ORIGINAL ARTICLE OPEN ACCESS

Refugee Migration Background and Healthcare Contacts Prior to First-Episode Psychosis in Young Adults in Denmark and Sweden: Are Patterns Consistent Across Countries?

Christopher Jamil de Montgomery[1,2] 🔵 | Amanda Falah Rasmussen[1] | Jakob Bergström[2] | Heidi Taipale[2,3,4] | Aemal Akhtar[2] | Allan Krasnik[1] | Marie Nørredam[1,5] | Ellenor Mittendorfer-Rutz[2,6] | Alexis E. Cullen[2,7]

[1]Department of Public Health, Danish Research Centre for Migration, Ethnicity and Health (MESU), University of Copenhagen, Copenhagen, Denmark | [2]Department of Clinical Neuroscience, Division of Insurance Medicine, Karolinska Institutet, Stockholm, Sweden | [3]Niuvanniemi Hospital, Kuopio, Finland | [4]School of Pharmacy, University of Eastern Finland, Kuopio, Finland | [5]Section of Immigrant Medicine, Department of Infectious Diseases, University Hospital Hvidovre, Copenhagen, Denmark | [6]Section for Science of Complex Systems, CeMSIIS, Medical University of Vienna, Vienna, Austria | [7]Department of Psychosis Studies, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK

Correspondence: Christopher Jamil de Montgomery (cmon@sund.ku.dk)

ABSTRACT

Introduction: The objective of this study was to examine group differences in healthcare contacts prior to a first diagnosis of non-affective psychotic disorders (NAPDs) comparing young refugees settled in Denmark and Sweden before turning 18 non-refugee migrants and native-born individuals.

Methods: Using nationwide register data, we identified all individuals aged 18–35 who received an NAPD diagnosis during 2006–2018. Healthcare contacts for other psychiatric disorders were categorised as inpatient, outpatient (grouped by discharge diagnosis) or dispensed antidepressant medication. Logistic regression was used in each country to compare contacts within 12 months prior to NAPD diagnosis, yielding odds ratios (OR) and corresponding 95% confidence intervals (CI), while standardised prevalence ratios (SPR), reported in percentages, were used to compare healthcare contact across countries.

Results: We included 11,679 individuals in Denmark and 11,088 in Sweden. The likelihood of prior contact of any type was lower in both countries for both refugees [Denmark: OR = 0.75(CI: 0.63, 0.90); Sweden: OR = 0.61(CI: 0.55, 0.68)] and non-refugee migrants [Denmark: OR = 0.78(CI: 0.64, 0.95); Sweden: OR = 0.55(CI: 0.49, 0.62)] compared with majority peers. The largest differences were observed for dispensed antidepressants in both countries [Denmark: $OR_{refugees}$ = 0.58(CI: 0.47, 0.71); Sweden: $OR_{refugees}$ = 0.52(CI: 0.45, 0.61)]. Outpatient contacts in particular were more common in Sweden than in Denmark across all groups [$SIR_{refugees}$ = 151% (CI: 125, 180)].

Conclusion: Young refugees and non-refugee migrants in both Denmark and Sweden were less likely to have healthcare contact for other psychiatric disorders prior to NAPD onset than host populations. As healthcare contacts offer opportunities to identify treatment needs early, these groups may be vulnerable to delays in the pathway to treatment.

----

1 | Introduction

Refugee and migrant groups, similar to other ethnic minority and racialised groups, tend to have higher rates of non-affective psychotic disorders (NAPD) than majority groups across both Europe and North America, depending on the circumstances in the origin country, the migration trajectories and factors in the resettlement context (Brandt et al. 2019; de Montgomery et al. 2023; Jongsma et al. 2018, 2019; C. Morgan and Hutchinson 2010). In addition, these groups tend to have more problematic pathways to psychosis care than the majority population (Anderson et al. 2014; Barnett et al. 2019; Halvorsrud et al. 2018; Norredam et al. 2010), including a higher risk of involuntary admissions and police or criminal justice system involvement, and are less likely to have contact with general practitioners. Young people with a refugee or migrant background may therefore be afflicted by a double burden of higher incidence and less adequate care. While few studies have been able to give specific attention to refugees as compared with other migrant groups, this double burden may play out differently for refugees due to the higher risk of adversities faced by this group at every stage of the migration process.

Healthcare use prior to the first episode of psychosis, particularly with general practitioners and psychiatric healthcare services, offers opportunities for detecting and treating psychotic disorders sooner. Indeed, over the past two decades there has been a major shift in healthcare provision for people with psychotic disorders, with psychosis early intervention (EI) services now implemented in many countries throughout the world (Csillag et al. 2018). These services aim to improve prognosis by reducing the duration of untreated psychosis. Moreover, in some countries, specialised early detection services have been established to help treat individuals who meet 'clinical high-risk' criteria (Salazar de Pablo et al. 2024). However, in countries/regions where these early detection clinics are not available, other psychiatric services and primary care clinics will play an important role in facilitating prompt identification of individuals experiencing their first psychotic episode and making referrals to psychosis services (Larsen et al. 2009). For these reasons, group differences in prior healthcare contact may contribute to group disparities in accessing adequate and timely treatment for psychotic disorders.

While evidence suggests that refugees and migrants across Europe are at higher risk than host populations to have unmet healthcare needs (Lebano et al. 2020), especially related to mental health, no previous study has investigated group differences in healthcare utilisation in the period preceding first-episode psychosis in the European context. One study from the United States found that healthcare contacts tended to increase exponentially during the months preceding illness onset, but that levels of healthcare use were lower in Black and Hispanic groups with regards to antipsychotic and antidepressant prescription fills, outpatient healthcare contacts and inpatient hospitalisation (Heun-Johnson et al. 2021). Evidence from other demographic settings is needed to determine the extent to which these findings generalise to other sociopolitical contexts and healthcare systems with free access to services, and to other population groups, including refugee and migrant groups.

In this study, we investigated differences in healthcare contact prior to first-episode psychosis in Denmark and Sweden over a 24-month period. We compared healthcare contacts in individuals with a refugee, non-refugee migrant and native-born majority background, all of whom had received an NAPD diagnosis at age 18–35 years. We focus on this age range to capture typical adult-onset psychosis, which is substantially different with respect to risk factors, aetiology, illness course and treatment response from childhood-onset and adolescent-onset psychotic disorders (Ballageer et al. 2005) and late-onset and very-late-onset psychosis (Howard et al. 2000). The age range corresponds with the age range during which individuals are eligible for early intervention in Denmark. We focused on healthcare contacts for any psychiatric disorder, diagnosis-specific outpatient contacts and dispensed antidepressant medication.

