10

Risk Factors of Postnatal Depression Among Immigrants in Norway

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1. Introduction

1.1 Migration

Migration is not a new phenomenon, it has become an integral and inevitable part of global and economic development. Better communication and easier and faster transport system increases both voluntary and forced migration. The United States, Canada, and Australia were built on migration, and most European countries were saved by being able to send millions of people to other places when confronted with massive agricultural, political, or economic crises. Illness and death rates associated with migration are exacerbated by a lack of policies needed to make migration a healthy and socially productive process. Migrants are typically poor people moving from poor economic environments, they carry with them the health profiles that result from poverty. Migrants can also be healthy people with initiatives and economy to migrate. Migration, even under the best of conditions, involves a series of events that can be highly traumatizing and that can place migrants at risk. From a public health point of view, migration has serious ramifications for the people that move, the family they leave behind, and the communities that host the newcomers. Migration means breaking with family, friends, and established social networks, departing from traditional routines, value system, feeling of isolation, and these all are often detrimental to both mental health and social integration (Carballo M 2001).

Migration is a process of social change whereby an individaul moves from one cultural setting to another for the purpose of settling down in the new environment either permanently or for a prolonged period (Syed HR 2003). Migration is a complex and dynamic process that can impact the health of migrants, both positively and negatively depending on a number of conditions associated with invidual, social, environmental and health related factors. Immigrant health has therefore been regarded as a public health challenge in several countries (Abebe DS 2010).

Migration is often associated with major changes in environment and behavior, most notably changes in dietary habits, nutrient intake and physical activity influenced by a

process of urbanization or westernization. This has subsequently led to an increased risk of chronic diet- and lifestyle-related diseases in ethnic minority groups (Misra A 2007, Gilbert PA 2008). Several studies over the past decades have indicated an increased risk of obesity, diabetes, CVDs and Vitamin D deficiency in immigrant communities as compared to their country of origin and the mainstream population (Abebe DS 2010).

Before 1960s, Norway was a homogeneous country. Thereafter, a considerable migratory influx of economic immigrants, particularly from Pakistan, Morocco and Turkey, has occurred. After restriction for working purposes was imposed in 1975, immigration has been limited to refugees, asylum seekers, special labors, family reunion and marriages. The first Pakistani men came to Norway as economic immigrants 40 years ago. Most women came for marriage, and most were cousins or relatives of their husbands. In Oslo, the capital of Norway, 28 % of the population are immigrants or Norwegian-born to immigrant parents where the Pakistani comprises the largest immigrant group (13%) (Statistics Norway 2011).

Psychological health may be affected by the process of leaving family and coping with job insecurity, legal problems, unfamiliar language and culture. Stress and anxiety can result in more serious psychological problems (Liebkind 1996). Psychological distress is a measure of mental health, represented by symptoms of anxiety, depression and somatization. The ethnic Pakistanis reported a higher prevalence of psychological distress 22.0% as opposed to 9.9% in ethnic Norwegians (Syed HR 2006). Furthermore, the Oslo Health Study found that the prevalence of psychological distress among immigrants from low- and middle-income countries was signicicantly higher than among the immigrants from high-income countries. Both pre- and post-migration factors were associated with distress. However, the post-migration factors were the most important indicators for the difference between the two groups of immigrants. Lack of salaried job, recent negative life events, past traumatic experiences, living without a partner, low social support, poor knowledge of Norwegian language were associated with mental distress (Hauff E 2006).

To-day there has been a growing interest in acquiring a better understanding of the health status and healthcare needs of our immigrants.

2. Postnatal depression

Women are at an increased risk for first onset of major depression from early adolescence until their mid-50s and have a lifetime rate of major depression 1.7 to 2.7 times greater than that of men. Risk of depression increases in some periods of a woman's life and the postnatal period is one of these (Burt VK 2002). Mental diseases are frequent and among the most common complications associated with women's pregnancies and childbirth (Brockington I 2004). Unipolar depression is the most common type, but bipolar affected illness, obsessional disorders and anxiety may also occur and represent a considerable health problem that affects not only the women but also their children and family (Brockington I 2004, Sinclair D 1998).

