



Change in care needs of people with severe mental illness with and without a non-Western migration background: are their needs equally served throughout treatment?

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Abstract

Background People with a non-Western migration background living in Western countries are more likely to experience psychiatric problems and have more severe symptoms when they do. Patients of non-Western origin also have more unmet needs for care. This study focuses on differences between Western and non-Western patients in care needs being met during the course of mental health treatment.

Methods The care needs of 1099 patients, 39% with and 61% without a non-Western migration background, recorded between 2017 and 2020 in Flexible Assertive Community Treatment, were compared.

Results Non-Western migrants more often received psychotic disorder diagnoses, had more socio-economic problems, met, unmet and total needs for care and experienced less reduction in unmet needs during treatment. This was specifically the case for the rehabilitation areas: daily activities, treatment information, basic education, paid work and meaningful life and recovery. After controlling for socio-economic factors and diagnosis, group differences in change in number of unmet needs were no longer significant. However, the reduction in unmet needs in the areas of basic education, paid work and meaningful life and recovery remained significantly smaller for non-Western patients.

Conclusions and implications for practice Except for the rehabilitation domains of basic education, paid work and meaningful life, the disadvantages in resolving the care needs of patients with a non-Western migration background do not remain significant after taking into account socioeconomic factors and diagnosis. Collaboration of mental health care and the social domain is warranted to improve socio-economic factors for patients with a non-Western migration background, to better address their unmet needs for care.

Keywords Severe mental illness · Migration background · Assertive community treatment · Camberwell Assessment of Need Short Appraisal Schedule (CANSAS)

Introduction

Having a non-Western migration background or an ethnic minority status has been demonstrated to be a risk factor for severe mental illnesses (SMI) in Europe and the USA [1–5]. The prevalence of SMI has been found to be 1–2% for European non-immigrants versus 3–6% for non-European

immigrants [6]. First and second-generation immigrants have a higher incidence rate for psychotic disorders [1, 4, 7, 8], which is likely due to the social adversities they face, such as perceived discrimination, isolation from others and ethnic identity problems [9, 10]. Especially non-Western immigrants who live in neighbourhoods where their ethnic group has a low density experience a higher incidence of SMI, which supports the idea that the social context in which non-Western immigrants live affects the risk of developing SMI [10, 11]. Aside from the high risk of SMI in non-Western immigrants, research has shown that non-Western immigrants with SMI experience more severe symptoms compared to Western patients [12–14]. Considering the social adversities of immigrants and the difficulties of having SMI, non-Western immigrants with SMI are likely to experience a double burden.

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This entails challenges that are unique to this group, such as problems in accessing mental health care or dealing with double stigmatisation, due to both having SMI and belonging to a non-Western immigrant group.

For these reasons, it is important to investigate the care needs of non-Western immigrants with SMI. Although there is a substantial body of literature explaining the higher incidence of SMI in non-Western immigrants and possible reasons for this, there is a lack of research on the treatment process of immigrants with SMI. Hence, the aim of the current study is to discover whether the care needs of non-Western immigrants with SMI are equally served throughout treatment compared to Western patients.

Previous literature demonstrates that people with a non-Western migration background in Europe and the USA experience barriers in accessing mental health care [15, 16], which might be an indicator that unmet care needs are not addressed well for this group. The socio-demographic pattern of the non-Western immigrant group, which tends to be characterised by a lower education level and socio-economic status (SES), suggests a greater risk of lacking the resources to access mental health care [16]. Lack of knowledge about available services, low mental health literacy, limited transportation options, language barriers, cultural beliefs about mental health, culturally insensitive health care systems, different expectations from mental health care providers or fear of being exposed to stigmatisation and health-related discrimination might limit their access to mental health care and lead to unmet needs [17–22]. Non-Western immigrants were also found to use mental health care less [23–26] and have higher rates of treatment discontinuation [27, 28] while at the same time using psychiatric emergency services more [29], having longer admissions in inpatient care [30] and having more compulsory admissions [31–33]. This pattern of care use suggests that delayed mental health care for patients with a migrant background leads to worsening of their problems and crisis situations, which require more intensive, emergency and involuntary care. All of these might be indicators of unmet mental health needs of non-Western immigrants [34, 35].

While the disadvantaged position of ethnic minorities in the mental health care system is consistently reported on in the literature, studies into the effect of interventions on the care needs of ethnic minorities with SMI are mixed and more scarce. In an outpatient setting in Latin America, no differences in overall care needs between Aymara immigrants and non-immigrants were found [36]. On the other hand, Arvidsson & Hultsjö [37] found that non-Swedish immigrants who received community care had more unmet needs in accommodation, physical health, psychological stress, basic education and economy compared to non-immigrants. Based on some of the longitudinal studies, immigrants with SMI are served equally considering psychosocial factors [38] and met and unmet needs [37],

whereas other results showed that they are in a disadvantageous position in terms of their overall care needs [37] and social [39] and occupational functioning [40] compared to non-immigrants.

