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Recent research on the mental health of immigrants to Sweden: a literature review

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The arrival of large numbers of economic migrants and refugees has seen the Swedish immigrant population increase rapidly. Research has shown that immigrants may be more susceptible to mental disorders because of traumatic events prior to immigration and adverse circumstances in their new country. The aim of this literature review is to summarize and interpret recent research on the mental health of immigrants to Sweden. Methods: A systematic search for relevant literature in PubMed was performed on 13 February 2014. Relevant literature was limited to original research articles published between 1 January 1994 and 13 February 2014. Content relating to mental disorders and suicide was reviewed and summarized. Results: Nationwide studies showed increased risks of common mental disorders such as depression, as well as psychotic disorders, in immigrants to Sweden compared to native Swedes. However, the results are complex, with notable differences between different immigrant groups and between males and females. Risk of suicide was increased in some immigrant groups, but decreased in others. There has been little qualitative research on the mental health of immigrants and few intervention studies have targeted immigrants. Conclusion: Immigrants to Sweden are a mixed group with differing, but often increased, risks of mental disorders. Targeted qualitative and intervention studies may facilitate efforts to develop and implement preventive methods for immigrants at high risk of mental ill health, and to tailor treatment to the specific needs of different immigrant groups.

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Introduction

Sweden has seen several waves of immigration since World War II, including economic migrants from Finland in the 1950s and 1960s, and more recently refugees fleeing conflicts in the former Yugoslavia and Iraq. According to the government-owned statistics bureau Statistics Sweden, Sweden had a first-generation immigrant population comprising 15.9% of the total Swedish population in 2013[1]—somewhat higher than the averages for Europe (9.8%) and Northern Europe (12.6%) reported by the United Nations.[2] Moreover, Statistics Sweden's figures indicate that immigration to Sweden increased to a record level in 2013.[3]

Studies have shown that the entire migration process, from events in the country of origin and escape to a socially and culturally different society, to acculturation—gradual adaptation to the new cultural and social environment—may have sustained, negative effects on the mental health of refugees and their offspring.[4–6] These negative effects may be manifested as increased prevalences of certain mental disorders and higher risks of suicide.

Low socio-economic status (SES; defined as low education level or low income), unemployment and poor social environments are important predictors of increased psychiatric admission rates.[7,8] Previous research has shown that SES differs considerably between ethnic groups in the USA.[9,10] In Sweden, depending on country of origin, immigrants often have a lower SES than their Swedish-born counterparts.[11] They also tend to live in poorer neighbourhoods and have higher unemployment rates. In addition, a recent Swedish survey found that workers born in Eastern Europe, Latin America and other non-Western countries who had secure labour market positions reported more poor health and psychological distress than Swedish-born workers, even after adjustment for occupational class and adverse working conditions.[12] This confirms that non-employment-related factors are important contributors to the mental health of immigrants.

Individual- and neighborhood-level social factors, including those mentioned above, may partly explain observed differences in the prevalences of specific mental disorders between indigenous and immigrant populations, and may mean that certain subgroups of immigrants have distinct treatment needs. The availability of nationwide and regional data in Sweden has enabled researchers to estimate the prevalences of mental disorders in different population subgroups, including those with different countries of birth, and to identify factors that affect those prevalences. The aim of this systematic literature review is to summarize research on the mental health of immigrants to Sweden conducted in the past 20 years, and to highlight areas where more research is needed.

Methods

We systematically searched for published articles describing original research. Searches using the following search terms were performed in PubMed on 13 February 2014: Swed* AND immigra* AND depress*, Swed* AND immigra* AND anxiety, Swed* AND immigra* AND suicid*, Swed* AND immigra* AND psychosis, Swed* AND immigra* AND psychotic, Swed* AND immigra* AND bipolar, Swed* AND immigra* AND schizophren*, Swed* AND immigra* AND mania, Swed* AND immigra* AND manic, Swed* AND immigra* AND post-traumatic stress, Swed* AND immigra* AND posttraumatic stress, Swed* AND immigra* AND panic, Swed* AND immigra* AND obsessive, Swed* AND immigra* AND compulsive, Swed* AND immigra* AND phobia, Swed* AND immigra* AND anorexia, Swed* AND immigra* AND bulimia, Swed* AND immigra* AND eating disord*, Swed* AND immigra* AND mood disord*, Swed* AND immigra* AND affective disord*, Swed* AND immigra* AND conduct disord*, Swed* AND immigra* AND attention deficit, Swed* AND immigra* AND ADHD, Swed* AND immigra* AND oppositional defiant*, Swed* AND immigra* AND autis*, Swed* AND immigra* AND Asperg*, Swed* AND immigra* AND neurotic disord*, and Swed* AND immigra* AND