There are three postpartum psychiatric disorders – the maternity blues, puerperal psychosis and postnatal depression (Brockington I 2004). Postpartum psychosis is generally defined as

any mental disorder occurring within three months after childbirth and serious enough to require admission to psychiatric facility (David HP 1981). Childbirth, together with abortion (David HP 1981) and menstruation (Brockington I 2005), are those of the triggers of bipolar episodes in susceptible women.

Postnatal depression generally occurs within 6-8 weeks after childbirth (Patel V 2002). It is a significant public health problem with a prevalence varying from 4.9 to 28 % (Bjerke SEY 2008, Chandran M 2002, Rahman A 2003, Ho-yen SD 2006) with the highest value reported from Chile (50.7%) (Poo F AM 2008). While a meta-analysis has shown an average prevalence of 13 % in the general population (O'hara MW 1996).

The Pakistani immigrants represent a minority group with a very different culture compared with Norwegians, and they may feel very alienated from their Norwegian counterparts (Bjerke SEY 2008). In addition, rates of prenatal and postnatal depression in Pakistan has been reported as high as 28% to 41% (Rahman A 2003, Muneer A 2009, Khooharo Y 2010) .Thus, we might expect higher prevalence of depression in this group compared with ethnic Norwegians.

3. Reproductive health among immigrants

Reproductive health especially among women seems to be affected by changes in social and economic environment, nutritional and lifestyle transition, access to education and health care. Pregnancy-related illnesses and pregnancy problems among migrants are common throughout Europe (Carballo M 2001).

The changing of society from traditional agricultural to increasingly urban industrial is known to be followed by a demographic transition from high to low fertility. Women's education and work force participation are suggested as key predictors of the fertility transition (Caldwell J 1999, Bongaarts J 2003).

Total fertility rate in Norway is 1.95, among the highest in Europe, only Iceland and Ireland have higher fertility rate than Norway (Statistics Norway 2011). In 1990, total fertility rate among Pakistani immigrants was 4, nowadays a little more than 3. Second generation Pakistani immigrants has almost the same rate as Norwegians, those which came as children have higher fertility rates that is clearly declining, and lower than women who immigrated as adults (Statistics Norway 2010). In general, immigrants from Asia, Africa and Latin-America have higher rates than the ethnic Norwegian population (Statistics Norway 2010).

We still have a limited knowledge of the migration and health of women of reproductive years, although our knowledge of migration and health is increasing.

In Norway, mean birth weights have been low for Vietnamese and Pakistan mothers and high for Norwegian and North African mothers (Vangen S 2002). In the United Kingdom, perinatal and postnatal mortality are higher among immigrants born in Pakistan and Caribbean than the general population (Carballo M 2001).

Unwanted pregnancies, poor knowledge about familyplanning and where to get contraceptive devices and advice are common among immigrant women. Request for

abortion tend to be higher among immigrants from Africa and South America than Spanish women (Carballo M 2001). A study in Italy reported the risk of induced abortion being higher among the foreigners (34.8/1000 women) than among the residents (10.5/1000 women). However, the spontaneous abortion ratio was also higher among the foreigners (213.8/1000 live births) than the residents (154.6/1000 live birthes) (Medda E 2002).

In Norway immigrant women from Asia and Africa seem to experience a higher risk of obstetric-related complications, perinatal mortalities and higher rates for the termination of pregnancies in comparison to Norwegians and Western immigrants (Abebe DS 2010). The risk factors were female genital mutilaton, consanguineous marriages, low or inconsistent use of contraception, low education and poor socioeconomic status. In addition, a lack of experience and knowledgse among health workers and communication problems between healthcare providers and immigrant patients were mentioned as possible challenges (Abebe DS 2010).

