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Changes in youth care use after the implementation of community-based support teams: repeated measurement study using registry data and data on team characteristics

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ABSTRACT

Objectives New legislation on youth care in the Netherlands led to the implementation of community-based support teams, providing integrated primary youth care. Important aims of the new Youth Act were more integrated, timely care and less use of intensive forms of care. Our aim was to study changes in youth care use in time and the role of newly introduced community-based support teams herein.

Setting Register data (2015–2018) on youth of a large city were linked and combined with administrative and aggregated data on team characteristics.

Participants Data on 126 095 youth (0–18 years) were available for analyses.

Primary and secondary outcome measures Primary, specialised and residential youth care use were the primary outcomes.

Results Generalised estimating equations analyses adjusted for individual characteristics demonstrated that over 4 years, use of primary youth care increased from 2.2% to 8.5% (OR 1.70; 99% CI 1.67 to 1.73), specialised youth care decreased from 7.2% to 6.4% (OR 0.98; 99% CI 0.97 to 1.00) and residential youth care increased slightly (OR 1.04; 99% CI 1.01 to 1.06). Gender, age, family status, migrant background and educational level were all associated with the types of youth care use and also with some trends in time. Likelihood to receive care increased in time for preschool and younger children but did not improve for migrant children.
Case load, team size, team turnover, team performance and transformational leadership showed significant associations with different types of youth care use but hardly with trends in time.

Conclusion Patterns of youth care use changed towards more locally provided primary youth care, slightly less specialised and slightly more residential youth care. Furthermore, youth care use among younger children increased in time. These trends are partly in line with the trends intended by the Youth Act. Little evidence was found for the role of specific team characteristics on changes in youth care use in time.

Strengths and limitations of this study

- Our study is one of the few studies including contextual determinants of youth care use.
- Registry data on a large population was available for analyses.
- Only time trends after (and not before) a major change in the youth care system were available.
- Time trends were studied over a limited period (2015–2018).

INTRODUCTION

Youth care use has increased in several Western countries in the recent decades.[1–4] In the Netherlands, for example, the percentage of children (0–18 years of age) using mental health and parenting support services increased from 4% in 2000 to 12% in 2018.[5] The youth care system in the Netherlands was drastically reformed in 2015 in response to this increased need for youth care and to overcome the fragmentation of the former system of youth care.[6 7] The fragmentation encompassed the allocation of funding and responsibilities at different governance levels (central, regional and municipal) and medical insurance companies, which also resulted in shortcomings in integrated care and collaboration between professionals.

New legislation arranged the transfer of the responsibility and funding for the provision of youth care from the national and regional governmental levels and health insurance suppliers to the municipalities.[8] The aims of the new Youth Act were to improve integrated care, timeliness and proximity of care.[9] Other aims were to improve the prevention of psychosocial problems, reduce medicalisation and to reduce the use of more intensive forms of youth care use by empowering youth and their families.[10] Furthermore, the Youth Act aimed at more collaboration in the chain of care and more professional space

and lower administrative burden to provide the care and support that is needed.

To deal with these responsibilities, the majority of the Dutch municipalities implemented community-based support teams.[9] These community-based support teams offer a broad integrated range of services because of their multidisciplinary composition. They typically consist of professionals with different expertise such as child safety, youth mental care, mental and behavioural care and support for children with mild intellectual disabilities parenting, welfare and financial support and typically operate at the local neighbourhood level, reaching out if necessary.[11] They focus on empowerment of families and involving and strengthening the social network. Their main functions are to provide accessible support by offering consultation, advice, primary mental healthcare, ambulatory (parenting) support and basic diagnostics. They serve as linking pin between universal services and specialised youth care and coordinate support of families in collaboration with other services (schools, general practitioners, financial support and adult mental health services).[12] If needed, children and families are referred to specialised forms of ambulatory or residential youth care like specialised mental healthcare and parenting support services, to specialised youth care services for children and parents with mild or more serious intellectual disabilities and to youth protection or probation services. The assumption is that the deployment of community-based support teams leads to more accessible, timely, integrated and empowering care. This is expected to result in less intensive forms of youth care (more primary and less specialised and residential youth care).