personality disord*. The publication date was limited to 1 January 1994 to 13 February 2014. Collectively, the searches yielded 161 unique articles. Relevant articles were identified by inspection of the abstract and, in some cases, the full text of the article. Articles were excluded for the following reasons: non-relevant subject ($n = 62$), non-Swedish study ($n = 7$), non-relevant subject plus non-Swedish study ($n = 2$), case report ($n = 4$), meta-analysis ($n = 1$), review article ($n = 4$) and commentary ($n = 3$). These exclusions left 78 relevant articles. The full text versions of nine of these articles were not available to us. Exclusion of two further articles because the data relevant to this literature review were not shown gave a final total of 67 articles. Content relating to mental disorders/suicide in immigrants was identified, analysed, summarized and interpreted.

Results

Depression and anxiety

Risk of depression in different immigrant groups has been probed in large-scale epidemiological studies. A nationwide study of hospitalization for depression in the Swedish population aged 25–64 years on 31 December 1996 found adjusted hazard ratios (HRs) for depression of 1.22 [95% confidence interval (CI) 1.12–1.33] and 1.04 (95% CI 0.93–1.16), respectively, among female and male immigrants classified as labour migrants, compared with the native Swedish population. The values for female and male immigrants classified as refugees were 1.28 (95% CI 1.16–1.41) and 1.30 (95% CI 1.15-1.46), respectively.[13] A subsequent prospective cohort study of just over 3 million Swedish residents (age in 2000 18–64 years, study period 2000–2006, washout period 1997–1999) found an HR for hospitalization for major depressive disorder (F32, ICD-10) of 1.33 (95% CI 1.25–1.41) in foreign-born vs. Swedish-born individuals.[14]

Various screening instruments have been used to assess depression risk in smaller groups of immigrants. Immigrants from the Middle East were included in a study conducted in Linköping in 2005, whose aim was to compare the Hopkins Symptom Checklist (HSCL-25) and the WHO (ten) Wellbeing Index. HSCL-25 and WHO (ten) Wellbeing Index scores were significantly higher in a mixed group of Iranians and Iraqis ($n = 509$) compared with a mixed group of Swedes and Finns ($n = 305$).[15] A related study in the same setting, using the same instruments, found higher prevalences of anxiety/depression and lower subjective well-being in Iranian and Iraqi immigrants compared with Finnish immigrants, although the odds ratios (ORs) in fully adjusted multiple logistic models were non-significant.[16] An earlier study of Swedish citizens in Stockholm using the Major Depression Inventory (MDI) found that socio-economic variables partly explained the observed higher odds of depression in subjects born outside Scandinavia compared with those born in Sweden.[17]

A further study of nursing students at 24 Swedish institutions, in which a modified version of the MDI was used, found that students born outside Europe had an adjusted OR for depression of 2.69 (95% CI 1.43–5.04) compared with those born in Sweden.[18] Similarly, a questionnaire study of Iranian immigrants ($n = 105$) and native Swedes ($n = 305$) living in Stockholm County and 668 Iranians living in Iran (age range for all three groups 60–75 years) found higher rates of self-reported depressive symptoms in both Iranian samples compared with the native Swedes. There were few significant differences between the two Iranian samples,[19] suggesting that the differences in depressive symptom rates compared with native Swedes were not because of migration-related factors.

One research group has studied risks of mental health outcomes in individuals adopted from outside Europe. A study of adoptees born abroad in 1970–79 and living in Sweden with Swedish-born parents in 1985 found higher odds of hospitalization for depression compared with the population born in Sweden whose parents were also born in Sweden (OR = 3.3, 95% CI 2.4–4.7).[20] A related nationwide study found that foreign-born adoptees aged 4–6 years when they arrived in Sweden had increased odds of hospitalization for a psychiatric disorder compared with those who arrived aged 0–1 years,[21] suggesting that age at migration may be an important determinant of mental health.

Several previous studies have analysed mental health in patients with long-term pain. A study of individuals aged 18–45 years in Stockholm who had taken sick leave due to non-malignant pain showed no significant differences in rates of depression according to country/region of birth, although five of the eight country/region of birth groups consisted of ≤35 persons.[22] A separate analysis of a mixed group of 149 immigrants with long-standing pain living in Stockholm found that 22.8% of patients had diagnosed depression (22.4% of men and 23.0% of women).[23] Earlier studies of 45 immigrants in Stockholm with pain[24] and 117 Stockholm residents with pain (114 of whom were immigrants)[25] reported somewhat higher (40%) and lower (14%) rates of diagnosed depression, respectively. Another study from Stockholm found a higher average depression/anxiety score [determined using the General Health Questionnaire (GHQ-12)] among immigrants with pain ($n = 140$) than among native Swedes with pain ($n = 446$).[26] Collectively, these findings suggest that immigrants suffering from pain may be particularly susceptible to depression.