Considering the scarcity of longitudinal research into patients with a non-Western migration background and SMI in mental health care, the first aim of this study is to compare the change in met, unmet and overall care needs of patients with a non-Western migration background and SMI to Western patients through time in a Dutch sample of patients treated by Flexible Assertive Community Treatment (FACT) teams. The second aim is to examine the association between migration background and the change in unmet care needs per need domain. We choose to focus on unmet care needs because research shows unmet needs as the most robust and least ambiguous to measure and as most relevant to evaluate care services [41–43]. Our third aim is to investigate whether a possible difference in the change in the care needs between Western and non-Western groups can be explained by other socio-economic, clinical and psychosocial factors. The current longitudinal study is the first to explore the differences between Western and non-Western patients with SMI in the change of care needs throughout treatment in the Netherlands.

Methods

Longitudinal data from the administrative records and yearly Routine Outcome Monitoring (ROM) were used to assess the change in care needs of non-Western patients with SMI over time compared to Western patients. The questionnaires used in the current study were completed by case managers (i.e. mental health nurses and social workers) who have regular contact with the patients. Data from patients who did not provide informed consent during the assessment were excluded from the current study. Permission for the study was received from the institutional medical ethical review board, reference number CWO-2123.

Participants

Longitudinal data from two points in time between 2017 and mid-2020, were used. The average time between the first time point (T1) and the second time point (T2) was 12.78 (SD = 2.31; range 6.01–17.97) months. The percentage of patients who opted out of having their data used for research was 8.2%. In total, 1099 participants were included in the current study. The average score on the Health of the Nation Outcome Scales (HoNOS), which measures psychosocial functioning, was 9.32 (N = 1081; SD = 6.37; range 0–40) out of 48, with a higher score indicating more impaired functioning [44, 45]. The mean symptom severity score of

HoNOS was not found to be significantly different between patients of Western origin and non-Western origin. The average number of years in mental health care (all care since childhood included) was 18.05 ($N=928$; $SD=11.14$; range 0–51) years. At the time of the first measurement, at least 95% of both Western and non-Western groups had been in care for two or more years, which is a criterion of the definition for severe mental illness in the Netherlands [46].

The setting

All patients who were included received care from one of the sixteen FACT teams [47] in a central area of the Netherlands. FACT is an evidence-based model of flexible assertive community treatment that aims to meet the diverse care needs of patients with SMI. FACT is a multidisciplinary treatment, which involves an individual and shared case management system made up of psychiatrists, psychologists, nurses, social workers and experts by experience. Additionally, support with housing, supported employment and Individual Placement and Support (IPS; [48]) are offered in collaboration with network organizations. The aim is to deliver flexible and long-term care to meet the diverse needs of patients with severe mental illness. During stable periods, patients can receive care at lower intensity, and during periods of acute symptoms, care can be intensified [47]. Although there is not a specific protocol or policy that is used to treat immigrants in FACT, it involves all mentioned FACT services together with working with interpreters to address possible language barriers.

Instruments

Migration background

Migration background was based on the classification of the birth country of the patient and their parents according to the definition of the Central Bureau for Statistics (CBS) in the Netherlands in 2020 [49]. Patients were divided into no migration background (patient and both parents born in the Netherlands), non-Western migration background (patient and/or one or both parents born in Africa, South America, Asia or Turkey) and Western migration background (no non-Western background and patient and/or one or both parents born in Europe, North America, Oceania, Indonesia or Japan). In the main analyses, we compared patients with a non-Western background to patients with a Western or no migration background. In the sensitivity analyses, we compared all three groups. The grouping of Western and non-Western patients according to the CBS is based on socioeconomic and socio-cultural differences between Westerners and non-Westerners.

Socio-demographics

At our baseline measurement, socio-demographic characteristics such as age, gender, education level, paid work, volunteer work, and sources of income, such as social assistance benefits (welfare) and disability and long-term illness benefits, were recorded.

Psychosocial functioning

The HoNOS [50] was used to assess the overall psychosocial functioning of our sample. The 12 items and 3 addendum items of the Dutch HoNOS are scored between 0 and 4, with higher scores indicating more limitations in functioning [45]. The 12-item Dutch HoNOS has good internal consistency with a Cronbach's alpha of 0.78. Item 3 was used to measure clinically relevant problems with alcohol and drug use. Items 6 (problems with hallucinations and delusions), 7 (problems with depressed mood) and 8 (i.e. other mental and behavioural problems) were used to define clinically relevant symptom severity. The addendum items are not included in the HoNOS total score and were used for treatment motivation and for medication compliance. These items were taken from the Dutch version of HoNOS and were dichotomised by taking the item scores of 0 and 1 as not indicating severe, clinically relevant problems and 2, 3 and 4 as indicating a clinically relevant problem.

Diagnosis

Diagnostic and statistical manual of mental disorders (DSM-5; [51]) diagnoses were extracted from clinical records. In the current study, primary diagnoses of the patients were used to describe the sample.

Met, unmet and total needs

Clinician-rated versions of the Camberwell Assessment of Need Short Appraisal Schedule (CANSAS: [52]) were used. The CANSAS consists of 22 questions about care needs in the domains of accommodation, food, looking after the home, self-care, daytime activities, physical health, psychotic symptoms, information on treatment, psychological distress, safety to self, safety to others, alcohol, drugs, company, intimate relationships, sexual expression, child care, basic education, telephone access, transportation, money and social benefits [52]. In the current paper, a Dutch 25-version of the CANSAS including three extra domains were used. The addendum items are paid work, side effects of medication, and meaningful life and recovery. Each care need was scored as: 0 = no need/no severe problem, 1 = a met need (no severe problem due to being partially or fully covered by care) or 2 = an unmet

need (severe problem not sufficiently covered by care). The separate sum scores of the met, unmet and overall needs were calculated, with higher scores meaning more needs. The CANSAS has been shown to have poor to acceptable internal consistency, generally high interrater reliability and acceptable test–retest reliability [42, 52]. In our sample, internal consistency of CANSAS was acceptable to good (Cronbach's alpha for met needs = 0.70; Cronbach's alpha for unmet needs = 0.80; Cronbach's alpha for total needs = 0.80).