By analysing prior healthcare contact in both Denmark and Sweden, we were able to examine whether the equity issue of group disparities differed between national contexts and healthcare systems. While the healthcare systems in both countries offer full coverage for the entire resident population, with respect to treatment for psychotic disorders, a notable difference between the two countries is the relative availability of EI services. In Denmark, EI services were developed in the late 1990s and early 2000s through the OPUS trial, the promising findings of which eventually led to the nationwide adoption of EI services targeting youth in ages 18–35 years by 2007 (Danske Regioner 2007; Nordentoft et al. 2015). In Sweden, no nationwide program for EI services has been established despite recent recommendations for their introduction (von Malortie et al. 2019). For this reason, we might expect that the time spent in other psychiatric services before entering psychosis treatment would be greater in Sweden than in Denmark. For refugees and migrants, however, it is possible that informal barriers to mental healthcare that underpin the lower utilisation of other psychiatric services also apply to EI treatment and that the group-level inequalities therefore are unaffected by the presence of EI services. The rich register data in both Sweden and Denmark make it possible to consider these patterns for refugees as distinct from other groups of migrants, thus adding to the sparse literature on pathways to NAPD care for people who have been forcibly displaced and have obtained sanctuary in Europe.

2 | Materials & Methods

2.1 | Design and Study Population

Healthcare contact and prescription claims data were obtained from national registers in Denmark and Sweden, and linked to socioeconomic and demographic registers through the personal identification number assigned to every legal resident in both countries (see Table S1 in for overview of data sources). To identify first-episode treatments in a uniform way across groups with varying lengths of stay in the host country, we only included NAPD-related treatment contacts
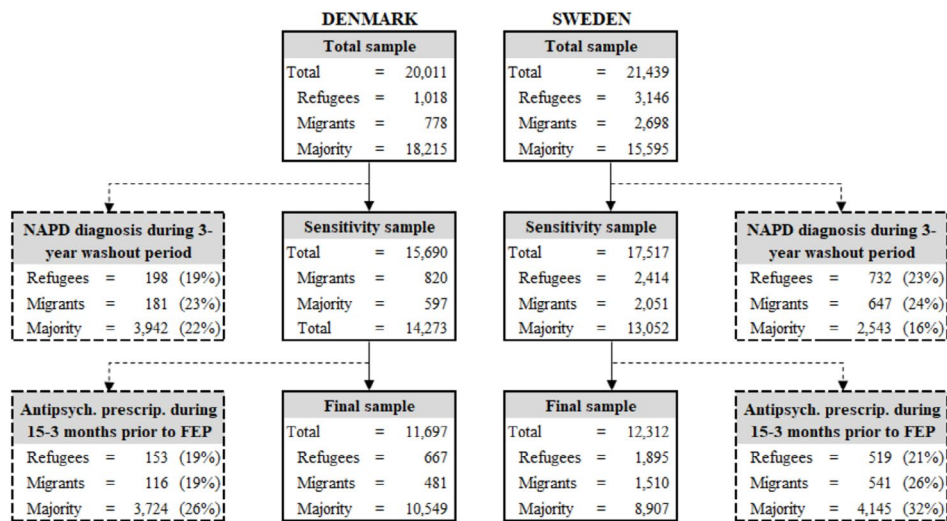
FIGURE 1 | Flow chart of sample selection restrictions.

among individuals who had lived in Denmark/Sweden for three consecutive calendar years, which ensured a three-year washout period in all groups. Within this pool of residents, all of whom were entitled to free-of-charge treatment at primary and secondary healthcare services, the study populations consisted of all individuals aged 18–35 years who had an inpatient or specialised outpatient contact with a (main) discharge diagnosis of non-affective psychotic disorder (*International Classification of Diseases, tenth revision (ICD-10)*, codes F20-F29) between 1 January 2006 and 31 December 2018. We denote this NAPD-related healthcare contact as the *index contact*. Two sample restrictions were added to distinguish incident from prevalent cases (see Figure 1). First, individuals with a prior NAPD contact during the washout period were excluded. Second, we excluded individuals with an antipsychotic prescription claim (Anatomical Therapeutic Chemical Classification (ATC) codes N05A, omitting N05AN) in the 15–3 months prior to the index contact, as this group may have been prescribed medication in primary care following earlier diagnosis beyond our observation window. Antipsychotic prescription claims during the 3 months prior to the index contact were considered part of the pathway to first treatment and thus not excluded. To assess the importance of excluding individuals with prior antipsychotic prescription claims, we re-ran the analyses on datasets omitting this restriction.

We constructed three comparison groups based on immigration and residency data. To improve the comparability of the groups, we only included individuals who spent some portion of their minor years in Denmark/Sweden. The refugee group was born abroad and immigrated before the age of 18, and their formal grounds of residence was either refugee status or family reunification to a person with refugee status. Grounds of residence data was available in both countries, but in Denmark only from 1993. For immigrants arriving in Denmark from 1986 to 1992, refugee status was approximated by their country of origin, with refugee status defined as immigration from one of the main refugee sending countries during this period (see description under Table S1). Non-refugee migrants were also born abroad and immigrated before the age of 18, but they were not identified as refugees.

Finally, individuals born in Denmark/Sweden with at least one parent also born in Denmark/Sweden were defined as the majority population. Individuals born in Denmark/Sweden where both parents were born abroad were excluded from this analysis. The total sample included 11 697 individuals in Denmark and 11 088 in Sweden.

2.2 | Outcomes

We investigated three kinds of healthcare contacts during 24 months prior to the index contact: outpatient contacts at specialised services where any other (non-psychotic) psychiatric disorder (ICD-10 codes: F00-F99, excluding F20-29) was assigned as the main discharge diagnosis, inpatient hospitalisations for any non-psychotic psychiatric disorder, and dispensed antidepressant prescriptions (ATC codes N06A). Monthly indicator variables (none vs. any) for each kind of contact were computed. For the main analysis, we focused on the 12-month period prior to the index contact and derived indicator variables (none vs. any) for the entire period. For the 12-month period, we also computed separate variables for outpatient contacts according to discharge diagnosis: affective disorders (*ICD-10* codes F30-F33), anxiety disorders (*ICD-10* codes F40-F41), severe stress reactions (*ICD-10* codes F43), substance use disorders (*ICD-10* codes F10-F19) and developmental disorders (*ICD-10* codes F80-F98). Contacts related to suicide attempts (*ICD-10* codes X60-X84 and Y10-Y34) were also computed but were too rare to be included in the analysis.

