



# Outpatient mental health service use following contact with primary health care among migrants in Norway: A national register study

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## ABSTRACT

Majority of mental health problems are treated in primary care, while a minority require specialised treatment. This study aims to identify factors that predict contact with outpatient mental healthcare services (OPMH) among individuals who have been diagnosed with a mental health problem in primary healthcare services (PHC), with a special focus on migrants. Using linked national Norwegian registry data, we followed 1,002,456 individuals who had been diagnosed with a mental health problem in PHC for a period of two years. Using Cox regression, we applied Andersen's Model of Healthcare Utilisation to assess differences in risk of OPMH use between the majority population and eight migrant groups. We also conducted interaction analyses to see if the relationship between OPMH use and predisposing factors (gender, age, migrant status, civil status, education) differed across migrant groups. Migrants from Nordic countries, Western Europe and the Middle-East/North Africa had a higher risk of using OPMH services compared to the majority, while migrants from EU Eastern Europe, Sub-Saharan Africa and South Asia had a lower risk after controlling for all factors. Hazard ratios for non-EU Eastern Europeans and East/South East Asian's did not differ. Men had a higher risk than women. Additionally, the relationship between predisposing factors and OPMH use differed for some migrant groups. Education was not related to OPMH contact among five migrant groups. While lack of help-seeking at the primary care level may explain some of the lower rates of specialist service use observed for migrants compared to non-migrants in previous studies, there appear to be barriers for some migrant groups at the secondary level too. This warrants further investigation. Future research should look at differences between referrals and actual uptake of services among different migrant groups.

## 1. Background

Mental health problems are amongst the most common reasons patients consult their general practitioner (GP) (Moth et al., 2012; The Royal Australian College of General Practitioners, 2019). Although most individuals with common mental health difficulties are treated in primary healthcare services (PHC) those with more severe disorders will usually require specialised mental healthcare services (MHC) (Mykletun et al., 2010). While the diagnosis and severity of the disorder often drive whether a person consults with, or is referred to, MHC (Nour et al., 2009), individual patient characteristics and the organisation of the

healthcare service also play a role (Dezetter et al., 2011; Fleury et al., 2010; Gagné et al., 2014; Piek et al., 2011).

Despite an abundance of studies looking at factors predicting use of MHC compared with PHC, few focus on migrant status. This is surprising, given that migrants experience barriers to accessing health services (Ahmed et al., 2016; Saechao et al., 2012) and use MHC to a lesser extent than the majority population (Koopmans et al., 2013; Straiton et al., 2019). This study aims to address this research gap by looking at the use of MHC compared to PHC only, among migrants and the majority population in Norway.

According to the Andersen Model of Healthcare Utilisation

; GP, General Practitioner; PHC, Primary health care; MHC, Specialist mental health care; OPMH, Outpatient mental health services; KUHR, National Database for the Reimbursement of Health Expenses; EU, European Union; HR, Hazard ratio; CI, Confidence interval.

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(Andersen, 1968), need for care (e.g. diagnosis, functional impairment, duration of symptoms, comorbidity) as well as predisposing (e.g. age, gender, education or health beliefs) and enabling factors (e.g. referral, insurance coverage, income) (Babitsch et al., 2012; Dezetter et al., 2011, 2013) predict health service use. The availability of a service also plays a role; urban dwellers are more likely to use MHC than rural dwellers who may have further to travel (Dey and Jorm, 2017; Smith et al., 2013; Verhaak, 1993).

In terms of predisposing factors, younger people are more likely to be referred to, or use, specialised services (Piek et al., 2011; Verhaak et al., 2012). Those with lower education are more likely to use PHC but less likely to use MHC compared to those with higher education (Dezetter et al., 2013; Gagné et al., 2014; Smith et al., 2013). Never married, separated/divorced and widowed individuals are more likely to use MHC than married individuals (Dey and Jorm, 2017; Gagné et al., 2014). Women are not only more likely to consult with PHC than men but also consult more frequently (Hunt et al., 2010; Statistics Norway, 2019). However, the gender difference in use of services for mental health difficulties is larger for PHC than for MHC (Drapeau et al., 2009). Although women are more likely to consult with a GP for depression than not seek care, men are more likely to consult with both a GP and a specialist (Gagné et al., 2014). Other research also indicates that men are more likely to be referred to MHC (Verhaak, 1993; Verhaak et al., 2012).

Norwegian studies show that migrants are less likely to use both PHC (Straiton et al., 2014) and MHC for mental health problems (Abebe et al., 2017; Straiton et al., 2019) than the majority population. However, it is not known if the lower use of MHC (where referral is required) is due to the lower use of PHC. A Canadian study found no difference between migrants and non-migrants in MHC use compared with PHC (Smith et al., 2013). There appear to be few other international studies looking at this PHC/MHC contrast among migrants with different backgrounds, yet we know that service use varies considerably by country of origin (Straiton et al., 2019). Studies considering ethnicity, rather than migrant status, suggest that the disparities between ethnic minorities and the majority population are larger at the PHC level than MHC level (Stockdale et al., 2008). Interestingly, some predisposing factors, such as age, also relate to service use in different ways for different ethnic groups. One study found that African Americans' service use continues to increase with age, while among non-Hispanic white Americans, service use peaks in the middle ages (Byers et al., 2017). Exploration of how different predisposing factors relate to use of MHC in different ways for different groups of migrants and the majority population is therefore of interest. Further, service use generally varies with migration-specific factors such as length of stay, reason for migration and country of origin (Ciupitu-Plath et al., 2014; Straiton et al., 2014). Thus, these factors may also play a role in the use of MHC compared with PHC.

This study aims to identify factors that predict contact with outpatient mental healthcare services (OPMH) among those who have been diagnosed with a new mental health problem in PHC and to determine whether there are differences between migrants and the majority population in use of OPMH. Using linked registry data, we follow up with individuals who have been diagnosed with a mental health problem in PHC and ask:

- 1) Do predisposing, need and enabling factors explain differences in contact with OPMH between different groups of migrants and the majority population?
- 2) Do predisposing factors predict contact with OPMH in different ways for migrants and the majority population?
- 3) How does length of stay and reason for migration relate to OPMH contact among migrants?