Depression in immigrants to Sweden has also been assessed indirectly by analysis of psychotropic drug use. One cross-sectional epidemiological study found that refugees from six countries/regions (Afghanistan, Iraq, Iran, the Middle East, Somalia and the former Yugoslavia) had ∼50% higher odds of picking up prescribed psychotropic medications than a non-refugee reference population.[27] Logistic regression analysis of 25 003 individuals aged 20–34 years who started using antidepressants in January–June 2006 found that both first- and second-generation immigrants had increased odds of discontinuing treatment early.[28] An earlier questionnaire-based survey of men in Gothenburg born in the first half of 1944 found higher rates of anxiolytic and hypnotic use (and self-rated high degree of depressive mood), but not antidepressant use, in first-generation immigrants compared with Swedish-born individuals.[29] Antidepressant use in the immigrants in this sample was subsequently shown not to be related to a number of employment/work-related factors (zero values prevented similar analysis of anxiolytic and hypnotic use).[30]

The association between country and birth and anxiety was further examined in a sample of the Swedish population (30 884 men and women aged 25–64 years) using data for 1995–2002 from the Swedish Annual Level of Living Survey, a national survey conducted by Statistics Sweden every year since 1974. The prevalence of anxiety in a log binomial model was higher in individuals from 'refugee countries' compared with those born in Sweden (prevalence ratio 1.52, 95% CI 1.42–1.62).[31]

A study based on data for Kurdish immigrants from Turkey and Iran from another survey, the 1996 Survey on Swedish Living Conditions, showed a high prevalence of anxiety, especially in women (OR in a fully adjusted logistic regression model 2.80 [95% CI 1.37–5.71] for women vs. men).[32] Data from the same survey, as well as from the first Swedish National Survey of Immigrants (conducted in the same year), were used to assess anxiety in 526 Turkish-born immigrants in Sweden and 2854 native Swedes. The odds of self-reported anxiety in a multivariate logistic model were significantly increased in Turkish-born men (OR = 2.12, 95% CI 1.43–3.15) and women (OR = 2.44, 95% CI 1.69–3.53) compared with native Swedes.[33] These same two data sources were used in a study of 111 Kurdish men from Turkey and Iran and 1412 Swedish controls. Unconditional logistic regression showed non-significant increases in the odds of feelings of anxiety (and psychotropic drug use) in the Kurdish men compared with the native Swedes.[34]

Finally, a study using retrospective recall and the Edinburgh Postnatal Depression Scale found evidence that the pattern of post-partum sadness may differ between mothers born in the Middle East and those born in Sweden and other non-Swedish regions.[35]

Psychosis

After depression/anxiety, the mental disorders that have possibly received most attention in immigrants to Sweden are psychotic disorders. Several regional studies have examined the link between country of birth and psychosis. An analysis of psychosis in adults in Stockholm using outpatient and inpatient health care data for the period 1997–2006 found significant differences in prevalence between residential areas. Notably, proportion of foreign-born residents was correlated with 1-year prevalence of non-affective psychosis (Pearson's $r = 0.61$, $P = 0.0002$).[36] Elsewhere, a study of all in-patients admitted to psychiatric care in Malmö during a 12-month period in 1997–98 found an increased relative risk (RR) of schizophrenia plus other non-affective psychosis combined, but not schizophrenia alone or other psychiatric diagnoses, among foreign-born individuals compared with native Swedes. Further analyses showed a particularly high RR among immigrants from Africa and led the authors to conclude that the migration process was not responsible for the increased RR in immigrants.[37] The same researchers subsequently conducted a second study of first contacts for psychotic disorders in Malmö in 1999–2001. They found increased RRs for psychotic disorders and a subset thereof defined as 'schizophrenic disorders' in first- but not second-generation immigrants.[38] A further study of individuals born in Sweden in 1975–85 found that maternal immigration increased the odds of non-affective psychoses (as diagnosed in Stockholm in 1987–2003).[39]