2.3 | Covariates

We included sex and age as registered in the population register (only male and female) at the time of the index contact. Age was coded in three categories (18–23 vs. 24–29 vs. 30–35 years). The year of index contact was coded in two categories (2006–2012 vs. 2013–2018). The specific diagnosis given at discharge from index contact was grouped in five categories [schizophrenia (ICD-10: F20) versus schizotypal disorder (ICD-10: F21) vs. delusional disorder (ICD-10: F22) versus acute and transient psychotic

disorders (ICD-10: F23) versus other (ICD-10: F24-29)]. In addition, the following variables were measured on 31 December, three years prior to the index contact ("baseline"): family situation (married/registered partnership vs. other), municipality type according to the EUROSTAT definition of administrative areas (DEGURBA) (city vs. towns and suburbs vs. rural areas), spells of sickness absence of at least 30 days during the preceding 12 months (none vs. any), receipt of disability pension during the preceding 12 months (none vs. any) and registered as living in a low-income household (equivalised household income of less than 60% of the median household income during that calendar year vs. not).

2.4 | Analytical Procedures

Logistic regression models yielding odds ratios (OR) and 95% confidence intervals (CI) were used to examine group differences in healthcare use during the 12-month period preceding the index NAPD contact. Simple models included only sex, age and year of index contact, while the fully adjusted models included the remaining covariates. These models were estimated separately in each country, as individual-level data could not be transferred between countries. We used indirect standardisation (Israëls 2013) to test for differences between countries. First, we defined strata according to group, sex, age and year of index contact and calculated strata-specific prevalence for each of the three outcomes in each country. These proportions were then exported from Denmark to Sweden, where standardised prevalence ratios (SPR) were estimated as the ratio of observed to expected events in each group and for each kind of contact in Sweden. For ease of interpretation, we converted the ratios to a percentage difference with corresponding 95% confidence intervals.

Study findings and methodological details were reported in accordance with the RECORD guidelines for observational studies using routinely collected health data (Benchimol et al. 2015). Analyses were conducted using Stata/IC 16 (StataCorp 2019) and R software, version 4.2.1 (R Core Team 2024).

3 | Results

The cohorts in Denmark/Sweden consisted of 667/1315 (5.7%/11.9%) refugees, 481/865 (4.1%/7.8%) non-refugee migrants and 10,549/8908 (90.2%/80.3%) majority youth, respectively. There were more men than women in all groups in both countries (Table 1). While there were differences in age between the groups in both countries, these differences were largest in Denmark where 50.7% of the majority group was aged 18–23 at cohort entry, compared with 35.3%–42.0% across all other groups. The discharge diagnoses at first contact were similar across groups but varied considerably between the two countries. In Sweden, the most common diagnoses were other psychotic disorders (46.6%–49.7% across groups) while the most common diagnosis in Denmark was schizophrenia (29.9%–33.7% across groups). The predominant diagnosis in the other psychotic disorders category in both countries was

unspecified nonorganic psychosis (ICD-10: 29), accounting for 92% of the cases in Sweden and 89% in Denmark (not shown).

There were several differences in the socio-economic characteristics of the groups. Although few individuals in both countries were married or living in a registered partnership at baseline (2.7%/3.3% in Denmark/Sweden), this percentage was higher for refugees (8.4%) in Sweden. In both countries, refugees and non-refugee migrants more often lived in cities and in low-income households than majority youth.

3.1 | Contact With Healthcare Services

During the 24-month period prior to the index contact, the proportion of people with at least one healthcare contact was, in all groups and in both countries, mostly constant until the final few months when the proportions utilising either type of healthcare contact increased rapidly (Figure 2). In both countries, a greater proportion of majority youth tended to have outpatient care and to have dispensed antidepressant prescriptions throughout the period, but not more inpatient admissions. While patterns appeared very similar in the two countries, across groups the proportion with outpatient contacts increased to 10%–15% in Sweden during the final month and only to 3%–6% in Denmark.

Focusing on the final 12-month period prior to the index contact, the adjusted analyses confirmed that the refugees and migrants were less likely to have any type of healthcare contact than their majority peers in both Denmark and Sweden (Table 2). In the adjusted models, the odds were 0.75 (95% CI = 0.63, 0.90) times lower for refugees in Denmark and 0.62 (95% CI = 0.54, 0.70) for refugees in Sweden. Similarly, for the non-refugee migrants, the odds were 0.78 (95% CI = 0.64, 0.95) times lower in Denmark and 0.60 (95% CI = 0.52, 0.69) in Sweden. Dispensed antidepressant prescriptions were less common in both groups in both countries (aOR_{range} = 0.51–0.64). Contacts with specialised outpatient services were also less common in the refugee and migrant groups across disorders, with the exception of care for severe stress reactions, which were more common among refugees in Denmark (aOR = 1.76, 95% CI = 1.15, 2.72). While group differences were not significant for inpatient psychiatric care in Denmark, in Sweden refugees were less likely to have been treated in inpatient care for psychiatric disorders than their majority peers (aOR = 0.71, 95% CI = 0.60, 0.83).

The results of the standardised cross-country comparisons showed several country-level differences. Either type of prior healthcare contact was more common among refugees (SIR = 13.1%, 95% CI = 3.6–23.5) and majority youth (SPR = 13.3%, 95% CI = 10.0–16.7) in Sweden than in Denmark (Table 3), but was not significantly different for non-refugee migrants. Moreover, once disaggregated according to type of contact there were country-level differences in all groups. In particular, the proportion of individuals who had at least one outpatient encounter was much higher in Sweden across groups (SPR_{range} = 150.7%–220.7%), while dispensed antidepressant prescriptions were less common in Sweden for

TABLE 1 | Study population characteristics.