## 2. Material and methods

### 2.1. Study design and data sources

The Norwegian health care system is a publicly funded universal health care system and available for all long-term residents (over 6 months) and registered asylum-seekers. It is divided into two main sectors: primary (including GPs, emergency care and long-term services) and secondary (hospital and specialised services). Residents are assigned a GP who is the gatekeeper to specialised services, including OPMH. OPMH are local specialised services where those with acute mental health problems or those who need long-term follow-up can receive help. A referral from a doctor or psychologist is required. Patients pay a consultation fee when visiting their GP (around 200 Norwegian kroner/€18) and other specialists (around 350kr/€31). As of 2020, costs in excess of 2460 Norwegian kroner (€220) per calendar year are covered under the insurance scheme (HelseNorge, 2019). There is also a private system in Norway, where specialists can be accessed directly, without a referral from a GP but patient consultation fees are around four times higher.

GPs and other health care professionals who work at the municipality level, fill out reimbursement claim information for all patient contacts. This information is collected in The National Database for the Reimbursement of Health Expenses (KUHR) and contains diagnosis information based on the International Classification of Primary Care 2nd Edition (ICPC-2). We used this database, in addition to the Central Population Registry, which contains demographic data, together with the FD-Trygd database and the Education Database which contains data on income and educational attainment respectively. These four registries were linked at an individual level for the years 2006–2014, using a de-identifiable version of the unique personal number that all Norwegian-born individuals are assigned at birth and residents with a stay of six or more months at time of migration. Ethical approval for this study was granted by the Regional Committee for Medical and Health Research Ethics, South East Norway (REK, 2014/1970) and registry owners approved the use of their data. Consent to participate was not required since this study uses already existing administrative data.

### 2.2. Study population

Study population criteria included all long-term residents, aged 18–69 years, who attended PHC and had a psychological diagnosis (according to ICPC-2 codes) for the first time in at least two years (P-consultation). KUHR data is available from January 2006 but PHC consultations had to take place between 1st January 2008–December 31, 2014. This was because our focus was on new, rather than ongoing mental health difficulties. Our criteria for 'new' was that individuals had to have a period of at least two years with no P-consultations or OPMH consultations prior to their first 'new' P-consultation. For example, if a person had a P-consultation in January 2008 but no P-consultation or OPMH consultation throughout 2006 or 2007, they were included in the study population. A person who had several consecutive consultations would initially be excluded. However, they could be included later if they then had a two-year period free from consultations. For instance, someone who had a number of P or OPMH consultations between August 2006–June 31, 2009 would not be eligible for inclusion unless they then had a two-year period with no consultations between June 31, 2009 and June 31, 2011. Such an individual would then be included from the first P-consultation after June 31, 2011. However, someone with regular P or OPMH consultations and no continuous two-year period free from consultations would not be eligible for inclusion. With this design, we ensured that all individuals in the analyses had the same time exposure for the opportunity to enter secondary services and that the outcome had not already occurred in the two years prior to inclusion.

Individuals were followed from their first P-consultation for a period

of two years and could only be included once. Censoring occurred at the beginning of the year one turned 70, the date of death, date of emigration or the date of OPMH contact, whichever came first.

### 2.3. Study variables

#### 2.3.1. Outcome

OPMH contact - At least one OPMH consultation during the two-year follow-up period (Yes/No).

#### 2.3.2. Predisposing factors

Sex: Man (reference), Woman.

Age-group: Age-group was calculated at the end of the year of the first P-consultation (year of consultation – year of birth) and grouped as: 18–29 (reference), 30–39, 40–49, 50+. For some migrant groups, there were few migrants under the age of 25 or few over the age of 55. This is why the younger and older categories cover a broader age range.

Migrant category: Migrant (born abroad with two foreign born parents), majority (all non-migrants) (reference).

Region of origin: Migrants were grouped into eight different regions of origin; the Nordics, Western Europe, European Union (EU) Eastern Europe, non-EU Eastern Europe, Middle East/North Africa (including Turkey), Sub-Saharan Africa, South Asia and East/South East Asia. See [Appendix 1](#) for an overview of the countries included within each region. Migrants from other countries were excluded from analyses since they did not make up large or cohesive enough group.

Education: Completed education on first of January in the year of first P-consultation: Higher education (reference), upper secondary education or less than upper secondary education/unknown.

Civil status: On the first of January in the year of the first P-consultation: Married (reference), never married, previously married (divorced, separated or widowed).

Length of stay\*reason for migration: For migrants, length of stay was calculated from year of first migration to year of first P-consultation. The main reasons for migrating are labour, family and refugee. Nordic citizens are not required to give a reason upon migration to Norway. These two variables were combined to give the following categories: Majority (reference), Nordic <7 years, Nordic 7–12 years, Nordic >12 years, Labour <7 years, Labour 7–12 years, Labour >12 years, Family <7 years, Family 7–12 years, Family >12 years, Refugees <7 years, Refugees 7–12 years, Refugees >12 years. Reason for migration was only routinely recorded from 1990, so analyses with this variable only included those moving after 1989 and exclude those migrating for other or unknown reasons.

#### 2.3.3. Need factors

Diagnosis: Symptoms (reference) or disorder diagnosis at first P-consultation. ICPG-2 is used in primary health care consultations to set a diagnosis. All consultations with a psychological diagnosis are given a P-code. Codes P01–P14 and P20–P29 relate to symptoms (e.g. feeling anxious, sleep disturbance) and codes P15–P19 (e.g., alcohol and substance abuse) and P70–P99 (e.g. depressive disorder) relate to disorders. Since we assumed a disorder diagnosis would indicate a higher level of need, individuals with more than one P-code (3.3%) were coded as having a disorder if they had at least one disorder diagnosis.