More robust evidence of a higher rate of psychosis among immigrants comes from an analysis of the total Swedish population aged 25–64 years on 31 December 1996. Cox regression was used to calculate HRs for hospital-diagnosed psychosis of 1.51 (95% CI 1.35–1.69) and 1.34 (95% CI 1.17–1.52), respectively, among female and male labour migrants, compared with native Swedes. The values for female and male refugees were 1.77 (95% CI 1.57–1.99) and 2.06 (95% CI 1.83–2.32), respectively.[13] A second cohort study of 1.47 million individuals born in 1929–65 and 1.16 million individuals born in 1968–79 was performed using inpatient data from the Hospital Discharge Register (which has nationwide coverage) and census data. Increased RRs for schizophrenia and other psychoses in 1991–2000 were noted in first- and second-generation immigrants from Finland and Eastern and Southern Europe, but not those from other regions, and were linked to factors relating to social disadvantage.[40] In two further cohort studies, 1.9 million individuals aged 16–34 years were followed for first hospital admissions for psychotic, affective, neurotic and personality disorders in 1995–98,[41] and 2.2 million individuals aged 20–39 were followed for psychotic disorders in 1992–99.[42] Cox regression analysis showed that the HR for schizophrenia was reduced in male first-generation immigrants from 'refugee countries', but increased in first-generation immigrants of Finnish origin, and in second-generation immigrants with either 'refugee country' or Finnish origin or one parent born in Sweden.[42] Second-generation immigrants with Finnish origin or one parent born in Sweden also had increased HRs for the broader 'psychotic disorders' diagnosis category, as well as for affective, neurotic and personality disorders.[41] The results remained significant after adjustment for socio-economic factors (income and education).[41] An even larger cohort study of 4.5 million men and women aged 25–64 (study period 1997–98) found a complex pattern of HRs for psychotic, affective and neurotic disorders, with differences according to gender and country/region of birth.[43] Notably, income and marital status

seemed to contribute more strongly to risk of mental disorders in male immigrants compared with female immigrants.

Psychotic disorders in immigrants have also been studied in the context of forensic psychiatry. A retrospective analysis of 4466 individuals in Sweden who underwent forensic psychiatry examinations in 1998–2004 found a significantly higher rate of psychotic disorders (a definition that included schizophrenia) in foreign-born individuals ($n = 1563$) compared with Swedish-born individuals ($n = 2903$), but lower rates of personality disorder, bipolar disorder and autism.[44] Confirming the result for psychotic disorders, a higher rate of psychotic disorders among non-Nordic immigrants was found in individuals who underwent forensic psychiatry examinations in the Gothenburg area in 1988–95. Conversely, the rate of schizophrenia was higher in Nordic-born subjects.[45]

A final study linked two nationwide Swedish registers—the Multi-Generation Register (which contains data on family relationships) and the Hospital Discharge Register—to examine the influence of parental country of birth on familial aggregation of schizophrenia. The RR for schizophrenia in full siblings of individuals with hospital diagnoses of schizophrenia was lower when the mother or father was born outside Sweden.[46]

Paranoia

Paranoia in immigrants has been little studied in Sweden. A study in which 1535 elderly residents of Stockholm aged 75+ years were assessed for symptoms of paranoia by geriatricians found that being an immigrant (self-reported) was associated with higher odds of paranoia (OR = 2.3, 95% CI 1.1–5–1) in a logistic regression analysis adjusted for cognitive impairment.[47] Elsewhere, the rate of paranoid disorder in the abovementioned forensic psychiatry study in Gothenburg was higher in non-Nordic immigrants than in Nordic-born subjects.[45]

Post-traumatic stress

Immigrants have been shown to be more likely than native Swedes to suffer from post-traumatic stress disorder (PTSD) following a trauma.[48] Also, refugees who experience traumatic events in their country of origin may continue to suffer from post-traumatic stress long after they have immigrated to a new country. In fact, one study of immigrants to Sweden from Kosovo found that the prevalence of post-traumatic stress symptoms, assessed using the Harvard Trauma Questionnaire, increased over time.[4] Another study, from Stockholm, found a higher average post-traumatic stress score, determined using the Post-Traumatic Symptom Scale (PTSS-10), among immigrants with pain ($n = 140$, all countries) than among native Swedes with pain ($n = 446$).[26]

Several studies have assessed post-traumatic stress in the parents of children with cancer. In one such study, evaluation of parents of children who had undergone cancer treatment at two Swedish hospitals using a revised version of the Impact of Event Scale (IES-R) found that immigrant parents reported more post-traumatic stress symptoms than Swedish-born born parents did.[49] A subsequent study at four cancer centres using the PTSD Checklist Civilian Version (PCL-C) confirmed higher rates of post-traumatic stress symptoms in immigrant parents of child cancer patients;[50] a third study at a single children's hospital in Stockholm found no evidence that immigrant parents were at increased risk of post-traumatic stress symptoms.[51]

