



The impact of ethnic density on dispensing of antipsychotic and antidepressant medication among immigrants in the Netherlands

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ABSTRACT

Purpose: A higher own-group ethnic density in the area of residence is often associated with a lower risk for psychotic disorder. For common mental disorders the evidence is less convincing. This study explores whether these findings are mirrored in data on dispensing of antipsychotics and antidepressants.

Methods: Health insurance data on dispensed medication among all adults living in the four largest Dutch cities were linked to demographic data from Statistics Netherlands. Dispensing of antipsychotics and antidepressants in 2013 was analyzed in relation to the proportion of the own ethnic group in the neighborhood.

Results: Higher own-group ethnic density was associated with lower dispensing of antipsychotics among the Moroccan-Dutch (N = 115,455), after adjusting for age, gender, and SES of the neighborhood (OR_{adj} for the highest vs. the lowest density quintile = 0.72 [0.66–0.79]). However, this association vanished after adjustment for household composition (OR_{adj} = 0.93 [0.85–1.03]). Similar results were found for the Turkish-Dutch (N = 105,460) (OR_{adj} = 0.86 [0.76–0.96] and 1.05 [0.94–1.18]). For those of Surinamese (N = 147,123) and Antillean origin (N = 41,430), in contrast, the association between ethnic density and lower risk remained after each adjustment (P < 0.001). For antidepressants, a negative association with own-group ethnic density was consistently found for those of Antillean origin (OR_{adj} = 0.62 [0.52–0.74]) only.

Conclusion: These data on dispensing of psychomedication confirm the ethnic density hypothesis for psychosis alongside earlier equivocal findings for other mental disorders. The negative association between own-group ethnic density and dispensing of antipsychotics among the Moroccan- and Turkish-Dutch may be explained, at least in part, by a favourable household composition (i.e., living in a family) in high-density neighborhoods.

1. Introduction

There are consistent reports in the literature of an increased incidence of psychotic disorder among certain ethnic minorities in Western Europe (Cantor-Graae and Selten, 2005; Bourque et al., 2011). There is converging evidence for a role of social factors in the host country such as discrimination and social exclusion in its etiology. No increased prevalence of psychotic disorder in the country of origin was found and selective migration and/or diagnostic bias due to cultural misinterpretation do not explain this higher risk conclusively (Bhugra et al., 1996; Fearon and Morgan, 2006; Selten et al., 2010; van der Ven et al., 2015; Zandi et al., 2010). One of the arguments for a role of social factors is the ethnic density effect: a lower risk of psychotic disorder

among members of ethnic minorities who live in areas with many individuals of their own ethnic group (Bosqui et al., 2014; Shaw et al., 2012). Moving to neighborhoods with a lower ethnic minority density as a result of the (emerging) psychosis ('social drift') appears to be an unlikely explanation, as low minority ethnic density areas are often the more affluent neighborhoods (Schofield et al., 2017; Termorshuizen et al., 2014).

For common mental disorders such as depression, however, the evidence of a higher risk associated with ethnic minority status (Mindlis and Boffetta, 2017) and of a favourable influence of the presence of the own ethnic group in the area of residence is less consistent (Shaw et al., 2012; Schrier et al., 2014; Tarricone et al., 2012). The outcome of investigations varied according to the type of recruitment (field survey or

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treatment-based) and the ethnic group under study. Furthermore, the use of small samples, differences in referral patterns to specialist care, and/or investigations of too broad area levels may obscure important effects (Shaw et al., 2012; Schofield et al., 2016a).

A recent study of a large database of health records of General Practitioners (GP) that covered four ethnically diverse districts in London reported a much lower risk of new depression diagnoses among ethnic minorities and a favourable effect of ethnic density of the neighborhood in general (Schofield et al., 2016a). There were differences between ethnic groups, with a favourable ethnic density effect among those of Pakistani, Indian, Bangladeshi, and African origin (ORs < 1.00), but with a reversed association (more new depression diagnoses in higher own-group dense neighborhoods, OR > 1.00) among those of Caribbean origin. As for this group, a favourable influence of ethnic density in the neighborhood of residence may have been overruled by more disadvantaged living conditions for which the statistical adjustments may not have been sufficient. Important for the present study, the latter study showed similar results when prescriptions of antidepressants were used as outcome (instead of registered diagnosis). This was in agreement with earlier methodologically weak studies that explored ethnic density effects on the practice level, but not as an interaction effect between individual ethnicity and neighborhood ethnic density (Hull et al., 2001; Morrison et al., 2009; Walters et al., 2008). A recent survey in South East London reported that a lower own-group proportion in the residential area was associated with more psychotic experiences, but not with depression among Black persons of African or Caribbean origin, thus confirming the absence of a favourable ethnic density effect for depressive disorders described above for Black persons of Caribbean origin (Schofield et al., 2016b). A few other survey studies found ethnic density effects for common mental disorders, eg among Indians and Caribbeans (Halpern and Nazroo, 2000), among Blacks (Becares et al., 2014; Yuan, 2008), and among Bangladeshi and Irish persons (Das-Munshi et al., 2010). Other survey studies failed to find density effects for depression among Hispanics (Yuan, 2008), and for a broadly defined measure of psychological wellbeing (Shields and Wailoo, 2002). In the British Household Panel Survey in the UK, no interaction between being non-White and ethnicity of the neighborhood for the basic core of psychiatric symptoms measured with the General Health Questionnaire was found (Propper et al., 2005). A number of cohort studies in the US contribute to the mixed evidence for ethnic density effects on the risk for depressive disorder (Henderson et al., 2005; Mair et al., 2010). In summary, there is a lot of heterogeneity of research findings concerning ethnic density effects on mental disorders other than psychosis. This was also found in a recent meta-analysis with a summary of recent literature on ethnic density effects for various mental health outcomes (Becares et al., 2017).