To-day, childbirths are significantly more common among Pakistani women than among Norwegians in Oslo. Report suggests that low education is associated with high frequencies of induced abortion among Norwegians, while Pakistani women with higher education on the contrary are more likely to undergo induced abortion (Eskild A 2007). Overall, non-Western immigrant women seem to represent a risk group for induced abortion in Norway (Eskild A 2002), especially refugees and labour migrants had significantly higher termination of pregnancy (TOP) rates than nonmigrants. NorwayTOP rate was 16.7 per 1000 women contra Pakistani 18.4 (Vangen S 2008).

4. Risk factors of postnatal depression

Past history of psychological disorder (Bjerke SEY 2008, O'hara MW 1996), psychological disorder during pregnancy, low socioeconomic status, complicated delivery (O'hara MW 1996), high scores on the life event scale and poor marital relationship were reported as risk factors of postnatal depression (Bjerke SEY 2008, Eberhard-Gran M 2002). Feeling anxious during pregnancy has been a strong predictor of inctrasing symptoms of depression within 6-8 weeks after birth. However, university education and friends's support appear to be important protective factors (Grussu P 2009). Public postnatal care lowered the risk of postnatal depression (McArthur 2002). Early discharge from the maternity wards (Hickey AR 1997) , young age (Inandi T 2002, Irfan N 2003), being single (Bjerke SEY 208, Kendell RE 1987), high parity (Danaci AE 2002), low education and illeteracy (Inandi T 2002, Irfan N 2003), birth of a daughter when a son was desired (Chandran M 2002, Patel V 2002), lack of physical help (Chandran M 2008), as well as being an immigrant (Danaci AE 2002, Small R 2003) have also been reported as risk factors for postnatal depression.

5. Material and methods

5.1 Study population and method

The Pakistani immigrants are the largest immigrant group in Oslo, Norway. We wanted to investigate this immigrant group in order to better understand of our new fellow citizens. The recruitment were performed when the Pakistani women came for prenatal

ultrasound screening in 17-18 gestational week at two maternity hospitals in Oslo (Rikshospitalet and Ullevål University Hospitals). Women from the two regions in Oslo (Grunerløkka and Grønland) where most of the Pakistani women lived were randomly included. Although we had asked the midwifes and their assistants to assemble the Pakistani women on one particular day when the author was able to visit, it happened quite often that none or only one patient was registered, and thus home visits were necessary. After two years, we had included 207 women. Every one of them gave their personal consents and signatures.

Two face-to-face interviews: one prenatal and one 6-12 weeks after delivery were performed. Ten women did not have the postnatal interview. These included one woman who suffered from a late miscarriage, two women with stillbirths, and one whose baby died a few days after delivery. Three women had moved to Pakistan, one woman refused to be interviewed, one to an unknown address and one woman had been killed. This left a total of 197 women that were interviewed twice. Almost half of the participants (91 women) did speak and understood Norwegian. For the remaining, professional interpreters were used or family members were acting as interpreters.

The questionnaire employed after birth was designed as a structured questionnaire (Eberhard-Gran M 2002) which included EPDS, in order to access the prevalence of and risk factors of postnatal depression.

The Edinburgh Postnatal Depression Scale (EPDS) is a 10-item self-rating scale designed to identify post-natal depression (Cox JL 1987). The EPDS has been translated into Norwegian and validated (Eberhard-Gran M 2001). EPDS items concern matters such as having been able to laugh, having looked forward with enjoyment to things, having blamed oneself unnecessarily, having been anxious or worried for no good reason, having felt scared or panicky for no good reason, experiencing overload, having been so unhappy that it has caused sleeping problems, having felt miserable or sad, having so unhappy as to have cried, thoughts of harming oneself. Each EPDS item is scored 0-3 and the maximum total score is 30.

We aimed at including all Pakistani women registered for ultralsound prenatal screening at two hospitals in the study. Most women in the Oslo area are giving birth at these hospitals. Thus we believe that selection bias in the sample is minimal.

The study was approved by the Regional Committee for Ethics and Research and the Data Inspectorate.