Conversational therapy: Defined as having had conversational therapy with a doctor at first P-consultation – No (reference) or Yes. All PHC doctors can offer conversational therapy to patients but use may depend on individual skills and training of the doctor. It may be offered to patients as an alternative to OPMH (mostly those with mild to moderate symptoms/disorders) or while waiting for an OPMH appointment.

#### 2.3.4. Enabling factors

Low income: Individual net work-related income in the year of first P-consultation, dichotomised: Those with low income ( $\leq 2$  times the basic threshold for taxation) and those with medium/high income ( $> 2$

times the basic threshold (NAV, 2020)).

Area of residence: Municipality in which the individual was living in the year of first P-consultation. These were grouped as rural ( $< 10,000$  inhabitants) and non-rural ( $\geq 10,000$  inhabitants (Statistics Norway, 2020)).

### 2.4. Statistical analysis

We conducted Cox Regression to estimate hazard ratios (HR) of the effects of each individual predisposing, need and enabling factor on risk of OPMH contact. To see if any differences in risk of OPMH for the different migrant groups and majority population could be explained by predisposing, need or enabling factors, and which factors were important, we added these factors in blocks, checking for improvement in model fit at each stage (difference in Loglikelihood). Time was the number of days in the study (1–730 days) and we set confidence intervals to 99% due to the large sample size. To assess whether the effect of predisposing factors differed for the different migrant groups compared to the majority, we conducted interaction analyses between region of origin and each of the predisposing factors separately. We then combined region with each predisposing variable into one variable (e.g. region\*gender) and reran each of the analyses to obtain hazard ratios for each subgroup eg. women from Middle East/North Africa. We then plotted hazard ratios for groups which had shown a significant interaction. Finally, to assess the effect of length of residency\*reason for migration on contact with OPMH, we combined these categories and conducted cox regression analyses, controlling for predisposing, need and enabling factors in different models. Analyses were conducted in STATA 17.

### 3. Results

The study population consisted of 1,002,456 individuals (57.5% women ( $n = 576,439$ )) who had had a P-consultation for the first time in two years between January 1, 2008 and December 31, 2014. Around 45% of the sample were aged under 40 years and 39.1% were married, 17.8% divorced/separated or widowed and 43.1% never married. Around 29.3% had completed higher education, 30.6% upper secondary education and 40.1% had less than upper secondary education/unknown education level. Migrants made up 10.6% of the sample, with the largest proportion coming from the Middle East/North Africa (19.2%), followed by the Nordics (14.3%).

Overall 13.5% ( $n = 135,095$ ) of patients with a P-consultation used OPMH within two years. The overall proportion of migrants receiving OPMH care (14.1%) was slightly, though statistically significantly, greater than the majority population (13.4%). Migrants in general had an 8% higher risk of contact with OPMH compared with the majority population (HR = 1.08 (1.06–1.11),  $p < 0.001$ ) but this varied greatly by region of origin. Thus, we included region of origin, rather than migrant/majority in all analyses.

#### 3.1. Do predisposing, need and enabling factors explain differences in contact with OPMH between different groups of migrants and the majority population?

**Table 1** shows the number and percentage of individuals using PHC and OPMH compared with PHC only by predisposing, need and enabling factors. Unadjusted analyses indicated that all factors were statistically significant. Migrants from the Middle East/North Africa and non-EU Eastern Europe had a higher risk of OPMH contact compared with the majority while those from EU Eastern European countries and East/South East Asia had a lower risk. There was no significant difference in risk for Western European, sub-Saharan African and South Asian migrants compared with the majority.

Adjusting for predisposing factors (model 1), we found that Western Europeans now had a significantly higher risk of OPMH contact