Statistical analyses

Overall, 6.2% of values were missing. Missing value rates differed significantly between patients with Western and non-Western backgrounds on two items: intimate relationships and education level. These variables from the CANSAS were more often missing for non-Western patients. Multiple imputation was applied to deal with missing data. Further information on missing and imputed data can be found in Appendix A.

All the analyses were conducted in SPSS 28 [53]. An alpha level of 0.05 was used. A Benjamini–Hochberg corrected alpha was applied to analyses of the CANSAS at the item level to keep the family-wise error rate at 0.05. Baseline differences on socio-demographic and clinical factors, diagnosis, and care needs between Western and non-Western groups were compared using a t-test and chi-square. Age, gender, education, paid work, volunteer work, disability and long-term illness benefits, social assistance benefit and diagnosis were found to be significantly different between Western and non-Western groups. As previous research has found a correlation between these factors and unmet needs [36, 54–58], they were controlled for in the main analysis.

First, three separate multiple regression models were performed on the number of met, unmet and total care needs of the non-Western group compared to the Western group at T2. Baseline number of needs scores were used as covariates in multiple regression models to assess the differences between groups in the change of care needs from T1 to T2. Next, the same procedure was repeated after adjusting the three models for control variables.

In addition, a sensitivity check was performed to evaluate the decision to group patients with a Western migration background and native Dutch non-immigrants together as "Western". The three regression analyses for met, unmet and total care needs were repeated with dummy variables for Western and non-Western migration background while controlling for baseline needs with native Dutch non-immigrants as the reference group.

Finally, separate logistic regression analyses were performed to identify the group differences in the change of care needs per CANSAS item. In the logistic regression models, non-Western migration background (yes/no) was

taken as a predictor, one CANSAS item from T1 per analysis was taken as the control variable and the same CANSAS item from T2 was taken as the outcome variable. The same procedure was repeated after adjusting the models for covariates.

Results

Sample characteristics

Our sample consisted of 1099 patients, of whom 432 (39.2%) had a non-Western migration background (Appendix B). The descriptive statistics for baseline socio-demographic and outcome measures are reported in Table 1.

Patients of Western and non-Western origin differed on most socio-demographic characteristics, primary diagnosis and psychosocial factors. Compared to patients with a Western background, non-Western patients were older and more often male. They had a lower level of education, were more often unemployed, and received different types of benefits. Patients of non-Western origin were diagnosed with psychotic disorders more often compared to Western patients, whereas Western patients were more than twice as likely to have a personality disorder diagnosis than patients of non-Western origin. No significant baseline group differences were found in symptom severity, medication compliance, treatment motivation and alcohol and drug use.

Results of the analysis of needs for care

Patients of non-Western origin had a significantly higher number of met, unmet and total needs for care at the baseline measurement compared to Western patients. Specifically, non-Western patients were found to have more unmet care needs in the domains of daytime activities, psychotic symptoms, information about treatment, psychological distress, child care, basic education, telephone access, finances/money and paid work compared to Western patients at the baseline measurement (Table 3). The descriptive measures of met, unmet and total care needs of both groups from T1 and T2 can be found in Appendix C and the percentage of baseline unmet, met and total care needs of both groups per care domain can be found in Appendix D.

A significant effect of migration background was found on the number of unmet care needs at T2 when controlling for unmet care needs at T1, which means that the non-Western group showed a lower decrease in unmet care needs than Western patients. No significant effect of migration background was identified on the change in met care needs and total care needs (Table 2). After adjusting for the covariates (i.e. age, gender, education level, paid work, volunteer work, social assistance benefit, disability and long-term

Table 1 Baseline comparison between non-Western and Western groups in socio-demographics and care needs

	Non-Western (n = 434) (n, %)	Western (n = 665) (n, %)	X ²	p
Gender (female)	134 (30.8%)	252 (37.9%)	5.52	0.018*
Education			21.86	0.000**
High	43 (10%)	171 (25.6%)		
Middle	137 (31.6%)	245 (36.8%)		
Low	253 (58.3%)	249 (37.5%)		
Paid work	43 (9.8%)	115 (17.3%)	11.27	0.000**
Volunteer work	47 (10.9%)	142 (21.3%)	25.75	0.000**
Social assistance benefit	124 (28.6%)	97 (14.6%)	30.41	0.000**
Disability and long-term illness benefits	152 (34.9%)	338 (50.8%)	25.75	0.000**
Diagnosis			7.13	0.000**
Psychosis spectrum disorders	326 (75.1%)	446 (67%)		
Personality disorders	14 (3.1%)	59 (8.8%)		
Other disorders	94 (21.7%)	160 (24%)		
Symptom severity (severe)	295 (67.9%)	429 (64.5%)	1.27	0.259
Medication compliance	360 (82.9%)	573 (86.1%)	2.01	0.155
Treatment motivation	274 (63%)	422 (63.3%)	0.02	0.872
Alcohol and drug use (severe)	77 (17.8%)	138 (20.8%)	1.31	0.251
	Non-Western M(SD)	Western M(SD)	t	p
Age	43.33 (10.67)	47.74 (11.05)	6.47	0.000**
Unmet care needs	4.11 (3.56)	3.21 (3.39)	− 3.70	0.000**
Met care needs	6.33 (3.69)	5.83 (3.50)	− 2.18	0.029*
Total care needs	10.45 (4.64)	9.05 (4.58)	− 4.71	0.000**