	Denmark				Sweden			
	Total	Majority	Non-refugee migrants	Refugees	Total	Majority	Non-refugee migrants	Refugees
Variable	$N = 11697$	$N = 10549$	$N = 481$	$N = 667$	$N = 11088$	$N = 8908$	$N = 865$	$N = 1315$
Sex, n(%)								
Men	6953 (59.4%)	6150 (58.3%)	317 (65.9%)	486 (72.9%)	2293 (65.8%)	5787 (65.0%)	555 (64.2%)	951 (72.3%)
Women	4744 (40.6%)	4399 (41.7%)	164 (34.1%)	181 (27.1%)	3795 (34.2%)	3121 (35.0%)	310 (35.8%)	364 (27.7%)
Cohort entry year, n(%)								
2006–2012	5581 (47.7%)	4960 (47.0%)	271 (56.3%)	350 (52.5%)	5585 (50.4%)	4513 (50.7%)	447 (51.7%)	625 (47.5%)
2013–2018	6116 (52.3%)	5589 (53.0%)	210 (43.7%)	317 (47.5%)	5503 (49.6%)	4395 (49.3%)	418 (48.3%)	690 (52.5%)
Age at cohort entry, n(%)								
18–23	5805 (49.6%)	5350 (50.7%)	202 (42.0%)	253 (37.9%)	4161 (37.5%)	3309 (37.1%)	305 (35.3%)	547 (41.6%)
24–29	3731 (31.9%)	3275 (31.0%)	181 (37.6%)	275 (41.2%)	4078 (36.8%)	3275 (36.8%)	309 (35.7%)	494 (37.6%)
30–35	2161 (18.5%)	1924 (18.2%)	98 (20.4%)	139 (20.8%)	2849 (25.7%)	2324 (26.1%)	251 (29.0%)	274 (20.8%)
Family situation at baseline, n(%)								
Other	11 385 (97.3%)	10 284 (97.5%)	464 (96.5%)	637 (95.5%)	10 721 (96.7%)	8688 (97.5%)	829 (95.8%)	1204 (91.6%)
Married/registered partnership	312 (2.7%)	265 (2.5%)	17 (3.5%)	30 (4.5%)	367 (3.3%)	220 (2.5%)	36 (4.2%)	111 (8.4%)
Place of residence at baseline, n(%)								
Cities	4551 (38.9%)	3918 (37.1%)	292 (60.7%)	341 (51.1%)	4777 (43.1%)	3599 (40.4%)	442 (51.1%)	736 (56.0%)
Towns and suburbs	3839 (32.8%)	3505 (33.2%)	130 (27.0%)	204 (30.6%)	4345 (39.2%)	3576 (40.1%)	321 (37.1%)	448 (34.1%)
Rural areas	3307 (28.3%)	3126 (29.6%)	59 (12.3%)	122 (18.3%)	1966 (17.7%)	1733 (19.5%)	102 (11.8%)	131 (10.0%)
NAPD main diagnosis at first contact, n(%)								
Schizophrenia	3914 (33.5%)	3557 (33.7%)	144 (29.9%)	213 (31.9%)	729 (6.6%)	552 (6.2%)	67 (7.7%)	110 (8.4%)
Schizotypal	2723 (23.3%)	2609 (24.7%)	64 (13.3%)	50 (7.5%)	156 (1.4%)	144 (1.6%)	9 (1.0%)	3 (0.2%)
Delusional disorder	996 (8.5%)	853 (8.1%)	54 (11.2%)	89 (13.3%)	896 (8.1%)	729 (8.2%)	73 (8.4%)	94 (7.1%)
Brief psychotic episode	2565 (21.9%)	2182 (20.7%)	159 (33.1%)	224 (33.6%)	4072 (36.7%)	3330 (37.4%)	288 (33.3%)	454 (34.5%)
Other	1499 (12.8%)	1348 (12.8%)	60 (12.5%)	91 (13.6%)	5235 (47.2%)	4153 (46.6%)	428 (49.5%)	654 (49.7%)

(Continues)

TABLE 1 | (Continued)

	Denmark				Sweden			
Variable	Total N = 11697	Majority N = 10549	Non-refugee migrants N = 481	Refuges N = 667	Total N = 11088	Majority N = 8908	Non-refugee migrants N = 865	Refugees N = 1315
Any SA days at baseline, n(%)								
No	11271 (96.4%)	10165 (96.4%)	462 (96.0%)	644 (96.6%)	10424 (94.0%)	8336 (93.6%)	826 (95.5%)	1262 (96.0%)
Yes	426 (3.6%)	384 (3.6%)	19 (4.0%)	23 (3.4%)	664 (6.0%)	572 (6.4%)	39 (4.5%)	53 (4.0%)
Any DP days at baseline, n(%)								
No	11 412 (97.6%)	10 283 (97.5%)	475 (98.8%)	654 (98.1%)	10055 (90.7%)	8037 (90.2%)	776 (89.7%)	1242 (94.4%)
Yes	285 (2.4%)	266 (2.5%)	6 (1.2%)	13 (1.9%)	1033 (9.3%)	871 (9.8%)	89 (10.3%)	73 (5.6%)
Household with low income at baseline, n(%)								
No	7328 (62.6%)	6842 (64.9%)	219 (45.5%)	267 (40.0%)	6893 (62.2%)	5767 (64.7%)	476 (55.0%)	650 (49.4%)
Yes	4369 (37.4%)	3707 (35.1%)	262 (54.5%)	400 (60.0%)	4195 (37.8%)	3141 (35.3%)	389 (45.0%)	665 (50.6%)

non-refugee migrants (SPR = −17.1%, 95% CI = −29.6, −3.8) and majority youth (SPR = −10.1%, 95% CI = −13.4, −6.6), and had a similar tendency in the refugee group (SPR = −10.5%, 95% CI = −21.6, 2.1). Inpatient hospitalisations were more common for majority youth in Sweden than Denmark (SPR = 51.7%, 95% CI = 44.6, 59.1).

Supporting Information analyses on a sample not restricted to those without prior antipsychotic prescription claims showed similar results, although overall levels of prior healthcare usage were higher (Tables S2 and S3).

4 | Discussion

4.1 | Summary of Findings

This study found that refugees and non-refugee migrants in both Denmark and Sweden were less likely to have contact with psychiatric services prior to the first diagnosis of non-affective psychosis than their majority peers. In particular, specialised outpatient care and dispensed antidepressant prescriptions were less common in these groups compared to the majority group. The lower likelihood of any outpatient contact was consistent when we explored individual diagnostic groups, except in the case of contacts for stress-related disorders (although the increased likelihood was only significant for refugees in Denmark). In all groups, the proportion who had a healthcare contact, whether in- or out-patient or dispensed antidepressant medication, increased markedly during the last few months prior to first NAPD treatment. While these trends were consistent across Denmark and Sweden, a complementary finding was that, across all groups, individuals in Sweden were more likely than their Danish counterparts to have healthcare contact prior to their NAPD treatment. This was particularly so for contacts with specialised outpatient services and, for the majority population, also inpatient services. However, dispensed antidepressant prescriptions were more common in Denmark than in Sweden.

4.2 | Comparison With Previous Research

To our knowledge, this is the first study to explore differences in healthcare contact prior to psychosis in refugee and migrant populations. The findings align with evidence suggesting that refugees and migrants have lower levels of healthcare utilisation despite expectations of greater needs in both Sweden (Björkenstam et al. 2020), Denmark (de Montgomery et al. 2020) and a greater extent of unmet healthcare needs across Europe (Lebano et al. 2020). With this background, it is unlikely that the lower proportion of refugees and migrants who have a prior healthcare contact reflects lower healthcare needs or lower rates of other psychiatric disorders.