**Table 1**  
Number, percentage and hazard ratios (99% confidence intervals) for contact with OPMH.<sup>1</sup>

	PHC only	PHC & OPMH	Unadjusted HR (99% CI)	Model 1 HR (CI 99%)	Model 2 HR (99% CI)	Model 3 HR (CI 99%)
<b>Region of origin</b>						
Majority	776,479 (86.60%)	120,141 (13.40%)	1	1	1	1
Nordics	13,018 (86.29%)	2068 (13.71%)	1.06 (1.00–1.12)*	1.13 (1.07–1.20)**	1.12 (1.05–1.18)**	1.17 (1.11–1.24)**
Western Europe	9618 (87.05%)	1431 (12.95%)	0.99 (0.93–1.06)	1.18 (1.11–1.27)**	1.17 (1.10–1.26)**	1.20 (1.12–1.28)**
EU Eastern Europe	11,858 (89.06%)	1456 (10.94%)	0.86 (0.81–0.92)**	0.85 (0.79–0.90)**	0.81 (0.76–0.87)**	0.83 (0.77–0.89)**
non-EU Eastern Europe	11,968 (84.89%)	2130 (15.11%)	1.14 (1.08–1.21)**	1.12 (1.06–1.18)*	1.06 (0.99–1.12)	1.06 (0.99–1.12)
Middle East/North Africa	16,523 (81.37%)	3784 (18.63%)	1.44 (1.38–1.50)**	1.30 (1.24–1.36)**	1.21 (1.16–1.26)**	1.18 (1.13–1.24)**
Sub-Saharan Africa	8839 (86.70%)	1356 (13.30%)	1.02 (0.95–1.10)	0.83 (0.77–0.89)**	0.86 (0.80–0.92)**	0.82 (0.77–0.89)**
South Asia	10,144 (87.05%)	1509 (12.95%)	0.97 (0.91–1.04)	0.93 (0.87–0.99)*	0.90 (0.84–0.96)**	0.89 (0.83–0.95)**
East/South East Asia	8914 (87.96%)	1220 (12.04%)	0.91 (0.85–0.98)*	0.94 (0.87–1.01)	0.94 (0.88–1.02)	0.94 (0.87–1.01)
<b>Sex</b>						
Man	364,065 (85.46%)	61,952 (14.54%)	1	1	1	1
Woman	503,296 (87.31%)	73,143 (12.69%)	0.86 (0.84–0.87)**	0.91 (0.90–0.93)**	0.93 (0.92–0.95)**	0.92 (0.90–0.92)**
<b>Age</b>						
18–29 years	180,662 (77.00%)	53,952 (23.00%)	1	1	1	1
30–39 years	186,908 (85.59%)	31,466 (14.41%)	0.58 (0.57–0.59)**	0.68 (0.66–0.69)**	0.69 (0.68–0.70)**	0.75 (0.73–0.76)**
40–49 years	202,208 (88.68%)	25,816 (11.32%)	0.45 (0.44–0.46)**	0.52 (0.51–0.53)**	0.53 (0.52–0.54)**	0.56 (1.12–1.28)**
50+ years	297,583 (92.58%)	23,861 (7.42%)	0.29 (0.29–0.30)**	0.33 (0.32–0.34)**	0.33 (0.32–0.34)**	0.33 (0.32–0.34)**
<b>Civil status</b>						
Married	357,338 (91.02%)	35,241 (8.98%)	1	1	1	1
Never married	352,173 (81.54%)	79,719 (18.46%)	2.18 (2.15–2.22)**	1.34 (1.32–1.37)**	1.26 (1.23–1.28)**	1.20 (1.17–1.22)**
Previously married	157,850 (88.69%)	20,135 (11.31%)	1.27 (1.24–1.30)**	1.34 (1.31–1.38)**	1.30 (1.27–1.33)**	1.28 (1.25–1.31)**
<b>Education</b>						
Higher education	264,015 (89.70%)	30,329 (10.30%)	1	1	1	1
Upper secondary	264,968 (86.46%)	41,509 (13.54%)	1.33 (1.31–1.36)**	1.16 (1.14–1.19)**	1.14 (1.11–1.16)**	1.10 (1.08–1.12)**
Less than upper secondary/unknown	338,378 (84.25%)	63,257 (15.75%)	1.57 (1.54–1.60)**	1.52 (1.49–1.55)**	1.39 (1.36–1.41)**	1.25 (1.22–1.27)**
<b>Diagnosis</b>						
Symptoms	578,601 (90.87%)	58,101 (9.13%)	1	1	1	1
Disorder	288,760 (78.95%)	76,994 (21.05%)	2.46 (2.42–2.49)**	2.18 (2.15–2.21)**	2.18 (2.15–2.21)**	2.08 (2.05–2.12)**
<b>Conversational therapy</b>						
No	720,671 (88.03%)	98,032 (11.97%)	1	1	1	1
Yes	146,690 (79.83%)	37,063 (20.17%)	1.85 (1.83–1.88)**	1.55 (1.53–1.58)**	1.55 (1.52–1.57)**	1.55 (1.52–1.57)**
<b>Income</b>						
Medium/high	608,084 (89.10%)	74,360 (10.90%)	1	1	1	1
Low	259,277 (81.02%)	60,735 (18.98%)	1.89 (1.86–1.91)**	1.41 (1.40–1.44)**	1.41 (1.40–1.44)**	1.41 (1.40–1.44)**
<b>Area of residence</b>						
Non-rural	641,244 (86.88%)	96,847 (13.12%)	1	1	1	1
Rural	226,137 (85.53%)	38,248 (14.47%)	1.11 (1.09–1.13)**	1.19 (1.17–1.21)**	1.19 (1.17–1.21)**	1.19 (1.17–1.21)**

\* $p < 0.01$ . \*\* $p < 0.001$ ; <sup>1</sup> among those attending primary health care services for mental health problems.

Model 1: adjusted for sex, age group, civil status & education. Model 2: adjusted for sex, age group, civil status, education, diagnosis and conversational therapy. Model 3: adjusted for sex, age group, civil status, education, diagnosis, conversational therapy, area of residence and income.

compared with the majority population. The risk also increased for Nordic migrants. Predisposing factors, however, explained some of the increased risk for migrants from the Middle East/North Africa. In this model, sub-Saharan African and South Asian migrants now had a significantly lower risk than the majority population while East/South East Asian migrants had a similar risk as the majority population.

In model 2, we added in need factors which significantly improved the fit of the model ( $X^2 = 27,403$ ,  $p < 0.001$ ). Controlling for diagnosis and conversational therapy at the first P-consultation explained the remaining difference in hazard ratios for non-EU Eastern Europeans and some of the increased risk for Middle East/North African migrants. Need factors explained little of the difference in OPMH contact for the other migrant groups compared with the majority.

Finally, we added in enabling factors in model 3, which again significantly improved the fit of the model (difference  $X^2 = 4090$ ,  $p < 0.001$ ). Controlling for income and living rurally however, had little effect on the hazard ratios by region of origin, except for Nordic migrants. In this final model, migrants from the Nordics, Western Europe and the Middle East/North Africa had the highest risk of OPMH contact compared with the majority population. EU Eastern Europeans and sub-Saharan Africans, followed by South Asians, had the lowest risk of using OPMH. There was no significant difference in risk between migrants from non-EU European countries and from East/South East Asia compared with the majority population. Men, younger, non-married adults with only compulsory education, living rurally and with low

income had a higher risk of OPMH use as did those with a disorder diagnosis and who had conversational therapy.

### 3.2. Do predisposing factors predict contact with OPMH in different ways for migrants and the majority population?

We found significant interactions with all predisposing variables for some migrant groups. Tables with results for main effects and interactions can be found in [Appendix 2](#).

For sex, there was a significant interaction for migrants from the Middle East/North Africa. The relationship between sex and OPMH was stronger for this migrant group compared with the majority. [Fig. 1](#) shows that the difference in risk of OPMH contact for men in this group compared with women was significantly larger than the difference in risk of contact for majority men compared with majority women.

We also found an interaction between age and region of origin for all groups. [Fig. 2](#) shows that there was a strong inverse relationship between age group and OPMH contact for the majority population. For most migrant groups, the relationship was weaker (but still statistically significant).

