS questions about symptoms of intrusion, avoidance and numbing in investigating associations with adverse experiences in health care (19). As the co-morbidity of perinatal depression and PTS is well known (21), PTS symptoms (such as emotional numbness) as measured in this study might partly overlap with symptoms of depression.

We used the short version EDS-5 and found a significantly higher prevalence of depressive symptoms with  $\geq 8$  as a cut-off in non-native than in native Swedish-speaking women (18.4 and 6.7%, respectively). Similar differences between non-native and women with native Swedish language were found during early pregnancy in a national sample done in 1999 and 2000, using the EPDS at  $\geq 14$  (15.3 and 6.9%, respectively) (9).

We used mother tongue as a proxy for ethnicity, as others have also done. In a Canadian community study an

**Table 3.** Associations of depressive<sup>a</sup> and posttraumatic stress<sup>b</sup> symptoms in pregnancy with being native or non-native Swedish speakers ( $n = 1003$ ).

	Cases <i>n</i>	Cases (%)	Crude OR	95%CI	Model 1 <sup>c</sup> aOR	95%CI	Model 2 <sup>d</sup> aOR	95%CI	Model 3 <sup>e</sup> aOR	95%CI	Model 4 <sup>f</sup> aOR	95%CI
Depression last 7 days	138	(13.8)										
Native Swedish speakers	98	(11.5)	1		1		1		1		1	
Non-native Swedish speakers	47	(21.9)	2.31	1.56–3.42	1.70	1.11–2.61	1.81	1.19–2.74	2.34	1.55–3.54	1.75	1.11–2.76
PTS during last 12 months	306	(30.5)										
Native Swedish speakers	218	(27.7)	1		1		1		1		1	
Non-native Swedish speakers	88	(40.9)	1.84	1.34–2.52	1.57	1.12–2.20	1.50	1.07–2.09	1.97	1.42–2.74	1.56	1.10–2.34

<sup>a</sup>Edinburgh Depression Scale, EDS-5  $\geq 7$ .

<sup>b</sup>Posttraumatic stress, PTS at least one of three symptoms.

<sup>c</sup>Model 1 Background: age of participants (continuous in years),  $\leq 13$  years of education, and experiencing financial distress.

<sup>d</sup>Model 2 Social support: age, not living with a partner, and no one to confide in.

<sup>e</sup>Model 3 Professional support: age of participant, and consultation with psychiatrist or psychologist prior to pregnancy.

<sup>f</sup>Model 4 Included all factors.

CI, confidence interval; OR, odds ratio; aOR, adjusted odds ratio.

increased (non-significant) risk was found for major depression in women speaking languages other than French or English (adjusted for age, sex, income, marital, and immigrant status, as well as chronic condition and psychological stress) (22). However, a question of country of birth might have been a better choice. This was recently recommended by an expert panel as a core perinatal health indicator, followed by length of time in a country and language fluency (23).

Few studies have actually compared mental health during pregnancy in native-born and non-native born women (1,3). One example is the Mothers in a New Country Study (4), which concluded that age, homesickness, loneliness, and inadequate English were contributing factors to maternal depression. Also in our study, socioeconomic factors (model 1), and social support (model 2), exerted some influence. Financial distress (1) was the strongest independent factor associated with depressive and PTS symptoms (OR 2.31; 95%CI 1.56–3.42 and 2.75; 1.77–4.27, respectively). We chose to include “consultations with a psychiatrist or psychologist previous to pregnancy”, as this could be an indication of a pre-existing mental illness that might influence mental health in pregnancy. However, adding this factor (model 3) did not influence the risk of depressive or PTS symptoms. This was probably because non-native speakers, in spite of a greater risk of mental health problems, had consulted such professionals less than native Swedish speakers had. A higher threshold for seeking psychiatric health care has also been found in immigrants in an interview study of a similar population (24).

After controlling for the factors of model 1–3, non-native women had a greater risk of self-estimated symptoms of depression and PTS. Other social factors not investigated, such as housing or employment status of the woman or her partner, or awaiting one’s partner’s immigration, might explain more of the differences found. Experiences of past or present domestic violence and abuse might also influence a woman’s mental health in different ways (25). A large proportion of the non-native population of Malmö are refugees who have sought asylum from global war zones over the past 20 years or who are the second generation of these migrants. The life-event questions used did not solicit information on events that took place more than 12 months ago. Non-native Swedish-speaking women or members of their immediate family might have been subjected to more traumatic events in their earlier lives.

Recruitment was consecutive but due to ethical considerations we were not allowed to record any information about women who declined to participate. We estimated the response rate at 78% of the total number of pregnant women attending public antenatal clinics during the recruitment period (clinics in the private sector were not included). There may have been more non-native Swedish than native speakers

among the non-responders. If their symptom load were also higher than what was estimated for native Swedish speakers, an overly conservative estimate of the associations between non-natives and symptoms of depression and PTS might be the result. No data on the proportion of childbearing women mastering the Swedish language were available. Our findings can only be generalized to non-native women with sufficient fluent knowledge of Swedish.

## Conclusions

Pregnant women whose mother tongue was not Swedish seemed burdened by more social problems and poorer mental health than their native-born Swedish-speaking counterparts, even if they spoke Swedish fluently. They had a greater risk of symptoms of depression and PTS, but had availed themselves of psychiatric or psychological services less often than native Swedish women, and they had not used antidepressants more frequently. Antenatal care providers need to pay attention to this group of women by systematically assessing their ethnic background and offering them more preventive care, appropriate support, and treatment.

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