The findings also align with related evidence concerning healthcare contact prior to psychosis treatment in ethnic minorities and racialised minority groups, and pathways into care in these groups. A study by Heun-Johnson and colleagues from the United States (Heun-Johnson et al. 2021) found that rates of prior 'behavioural health' contacts were 10.3 percentage points lower (or 13% lower in relative terms) in a combined Black and
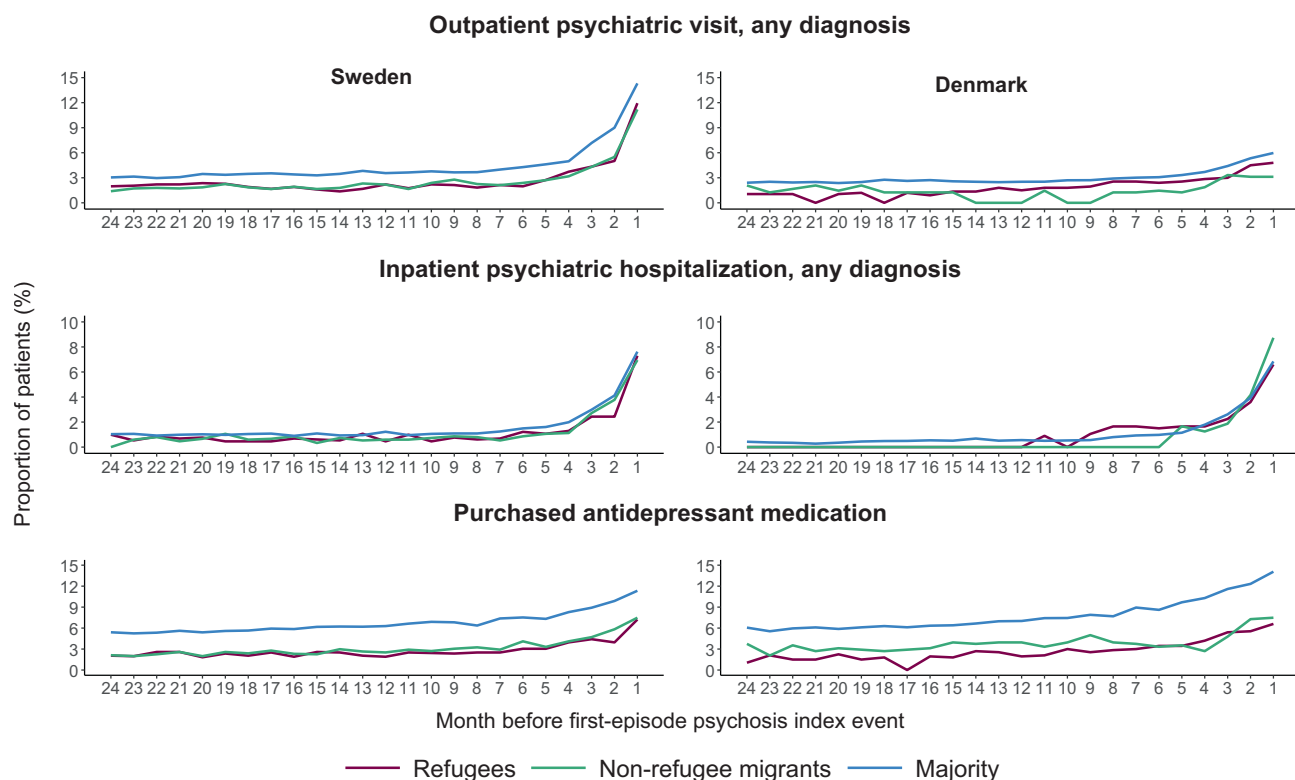
Outpatient psychiatric visit, any diagnosis

FIGURE 2 | Healthcare usage and dispensed antidepressant prescriptions in each group during the 24-month period preceding first psychosis-related healthcare contact.

Hispanic group compared with White patients when adjusted for covariates. In relative terms, these differences were smaller than those found in our analysis (22%–25% lower odds in Denmark and 38%–40% lower odds in Sweden for either kind of healthcare contact). A larger body of literature has investigated differences in pathways to psychosis care across population groups. In terms of prior healthcare usage, studies from England and Canada have shown a decreased likelihood of primary care involvement for Black patients than for White patients, and an increased likelihood of police involvement (Anderson et al. 2014). Although we did not have information on contacts with primary care, the clear differences in antidepressant prescription claims, which are typically prescribed in primary care, is suggestive of lower levels of primary care. This is concerning as direct referrals from primary care may shorten the pathway to EI services and prevent more adverse pathways (Larsen et al. 2009). In fact, a study from Canada found that prior contact with primary care reduced the odds of contact with emergency and inpatient services by as much as 85% (Anderson et al. 2013). The concurrent evidence of greater risk of involuntary hospital admissions in ethnic minority groups in general (Barnett et al. 2019) and for first-episode psychosis patients in particular (Halvorsrud et al. 2018; Mann et al. 2014; Oduola et al. 2019; Terhune et al. 2022) underscores this concern. Overall, our findings align with the consistent pattern of less, and more adverse, healthcare contact in minority and migrant populations in the pathway to psychosis treatment.

4.3 | Strengths and Limitations

The main strength of this study was access to full-population data on healthcare contacts linked at the individual level to other sociodemographic information in both Denmark and Sweden. However, several limitations should be mentioned. While schizophrenia diagnoses in the national patient registries have been validated in both countries (Dalman et al. 2002; Jakobsen et al. 2005; Uggerby et al. 2013), validation studies are lacking for the broader set of disorders included in this study. In addition, we did not have information about the timing of first-episode psychosis nor the duration of untreated psychosis. Although we defined consistent washout criteria to avoid differential misclassification, there is a risk that some pre-existing cases were included. For example, individuals with a registered domicile in Denmark/Sweden who were actually living elsewhere may have received care abroad before returning. We also did not have information concerning contacts with primary care, and the extent of prior care may therefore be biased downwards. Some proportion of primary care was, however, included through dispensed antidepressant prescriptions. From a previous study, we know that refugees diagnosed with common mental disorders such as anxiety and depression were less likely to initiate antidepressants than their majority counterparts (Taipale et al. 2020). This suggests that the degree to which *dispensed* antidepressants corresponds to *prescribed* antidepressants may differ across the groups, and consequently the extent to which dispensed antidepressants proxy for treatment contacts. Treatment outside the public healthcare system is also not captured in the registers, such as services provided by non-governmental organisations and charities that support refugee families. National differences in these sectors may account for some of the differences in healthcare contacts, especially those related to stress-reactions. A limitation pertaining to the covariates was that their definition hinged on the structure of the administrative

TABLE 2 | Simple and adjusted logistic regression models for healthcare usage during the 12 months preceding first psychosis-related contact. Results for Denmark and Sweden estimated separately. The majority group in each country is the reference category.