In other studies, a 2004 analysis of consecutive patients who underwent forensic psychiatry examinations in Stockholm found a five times higher prevalence of PTSD [determined using the Clinician-Administered PTSD Scale (CAPS)] in first-generation immigrants (15/25, 60%) compared with native Swedes (3/25, 12%).[52] Lastly, a study of women who gave birth at a maternity ward in Stockholm in May to December 1993 reported that foreign-born mothers had higher odds of an IES score of ≥20

(indicating post-traumatic stress symptoms or the need for follow-up) 3 months past-partum in a univariate analysis, but not a multivariate analysis.[53]

Suicide

While not a mental disorder per se, suicide was recently confirmed to be strongly associated with mental disorders, especially depression, in a nationwide Swedish cohort study.[54] It therefore merits inclusion in this review, and has indeed been the focus of a number of studies of immigrants. One such study, an analysis of all suicides in Sweden in 1987–91, gave an RR estimate of 1.2 for confirmed suicide in foreign-born vs. Swedish-born individuals.[55] Another study, in which all individuals aged 16+ years listed in the 1985 census were followed up between 1985 and 1989, found increased RRs for the composite measure 'suicides and undetermined deaths' in immigrants born in Finland or Eastern Europe, and reduced RRs in those born in Southern Europe or outside Europe, compared with Swedish-born individuals.[56] Confirming some of the above findings, a third nationwide study of suicide in individuals born in 1968–79 and living in Sweden in 1985 (study period November 1990 to December 1998) found: (i) increased odds of suicide in first- and second-generation immigrants from Finland; (ii) reduced odds of suicide in first-generation immigrants from Southern Europe and the Middle East; and (iii) greatly increased odds of suicide in individuals adopted from outside Europe.[57] A fourth nationwide study, which followed men and women aged 25–64 years on 1 January 1994 for suicide between 1994 and 1999, showed reduced HRs for suicide in men and women from the Middle East, and in men from Southern Europe, and increased HRs for suicide in men from Finland and women from Poland and Eastern Europe.[58] Collectively, these studies provide evidence of a high relative suicide risk in immigrants from Finland, and a low risk in immigrants from Southern Europe and the Middle East.

A study in which individuals born in 1970–79 and living in Sweden in 1985 were followed up in 1986–95 provided evidence that foreign-born adoptees are at particularly high risk of suicide: individuals adopted from outside Europe had much higher odds of suicide and attempted suicide than the general Swedish population, as well as higher rates of attempted suicide compared with their siblings in their adoptive families.[20]

Several studies of suicide have been undertaken in Stockholm. An analysis of violent deaths in the Stockholm area in 1990 found that foreign-born individuals tended to be over-represented among suicide victims ($P = 0.09$).[59] A larger study involving 1722 cases of confirmed and undetermined suicide in Stockholm County in 1987–90 found that the annual suicide rate was consistently higher in foreign- vs. Swedish-born individuals, and was especially high in immigrants living in low-income neighbourhoods.[60] A third study from Stockholm, focusing on individuals who received hospital treatment for non-fatal firearm injuries in 1972–92, found a lower rate of attempted suicides in foreign-born individuals compared with native Swedes.[61]

Additional data from Stockholm collected as part of the international WHO/EURO Multicentre Study on Suicidal Behaviour showed a female/male ratio for suicide attempts in native Swedes (1.61) that was lower than the ratio for individuals born in Turkey (2.65) and higher than that for individuals born in Finland (1.11).[62] Data from the same study showed a higher rate of suicide attempts in Turkish-born people living in Stockholm than in Turkish-born people living in Ankara, and a lower rate in Finnish citizens living in Umeå than in Finnish citizens living in Helsinki,[63] suggesting that migration, as well as ethnicity/country of birth, may influence suicide risk.