Evaluation of these expected benefits needs to take into account the individual and contextual factors influencing the use of youth care apart from the reform in youth care.[13 14] In the theoretical models of both Andersen[14] and Stiffman *et al*[13] apart from the (perceived) need for care, enabling and predisposing factors are distinguished at both the individual and contextual levels. Factors on the individual level that have been shown to be associated with youth mental health services include age, gender and ethnic background of the child, and family and caregiver characteristics including family composition and socioeconomic characteristics.[15–17]

Contextual factors include the youth care system itself. Successful performance of community-based support teams is likely to be influenced by team characteristics and processes.[18] Studies in the public administration field on teams in the social domain have shown that team size, stability and leadership affect how well team members work together, with cohesiveness being a vital element of team functioning.[18–21] A larger team size potentially benefits the delivery of care services through the larger pool of resources.[20] A lack of stability in team membership due to high turnover rates demotivates team members and thus acts as a barrier.[18] Strong transformational leadership also contributes to effective team performance,[18] through efforts to 'transform' individual aspirations into the overall vision of the team.[21] Team cohesion is characterised by strong unitedness in achieving shared goals and emphasis on the team members' social relationships.[19] Furthermore, a high caseload of the team poses risks for suboptimal performance.[22]

In this paper, the research question to be answered is: is there a change over time in use of different types of youth care since the reform in 2015 and are sociodemographic characteristics and characteristics of the community-based support teams associated with change?

METHODS

Study design

Microdata from Statistics Netherlands were linked over the years 2015–2018 (see online supplemental table 1). Under strict conditions, these microdata are accessible for statistical and scientific research. Pseudonymised administrative information on the individual level about sociodemographic characteristics and youth healthcare use of the youth population registered in Rotterdam any time in this 4-year time period has been used.

Aggregated data at team level on team characteristics were available from an earlier study, in which data were collected in 2016 through an online survey among 363 professionals of 42 community-based support teams within Rotterdam.[11] Response rate per team ranged between 27% and 81% with a mean of 50%. Administrative data on team size in June 2016 were available from the municipality of Rotterdam as well as administrative data on caseload and turnover in 2015. Data on team characteristics were linked to the individual microdata records by pseudonymised postal code of the home address.

Patient and public involvement

Discussions with local stakeholders from practice and policy preceded and shaped the formulation of the research question.

Study population

In this study, we included all children of 0–18 years old on the first of January in 2015 registered as living in Rotterdam (n=1 72 448). Children with missing data on educational level (n=25 985) or family status (n=24 920) were excluded. The study population consisted of 126 095 children.

Use of youth care

The outcome measure was the use of youth care in the consecutive years 2015 through 2018. Youth care included:

- Primary youth care: locally provided care by the community-based support teams, including family and youth coaching and social support, basic mental healthcare and basic parenting support, as well as coordination of integrated care, also on multiple domains if needed.

- Specialised youth care: ambulatory or day care focusing on parenting problems and/or mental health and behavioural problems with a referral from a medical doctor or community-based support team including specialised mental healthcare, specialised parenting support and specialised care for youth with (mild) intellectual disabilities.
- Residential youth care: institutional care (institutional or family-based treatment groups, emergency care and assisted living) and foster care.

Individual characteristics

Demographic characteristics included child gender, age, ethnic background, educational level, family status and neighbourhood. Demographic characteristics were determined at the first of January of 2015.

Ethnic background

In accordance with the classification system used by Statistics Netherlands, a child's ethnic background was classified as Dutch when both parents were born in the Netherlands and as non-Dutch when one or both parents were born outside the Netherlands.

Educational level

Children up to 4 years old were classified as 'not yet at school age'. Children with a basic qualification or over 18 years old without a school registration were classified as 'off school age'. Children registered as following special (primary or secondary) education were classified as 'special education'. All other children were classified as 'regular education'.

Family status

Family status was classified in five levels, namely two-parent family (when the child lives with two adults who are living together), single-parent family (when there was one parent in the household with one or more children), residential or foster care (a household of one or more persons who are professionally provided with housing and daily necessities of life) and other (private household consisting exclusively of members other than family and unknown).

Team characteristics

Information about team characteristics and leadership included team size, turnover, average caseload, transformational leadership, perceived team performance and team cohesion.

Caseload

Caseload was calculated by the mean amount of cases per month divided by the mean amount of full-time equivalent (FTE) per team in 2015.

Turnover

Turnover rate was calculated as the sum of persons leaving the team and persons entering team divided by the average number of persons in the team in 2015.

Team size

Team sizes were obtained from the municipality's administration and ranged between 7 and 26 team members with on average 18 team members.