	Non-refugee migrants				Refugees			
	Denmark		Sweden		Denmark		Sweden	
Type of healthcare contact	Simple OR [95% CI]	Adj. OR [95% CI]	Simple OR [95% CI]	Adj. OR [95% CI]	Simple OR [95% CI]	Adj. OR [95% CI]	Simple OR [95% CI]	Adj. OR [95% CI]
Any type of healthcare contact	**0.69 [0.57, 0.83]**	**0.78 [0.64, 0.95]**	**0.60 [0.52, 0.69]**	**0.60 [0.52, 0.69]**	**0.66 [0.55, 0.78]**	**0.75 [0.63, 0.90]**	**0.62 [0.55, 0.69]**	**0.62 [0.54, 0.70]**
Any inpatient psychiatric care	1.20 [0.92, 1.56]	1.14 [0.88, 1.49]	0.84 [0.69, 1.01]	0.83 [0.68, 1.00]	1.06 [0.84, 1.35]	1.01 [0.79, 1.28]	**0.73 [0.62, 0.86]**	**0.71 [0.60, 0.83]**
Any antidepressant medication	**0.55 [0.44, 0.69]**	**0.64 [0.51, 0.81]**	**0.72 [0.56, 0.91]**	**0.54 [0.45, 0.64]**	**0.49 [0.40, 0.60]**	**0.58 [0.47, 0.71]**	**0.61 [0.49, 0.75]**	**0.52 [0.45, 0.61]**
Any outpatient care for affective disorder	**0.58 [0.34, 0.97]**	0.67 [0.40, 1.14]	**0.66 [0.54, 0.80]**	**0.75 [0.58, 0.96]**	**0.56 [0.35, 0.89]**	0.68 [0.42, 1.09]	**0.67 [0.56, 0.80]**	**0.64 [0.51, 0.80]**
Any outpatient care for anxiety disorder	**0.09 [0.01, 0.67]**	**0.11 [0.015, 0.78]**	**0.61 [0.46, 0.79]**	**0.62 [0.47, 0.80]**	**0.41 [0.18, 0.92]**	0.51 [0.22, 1.17]	**0.61 [0.48, 0.75]**	**0.62 [0.49, 0.78]**
Any outpatient care for severe reaction to stress	0.98 [0.54, 1.76]	1.10 [0.61, 2.00]	1.19 [0.84, 1.65]	1.26 [0.88, 1.74]	**1.60 [1.05, 2.44]**	**1.76 [1.15, 2.72]**	1.03 [0.84, 1.65]	1.06 [0.77, 1.44]
Any outpatient care for substance abuse disorder	0.87 [0.41, 1.87]	0.75 [0.35, 1.63]	0.83 [0.65, 1.05]	**0.77 [0.61, 0.97]**	0.69 [0.34, 1.42]	0.57 [0.27, 1.27]	**0.73 [0.60, 0.89]**	**0.65 [0.53, 0.80]**
Any outpatient care for development disorder	0.45 [0.17, 1.22]	0.50 [0.19, 1.37]	**0.63 [0.45, 0.85]**	**0.62 [0.44, 0.84]**	0.56 [0.26, 1.19]	0.60 [0.28, 1.30]	**0.33 [0.23, 0.45]**	**0.35 [0.25, 0.49]**

Note: All models are adjusted for sex, cohort entry year, and age at cohort entry year. Fully adjusted models further include adjustments for family situation at baseline, place of residence at baseline, NAPD main diagnosis at first contact, sickness absence at baseline, disability pension at baseline and living in a low-income household at baseline. Significant at 95% level are in bold.

TABLE 3 | Standardised prevalence ratios (in percent) for each group and type of prior healthcare usage during the 12 months preceding first psychosis-related healthcare contact.

| | Denmark | Sweden | | Country differences | |
	Observed	Observed	Expected[a]	SPR[b] (%)	(95% CI)
Any type of healthcare contact					
Refugees	222	496	438.6	**13.1**	**(3.6, 23.5)**
Non-refugee migrants	170	323	307	5.2	(−5.7, 17.3)
Majority	4672	4436	3914.6	**13.3**	**(10.0, 16.7)**
Inpatient hospitalisation					
Refugees	85	193	172.6	11.8	(−2.9, 28.8)
Non-refugee migrants	69	140	127.5	9.8	(−7.0, 29.6)
Majority	1307	1671	1101.8	**51.7**	**(44.6, 59.1)**
Outpatient visit					
Refugees	64	323	128.8	**150.7**	**(124.8, 179.6)**
Non-refugee migrants	38	223	69.5	**220.7**	**(181.3, 265.7)**
Majority	1397	2959	1142	**159.1**	**(149.9, 168.6)**
Antidepressants					
Refugees	129	220	245.9	−10.5	(−21.6, 2.1)
Non-refugee migrants	107	158	192	**−17.7**	**(−29.6, −3.8)**
Majority	3533	2666	2965.6	**−10.1**	**(−13.4, −6.6)**

Note: Significant at 95% level are in bold.
[a]The expected number of contacts is calculated by applying the strata-specific rates from Denmark to the Swedish population distribution. The strata were defined according to age groups, period of first contact and sex.
[b]The standardised prevalence ratio is the ratio of the observed to the expected number of contacts in Sweden (presented as a percentage).

data rather than being measured immediately prior to the look-back period. Living in a low-income household or income related to disability pensions, for example, were derived from tax returns and was therefore measured per calendar year, while family situation and place of residence are measured annually in the population register. Finally, some misclassification of refugee and non-refugee migrants is plausible, especially in Denmark where grounds of residence data was unavailable for those immigrating before 1993.

4.4 | Interpretation and Conclusion

Our findings align with the broad body of literature that provides converging evidence to suggest that individuals with a refugee or migrant background, as well as many ethnic and racialised minorities, tend to face barriers to timely treatment even in the context of full entitlement. This manifests itself in lower levels of healthcare use before psychosis diagnosis and in more adverse pathways to care. The two are likely to be related, as prior contacts with mental health services provide opportunities to detect and initiate treatment in the early phases of illness. This can have important health consequences, as earlier treatment may improve prognosis and minimise the risk of coercive measures. In addition, the absence of prior healthcare contact means that important background history will not be available to clinicians when a young person presents with first-episode

psychosis, which in itself may prolong diagnosis and decisions concerning the appropriate treatment plan.