Values of N had decimals due to imputation, and the values have been rounded up or down. N values with decimals can be requested from the authors

*Significant ($p < 0.05$) difference between Western and non-Western groups

**Significant ($p < 0.001$) difference between Western and non-Western groups. A participant can have volunteer work together with paid work or benefits

illness benefits and diagnosis), the effect of migration background on the change of unmet care needs was no longer significant (Table 2). Partial correlation analyses were conducted to examine the relationship between migration background and care needs while controlling for baseline care needs, sociodemographic factors and diagnosis. The zero-order correlation between migration background and unmet care needs, which does not take other variables into account, was small but significant ($r = 0.117$, $p = 0.002$). However, the partial correlation between migration background and unmet care needs, in which baseline unmet care needs, sociodemographic factors and diagnosis were controlled for, was not significant ($r = 0.062$, $p = 0.136$). Both the partial ($r = -0.045$, $p = 0.182$) and zero-order correlation ($r = 0.037$, $p = 0.252$) between migration background and met care needs were not significant. Finally, the zero-order correlation between migration background and total care needs was significant ($r = 0.125$, $p = < 0.001$) whereas the partial correlation ($r = -0.001$, $p = 0.968$) in which baseline

care needs, sociodemographic factors and diagnosis were controlled for, was not. Baseline care needs had the strongest partial correlation with unmet ($r = 0.506$, $p = < 0.001$), met ($r = 0.527$, $p = < 0.001$) and total care needs ($r = 0.606$, $p = < 0.001$), respectively. All partial correlations can be found in Appendix E. The results of the sensitivity check showed that the change in met, unmet and total care needs did not differ significantly between native Dutch patients and patients with a Western migration background (Appendix F).

When looking at the item level, significantly less improvement over time was reported for patients of non-Western origin compared to Western patients in unmet needs in daytime activities, information on treatment, basic education, paid work and meaningful life and recovery. After adding the previously mentioned control variables representing baseline differences in socio-demographic characteristics and diagnosis to the logistic regression models, the non-Western group still showed significantly less reduction in unmet needs in the domains basic education, paid work and meaningful life

Table 2 Multiple regression results of the effect of migration background on the care needs in T2, after controlling for care needs in T1; with and without extra control variables (sociodemographic factors and diagnosis)

Care needs	<i>B</i>	SE <i>B</i>	<i>t</i>	<i>p</i>	95% CI
Before adjusting for control variables					
Unmet	0.51	0.23	2.14	0.043*	0.01–1.00
Met	– 0.00	0.22	– 0.03	0.975	– 0.44 to 0.42
Total	0.30	0.25	1.20	0.228	– 0.19 to 0.80
After adjusting for control variables					
Unmet	0.39	0.25	1.54	0.136	– 0.13 to 0.92
Met	– 0.31	0.23	– 1.34	0.182	– 0.79 to 0.15
Total	– 0.01	0.27	– 0.041	0.968	– 0.56 to 0.53

*Significant ($p < 0.05$) difference between Western and non-Western groups. Control variables were age, gender, education, paid work, volunteer work, disability and long-term illness benefits, social assistance benefit and diagnosis. Paid work was a significant covariate for unmet ($t(11) = -2.30$; $p = 0.024$), met ($t(11) = -2.92$; $p = 0.004$) and total ($t(11) = -2.90$; $p = 0.004$) care needs; high education level and psychosis were significant covariates for met needs ($t(11) = -2.00$; $p = 0.046$ and $t(11) = 2.94$; $p = 0.004$, respectively)

and recovery; the differences in daytime activities and information on treatment were no longer significant. The non-Western group was 2.37 times more likely to have unmet needs in basic education, 1.89 times more likely to have unmet needs in paid work and 1.67 times more likely to have unmet needs in meaningful life and recovery compared to Western patients after controlling for unmet needs at T1 and other control variables (Table 3).

Post-hoc subgroup analyses were conducted to interpret the relationship between employment status and need for care with employment. The percentage of unmet employment needs decreased by more than a fourth for Western patients who did not have paid work at baseline ($n = 549$) while the percentage of unmet employment needs for non-Western patients without paid work at baseline did not change substantially ($n = 391$; Appendix Table 10). For people who did not have paid work at baseline, the odds of having an unmet care need in employment at T2 were 1.83 times as high for people with a non-Western migration background as for Western patients ($p < 0.001$; 95% CI 1.29–2.58; Appendix Table 11).