Team performance

Team performance was assessed based on the 'employee judgement of effectiveness' scale.[23] Professionals were asked to grade their team on six effectiveness indicators like 'the quality of care provided by our team' on a 10-point Likert-type scale with 10 as highest score corresponding to excellent (range 6.13–8.5; Cronbach's alpha 0.90).

Team cohesion

Team cohesion was measured using five items inspired by Carless and De Paola's measure for team cohesion.[24] Items like 'Our team is united in trying to reach its goals for performance' were scored on a 5-point Likert scale with highest scores indicating high team cohesion (range 3.29–5.00; Cronbach's alpha 0.89).

Transformational leadership

Transformational leadership was measured using five items. The items were based on the transformational leadership scale by Jensen *et al*,[21] and an example item is 'our supervisor strives to get the team work together to realise its vision'. The responses were given on a 5-point Likert scale with highest scores indicating good leadership (range 2.50–4.67; Cronbach's alpha 0.91).

Statistical analyses

A repeated measures logistic regression analysis was conducted, using generalised estimating equations. For the outcomes, that is the three types of youth care (primary, specialised and residential), separate models were fit. First, univariable models were run with time, individual characteristics and team characteristics as separate predictors. Thereafter, multivariable models were performed including time, individual characteristics and community-based support team characteristics at the individual level. Because residential care was part of the characteristic family status, family status was not entered in models for residential care. Finally, interactions of time with sociodemographic characteristics and with community-based support teams characteristics were tested in order to answer our research question, whether sociodemographic characteristics and characteristics of community-based support teams influence a change over time in use of different types of youth care.

The statistical significance level was defined as a p value below 0.01 (two tailed). Analyses were performed using R V.3.5.3.

RESULTS

The study population consisted of children with diverse ethnic backgrounds, with 24.6% living in a single parent family and 2.6% receiving special education (table 1).

Table 1 Characteristics total population for analysis and split by type of youth care

Characteristics	Total population 0–18 n (%)	Primary youth care n (%)	Specialised youth care n (%)	Residential youth care n (%)
Total	172 450 (100)	16 480 (100)	18 245 (100)	3170 (100)
Gender (female)	84 440 (49.0)	7355 (44.6)*	7550 (41.4)*	1555 (49.1)
Ethnic background				
Dutch	72 860 (42.3)	6100 (37.0)[R]	9030 (49.5)[R]	1360 (42.8)[R]
Moroccan	17 705 (10.3)	1920 (11.6)*	1520 (8.3)*	190 (6.1)*
Turkish	13 955 (8.1)	945 (5.7)*	965 (5.3)*	80 (2.6)*
Surinamese	11 385 (6.6)	1490 (9.0)*	1490 (8.2)*	365 (11.5)*
Antillean	9645 (5.6)	1820 (11.0)*	1375 (7.5)*	420 (13.3)*
Other non-Western	25 135 (14.6)	2670 (16.2)*	2185 (12.0)*	450 (14.2)
Western	21 760 (12.6)	1535 (9.3)*	1680 (9.2)*	300 (9.5)
Family status				
Two-parent family	99 555 (57.7)	7080 (43.0)[R]	9520 (52.2)[R]	730 (23.0)[N]
Single-parent family	42 500 (24.6)	7790 (47.3)*	7360 (40.3)*	1225 (38.7)
Residential/foster	1590 (0.9)	330 (2.0)*	390 (2.1)*	350 (11.1)
Other	3880 (2.3)	550 (3.3)*	650 (3.6)*	725 (22.9)
Missing	24 920 (14.5)	730 (4.4)*	325 (1.8)	135 (4.3)
Educational status child in 2015				
Not yet at school age	34 465 (20.0)	1675 (10.2)*	600 (3.3)*	215 (6.7)*
Regular education	102 210 (59.3)	10 555 (64.1)[R]	13 710 (75.2)[R]	1855 (58.5)[R]
Special education	4450 (2.6)	1795 (10.9)*	2325 (12.7)*	690 (21.7)*
Off school age	5340 (3.1)	175 (1.0)*	290 (1.6)	115 (3.6)*
Missing	25 985 (15.1)	2275 (13.8)	1320 (7.2)	300 (9.5)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Average age	9.9 (6.2)*	10.7 (5.3)*	12. (4.6)*	13.2 (5.4)

*Significant p<0.01.
N, not tested; R, reference category.

Children receiving care were older of age, more often boys, more often living in single parent families (39%–47%) and following special education (11%–22%). Ethnic background also differed from children not receiving youth care.