5.2 Variables

The structure questionnaire included collection of the following information: *Demographic and socioeconomic factors.* Age, marital status, relationship, family structure, educational level, parity, family income, employment status, years of residence in Norway. *Reproductive factors and history.* Mean age of menstrual debut and premenstrual debut and premenstrual complaints, the number of children, previous miscarriages, previous induced abortions, stillbirths and pregnancy complications such as hyperemesis gravidarum, pelvic pain, pregnancy experience, length of time to become pregnant without contraception, mode and length of delivery, person(s) present at delivery, anxiety

and mood during labour, contentment with hospital stay, breastfeeding, the sex and health of the baby. *Somatic diseases.* Incidence during the previous year, information obtained by answering the following checklist: asthma, hay fever/allergy, high-blood pressure, cardiovascular disease, diabetes, thyroid disease, gynecological disease, muscular/skeletal/articular disease, migraine/headache, cancer or other somatic diseases not listed above. *Psychiatric history.* History of hereditary depression, previous depression. *Interpersonal relationship.* The participant has persons outside the family that she can confide in that, helps her with housework, or care for the family. The coding is 'yes' or 'no'. Attachment to partner was asked for and codes as 'closely attached to partner', 'partly' or 'not attached at all'.

Life events. Major life events during the last 12 months. The live events included 10 different items:1) separation or divorce; (2) serious problems in marriage or cohabitation; (3) problems or conflict with family, friends or neighbors; (4) problems at work or in place of education; (5) economic problems; (6) serious illness or injury; (7) serious illness or injury within the nuclear family/among close family members; (8) traffic accident, fire or theft, (9) loss of a closely related persons; and (10) other difficulties. The answers were graded according to the woman's reaction to the event; not so difficult/difficult/very difficult, and the sum of scores from each item (graded according to severity on a scale of 1-3) was used as a negative life event indicator (codes:'0 points', '1-5 points', or '>5 points'). The women with 0 points reported 0 major events.

Outcome variable. Measures of mental health. EPDS was included in the questionnaire. The EPDS scores were dichotomized in the statistical analyses as high score (≥10) or low score (<10) (Eberhard-Gran M 2002).

5.3 Statistical analyses

All data were registered in SPSS. Descriptive statistics (including means, standard deviations, frequencies and percentage) were used to analyze distribution of the demographic variables.

Crude odds ratios for being depressed (EPDS≥10) with 95% confidence intervals were estimated by logistic regression analyses.

The aims of our study was to investigate the risk factors for postnatal depression among immigrant women especially Pakistani living in Norway.

6. Results

A total of 197 Pakistani women completed the study; 15 (7.6%) suffered from postnatal depression as seen in Table 1 (EPDS score ≥10) (Bjerke SEY 2008). The average age of our study was 28.0 years (range 19-43 years; SD 5.0. The majority (97%) were married and more than one-third lived in extended families, 70% had more than one child.

None of the Pakistani women had a university level education, 67 (34%) had a high school level, 54 (27%) had only 9 years of schooling, while one was illiterate. Most of the women (69%) were unemployed (Table 1).

The different risk factors and their significance for postnatal depression are given in Tables 1 and 2 (Bjerke YSE 2008).

Advanced age was one risk factor: 14% of the 79 women over 30 years old suffered from postnatal depression. This was significantly different from the 3 % depression rate observed in the 118 women under 30 years (OR 4.6, 95% Cl 1.4-15.0).

Among the five mothers who for different reasons were single, three women were depressed after delivery (OR 22.5, 95% Cl 7.1-124.1).

Considering the women with prior depression, six out of 10 suffered from a new episode of depression in the postnatal period (OR 29.7, 95% Cl 7.1-124,1).

Of the 12 women who were not closely attached to their partners, four (33%) suffered from postnatal depression (OR 8.6, 95% Cl 2.2-33.5).

Out of the total 197 women, 26 (15%) women scored high on the life-event scale. Half of these suffered from postnatal depression with a high OR (84.5, 95% Cl 17.2-415.2).

In fact 13 of the 15 (87%) of those experiencing postnatal depression had previously had a distressing lift event.