Discussion

The present study aimed to compare the change in care needs between patients with a Western and non-Western migration background. Specifically, we focused on the change in unmet needs for care. The current research, which was based on routine outcome monitoring with the needs assessment instrument the CANSAS, showed that patients of non-Western origin already had more met, unmet and total needs at baseline compared to Western patients. More specifically, non-Western patients had more unmet needs in daytime activities, psychotic symptoms, information about treatment, psychological distress, child care, basic education, telephone access, money/finance and paid work at baseline. Patients with a non-Western migration background also showed a lower reduction in unmet needs than the Western patients while receiving FACT. To be specific, they had a lower reduction in unmet needs in the rehabilitation areas of daily activities, information on treatment, basic education, paid work and meaningful life and recovery. The difference in the decrease of the overall number of unmet care needs did not persist after controlling for the socio-demographic variables and diagnosis, though these factors only had small partial correlation with unmet care needs. However, patients of non-Western origin did experience a lower reduction in unmet needs in basic education, paid work and meaningful life and recovery, even after controlling for the socio-demographic variables and diagnosis.

Our results on the baseline comparison and differences in the change of care needs are partly in accordance with other cross-sectional and longitudinal studies from the literature. Studies from a forensic hospital in the UK and a FACT setting in the Netherlands have reported that non-Western patients had more unmet needs than Western patients [59, 60], while other studies from acute psychiatry wards found that Western patients had more unmet needs [43, 61]. These differences can partly be explained by the variety in study settings (acute wards, community care) and immigrant groups (Black, not native, not Western). Regarding cross-sectional studies into care needs per need area, immigrants who received community care had more unmet needs in accommodation, physical health, psychological stress, basic education and economy compared to non-immigrants in Sweden [37], which is partly in accordance with our results from the baseline comparison.

The change in care needs indicated discrepancies between Western and non-Western groups given the lower improvement in the unmet care needs of the non-Western group, which is also partly supported by the literature. Arvidsson & Hultsjö [37] found that the needs of non-Swedish immigrants were unequally served during five years of community care treatment compared to Swedish non-immigrants,

Table 3 The chi-square test results of the baseline comparison between groups for unmet care needs and logistic regression results of the change differences in unmet care needs (T1–T2) per domain

Domains	Baseline differences					Outcomes of the change differences T1–T2 in unmet care needs between groups					Outcomes of the change differences T1–T2 after adjusting for control variables				
	Non-Western	Western	X ²	P		B	SE	OR	95% CI	p	B	SE	OR	95% CI	p
Accommodation	33 (7.5%)	32 (4.8%)	2.26	0.138		0.277	0.368	1.320	0.62–2.79	0.456	0.140	0.410	1.15	0.50–2.64	0.734
Food	30 (6.9%)	61 (9.2%)	1.72	0.189		0.198	0.301	1.219	0.61–2.25	0.515	0.095	0.336	1.10	0.55–2.18	0.780
Looking after the home	32 (7.4%)	54 (8%)	0.07	0.785		0.280	0.299	1.32	0.723–2.41	0.355	0.055	0.350	1.05	0.51–2.16	0.876
Self-care	25 (5.8%)	43 (6.4%)	0.08	0.768		0.145	0.344	1.15	0.57–2.33	0.676	0.073	0.373	1.07	0.50–2.30	0.847
Daytime activities	198 (45.6%)	226 (33.9%)	14.35	0.000*		0.474	0.150	1.60	1.19–2.15	0.002*	0.346	0.171	1.41	1.00–1.98	0.044 ^a
Physical health	74 (17.1%)	90 (13.5%)	2.49	0.114		0.258	0.209	1.29	0.85–1.96	0.220	0.161	0.225	1.17	0.75–1.83	0.477
Psychotic symptoms	136 (31.4%)	160 (24%)	7.01	0.008*		0.231	0.158	1.26	0.92–1.71	0.144	0.016	0.176	1.01	0.72–1.43	0.928
Information on treatment	43 (9.9%)	38 (5.6%)	6.46	0.011*		0.604	0.241	1.82	1.14–2.93	0.012*	0.362	0.261	1.43	0.86–2.39	0.165
Psychological distress	136 (31.3%)	153 (23%)	8.29	0.004*		0.213	0.167	1.23	0.89–1.71	0.203	0.113	0.182	1.11	0.78–1.60	0.536
Safety to self	16 (3.6%)	19 (2.8%)	0.14	0.709		0.136	0.383	1.14	0.53–2.45	0.724	0.121	0.404	1.12	0.50–2.50	0.766
Safety to others	22 (4.9%)	20 (3%)	1.26	0.270		0.185	0.323	1.20	0.63–2.27	0.567	–0.062	0.349	0.94	0.47–1.86	0.859
Alcohol	32 (7.3%)	56 (8.3%)	0.24	0.625		–0.089	0.268	0.915	0.54–1.55	0.740	0.093	0.303	1.09	0.60–1.99	0.759
Drugs	54 (12.3%)	77 (11.6%)	0.01	0.896		0.257	0.250	1.29	0.78–2.12	0.306	0.128	0.271	1.13	0.66–1.94	0.638
Company	147 (33.9%)	211 (31.7%)	0.35	0.550		0.040	0.146	1.04	0.78–1.38	0.784	–0.162	0.166	0.85	0.614–1.17	0.328
Intimate relationships	120 (27.7%)	190 (28.6%)	0.03	0.847		0.137	0.296	1.14	0.57–2.28	0.657	0.098	0.323	1.10	0.52–2.33	0.770
Sexual expression	152 (35.1%)	200 (30.1%)	0.32	0.585		0.037	0.503	1.03	0.27–3.88	0.944	0.032	0.517	1.03	0.26–3.96	0.953
Child care	30 (6.9%)	17 (2.5%)	7.54	0.010*		0.268	0.343	1.30	0.66–2.56	0.434	0.021	0.375	1.02	0.48–2.13	0.955
Basic education	73 (16.8%)	17 (2.5%)	51.91	0.000*		1.027	0.267	2.79	1.65–4.72	0.000*	0.864	0.291	2.37	1.34–4.19	0.003*
Telephone	25 (5.7%)	16 (2.3%)	5.19	0.028*		0.747	0.453	2.11	0.81–5.45	0.116	0.654	0.427	1.92	0.81–4.51	0.130
Transport	25 (5.6%)	24 (3.6%)	1.81	0.182		0.383	0.287	1.46	0.83–2.58	0.184	0.313	0.337	1.36	0.69–2.68	0.356
Money	50 (11.4%)	34 (5%)	12.84	0.000*		0.521	0.294	1.68	0.93–3.04	0.082	0.248	0.336	1.28	0.64–2.53	0.465
Benefits	30 (6.9%)	23 (3.4%)	3.78	0.063		0.346	0.354	1.41	0.67–2.95	0.339	0.277	0.381	1.31	0.59–2.90	0.475
Paid work	104 (24%)	117 (17.6%)	6.00	0.014*		0.692	0.174	1.99	1.42–2.80	0.000*	0.641	0.198	1.89	1.28–2.79	0.001*
Side effects of medication	47 (10.8%)	64 (9.6%)	0.39	0.531		0.203	0.223	1.22	0.79–1.89	0.362	0.037	0.261	1.03	0.61–1.73	0.889
Meaningful life and recovery	150 (34.6%)	196 (29.4%)	2.78	0.096		0.457	0.152	1.58	1.17–2.12	0.003*	0.516	0.171	1.67	1.19–2.34	0.003*