Many potential explanations have been put forward in the literature concerning these 'informal' barriers to care (Anderson et al. 2010; O'Callaghan et al. 2010; Scheppers et al. 2006), relating to factors at individual, family, community and provider levels. Such factors include familiarity with, and trust towards, psychiatric services, at both the individual and family level; community stigma related to mental illness; experiences of discrimination; and cultural competences among service providers, to mention a few. While speculative from the vantage point of the present study, further research should seek to unpack the mechanisms behind the structural differences in healthcare use that have been observed in the present study and in other studies internationally.

Consistent with our expectation that care pathways would be more direct in Denmark due to the proliferation of early intervention services, we found that the proportion of people who had a prior mental healthcare contact was lower in Denmark than in Sweden. The availability of well-known early intervention services might mean that other healthcare providers are more alert to psychosis symptoms, and patients may be referred directly from primary care to EI services rather than other psychiatric services. In a separate study, we found that the age at first contact for psychosis treatment was notably younger in Denmark compared with Sweden (de Montgomery et al. 2023), which also

could point towards more direct access. However, this age difference only pertained to the majority population (de Montgomery et al. 2023), underscoring the concern that not all segments of the population benefit from this programme equally, especially in terms of timely access.

In this perspective, our findings highlight the need to carefully scrutinise how psychiatric treatment needs are identified across different population groups. Programmes to raise awareness and reduce community stigma surrounding severe mental illness that target culturally and linguistically diverse population groups may play a part (A. J. Morgan et al. 2021), as well as training and support for other groups of professionals in regular contact with young people, such as in the educational sector, to identify potentially treatment-requiring symptoms (Hazen et al. 2010).

Ethics Statement

This study was approved by the regional Ethical review board in Sweden (grant numbers 2007/762–31 and 2016–1533-32). Ethical committee approval was not required for register studies in Denmark, but processing was authorised by the Office of Research and Innovation at the University of Copenhagen Faculty of Health and Medical Sciences (case number SUND-2016-65).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Danish and Swedish register data cannot legally be made openly available. If researchers satisfy the legal conditions for accessing the data, access can be obtained through applications to the public agencies Statistics Denmark (www.dst.dk) and Statistics Sweden (www.scb.se). In both countries, national legislation provides for the possibility to use administrative data for specific purposes, including research, under particular legal requirements, including criteria related to societal benefit and procedures for secure data processing, as determined by legal review.

References

Anderson, K. K., N. Flora, S. Archie, C. Morgan, and K. Mckenzie. 2014. "A Meta-Analysis of Ethnic Differences in Pathways to Care at the First Episode of Psychosis." *Acta Psychiatrica Scandinavica* 130, no. 4: 257–268. https://doi.org/10.1111/acps.12254.

Anderson, K. K., R. Fuhrer, and A. K. Malla. 2010. "The Pathways to Mental Health Care of First-Episode Psychosis Patients: A Systematic Review." *Psychological Medicine* 40, no. 10: 1585–1597.

Anderson, K. K., R. Fuhrer, W. Wynant, M. Abrahamowicz, D. L. Buckeridge, and A. Malla. 2013. "Patterns of Health Services Use Prior to a First Diagnosis of Psychosis: The Importance of Primary Care." *Social Psychiatry and Psychiatric Epidemiology* 48: 1389–1398. https://doi.org/10.1007/s00127-013-0665-3.

Ballageer, T., A. Malla, R. Manchanda, J. Takhar, and R. Haricharan. 2005. "Is Adolescent-Onset First-Episode Psychosis Different From Adult Onset?" *Journal of the American Academy of Child & Adolescent Psychiatry* 44, no. 8: 782–789. https://doi.org/10.1097/01.chi.0000164591.55942.ea.

Barnett, P., E. Mackay, H. Matthews, et al. 2019. "Ethnic Variations in Compulsory Detention Under the Mental Health Act: A Systematic Review and Meta-Analysis of International Data." *Lancet Psychiatry* 6, no. 4: 305–317. https://doi.org/10.1016/S2215-0366(19)30027-6.

Benchimol, E. I., L. Smeeth, A. Guttmann, et al. 2015. "The REporting of Studies Conducted Using Observational Routinely-Collected Health Data (RECORD) Statement." *PLoS Medicine* 12, no. 10: e1001885. https://doi.org/10.1371/journal.pmed.1001885.

Björkenstam, E., M. Helgesson, M. Norredam, M. Sijbrandij, C. J. de Montgomery, and E. Mittendorfer-Rutz. 2020. "Differences in Psychiatric Care Utilization Between Refugees, Non-Refugee Migrants and Swedish-Born Youth." *Psychological Medicine* 52: 1365–1375.

Brandt, L., J. Henssler, M. Müller, S. Wall, D. Gabel, and A. Heinz. 2019. "Risk of Psychosis Among Refugees: A Systematic Review and Meta-Analysis." *JAMA Psychiatry* 76, no. 11: 1133–1140.

Csillag, C., M. Nordentoft, M. Mizuno, et al. 2018. "Early Intervention in Psychosis: From Clinical Intervention to Health System Implementation." *Early Intervention in Psychiatry* 12, no. 4: 757–764.

Dalman, C., J. Broms, J. Cullberg, and P. Allebeck. 2002. "Young Cases of Schizophrenia Identified in a National Inpatient Register." *Social Psychiatry and Psychiatric Epidemiology* 37, no. 11: 527–531.

Danske Regioner. 2007. "OPUS–Opsøgende Behandling af Psykotiske Unge. In Danske Regioner."

de Montgomery, C. J., A. E. Cullen, H. Taipale, A. Krasnik, M. Norredam, and E. Mittendorfer-Rutz. 2023. "Incidence of Non-Affective Psychotic Disorders in Refugees and Peers Growing Up in Denmark and Sweden: A Registry Linkage Study." *Social Psychiatry and Psychiatric Epidemiology* 59, no. 7: 1–13. https://doi.org/10.1007/s00127-023-02578-x.

de Montgomery, C. J., J. H. Petersen, and S. S. Jervelund. 2020. "Psychiatric Healthcare Utilisation Among Refugee Adolescents and Their Peers in Denmark." *Social Psychiatry and Psychiatric Epidemiology* 55: 1457–1468. https://doi.org/10.1007/s00127-020-01878-w.