Risk factor	EPDS ≥ 10			Crude odds-ratio (95% CI)
	Yes, *N* (%)	No, *N* (%)	Total *N*	
	15 (7.6)	182 (92.4)	197	
Age of the woman				
< 30 years	4 (3)	114 (97)	118	1
> 30 years	11 (14)	68 (86)	79	4.6 (1.4–15.0)*
Marital status				
Married	12 (6)	180 (94)	192	1
Single	3 (60)	2 (40)	5	22.5 (3.4–147.8)*
Family structure				
Nuclear	9 (7)	121 (93)	130	1
Extended	6 (9)	61 (91)	67	1.3 (0.5–3.9)
Unemployment				
No	2 (3)	59 (97)	61	1
Yes	13 (10)	123 (90)	136	3.1 (0.7–14.3)
Educational level				
9 years of school	3 (6)	51 (94)	54	0.8 (0.2–3.7)
High school level	7 (10)	60 (90)	67	1.7 (0.5–5.5)
University level	0 (0)	0 (0)	0	0
Others	5 (7)	71 (93)	76	1
Number of children				
> 1 child	13 (9)	125 (91)	138	1
1 child	2 (3)	57 (97)	59	3.0 (0.6–13.6)

*Statistical significance.

Table 1. Relative risk of postpartum depression expressed as odds ratios with a 95% confidence interval according to demographic and socio- economic factors among 197 Pakistani Women.

Risk factor	EPDS ≥ 10 Yes, *N* (%)	No, *N* (%)	Total	Crude odds-ratio (95%CI)
	15 (7.6)	182 (92.4)	197	
Premenstrual tension				
No	2 (3)	66 (97)	68	1
Slight	11 (10)	99 (90)	110	3.7 (0.8–17.1)
Noticeable – annoying	2 (11)	17 (89)	19	3.9 (0.5–29.6)
History of spontaneous abortion				
No	11 (7)	153 (93)	164	1
Yes	4 (12)	29 (88)	33	1.9 (0.6–6.4)
History of stillbirth				
No	13 (7)	176 (93)	189	1
Yes	2 (25)	6 (75)	8	4.5 (0.8–24.6)
Mode of last delivery				
Vaginal delivery without complications	9 (6)	146 (94)	155	1
Vaginal delivery with strain	2 (12)	15 (88)	17	2.2 (0.4–11)
Operative delivery	4 (16)	21 (84)	25	3.1 (0.9–11)
Breastfeeding				
No	2 (25)	6 (75)	8	1
Yes	13 (7)	176 (93)	189	0.2 (0.4–12)
Somatic diseases				
No	14 (9)	145 (91)	159	1
Yes	1 (3)	37 (97)	38	0.3 (0.0–2.2)
Prior depression				
No	9 (5)	178 (95)	187	1
Yes	6 (60)	4 (40)	10	29.7 (7.1–124.1)*
Interpersonal relationship				
Yes	13 (7)	174 (93)	187	1
No	2 (20)	8 (80)	10	0.3 (0.6–1.6)
Closely attached to partner	10 (6)	172 (94)	182	1
Partly or not attached to partner	4 (33)	8 (67)	12	8.6 (2.2–33.5)*
No partner		3		
Life events				
0 point	2 (1)	169 (99)	171	1
More than one point	13 (50)	13 (50)	26	84.5 (17.2–415.2)*

*Statistical significance.

Table 2. Relative risk of postpartum depression expressed as odds ratio with a 95% confidence interval according to sociological and biological factors among 197 Pakistani women.

7. Discussion

We found that the prevalence of postnatal depression (EPDS score ≥10) among Pakistani women in Norway was only 7.6%, slightly lower than that of the ethnic Norwegian (8.9%) (Eberhard-Gran M 2002), and lower than reported elsewhere in the world (13%) (O'Hara MW 1996). Depression around childbirth is a serious public health problem in south Asia, affecting about one in four women (Patel V 2002). In Pakistan prevalence of postnatal depression were reported up to 41% (Rahman A 2003, Muneer A 2009, Khooharo Y 2010). The prolonged maternal depression has various consequences not only for the mother but also for infant growth and development (Rahman A 2007).