A Benjamini–Hochberg correction was used

*Significant difference between non-Western and Western groups

^aThe p value of 0.044 for daytime activities was not significant at the Benjamini–Hochberg corrected alpha level, which was 0.032 for this result

with immigrants showing impairment in the severity of the symptoms and having no decrease in overall service needs, even though a decrease was observed in non-immigrants. Our results from the comparison of the change in care needs per area indicates similar patterns in terms of fulfillment of the needs in social and occupational domains. For instance in studies in the USA, immigrants with SMI had lower improvement in social functioning after a year of community-based psychosocial rehabilitation treatment [39] and more deterioration in occupational functioning after three years of psychosocial rehabilitation [40]. Considering the diversity in the cultural and socio-demographic characteristics within the immigrant groups together with the specific dynamics and position of certain ethnic groups in the context where they live (e.g. level of discrimination, integration, accessibility of available assistance and services, etc.), the results of the current study can hardly be generalised. Therefore, it might be important to study different immigrant groups in their specific situations to understand the unmet needs that are specific to each group.

In our study, non-Western patients indicated less decline in unmet needs of basic education, paid work and meaningful life and recovery compared to Western patients during FACT. This might be an indicator of either lack of help or increased awareness of needs in these areas. It is important to add that even considering the baseline employment status, migration background still had a role in predicting the change in unmet need of employment [33, 62, 63]. The decreased percentage of unmet employment needs in the subgroup of Western group who did not have paid work at baseline might be an indicator that either interventions on employment work better for this group, or that patients from the Western group are more fulfilled with their unemployment. Particular attention to the double burden of having both a migration background and SMI may be needed to ensure non-Western patients not only access but retain employment and feel fulfilled in their work. Less improvement in unmet needs in basic education of non-Western patients can be interpreted in light of socioeconomic circumstances of this group such as lower literacy and language or financial barriers to services (e.g. social workers, administrative workers) that assist with the tasks that require basic education [22, 64, 65]. Lower improvement in unmet needs in meaningful life and recovery might be due to unresolved difficulties surrounding identity, roles and purpose [49]. Additional focus on the interpretation, conceptualization and experience of recovery in non-Western culture, strengthening positive ethnic identity and including cultural elements such as spirituality in the treatment process can lead to improvements in recovery in non-Western groups [66–68]. Lastly, participation has been found to provide people with SMI perspective and opportunities which can provide hope and goals for the future, and especially employment was shown to be connected to recovery [68–72]. Therefore, giving

extra focus on unmet needs in participation (i.e. paid work, basic education), which were found to be significant in the current study, can also potentially address the broader needs of non-Western patients in recovery.

Strengths, limitations and future research

Our study has several strengths. Although a substantial part of the literature focuses on the high incidence of SMI in non-Western immigrants and the possible reasons for this, there has been a lack of research into the care needs and the development of the care needs of this risk group throughout treatment. The current study fills this gap by reporting the differences in the change in care needs between the Western and non-Western groups throughout FACT. Since our participants are patients in a real-life clinical setting, our study also has a high ecological validity. Furthermore, the results of the sensitivity check (i.e. the comparison between Western migration background, non-Western migration background and non-migration background) provided support for our method of categorising migration backgrounds. We formulated our grouping based on the fact that people with a non-Western background encounter more obstacles, and the results of the sensitivity check verified this by showing a disadvantageous position for only SMI patients with a non-Western migration background and not for SMI patients with a Western migration background. Lastly, using multiple imputation to deal with missing data gave us the opportunity to make more unbiased estimates.