Self-report data on attempted suicide are scant. A logistic regression analysis using data from the 2002 and 2006 Stockholm Public Health Cohort surveys on males and females aged 18–29 years ($n = 10\,081$) showed that the odds of attempted suicide were increased in first- and second-generation female (but not male) non-European immigrants compared with native Swedes. The higher odds of psychological distress (assessed with the GHQ-12) in the same female immigrant groups provide a possible explanation for this observation.[64]

Studies in children

A number of studies have examined autism in immigrant children. A matched case–control study of subjects included in the Stockholm Youth Cohort, a register-based study of all children living in Stockholm in 2001–07, found reduced odds of autism spectrum disorders in children whose mothers were born in Western Asia and Southern Europe (conditional logistic regression with both parents born in Sweden as the reference group).[65] By contrast, modest studies from Gothenburg found very tentative evidence of an increased prevalence of autism compared with the general population in children with at least one parent born outside Northern Europe[66] and in children whose mothers were born in Uganda.[67] Somewhat larger studies in Stockholm reported an increased prevalence of autism in children born in Somalia or with one or more parents born in Somalia compared with non-Somali children.[68,69] A further study from Stockholm County which compared 208 children with autism spectrum disorders and 119 183 register controls found that the children with autism were twice as likely as the controls to have a foreign-born mother or father.[70] A multivariate logistic regression analysis of children in Malmö born in 1980–2005 similarly found that having a foreign-born mother was associated with increased odds of autism, as well as decreased odds of Asperger syndrome.[71] Finally, lower odds of high-functioning autism and higher odds of low-functioning autism were found in subgroups of children whose mothers were born in certain foreign regions.[65]

Although the true prevalence of depression in children and young people in Sweden is not known, and probably cannot be estimated with any certainty, a 1999 study of 2300 high school students aged 16–17 found a 1-year prevalence of major depression of 5.8%,[72] suggesting that it is a significant problem. A limited amount of research has focused on depression in young immigrants living in Sweden. One questionnaire-based study of children aged 13–18 years conducted in an unnamed Swedish town in 2004–05 found that the odds of depression in boys were higher in first-/second-generation immigrants from Turkey and the Middle East ($n = 51$) than in native Swedes ($n = 1396$) or Finnish immigrants ($n = 39$); girls showed a non-significant trend in the opposite direction.[73] A second study compared Finnish immigrants to Sweden who had returned to Finland with Finns who had not migrated from Finland at age 7–16 and 13–22 years using the Children's Depression Inventory. The results show that migration/re-migration negatively affected mental health, increasing depressive symptoms in certain subgroups of participants.[74] More recently, analysis of a spate of cases of withdrawal from normal life among refugee children seeking asylum in Sweden in 2001–06 notably led Canadian philosopher Ian Hacking to propose the 'Imitation and Internalisation' model to explain their behaviour.[75]

There has been very little research on other disorders that commonly affect children, such as eating disorders, conduct disorder and attention deficit hyperactivity disorder (ADHD). A single study of 1206 10-year-old children, selected from a population-based register covering two areas of Sweden, assessed ADHD symptoms using the ADHD Rating Scale IV and oppositional defiant disorder (ODD) using DSM-IV symptom criteria. Children whose parents were born outside Europe had higher numbers of ADHD and ODD symptoms than those whose parents were born in Sweden. Subsequent hierarchical regression analysis showed that country of birth was specifically associated with ODD symptoms.[76] Elsewhere, foreign-born adoptees were shown to have a

Table 1 Estimates of mental disorder risk in immigrants to Sweden from nationwide studies

Outcome[a]	Immigrant group	Sex	Parameter	Value	Model	Reference
Affective disorders	Immigrants from Finland[b]	Both	HR	1.34	Cox regression[c]	Leão et al.[41]
Affective disorders	Born in the Middle East	F / M	HR	1.22 / 0.91[d]	Cox regression[e]	Westman et al.[43]
Anorexia nervosa	Foreign-born adoptees	Both	OR	0.9[d]	Logistic regression[f]	Hjern et al.[20]
Depression	Labour migrants	F / M	HR	1.22 / 1.04[d]	Cox regression[g]	Sundquist et al.[13]
Depression	Refugees	F / M	HR	1.28 / 1.30	Cox regression[g]	Sundquist et al.[13]
Depression	Foreign-born adoptees	Both	OR	3.3	Logistic regression[f]	Hjern et al.[20]
MDD	Foreign-born	F / M	HR	1.41 / 1.23	Cox regression[h]	Hollander et al.[14]
Neurotic disorders	Immigrants from Finland[b]	Both	HR	1.48	Cox regression[c]	Leão et al.[41]
Neurotic disorders	Born in the Middle East	F / M	HR	2.13 / 1.75	Cox regression[e]	Westman et al.[43]
Personality disorders	Immigrants from Finland[b]	Both	HR	1.95	Cox regression[c]	Leão et al.[41]
Psychosis	Labour migrants	F / M	HR	1.51 / 1.34	Cox regression[g]	Sundquist et al.[13]
Psychosis	Refugees	F / M	HR	1.77 / 2.06	Cox regression[g]	Sundquist et al.[13]
Psychotic disorders	Immigrants from Finland[b]	Both	HR	2.28	Cox regression[c]	Leão et al.[41]
Psychotic disorders	Second-generation refugees	Both	HR	1.64	Cox regression[c]	Leão et al.[41]
Psychotic disorders	Born in the Middle East	F / M	HR	1.16[d] / 1.13[d]	Cox regression[e]	Westman et al.[43]
Schizophrenia	Born in Finland[i]	Both	RR	1.6	Cox regression[j]	Hjern et al.[40]
Schizophrenia	Born in Finland[k]	F / M	HR	2.48 / 1.56	Cox regression[l]	Leão et al.[42]
Schizophrenia	Born in Southern/Eastern Europe[m]	Both	RR	1.7	Cox regression[j]	Hjern et al.[40]
Schizophrenia	First-generation refugees[n]	F / M	HR	0.97[d] / 0.68	Cox regression[l]	Leão et al.[42]