According to interaction analyses, the relationship between civil status and OPMH contact was different for three migrant groups compared with the majority population. [Fig. 3](#) shows that while in the majority group, those who were married had the lowest risk of OPMH treatment and previously married had the highest risk, among both

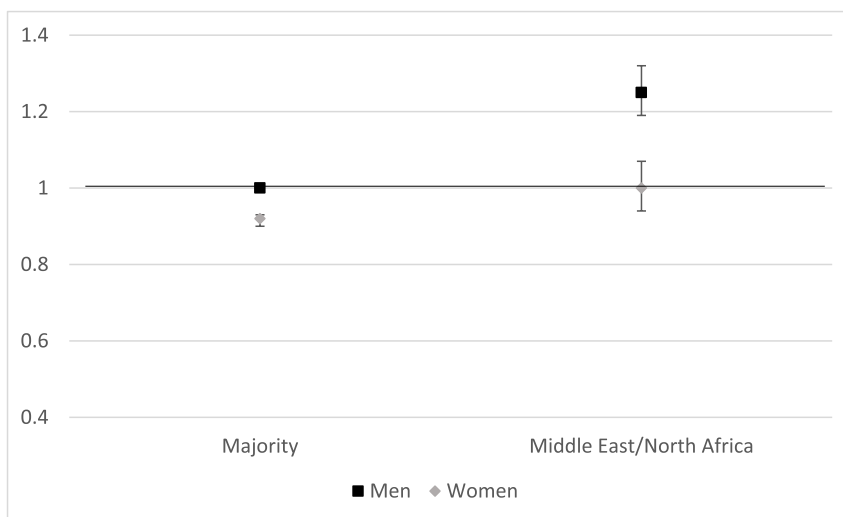


Fig. 1. Hazard ratio with 99% confidence intervals for OPMH contact by sex and region of origin.

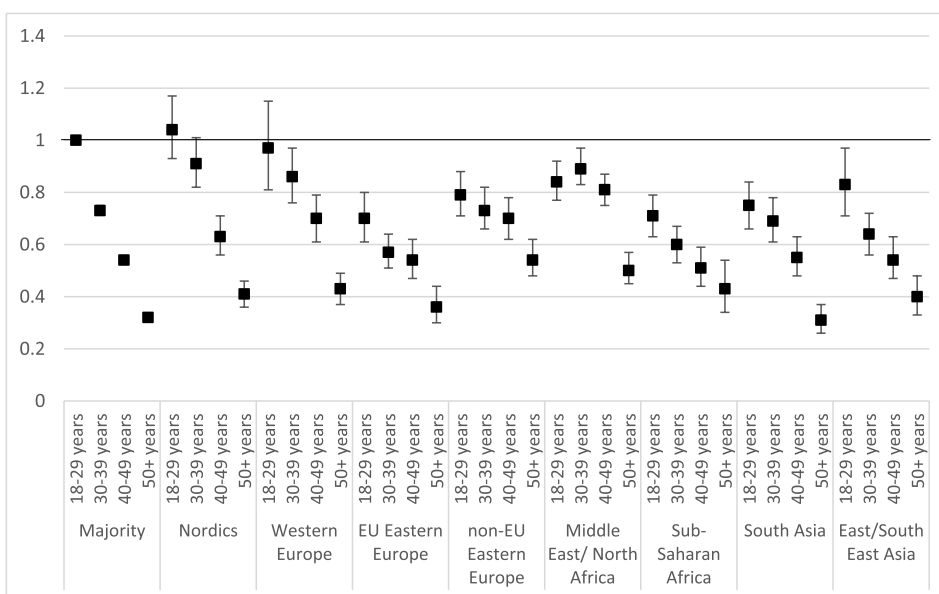


Fig. 2. Hazard ratio with 99% confidence intervals for OPMH contact by age group and region of origin.

groups of Eastern Europeans and Middle Eastern/North African migrants, there was little difference between the married and unmarried. The risk for the previously married compared with the married was considerably higher for EU Eastern Europeans compared with the majority.

Finally, the relationship between education and OPMH use was significantly different for five migrant groups. Whilst among the majority population the risk increased with decreasing education level, Fig. 4 indicates that education was not significantly associated with OPMH use among migrants from the Nordics, Western Europe, Middle East/North Africa, sub-Saharan Africa and East/South East Asia.

### 3.3. How does length of stay and reason for migration relate to OPMH treatment?

We were unable to include both region of origin and reason for migration/length of stay as separate variables in the analyses, when comparing migrants with the majority population since the majority population have neither reason for moving nor length of stay. Thus, we

created a categorical variable combining information on reason and length of stay for migrants and compared these categories with the majority population as the reference category. Additionally, we only included migrants who moved to Norway after 1989 since reason for migration was not routinely recorded prior to 1990 (N = 78,348). Overall, 15.0% (n = 11,751) had had contact with OPMH. Although these migrants had a higher hazard ratio of OPMH treatment than migrants excluded from analyses (HR = 1.38 (1.30–1.45)), age explained most of this difference (HR = 1.07 (1.01–1.18)). Migrants with longer length of residency are, on average, older than those with shorter lengths of residency and OPMH contact decreases with age.

Table 2 shows that in the unadjusted analyses, Nordic and family migrants with up to 12 years residency had a significantly higher risk of OPMH contact than the majority population while labour migrants with up to 12 years residency had a lower risk. In these groups, those with stays over 12 years had a similar risk to the majority population. Refugees had a higher risk than the majority population, regardless of length of stay. In the final model, labour migrants with less than seven years residency followed by family migrants with less than