Table 2 shows the average team characteristics (caseload, turnover, team size, team performance, team cohesion and transformational leadership) of the community-based support teams for children in the study population. Average team characteristics of the community-based

Table 2 Characteristics of community-based support teams split by type of youth care

Characteristics	Total population 0–18 Mean (SD)	Primary youth care Mean (SD)	Specialised youth care Mean (SD)	Residential youth care Mean (SD)
Caseload	1.5 (0.67)	1.4 (0.66)*	1.4 (0.67)*	1.4 (0.69)
Turnover	0.6 (0.14)	0.6 (0.13)*	0.6 (0.14)*	0.6 (0.13)
Team size	18.4 (4.46)	18.9 (4.56)*	18.4 (4.55)*	18.8 (4.27)*
Team performance	7.5 (0.41)	7.4 (0.44)*	7.4 (0.43)*	7.4 (0.44)*
Team cohesion	4.0 (0.38)	4.0 (0.38)*	4.0 (0.39)*	4.0 (0.39)*
Transformational leadership	3.8 (0.48)	3.8 (0.49)	3.8 (0.49)	3.7 (0.49)

*Significant p<0.01.

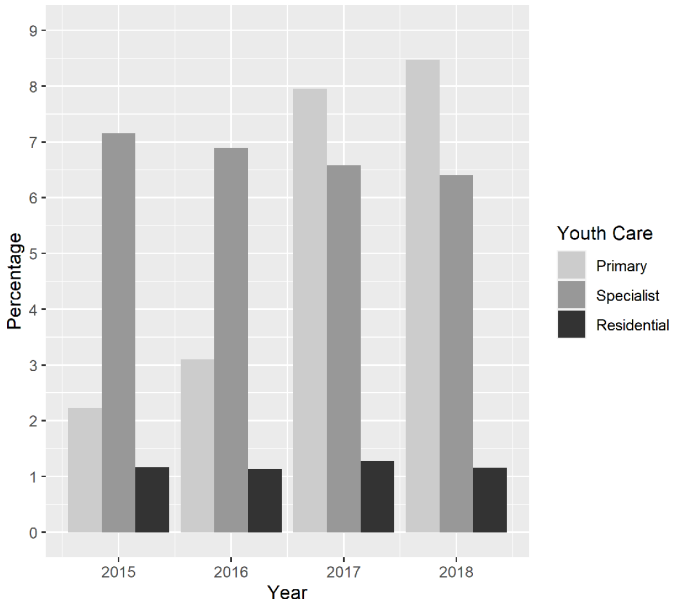

Figure 1 Types of youth care use across years.

support teams did not differ for the types of youth care children did receive.

The change in the use of primary youth care, specialised youth care and residential care over the years is illustrated in figure 1. The use of primary youth care increased from 2015 to 2018 from 2.2% to 8.5%. The use of specialised youth care decreased from 7.2% to 6.4%. Residential youth care fluctuated slightly and was 1.2% in 2015 as well as 2018 (see online supplemental table 2).

Table 3 shows an increase in primary youth care use (OR 1.70, 99% CI 1.67 to 1.73). Furthermore, a small decrease over time was found in specialised youth care use (OR 0.98, 99% CI 0.97 to 1.00) as well as a small increase over time in residential youth care use (OR 1.04, 99% CI 1.01 to 1.06).

Boys, younger children, children from non-two parent families, children from most migrant backgrounds and children following special education were more likely to receive primary youth care. Preschool children and no longer school-aged children were less likely to receive primary youth care. Regarding characteristics and functioning of community-based support teams, primary youth care was negatively associated with caseload (OR 0.88; 99% CI 0.84 to 0.92) and leadership (OR 0.91; 99% CI 0.85 to 0.98) and positively associated with turnover (OR 1.50; 99% CI 1.19 to 1.89), meaning that children were more likely to receive this type of care if their community-based support team had a low caseload, low transformational leadership and high turnover rate.

Specialised youth care was more likely to be provided to boys, older children, children from non-two parent families and children following special education. It was less likely to be provided to children from most migrant backgrounds, preschool children and no longer school-aged children. Regarding characteristics and functioning of community-based support teams, specialised youth care was positively associated with turnover (OR 1.67; 99% CI 1.42 to 2.19) and negatively associated with team size (OR 0.99; 99% CI 0.98 to 0.99) and team performance (OR 0.90; 99% CI 0.82 to 0.97), meaning that children were more likely to receive this type of care if their community-based support team had higher turnover, a smaller team size and lower evaluation of their team performance.