F, female; HR, hazard ratio; M, male; MDD, major depressive disorder; OR, odds ratio; RR, relative risk.
a: Hospitalization.
b: Second-generation immigrants.
c: Adjusted for age, sex, education, income and immigrant status.
d: 95% CI includes 1.
e: Adjusted for age, income and marital status.
f: Adjusted for age and sex.
g: Adjusted for age, education, immigrant status and marital status.
h: Adjusted for age, sex, education, employment status, immigrant status and marital status.
i: RR = 2.0 (95% CI 1.6–2.4) for second-generation immigrants.
j: Adjusted for age, sex, geographic region of residence, single-parent households, SES, unemployment and social welfare.
k: HR = 2.33 (95% CI 1.85–2.94) / 2.25 (95% CI 1.89–2.67) for F / M second-generation immigrants.
l: Adjusted for age and income.
m: RR = 1.6 (95% CI 1.2–2.3) for second-generation immigrants.
n: HR = 2.01 (95% CI 1.21–3.35) / 1.55 (95% CI 1.02–2.36) for F / M offspring of refugees.

similar rate of hospitalization for anorexia nervosa as Swedish-born individuals whose parents were both born in Sweden.[20]

Qualitative studies

Few researchers have sought to canvas the opinions of immigrants about psychiatric care. In a small exploratory study performed at a psychosis outpatient clinic in 2005–06, the views of 26 relatives/in-laws/cohabitants of psychosis patients (15 Swedish-born, 11 foreign-born) were sought. The immigrant participants highlighted the special communication needs of non-Swedish-speaking patients, but expressed the desire for treatment to be the same as that received by native Swedes. They also highlighted the more open attitude to mental illness among native Swedes compared with their own culture, and the negative psychiatric consequences of military conflicts in their country of origin.[77] The research team responsible for this study subsequently assembled a mixed group of 43 'experts' (psychosis patients, their relatives and health care personnel) and used the Delphi technique to identify important aspects of the care of immigrants in Sweden with psychosis. Again, the importance of all patients receiving the same care, regardless of country of origin, was emphasized.[78] Equal health care treatment for all is in fact enshrined in Swedish law, in the Swedish Health and Medical Services Act (*Hälso- och sjukvårdslag*; 1982:763).

Intervention studies

So far there have been very few intervention studies of immigrants with psychiatric symptoms in Sweden. One randomized clinical trial on 60 first-generation immigrants in Stockholm on sick leave (age 25–45 years) showed that an intervention comprising dialogue sessions focused on ideas of pain reduced the rate of diagnosed depressive disorder, as assessed at two assessments 28 days apart; routine consultations had no such effect.[79] Also in Stockholm, immigrants took part in group health promotion meetings in 1994–96 at a psychiatric outpatient clinic in the municipality of Botkyrka, where they received information on primary health care and psychiatric facilities (among other things). Traumatic life events and the symptoms they can cause were discussed. While many participants reportedly 'responded well' to the education they received, the meetings had no discernible effect on the number of psychiatric outpatient clinic attendees.[80]

Discussion

The above-described studies show increased (and in a few cases decreased) risks of mental disorders/suicide in immigrants to Sweden compared with the native population (see tables 1 and 2 for population-based risk estimates). They also collectively reveal deficiencies in the literature on the mental health of immigrants to Sweden. Although immigrants comprise a significant proportion of the Swedish population,[2] there have been few studies dedicated to their mental health. In many previous studies, immigration/country of birth was only one of a number of variables considered, or the main focus was a non-psychiatric condition (e.g. pain). Other studies had small samples, or were restricted to individual cities or towns, which left them vulnerable to the effects of geographic variation in diagnostic and prescribing practices. Moreover, many previous studies either used self-report data, which are potentially affected by recall bias and other biases, or focused on cases of hospitalization for mental disorders (severe cases) and thus missed