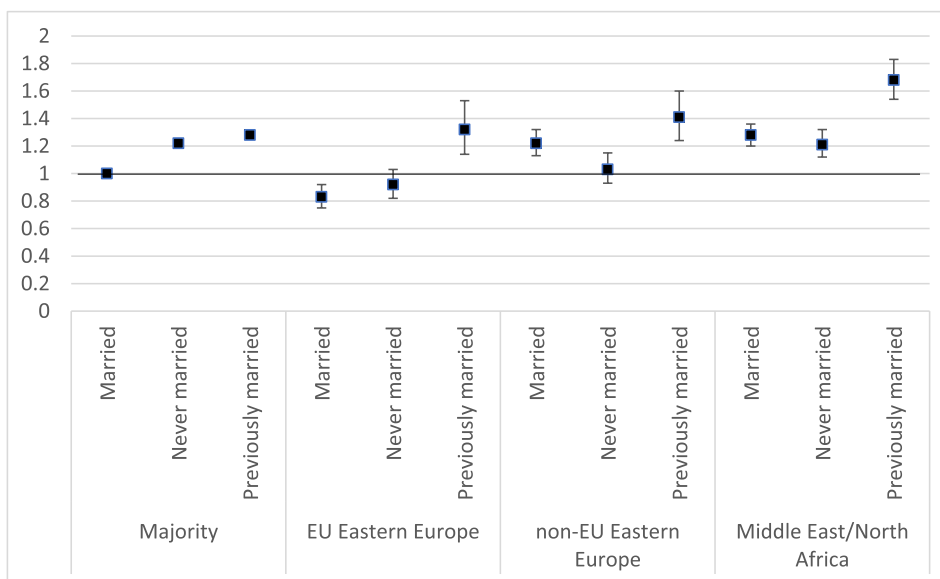


Fig. 3. Hazard ratio with 99% confidence intervals for OPMH contact by civil status and region of origin.

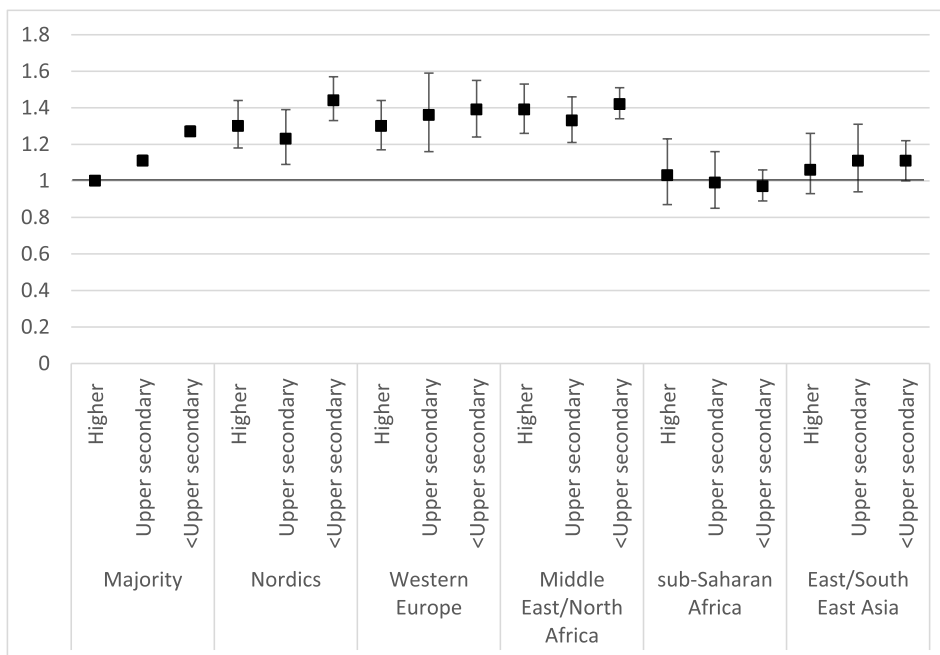


Fig. 4. Hazard ratio with 99% confidence intervals for OPMH contact by education and region of origin.

seven years of residency had a lower risk of OPMH contact compared with the majority population. Nordic citizens with less than 12 years residency had the highest risk followed by refugees with seven or more years. While length of residency was generally associated with an increase in OPMH contact for labour, family and refugee migrants, it was associated with a decrease for Nordic residents after accounting for predisposing, need and enabling factors.

4. Discussion

In this study, we considered the risk of OPMH contact for different migrant groups and the majority population who have been diagnosed with a new mental health problem in PHC. We employed Andersen’s model of Health Care Utilisation to see whether differences in risk between migrants and the majority population could be explained by

predisposing, need and enabling factors. These factors explained some, but not all, of the differences. Additionally, we found that predisposing factors predicted contact with OPMH in different ways for migrants and the majority population and that length of stay and reason for migration were related to OPMH contact among migrants.

Although those who attend PHC may be a selected group, the vast majority of those who use OPMH must consult at the primary level to access secondary services. Thus, by including those who have used PHC, we can assume that the remaining differences between migrants and the majority population that we found are due to factors other than problems in accessing PHC. It is noteworthy that the differences in risk of OPMH contact between migrant groups and the majority in this study were relatively small ( $\pm 20\%$ ) compared to other studies on MHC in general where PHC is not accounted for (Abebe et al., 2017; Straiton et al., 2019). For instance, a recent study of OPMH among women found