Residential youth care was more likely to be received by girls, older children, children following special education and no longer school-aged youth. Children from some migrant background were more likely to receive residential care (Surinam and Antillean background), while others were less likely to receive it (Moroccan and Turkish background). With regard to characteristics and functioning of community-based support teams, residential youth care was only positively associated with team size (OR 1.01; 99% CI 1.00 to 1.03). This means that children were more likely to receive this type of care if their community-based support team had a larger team size.

Table 4 shows trends in time for youth care use differed according to sociodemographic characteristics.

The likelihood to receive primary youth care increased in time for boys, younger children, preschool children and children receiving special education, while it decreased in time for children of single parent families and children of certain migrant backgrounds (Moroccan and other non-Western). The likelihood to receive specialised youth care increased in time for girls as well as for younger children. It decreased in time for children in special education and no longer school-aged youth. The likelihood to receive specialised youth care did not change in time according to family status of migrant background.

The likelihood to receive residential youth care decreased in time for no longer school-aged youth and older children.

The only significant interaction term of community-based support teams characteristics and time was for team turnover, indicating a higher team turnover was associated with a stronger increase in use of residential youth care over time.

DISCUSSION AND CONCLUSION

We studied the change in use of three types of youth care in time and the possible role of sociodemographic characteristics and characteristics of community-based support teams in these changes, in the city of Rotterdam (The Netherlands) from 2015 to 2018. Our data show an increase in use of primary youth care and residential youth care and a decrease in the use of specialised youth care. All sociodemographic characteristics were associated with youth care use. Boys, children from non-two parent families and children following special education were more likely to receive youth care, while preschool children and no longer school-aged youth were less likely to receive youth care. Children with a migrant background were more likely to receive primary youth care, whereas the likelihood to receive specialised and residential care differed according to country of origin. Some

Table 3 Adjusted associations of time, individual and community-based support team characteristics with youth care service use

	Primary youth care	Specialised youth care	Residential youth care
	OR (99% CI)	OR (99% CI)	OR (99% CI)
Time (years)	**1.70 (1.67 to 1.73)**	**0.98 (0.97 to 1.00)**	**1.04 (1.01 to 1.06)**
Individual characteristics			
Gender (female vs male)	**0.89 (0.85 to 0.94)**	**0.76 (0.72 to 0.79)**	**1.29 (1.15 to 1.44)**
Age	**0.96 (0.95 to 0.96)**	**1.01 (1.01 to 1.02)**	**1.08 (1.07 to 1.09)**
Single-parent (vs two-parent) family	**2,44 (2.31 to 2.58)**	**1.67 (1.59 to 1.76)**	
Residential (vs two-parent family)	**2.51 (2.05 to 3.08)**	**1.66 (1.37 to 2.01)**	
Different family type (vs two-parent family)	**2.47 (2.14 to 2.86)**	**1.73 (1.53 to 1.97)**	
Moroccan background (vs Dutch)	**1.17 (1.08 to 1.28)**	**0.53 (0.48 to 0.57)**	**0.40 (0.31 to 0.51)**
Turkish background (vs Dutch)	**0.75 (0.67 to 0.84)**	**0.39 (0.35 to 0.44)**	**0.24 (0.17 to 0.35)**
Surinam background (vs Dutch)	**1.19 (1.08 to 1.31)**	**0.72 (0.66 to 0.78)**	**1.29 (1.08 to 1.56)**
Antillean background (vs Dutch)	**1.69 (1.54 to 1.86)**	**0.77 (0.70 to 0.85)**	**1.93 (1.61 to 2.32)**
Other non-Western background (vs Dutch)	**1.11 (1.03 to 1.20)**	**0.57 (0.53 to 0.62)**	0.94 (0.79 to 1.12)
Western background (vs Dutch)	**0.91 (0.83 to 1.00)**	**0.68 (0.62 to 0.73)**	0.85 (0.69 to 1.04)
Not yet school-aged (vs attending regular school)	**0.48 (0.43 to 0.53)**	**0.18 (0.15 to 0.20)**	0.89 (0.66 to 1.21)
Attending special education (vs attending regular school)	**5.03 (4.61 to 5.47)**	**6.51 (6.05 to 7.01)**	**9.30 (8.11 to 10.67)**
No longer school-aged (vs attending regular school)	**0.71 (0.55 to 0.91)**	**0.83 (0.69 to 0.99)**	**1.31 (0.98 to 1.76)**
Community-based support team characteristics			
Caseload	**0.88 (0.84 to 0.92)**	1.04 (1.00 to 1.09)	1.02 (0.92 to 1.12)
Turnover	**1.50 (1.19 to 1.89)**	**1.67 (1.42 to 2.19)**	0.83 (0.50 to 1.37)
Team size	1.01 (1.00 to 1.01)	**0.99 (0.98 to 0.99)**	**1.01 (1.00 to 1.03)**
Team performance	1.09 (0.99 to 1.20)	**0.90 (0.82 to 0.97)**	1.04 (0.84 to 1.28)
Team cohesion	0.94 (0.84 to 1.04)	0.94 (0.85 to 1.03)	0.80 (0.63 to 1.01)
Transformational leadership	**0.91 (0.85 to 0.98)**	1.04 (0.97 to 1.70)	0.99 (0.84 to 1.15)