Many previous studies have shown risk factors for postnatal depression similar to those we have revealed in this study.

The interview was performed in Norwegian, not in 'Urdu', the original Pakistani language. Half of our women spoke Norwegian, while for the remaining, professional interpreter and family members were used as interpreters. The presence of family members during the interview might have led to underreporting of depressive symptoms (Cox JL 1987). However, we analyzed the results of those 'to be alone' and those 'who had their husband with them' and found no significant difference of depressive symptoms. The EPDS is based on self- rating. This implies that the women should be able to read, understand, and cross off correspondingly. For an illiterate person, this is not possible. In an interview situation there could also be a risk of under-reporting psychiatric symptoms (Ho-Yen SD 2006). In Nigeria, reading out psychometric questionnaires to illeterate people did not alter the psychometric properties of the instrumens used (Abiodun OA 1994). Kirmayer showed that disturbances in mood, effect and anxiety are not viewed as mental health problems in many cultures, but rather of a social or moral nature (Kirmayer LJ 2001). It is possible that immigrant Pakistani women did not perceive depression as a mental problem (Bjerke YSE 2008).

In an ethnic Norwegian study, the risk factors were beeing primiparous, not having breastfed, having a prior depression, poor attachment to partner and high stress of life-event (Eberhard-Gran M 2002). Our Pakistani immigrants had some of the similar risk factors to ethnic Norwegian: prior depression, poor attachment to partner and high stress of life-event.

Current somatic illness (Chandran M 2002, Small R 2003) and life stress have been reported to be important risk factors for postnatal depression (Eberhard-Gran M 2002). This is in accordance with our results, which showed that a high score on life events was strongly associated with the depressed condition. Almost everyone, 13 out of 15 with postpartum depression had previously suffered from a traumatic lift event. The same risk factor was registered in Pakistan (Rahman A 2007).

Previous psychiatric illness (Eberhard-Gran M 2002, Irfan N 2003, Ho-Yen SD 2007), depression during pregnancy were reported as risk factors for postnatal depression (Rahman A 2007, Ho-Yen SD 2007). In our study all women with prior depression, suffered of postnatal depression. Previous postnatal depression is also considered a risk factor in Pakistan (Khooharo Y 2010).

Being single is a wellknown risk factor (Kendell RE 1987). From a traditional and cultural standpoint, being a single mother is even worse and considered to be a shame in Asia. We confirmed this risk factor even thorught we had only three of five women in our study in this category (Bjerke SEY 2008). This is in contrast to Norway where being a single mother no longer is a burden (Eberhard-Gran M 2002).

Social isolation and poor relationships with their spouses and the spouse's parents have been shown to be risk factors for postnatal depression (Chandran M 2002, Danaci AE 2002, Lee DT 2004). In a British study, Pakistani mothers living in extended families were more depressed and anxious than those in nuclear families (Shah Q 1995). Perhaps Pakistani women in Norway did not feel socially isolated, because one-third lived in extended families and none of these reported depression, in contrast to Pakistani women in their origin country, who reported postnatal depression (Muneer A 2009, Khooharo Y 2010). However, because the majority of husbands were present at the interview, the reliability of our data in this respect is questionable. However, poor attachment was the risk factor in our

study and ethnic Norwegian study (Eberhard-Gran M 2002, Bjerke SEY 2008) , also in Pakistan (Khooharo Y 2010).

Previous reproductive failure or problems such as stillbirth have been related to depression and anxiety in the next pregnancy and puerperium (Hughes PM 1999). Among our Pakistani women, two suffered from stillbirth in the current pregnancy, but they were excluded from the postnatal questionnaire. When considering a history of previous stillbirths, eight women (4%) had experienced these events, 25% of these women were depressed. However, the results were not significant, because our study was not large enough to study such rare events.

Women who experience stress during childbirth (Watson JP 1984, O'hara MW 1996), or emergency delivery have been shown to have an incidence of twice the risk of developing postnatal depression (Koo V 2003). We had 42 women (21%) in this category, but only six (14%) suffered from postnatal depression and we thus did not confirm this risk factor.