**Table 2**  
Hazard ratios for OPMH contact by length of residency and reason for migration.<sup>1</sup>

	OPMH treatment	Unadjusted HR (99% CI)	Model 1 HR (99% CI)	Model 2 HR (99% CI)	Model 3 HR (99% CI)
Majority	120,141 (13.40%)	1	1	1	1
Nordic <7 years	790 (18.41%)	1.57 (1.43–1.72)**	1.19 (1.08–1.30)**	1.15 (1.05–1.27)**	1.26 (1.15–1.38)**
Nordic 7–12 years	569 (16.17%)	1.23 (1.11–1.37)**	1.16 (1.05–1.30)*	1.15 (1.04–1.29)*	1.21 (1.08–1.34)**
Nordic 13+ years	475 (12.53%)	0.97 (0.86–1.09)	1.08 (0.9–1.22)	1.06 (0.94–1.20)	1.09 (0.97–1.23)
Labour <7 years	942 (10.81%)	0.86 (0.79–0.93)**	0.78 (0.71–0.85)**	0.76 (0.70–0.83)**	0.80 (0.74–0.87)**
Labour 7–12 years	276 (9.73%)	0.79 (0.68–0.93)**	0.91 (0.78–1.06)	0.89 (0.76–1.04)	0.93 (0.79–1.08)
Labour 13+ years	102 (10.54%)	0.83 (0.64–1.07)	1.19 (0.93–1.54)	1.18 (0.91–1.52)	1.21 (0.93–1.55)
Family <7 years	1271 (14.53%)	1.11 (1.03–1.20)**	0.95 (0.88–1.02)	0.94 (0.87–1.01)	0.90 (0.84–0.97)**
Family 7–12 years	1835 (15.98%)	1.22 (1.15–1.30)**	1.03 (0.97–1.10)	1.02 (0.96–1.08)	1.05 (0.95–1.07)
Family 13+ years	1301 (13.73%)	1.07 (0.99–1.15)	1.03 (0.96–1.11)	1.00 (0.93–1.08)	1.00 (0.93–1.08)
Refugee <7 years	983 (18.00%)	1.42 (1.31–1.55)**	1.03 (0.94–1.12)	1.04 (0.95–1.13)	0.96 (0.89–1.05)
Refugee 7–12 years	1444 (17.68%)	1.33 (1.25–1.43)**	1.15 (1.07–1.23)**	1.10 (1.03–1.18)**	1.08 (1.01–1.16)*
Refugee 13+ years	1763 (16.18%)	1.26 (1.18–1.34)**	1.20 (1.13–1.28)**	1.13 (1.07–1.21)**	1.12 (1.06–1.20)**

\*p < 0.01. \*\*p < 0.001; <sup>1</sup> among those attending primary health care services for mental health problems.

Model 1: adjusted for sex, age group, civil status & education. Model 2: adjusted for sex, age group, civil status, education, diagnosis and conversational therapy. Model 3: adjusted for sex, age group, civil status, education, diagnosis, conversational therapy, area of residence and income.

that all groups of migrant women had lower odds of using OPMH than majority women, with some being up to as much as 75% less likely to use OPMH. This might suggest that much of the difference found in previous research may be due to migrants being less likely to consult PHC with mental health issues. Barriers may be greater for initial help-seeking but once recognised as having mental health difficulties, the differences are much less. Still, since we only included cases where individuals had a recognised mental health problem in the current study, the contrast in findings with previous studies could also be due to PHC doctors being less likely to detect mental health problems among, and thus treat or refer, various migrant groups.

In line with other research on health service use, predisposing, need and enabling factors explain some of the differences in OPMH use (Babitsch et al., 2012; Dezzetter et al., 2013; Roberts et al., 2018; Smith et al., 2013). However, predisposing factors are associated with OPMH use differently for different migrant groups. The risk of OPMH contact for men compared to women from the Middle East/North Africa was far greater than the difference in risk among men and women in the majority population. Age had slightly less importance for all migrant groups, though this may relate to migrants being on average, younger than the majority population.

Further, while in the majority population, being married poses a lower risk of OPMH contact, married Eastern European and Middle East/North African migrants did not have a lower risk compared with their unmarried counterparts, suggesting that marriage may not have a protective effect on mental health in general, or on health service use in particular, for these groups. A study in the US also found that marital status had a different impact on MHC among African American minorities compared with the majority population (Byers et al., 2017).

In contrast to other research, our study showed that higher education was associated with a lower use of OPMH (Dezzetter et al., 2011; Gagné et al., 2014). Higher education is associated with better health literacy and a greater ability to navigate the system (Jansen et al., 2018). It could be that those with higher education seek help at an earlier stage where a GP feels equipped to manage their care. However, education was not associated with OPMH use for five migrant groups: Western Europe, the Nordics, the Middle East/North Africa, sub-Saharan Africa and East/South East Asia. This may suggest that education in country of origin (even those with similar education and health systems) does not easily translate into health knowledge, nor into an ability to access health services in a new country. We conducted additional analyses, stratified by age of migration (appendix 3). Among migrants who moved as minors (most of whom will have completed their education in Norway), we found no significant interaction between country of origin and education level. For those moving as adults, we found interactions for non-EU Eastern Europeans, Middle Eastern/North Africans, sub-Saharan African and East/South East Asians. Although there will be exceptions, we can

assume that a large proportion of migrants who move as adults did not obtain their education in Norway. Thus, this supports the suggestion that education may not translate into health knowledge or timely help-seeking for migrants who arrive in Norway as adults.

Nonetheless, among PHC users with recognised mental health problems, we still found differences in OPMH contact by region of origin that predisposing, need and enabling factors could not account for. Migrants from the Nordics, Western Europe and the Middle East/North Africa have a greater risk of contact with OPMH following a mental health diagnosis in PHC, while those from EU Eastern Europe, sub-Saharan Africa and South Asia have a lower risk. There are several explanations for these findings.

Firstly, there may be differences in need for OPMH care. Our measures of need (diagnosis and conversational therapy) gave a clear indication of differences in mental health status and explained quite a bit of the variance for non-EU Eastern Europeans and Middle-Eastern/North African migrants. However, there is also within-group variation that we are unable to account for. Since the complexity of a problem plays a role in GPs' decisions to refer patients to secondary services (Fleury et al., 2010), it may be that groups with a higher risk of OPMH contact seek help for more complex problems and have a greater need for OPMH contact, while those with lower risk have less need. Inclusion of more specific diagnosis information may give a better indication of need. However, studies suggest that ICD-10 diagnosis codes are not necessarily reliable beyond the chapter level (Frese et al., 2012) and GPs may have trouble correctly diagnosing specific mental disorders (Mykletun et al., 2010). Information on the severity of a diagnosis, at what stage help was sought or the patient's own perception of the problem may be useful in future studies to adequately account for need for care.

Secondly, research indicates that GP characteristics can influence referrals (Fleury et al., 2010), depending on their training in mental health or ability to engage effectively in conversational therapy. Studies also suggest that GPs report a number of challenges when working with patients from different migrant backgrounds (Robertshaw et al., 2017). GPs' abilities to manage migrants' mental health problems may therefore depend on their training and/or experience in working with different migrant groups. It is therefore not improbable that cultural factors also affect GPs' decisions to refer patients.