There are also some limitations in this study that could be addressed in future research. First, we focussed on the concept of unmet needs as a strong indicator of quality of services. However no information is analysed on the personal stories behind the unmet needs. Unmet needs for work or education can arise partly by a lack of care but also partly by emerging needs as people progress to the next stage of their recovery. Second, we only used reports from case managers, who might not receive good information on immigrants, might not have a good connection with immigrants or might be biased towards the immigrant group [73]. Third, the current study does not clarify which parts of the system might be responsible for addressing unmet needs. As the care needs that are measured by the CANSAS consist of a wide range, they can be met by different professionals specialised in mental health care, education, housing, or the social or vocational domain or by non-professionals, such as family, friends or volunteers. Fourth, since our sample represents the group that can already access mental health care, the sample group in the current study might already be in a more advantageous position. Therefore, we do not know about the care needs of immigrants who, according to the literature, face more problems in accessing mental health care. Fifth, the current study does not examine care need differences between generations.

Following previous research, in which the second-generation non-Western group had better outcomes than the first generation [56], the generational differences in longitudinal design should also be examined in the future research. Lastly, considering the small partial correlations between predictors (migration background, sociodemographic factors and diagnosis) and care needs in the current study, the effect of other personal and treatment related variables should be researched in the future studies.

Conclusion

The disadvantageous position of patients with a non-Western migration background in our study endures throughout mental health care of FACT. The care needs of patients with a non-Western migration background and Western patients were served unequally, which was explained by a higher number of care needs at baseline and the socio-demographic factors and diagnosis rather than the migration background except for the care domains of paid work, basic education and meaningful life and recovery. More specifically, non-Western immigrants indicated a lower decrease in the need for help with their basic education, paid work and meaningful life and recovery. Since the care needs from different domains cannot be fulfilled only by mental health care, action from other parts of the community system will be necessary to build social policies accordingly.

Appendix A

Most of the missing data were observed in the CANSAS items sexual expression at both T1 and T2 (66.7% and 68.8% missing, respectively), intimate relationships at both T1 and T2 (29.9% and 30.1% missing, respectively) and education level variable at baseline (18.8% missing). Missing value

Table 4 The observed and imputed data percentages of the variables in which the most missing data were observed

	Observed data (%)	Imputed data (%)
Unmet Care Needs		
Sexual Expression at T1	19.9%	28.2%
Sexual Expression at T2	17.2%	29.8%
Intimate Relationships at T1	26.8%	28.2%
Intimate Relationships at T2	23.1%	24.8%
Education Level		
Low Education	44.3%	45.7%
Middle Education	35.8%	34.7%
High Education	19.7%	21.4%

rates differed significantly between non-Western immigrants and patients with a Western background for care needs in intimate relationships ($F(1.1076) = 5.95$; $p = 0.015$) and education level ($F(1.1076) = 28.08$; $p < 0.001$) at baseline. Following from this, imputation was performed by including the predictor (i.e. ethnicity), baseline control variables (i.e. based on the literature) and outcome variables in the imputation model. Five imputations with 5000 iterations were run. Results of analyses were pooled across all five imputed datasets. Pooled test results that could not be obtained by SPSS were calculated manually (i.e. for SD and %) and by using the MICE package of R software version 4.1.2 (i.e. for the p and Pearson chi-square values of the chi-square test) (See Table 4).

Appendix B

See Table 5.

Table 5 Number of non-Western and Western patients

Migration background	Number (%)
Non-Western background	432 (39.2%)
Western background	
Western immigrants	102 (9.3%)
Western non-immigrants	565 (51.4%)

Patients of non-Western origin have an African, South American or Asian migration background (see the definition used by Central Bureau of Statistics Netherlands [49]). Explanation of the categorisation of groups can be found in the Methods section

Appendix C

See Table 6.

Table 6 M and SD of unmet, met and total care needs of non-Western and Western patients at T1 and T2

	Time 1		Time 2		Mean Difference (SD)
Care needs	M	SD	M	SD	
Non-Western (n = 434)					
Unmet	4.11	3.56	4.01	3.83	0.09 (3.58)
Met	6.33	3.69	6.31	4.01	0.02 (3.73)
Total	10.45	4.64	10.32	5.27	0.12 (4.37)
Western (n = 665)					
Unmet	3.21	3.39	3.00	3.20	0.20 (3.04)
Met	5.83	3.50	6.01	3.76	-0.17 (3.33)
Total	9.05	4.58	9.02	4.94	0.03 (3.87)

Appendix D

See Table 7.