Breastfeeding did not influence postnatal depression in our study. This is in contrast to the study by Alder where mothers exclusively breastfed their babies for at least 12 weeks, or who were taking contraceptives, had a higher incidence of postnatal depression than those who were not 'on the pill' or who partially breastfed (Alder EM 1983). Postnatal depression has been shown to have a significant negative impact on breastfeeding duration in other studies (Misri S 1997).

The risk of postnatal depression was in previous studies mainly related to socio economic and family variables (Chandran M 2002): young age (Inandi T 2002, Irfan N 2003), high parity (Danaci AE 2002, Ho-Yen SD 2007), the gender of the child (female) (Chandran M 2002), low education and illiteracy (Inandi T 2002, Irfan N 2003), financial difficulties and low social class (Inandi T 2002, Irfan N 2003), being a housewife (Inandi T 2002, Irfan N 2003), being an immigrant (Danaci AE 2002, Small R 2003). These factors did not show an association to postpartum depression among Pakistani women in our study. However, in Pakistan: young age (Muneer A 2009, Khooharo Y 2010), low level of education (Muneer A 2009, Khooharo Y 2010), lower socioeconomic class (Muneer A 2009, Khooharo Y 2010. Rahman A 2007), small families comprising of fewer than 3 children (Muneer A 2009), having 5 or more children (Rahman A 2007), lack of a confidant or friend (Rahman A 2007), were married for less than 5 years (Muneer A 2009), domestic violence (Khooharo Y 2010) and house wives (Khooharo Y 2010) were reported as risk factors.

Integration is a question of equal rights in society, which is a central part of Norwegian immigration policy: In 1997, the Norwegian government declared that immigrants should have the same rights to health care as the rest of the population (Ministry of Local and Labor 1997). Integration is also a question of equity in health outcomes. This may explain that in Norway being an immigrant or belonging to different socio-economic groups do not give different health outcomes compared with ethnic Norwegians (Eberhard-Gran M 2002) and Pakistani women in the rural districts of Pakistan (Rahman A 2007).

Limitation of the study should be discussed, since the author only once a week was coming to Oslo for interviewing the immigrants, and probably not recruited all wanted women.

In conclusion, the 7.6% prevalence of postnatal depression among Pakistani women in Norway seems to be very low compared with the prevalence reported in immigrant

populations elsewhere, however it was only slightly lower than the ethnic Norwegians (8.9%).

Being a Pakistani immigrant in Norway does not seem to result in a higher risk of postnatal depression. The different risk factors are similar to those reported from other countries; moreover, the there seemed to be few cultural differences in risk factors between the ethnic Norwegian and Pakistani immigrants.

In the future the role of the immigrant father should be further looked into. Prenatal and postnatal depression occurring in the fathers has been described in up to 10% (Paulson J 2010), with a relatively higher frequency in the 3- to 6- month postnatal period. Paternal depression has showed a moderate correlation with maternal depression (Paulson J 2010). This is interesting and future studies should focus upon postnatal depression in males and their risk factors.

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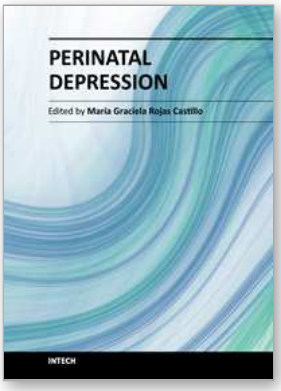

Perinatal Depression

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This book presents ten chapters that give us important information about epidemiological, biological, clinical and psychological aspects of common mental disorders during pregnancy and in the postnatal period. Some of the issues covered in this book are: detecting postnatal depression using different instruments at the right time, which is very important to avoid the negative effects on the children of depressed mothers; understanding the impact of anxiety and depression during pregnancy and in the postnatal period; biological issues of perinatal anxiety and depression; epidemiological information about perinatal mental health problems among minorities, like immigrant population and underserved rural women. Some information is also provided on postnatal depression in men, which is frequently overlooked.

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