Thirdly, we only have information on contact with OPMH and not actual referrals to OPMH. Research shows that referrals do not effectively predict service use (Calkins et al., 2013). Migrants and ethnic minorities have particularly low rates of following through on referrals (Ballard-Kang et al., 2018). Ballard-Kang and colleagues also found that refugees from the Middle East/Central Asia were more likely to accept a referral than refugees from Africa and South/Southeast Asia. This study was in the United States where the costs of MHC are high and often dependent on insurance coverage, which migrants are less likely to have.

In Norway, costs are much lower and near-universal coverage exists, making monetary explanations of not following through on a referral less convincing. Nonetheless, differences in likelihood of following through on a referral may explain why we see that Middle Eastern/North African migrants have a higher risk and those from sub-Saharan Africa, South Asians have a lower risk of contact with OPMH compared to the majority population. Future research should look at differences in referral and service use between different migrant groups and investigate how to reduce the barrier among groups with the largest disparity.

Finally, migrants from different regions may have different treatment preferences. Some groups may see OPMH as irrelevant or unhelpful for their problems, depending on their perceptions of mental health difficulties. Some may prefer to continue attending the GP due to levels of stigma being higher for OPMH. Stigma is thought to be higher among several migrant groups compared to majority populations (McCann et al., 2018; Saechao et al., 2012). It is also possible that some migrant groups are more likely to get help from other MHC that this study is unable to account for, such as private psychologists or psychiatrists or inpatient services. Nonetheless, inpatient mental health services only make up around 5% of all specialist mental health services in Norway (Norwegian Directorate of Health, 2019). While we do not know how many use private services in Norway, the cost of such services are around four times higher and therefore pose a greater barrier. In addition, some migrants may seek MHC in their home countries. Studies suggest that Polish migrants, for instance, often seek private care in their home country (Struzik et al., 2018). Closer investigation of where the barrier lies between primary and secondary care is warranted.

In this study, we also classified migrants by reason for migration and length of residence rather than by region of origin. As might be expected, labour migrants with less than seven years of residency had a lower risk of OPMH use compared with the majority population after adjusting for predisposing, need and enabling factors. We found the same pattern for family migrants, although this group is diverse and made up of individuals reunited with refugees, labour and family migrants and other Norwegian or Nordic citizens. Migrants, especially labour migrants, are usually considered to be in better health upon arrival but that health may deteriorate over time (Rivera et al., 2016). Barriers to care may also decrease over time (Dias et al., 2010). Although previous research also indicates that healthcare service use increases with increasing residency (Abebe et al., 2017; Straiton et al., 2014, 2019), associations are usually stronger. It could be that length of residency is more important for initial help-seeking (at the PHC level), rather than in the transition from PHC to OPMH care. Refugees are thought to be at increased risk of mental health problems such as post-traumatic stress disorder and depression (World Health Organisation, 2017) and are assumed to place pressure on MHC. However, with short lengths of residency, they do not show higher rates of OPHM uptake. Only refugees with stays 7–12 years and 13+ years were at an 8% or 12% higher risk than the majority population, suggesting that for some, mental health issues may come to the fore only after an extended period of time (Lamkaddem et al., 2014). Interestingly, in contrast to the other groups, length of residency had a negative association with OPMH contact for Nordic citizens, who also had the highest risk of OPMH contact. Emigration is more common among Nordic citizens than the other groups (Statistics Norway, 2013) so it could be that those with more severe mental health difficulties are more likely to return to their country of origin over time.

In addition to the limitations already mentioned above regarding lack of information about treatment preferences and the severity, or duration of mental health problems, there may be other confounding factors that can explain the differences in OPMH contact by region of origin. Studies of healthcare service use show that comorbidity and social support for instance, can play a role in the uptake of care (Maulik et al., 2011; Roberts et al., 2018). Further, the KUHR database used in this study is an administration database, used by health professionals for reimbursement claims. The way different doctors complete this information may vary and we can assume that not all cases of conversational

therapy are recorded. Thus, this variable may underestimate the proportion of patients who have conversational therapy. A recent report suggests that the use of conversational therapy coding in this database increased from 2016 after the reimbursement rules changed (HELFO, 2016). However, it is unlikely that differences in registering are due to differences in migrant status. Finally, patterns of use also vary by the health system including different gatekeeping and reimbursement policies. People in countries with low costs for MHP for instance may be more likely to use MHP (Dezetter et al., 2013), so our findings may not be generalisable to other healthcare systems with higher costs.

This study demonstrates differences in risk of contact with outpatient mental health services by region of origin, among those who have attended PHC and have a recognised mental health problem. Differences between migrants and the majority population appear smaller than in other studies not accounting for PHC, suggesting that much of the differences may be due to barriers at the primary care level. Nonetheless, our findings indicate that some groups of migrants still experience barriers in accessing OPMH services. Further research should consider the link between referrals and OPMH use among different migrant groups to help identify and eradicate barriers that lead to inequity in mental health services.

#### Authors' contributions

MS designed the study, conducted some data analysis and drafted the manuscript. AL and ACH contributed critically to the design of the study and to revising the manuscript. LJH contributed to the design of the study, prepared the data file and contributed to revising the manuscript. All authors approved the final version of the manuscript to be published.

#### Ethics approval and consent to participate

Ethical approval for this study was granted by the Regional Committee for Medical and Health Research Ethics, South East Norway (REK, 2014/1970) and registry owners approved the use of their data. Consent to participate was not required since this study uses already existing administrative data.

#### Consent for publication

Not applicable.

#### Availability of data and material

The datasets generated and analysed for the current study are not publicly available for data protection reasons. However, the data that support the findings of this study may be available from Statistics Norway and HELFO if ethical approval is granted.

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#### Declaration of competing interest

The authors declare that they have no competing interests.

#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.socscimed.2022.114725>.



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