Table 7 Percentage (%) of unmet, met and no need per group at baseline

	Non-Western (n = 434)			Western (n = 665)		
	Unmet Need	Met Need	No Need	Unmet Need	Met Need	No Need
Accommodation	7.51%	18.57%	73.92%	4.81%	16.60%	78.59%
Food	6.91%	29.40%	63.69%	9.20%	19.46%	71.34%
Looking after home	7.42%	37.47%	55.12%	8.06%	33.65%	58.29%
Self care	5.85%	16.22%	77.93%	6.41%	17.56%	76.03%
Daytime activities	45.62%	19.68%	34.70%	33.92%	25.17%	40.90%
Physical health	17.14%	37.97%	44.88%	13.56%	37.80%	48.63%
Psychotic symptoms	31.43%	53.41%	15.16%	24.03%	54.02%	21.95%
Information on treatment	9.91%	40.00%	50.09%	5.65%	40.03%	54.32%
Psychological distress	31.38%	46.87%	21.75%	23.04%	56.78%	20.18%
Safety to self	3.69%	14.79%	81.52%	2.86%	16.21%	80.93%
Safety to others	4.98%	15.35%	79.68%	3.07%	10.65%	86.29%
Alcohol	7.33%	8.20%	84.47%	8.39%	16.12%	75.49%
Drugs	12.40%	10.05%	77.56%	11.64%	8.66%	79.70%
Company	33.92%	23.59%	42.49%	31.79%	25.50%	42.71%
Intimate relationships	27.74%	13.50%	58.76%	28.60%	12.30%	59.10%
Sexual expression	35.12%	25.07%	39.82%	30.11%	24.96%	44.93%
Child care	6.96%	17.42%	75.62%	2.53%	4.54%	92.93%
Basic education	16.82%	29.35%	53.82%	2.53%	16.87%	80.60%
Telephone	5.71%	11.89%	82.40%	2.38%	5.02%	92.60%
Transport	5.67%	15.30%	79.03%	3.61%	13.41%	82.98%
Money	11.47%	44.24%	44.29%	5.08%	33.47%	61.44%
Benefits	6.91%	29.95%	63.13%	3.43%	16.96%	79.61%
Paid work	24.06%	16.87%	59.08%	17.62%	16.75%	65.62%
Side effects of medication	10.83%	27.19%	61.98%	9.62%	25.89%	64.48%
Meaningful life and recovery	34.61%	31.57%	33.82%	29.47%	35.52%	35.01%

Appendix E

See Table 8.

Table 8 Partial correlations between predictor and outcome variables

	Unmet care needs		Met care Needs		Total care needs	
	r	p	r	p	r	p
Migration background	0.062	0.136	−0.045	0.182	−0.001	0.968
Baseline care needs	0.506	<0.001*	0.527	<0.001*	0.606	<0.001*
Age	−0.004	0.197	−0.010	0.746	−0.034	0.350
Gender	−0.036	0.289	−0.025	0.450	−0.032	0.312
Low education	0.024	0.496	0.051	0.104	0.047	0.155
High education	0.036	0.283	−0.064	0.045*	−0.019	0.541
Paid work	−0.079	0.024*	−0.098	0.004*	−0.095	0.004*
Volunteer work	−0.049	0.118	−0.012	0.732	−0.029	0.382
Disability and long-term illness benefits	0.011	0.742	−0.059	0.073	−0.039	0.234
Social assistance benefit	0.016	0.635	−0.025	0.422	−0.009	0.787
Diagnosis of psychosis spectrum disorders	−0.038	0.234	0.096	0.004*	0.058	0.061
Diagnosis of personality disorder	−0.009	0.773	0.065	0.052	0.037	0.239

*Significant partial correlation

Table 9 Multiple regression results of the comparison between native Dutch non-immigrants, Western and non-Western immigrants in care needs in T2, after controlling for care needs in T1

Care needs	<i>B</i>	SE <i>B</i>	<i>t</i>	<i>p</i>	95% CI
Unmet					
Western migration background	− 0.29	0.32	− 0.91	0.360	− 0.93– 0.34
Non-Western migration background	0.47	0.21	2.19	0.032*	0.04– 0.90
Met					
Western migration background	0.41	0.37	1.11	0.266	− 0.31– 1.14
Non-Western migration background	0.07	0.22	0.32	0.747	− 0.36– 0.51
Total					
Western migration background	0.08	0.44	0.19	0.849	− 0.78– 0.95
Non-Western migration background	0.34	0.26	1.28	0.199	− 0.18– 0.86

The categories of migration backgrounds (non-Western migration background, Western migration background and no migration background) were dummy coded. Following this, non-Western migration background and Western migration background were added in the multiple regression separately

Appendix F

See Table 9.

Appendix G

See Tables 10, 11.

Table 10 Percentages of unmet employment needs in non-Western and Western patients following baseline employment status (post-hoc analysis)

	Non-Western patients without paid work at baseline (n = 391)		Western patients without paid work at baseline (n = 549)	
	Time Point 1	Time Point 2	Time Point 1	Time Point 2
Unmet Employment Needs	26.48%	25.30%	20.50%	14.94%

Table 11 Logistic regression results of difference in the odds of having an unmet care need of employment at T2 between Western and non-Western groups following baseline employment status (post-hoc analysis)

	<i>p</i>	<i>B</i>	SE	OR	95% CI
Without Paid Work at baseline	< 0.001	0.605	0.176	1.83	1.29– 2.58

Logistic regression models were performed by controlling baseline unmet care need of employment

Author contributions Each author of this manuscript has substantially contributed to: (1) conception and design, and acquisition of data, and analysis and interpretation of data, (2) drafting and critically revising the article for important intellectual content, (3) final approval of the this manuscript.

Declarations:

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This research study was conducted retrospectively from data obtained for routine outcome monitoring. Permission for the study was received from the institutional medical ethical review board, reference number CWO-2123.

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