Halvorsrud, K., J. Nazroo, M. Otis, E. Brown Hajdukova, and K. Bhui. 2018. "Ethnic Inequalities and Pathways to Care in Psychosis in England: A Systematic Review and Meta-Analysis." *BMC Medicine* 16, no. 1: 1–17. https://doi.org/10.1186/s12916-018-1201-9.

Hazen, E. P., M. A. Goldstein, and M. C. Goldstein. 2010. *Mental Health Disorders in Adolescents: A Guide for Parents, Teachers, and Professionals*. Rutgers University Press.

Heun-Johnson, H., M. Menchine, S. Axeen, et al. 2021. "Association Between Race/Ethnicity and Disparities in Health Care Use Before First-Episode Psychosis Among Privately Insured Young Patients." *JAMA Psychiatry* 78, no. 3: 311–319.

Howard, R., P. V. Rabins, M. V. Seeman, D. V. Jeste, and T. I. Late-Onset. 2000. "Late-Onset Schizophrenia and Very-Late-Onset Schizophrenia-Like Psychosis: An International Consensus." *American Journal of Psychiatry* 157, no. 2: 172–178. https://doi.org/10.1176/appi.ajp.157.2.172.

Israëls, A. 2013. *Methods of Standardisation*. Statistics Netherlands.

Jakobsen, K. D., J. N. Frederiksen, T. Hansen, L. B. Jansson, J. Parnas, and T. Werge. 2005. "Reliability of Clinical ICD-10 Schizophrenia Diagnoses." *Nordic Journal of Psychiatry* 59, no. 3: 209–212.

Jongsma, H. E., C. Gayer-Anderson, A. Lasalvia, et al. 2018. "Treated Incidence of Psychotic Disorders in the Multinational EU-GEI Study." *JAMA Psychiatry* 75, no. 1: 36–46.

Jongsma, H. E., C. Turner, J. B. Kirkbride, and P. B. Jones. 2019. "International Incidence of Psychotic Disorders, 2002–17: A Systematic Review and Meta-Analysis." *Lancet Public Health* 4, no. 5: e229–e244.

Larsen, T. K., I. Joa, J. Langeveld, and J. O. Johannessen. 2009. "Optimizing Health-Care Systems to Promote Early Detection of Psychosis." *Early Intervention in Psychiatry* 3: S13–S16.

Lebano, A., S. Hamed, H. Bradby, et al. 2020. "Migrants' and Refugees' Health Status and Healthcare in Europe: A Scoping Literature Review." *BMC Public Health* 20, no. 1: 1–22.

Mann, F., H. L. Fisher, and S. Johnson. 2014. "A Systematic Review of Ethnic Variations in Hospital Admission and Compulsory Detention in First-Episode Psychosis." *Journal of Mental Health* 23, no. 4: 205–211. https://doi.org/10.3109/09638237.2014.910641.

Morgan, A. J., J. Wright, and N. J. Reavley. 2021. "Review of Australian Initiatives to Reduce Stigma Towards People With Complex Mental Illness: What Exists and What Works?" *International Journal of Mental Health Systems* 15: 1–51.

Morgan, C., and G. Hutchinson. 2010. "The Social Determinants of Psychosis in Migrant and Ethnic Minority Populations: A Public Health Tragedy." *Psychological Medicine* 40, no. 5: 705–709.

Nordentoft, M., M. Melau, T. Iversen, et al. 2015. "From Research to Practice: How OPUS Treatment Was Accepted and Implemented Throughout Denmark." *Early Intervention in Psychiatry* 9, no. 2: 156–162.

Norredam, M., A. Garcia-Lopez, N. Keiding, and A. Krasnik. 2010. "Excess Use of Coercive Measures in Psychiatry Among Migrants Compared With Native Danes." *Acta Psychiatrica Scandinavica* 121, no. 2: 143–151. https://doi.org/10.1111/j.1600-0447.2009.01418.x.

O'Callaghan, E., N. Turner, L. Renwick, et al. 2010. "First Episode Psychosis and the Trail to Secondary Care: Help-Seeking and Health-System Delays." *Social Psychiatry and Psychiatric Epidemiology* 45: 381–391.

Oduola, S., T. K. J. Craig, J. Das-Munshi, F. Bourque, C. Gayer-Anderson, and C. Morgan. 2019. "Compulsory Admission at First Presentation to Services for Psychosis: Does Ethnicity Still Matter? Findings From Two Population-Based Studies of First Episode Psychosis." *Social Psychiatry and Psychiatric Epidemiology* 54, no. 7: 871–881. https://doi.org/10.1007/s00127-019-01685-y.

R Core Team. 2024. "R Foundation for Statistical Computing. A Language and Environment for Statistical Computing."

Salazar de Pablo, G., D. Guinart, A. Armendariz, et al. 2024. "Duration of Untreated Psychosis and Outcomes in First-Episode Psychosis: Systematic Review and Meta-Analysis of Early Detection and Intervention Strategies." *Schizophrenia Bulletin* 50, no. 4: sbae017. https://doi.org/10.1093/schbul/sbae017.

Scheppers, E., E. Van Dongen, J. Dekker, J. Geertzen, and J. Dekker. 2006. "Potential Barriers to the Use of Health Services Among Ethnic Minorities: A Review." *Family Practice* 23, no. 3: 325–348.

StataCorp. 2019. "Stata Statistical Software: Release 16." StataCorp LLC.

Taipale, H., T. Niederkrotenthaler, M. Helgesson, et al. 2020. "Initiation of Antidepressant Use Among Refugee and Swedish-Born Youth After Diagnosis of a Common Mental Disorder: Findings From the REMAIN Study." *Social Psychiatry and Psychiatric Epidemiology* 56, no. 3: 463. https://doi.org/10.1007/s00127-020-01951-4.

Terhune, J., J. Dykxhoorn, E. Mackay, A. C. Hollander, J. B. Kirkbride, and C. Dalman. 2022. "Migrant Status and Risk of Compulsory Admission at First Diagnosis of Psychotic Disorder: A Population-Based Cohort Study in Sweden." *Psychological Medicine* 52, no. 2: 362–371. https://doi.org/10.1017/S0033291720002068.

Uggerby, P., S. D. Østergaard, R. Røge, C. U. Correll, and J. Nielsen. 2013. "The Validity of the Schizophrenia Diagnosis in the Danish Psychiatric Central Research Register Is Good." *Danish Medical Journal* 60, no. 2: A4578.

von Malortie, S., E. Cronqvist, G. Ringbäck, et al. 2019. "New National Guidelines for the Treatment of Schizophrenia in Sweden." *Läkartidningen* 116: 1–5.

Supporting Information

Additional supporting information can be found online in the Supporting Information section.