The present record-linkage study analyzed data on both dispensed antipsychotic and dispensed antidepressant medication in relation to the own-group ethnic density in the neighborhood of residence for several ethnic minorities in the four largest cities in the Netherlands. This was done as these two different outcomes associated with two different mental disorders (severe vs more common) could be analyzed with data derived from the same population and with identical analytic methods. We regarded dispensed medication as proxy for the presence of diagnosed and treated mental disorders at the population level. Albeit there are important limitations in using data on dispensed medication as outcome, these data may be useful when interpreted in connection with well-designed studies with data on the associated disorders itself.

This study is a continuation of an earlier analysis of the same database (Termorshuizen et al., 2017), which showed much higher use of antipsychotic and antidepressant medication among the Moroccan- and Turkish-Dutch than among the native Dutch, but similar and even lower use of several classes of psychomedication among those of Surinamese and Antillean origin. Remarkably, for those of Moroccan and Turkish origin, but not for those of Surinamese and Antillean origin, adjustment

for household composition resulted in higher relative risk estimates. This suggested a favourable influence of membership of a household with a co-habiting or married couple on the use of psychotropic medication. This raises the question as to whether this may be a correlate of ethnic density effects for certain minority groups (Termorshuizen et al., 2014; Veling et al., 2008). A higher minority ethnic density of the neighborhood is in general associated with worse socio-economic circumstances. As a lower socio-economic status (SES) is associated – either as cause or effect or both – with a higher risk of psychiatric disorder, a favourable ethnic density effect in an ethnic minority group is operational in the opposite direction of the unfavourable effect of SES and, for this reason, a little counter-intuitive (Denton et al., 2015). Thus, a favourable association with ethnic density, if observed, may indicate a strong favourable effect of ethnic density for that minority group, and the association may appear stronger after adjustment for SES. Also, absence of an association with ethnic density in a certain ethnic minority group may suggest the presence of a favourable effect of ethnic density, that may come to light after adjustment for SES. The present study examined whether own-group ethnic density in the neighborhood influences the dispensing rates of antipsychotic and antidepressive medication and analyzed the impact of adjustments for SES and for household composition.

2. Methods

2.1. Datasources

Two data-sources were used. First, the population register (Dutch: Gemeentelijke Basis Administratie, GBA) of Statistics Netherlands (Dutch: Centraal Bureau voor de Statistiek, CBS), which records information on basic demographic data for all legally residing citizens of The Netherlands.

The second database, from the Health Care Institute Netherlands (Dutch: Zorginstituut Nederland, ZiN), contains information on prescribed and dispensed medication reimbursed by health-insurance companies during the period 2006–2013. The data have been derived from all health-insurance companies in The Netherlands and have been collected for the purpose of risk adjustments, because some companies insure more patients with a high risk of expensive health care utilization than others. Dutch citizens are obliged by law to have a medical insurance. Since there is no distinction between public and private health insurance companies, the results of our study are not influenced by selection of immigrants who can afford a health insurance. This database records information on drugs dispensed to outpatients and patients in nursing homes, not on drugs dispensed during episodes of in-patient treatment.

The medication is dispensed by the pharmacist, only if there is a prescription from the responsible physician. In the presence of a prescription, the medication is reimbursed by the health insurance company, and registered in the database from which the files for our analysis were extracted.

For a particular calendar year and for a given individual, the first four positions of the code(s) of the medication(s) according to the Anatomical Therapeutic Chemical Classification System (ATC code) are registered. Dispensed medications within a calendar year with identical first four positions are mentioned only once for that subject. Thus, it is possible to establish whether a person had medication dispensed within a certain calendar year and for which broad class (es) of drugs (e.g., N06A, antidepressants; A10A, insulins and analogues).

Staff of CBS linked the information from the two databases, using the civil identification number, unique for each Dutch citizen. Dutch privacy laws allow the use of personal (health care) data for medical-scientific research without informed consent, provided that the results of the analysis cannot be traced to a unique person (Hooghiemstra, 2002).

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