Table 2 Estimates of suicide risk in immigrants to Sweden from nationwide studies

Immigrant group	Sex	Parameter	Value	Model	Reference
Foreign-born (all countries)	Both	RR	1.2[a]	None[b]	Ferrada-Noli et al.[55]
Born outside Europe	Both	RR	0.76	Poisson regression[c]	Johansson et al.[56]
Born in Finland	Both	RR	1.92	Poisson regression[c]	Johansson et al.[56]
Born in Finland[d]	Both	OR	1.4	Cox regression[e]	Hjern and Allebeck[57]
Born in Finland	F / M	HR	1.13[f] / 1.16	Cox regression[g]	Westman et al.[58]
Born in Western Europe[h]	Both	OR	1.2[f]	Cox regression[e]	Hjern and Allebeck[57]
Born in Southern Europe	Both	RR	0.50	Poisson regression[c]	Johansson et al.[56]
Born in Southern Europe	Both	OR	0.3	Cox regression[e]	Hjern and Allebeck[57]
Born in Southern Europe	F / M	HR	0.90[f] / 0.72	Cox regression[g]	Westman et al.[58]
Born in Poland	F / M	HR	1.82 / 1.02[f]	Cox regression[g]	Westman et al.[58]
Born in Eastern Europe	Both	RR	1.71	Poisson regression[c]	Johansson et al.[56]
Born in Eastern Europe	F / M	HR	1.50 / 0.83[f]	Cox regression[g]	Westman et al.[58]
Born in the Middle East	Both	OR	0.3	Cox regression[e]	Hjern and Allebeck[57]
Born in the Middle East	F / M	HR	0.40 / 0.53	Cox regression[g]	Westman et al.[58]
Foreign-born adoptees	Both	OR	3.6	Cox regression[i]	Hjern et al.[20]
Foreign-born adoptees	Both	OR	5.0	Cox regression[e]	Hjern and Allebeck[57]

F, female; HR, hazard ratio; M, male; OR, odds ratio; RR, relative risk.
a: No CI given.
b: Method for calculating RR not clearly specified.
c: Adjusted for age and sex.
d: OR = 1.7 (95% CI 1.3–2.3) for second-generation immigrants.
e: Adjusted for age, sex, geographic region of residence, housing situation, single-parent households, household SES and social welfare.
f: 95% CI includes 1.
g: Adjusted for age, income, marital status and hospitalization for psychiatric disorders and substance abuse.
h: OR = 1.7 (95% CI 1.1–2.8) for second-generation immigrants.
i: Adjusted for sex, age, maternal age, geographic region of residence, housing situation, single-parent households, household SES, parental admittance to psychiatric care, parental alcoholism and paternal criminality.

more minor cases. Finally, few previous studies made concerted attempts to provide mechanistic explanations for differences in psychiatric disorder rates between immigrants and native Swedes. It is to be hoped that future studies will address these shortcomings. Certainly the increasing availability of primary care and outpatient data should enable more comprehensive studies of mental disorder risk in immigrants living in Sweden.

That immigrants carry a greater burden of some psychiatric diseases does not necessarily mean that immigrants with psychiatric symptoms seek treatment more frequently than their Swedish-born counterparts. Barriers to diagnosis and treatment may relate to language difficulties and cultural differences. However, it should be pointed out that doctors in primary care in Sweden are more aware than ever of the need for cultural sensitivity when dealing with patients. Moreover, interpreters are routinely employed with the aim of improving consultations with non-Swedish-speaking patients, although the results are not always optimal.[81,82]

Key challenges facing the Swedish psychiatric health care sector include clarifying the reasons why immigrants have higher rates of certain psychiatric diseases, and addressing those reasons. Also needed are further qualitative and intervention studies to identify effective treatments that meet the particular needs of immigrant patient groups.

Funding

Key points

- Sweden has an increasingly large immigrant population.
- Subgroups of immigrants to Sweden are at increased risk of depression and psychotic disorders compared with native Swedes.
- Compared with native Swedes, risk of suicide is increased in some immigrant groups and decreased in others.
- Some mental disorders that commonly affect children (e.g. eating disorders, ADHD) have been under-investigated.
- There is a lack of qualitative studies and intervention studies on the mental health and treatment needs of immigrants to Sweden.

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