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LOCAL GEOGRAPHICAL DISTRIBUTION OF ACUTE INVOLUNTARY PSYCHIATRIC ADMISSIONS IN SUBDISTRICTS IN AND AROUND UTRECHT, THE NETHERLANDS

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☐ **Abstract—Background: Acute involuntary psychiatric admissions (AIPA) tend to be applied more often in urban areas. Objective: The current study aims to describe AIPA prevalence differences between the subdistricts in an urban area, and to identify which district characteristics are associated with a higher AIPA district density. Methods: Information was collected on consecutive AIPAs over a 64-month period (2005–2010) in 49 subdistricts in and around the city of Utrecht, the Netherlands, including 1098 AIPAs. District characteristics included several demographic and economical factors and health care characteristics such as number of sheltered living facilities. Results: The AIPA density (mean 4.4/10,000 inhabitants/y) was four to five times higher in the most urbanized subdistrict (around 12) compared to the suburban subdistricts (2.5–3). On the district level, the main correlates with AIPA density per district were unemployment rate and small household size. Other correlates were percentage of non-Western immigrants and number of facilities of sheltered living. Conclusions: The considerable AIPA density variation between subdistricts in this urban environment reflects that people who are prone to psychiatric admissions live in economically less prosperous environments. Impaired social networks and economic concerns may also contribute to an environment representing social defeat, increased demoralization, or social fragmentation.**

☐ **Keywords—compulsory admission; involuntary admission; emergency detention; involuntary examinations; geographical**

Ethical standards: This study has been approved by the local ethics committee and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

INTRODUCTION

An acute involuntary psychiatric admission (AIPA) often represents a dramatic transition in which expectations of the patient are discarded in favor of the need to reduce immediate risk caused by a disturbed mental state. The past two decades have shown a gradual increase in the prevalence of the application of AIPAs in the Netherlands (1). Procedures to realize AIPAs generally follow the patterns of legal and moral habits and practices on both a national and local level. Social and environmental adversity is often at stake, and has consistently been shown to be related to the prevalence of psychiatric disorders (2). For example, being born or

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living in an urban environment is associated with a substantially higher relative risk of schizophrenia (3,4). Low socioeconomic status (SES) partially explains this effect of urbanicity (3). For example, urban districts with high unemployment rates showed high psychiatric admission rates in early sociological and epidemiological studies (5). Recent, sophisticated studies from Sweden demonstrate that high-risk individuals and their families are likely to be selected into densely populated, deprived areas (6). Another factor, related to urbanicity and social adversity, is being part of an ethnic minority (7).

With respect to the prevalence of application of AIPAs in the Netherlands, differences have been described between provinces and cities (8,9). AIPA rates are higher in the western, more urbanized provinces than in other regions in the country, with the exception of the southern, highly urbanized province of Limburg. The 1-year incidence of AIPAs ranges between 3.3 and 5.8 per 10,000 inhabitants (mean 4.6).

Accurate knowledge about the prevalence and more detailed geographical distribution of AIPAs may add to the understanding of organizing care for psychiatric emergencies. Which range of AIPA prevalences (i.e., occurrence per 10,000 inhabitants) can be expected across different geographical areas? Which district characteristics may help to identify those urban areas where AIPAs occur at a particularly higher rate?

Aims of the current study were threefold: 1) to describe the geographical distribution of AIPA rates on the level of postal code areas in the town and direct agglomeration of Utrecht, the fourth biggest city in the Netherlands, 2) to examine whether local social characteristics are associated with the geographical distribution of AIPA rates, and 3) to identify whether such a pattern depends on the main diagnosis, gender, or type of danger.

METHODS

The current retrospective study was initiated by the Utrecht Psychiatric Emergency Service (part of Altrecht Mental Health Care; Altrecht science research line "Schroeder van der Kolk," which is active in the city and suburbs of Utrecht, The Netherlands). The aim of this practice-based exploration was to disclose local patterns, which may be of relevance to optimize the close cooperation with the police in this region. AIPAs were defined as the application of an "Inbewaringstelling" (taking into mental health care custody). The "Inbewaringstelling" is requested on-site by a psychiatrist working for the outreaching psychiatric emergency service. The medical declaration receives an immediate judgment by the mayor or a deputy: thereafter, the patient is transferred to a psychiatric admission unit. Within 3 working days, a judge visits the patient on the psychiatric ward. The result of this court session can be either a continuation of the "Inbewaringstelling" for 3 weeks, or its cessation (10).

Consecutive AIPAs were included in the period between January 2005 and April 2010 (5 years, 4 months) in the municipalities Utrecht (about 310,000 inhabitants living in 10 districts, 33 subdistricts as defined by the first four digits of the postal code), Nieuwegein (60,000; 3 districts, 7 subdistricts), Maarssen (40,000; 4 districts, 6 subdistricts), and IJsselstein (35,000; 1 district, 3 subdistricts). This provided a relatively wide range of urban characteristics, such as unemployment levels and percentage of migrant inhabitants. Basic information on the AIPAs was derived using the Altrecht authorization of the computerized administrative system "BOPZ-online." In addition, data were inspected and completed using the Psychiatric Case Registry – Middle Netherlands (PCR-MN). In this registry, the diagnoses of in- and outpatients of all psychiatric services and related health care consumption in Utrecht city and surroundings are registered since 1999 (11). As the "BOPZ-online" system is computerized and fulfills juridical requirements, it is unlikely that there were missing data. In total, 1098 AIPAs were identified. Each AIPA was considered as a unique case with respect to district AIPA density. During the observation period, individual patients may have had more than one AIPA.

Most of the districts as defined by city councils and Statistics Netherlands comprised more than 20,000 inhabitants. As this would lead to a fairly low number of districts (n = 18), subdistricts were taken into account as well (n = 49), defined by area and first four digits of the postal code. AIPA density was computed by dividing the number of AIPAs in a subdistrict by its number of inhabitants, multiplied by 10,000 and divided by the numbers of years of the observation period (5.33).

Individual characteristics (age, sex, ethnicity, main diagnosis, and postal code) were derived from the BOPZ-online database, and were completed using the PCR-MN data, which also included data from two general hospitals with an emergency department and psychiatric admission units. The main diagnosis was categorized as: "non-affective psychosis," "mania," and "other" (including depressive or anxiety states, cognitive disorders, personality disorders, and substance abuse). For type of danger, PCR-MN completion was not feasible, because the detailed BOPZ-online information for the two general hospitals belonged to BOPZ-online accounts other than the account used by Altrecht Mental Health Care. The number of patients included in the analyses on danger is therefore somewhat lower