Multivariate models were used, fully adjusted for individual characteristics and community-based support teams characteristics. For residential youth care family status was left out of the model. Bold=significant at p<0.01.

characteristics of community-based support teams showed a negative (caseload, team performance and transformational leadership) or positive (turnover) or both negative and positive (team size) significant associations with the use of the three youth care types after controlling for individual child characteristics.

In time, the likelihood to receive youth care differed between children depending on sociodemographic characteristics. Among boys, the likelihood to receive primary youth care increased, whereas the likelihood to receive specialised youth care decreased. Among preschool children and younger children, the likelihood to receive specific types of youth care increased, while among no longer school-aged youth, the likelihood decreased over time. Among children from single parent families and children of certain migrant backgrounds, the likelihood to receive primary youth care decreased over time. Characteristics and functioning of community-based support teams were not associated with changes of youth care use over time except for team turnover. High team turnover appeared to be associated with higher residential youth care use in time.

Our study shows an increase in time in the use of primary youth care, which is exclusively provided by community-based support teams. An annual increase was found, although a sharper increase is visible between 2016 and 2017. This specific finding might be (partly) due to registration artefacts as working with digital client systems for newly implemented community-based support teams may have lagged behind.

Rising use of child and adolescent mental health services have been reported in several studies over the last years in several Western countries. Studies in Finland over the period 1989–2013 found a rise from 2.4% to 11.0% in parent reported mental health service use for 8 year olds.[1 25] In the USA, outpatient care for 6–17 year olds between 1996 and 2012 increased from an annual 9.2% to 13.3%.[4] In Canada, yearly surveys between 2011 and

Table 4 Adjusted associations with youth care service use of time, individual and community-based support team characteristics and its interactions with time

	Primary youth care	Specialised youth care	Residential youth care
	OR (99% CI)	OR (99% CI)	OR (99% CI)
Time (years)	**2.06 (1.50 to 1.73)**	**1.79 (1.38 to 2.33)**	**1.59 (1.01 to 2.50)**
Individual characteristics			
Gender (female vs male)	0.97 (0.89 to 1.06)	**0.71 (0.67 to 0.75)**	**1.32 (1.15 to 1.52)**
Age	**0.99 (0.98 to 1.00)**	**1.09 (1.08 to 1.09)**	**1.13 (1.11 to 1.16)**
Single-parent (vs two-parent) family	**3,03 (2.75 to 3.34)**	**1.65 (1.54 to 1.76)**	
Residential (vs two-parent family)	**2.62 (1.81 to 3.80)**	**1.76 (1.34 to 2.32)**	
Different family type (vs two-parent family)	**2.56 (1.96 to 3.35)**	**1.66 (1.39 to 1.99)**	
Moroccan background (vs Dutch)	**1.64 (1.42 to 1.90)**	**0.53 (0.47 to 0.59)**	**0.42 (0.31 to 0.56)**
Turkish background (vs Dutch)	**0.75 (0.61 to 0.92)**	**0.41 (0.36 to 0.47)**	**0.24 (0.16 to 0.36)**
Surinam background (vs Dutch)	**1.32 (1.13 to 1.55)**	**0.69 (0.61 to 0.77)**	1.16 (0.92 to 1.45)
Antillean background (vs Dutch)	**1.92 (1.65 to 2.25)**	**0.71 (0.63 to 0.81)**	**1.88 (1.50 to 2.36)**
Other non-Western background (vs Dutch)	**1.31 (1.15 to 1.50)**	**0.56 (0.50 to 0.62)**	0.84 (0.67 to 1.04)
Western background (vs Dutch)	0.87 (0.73 to 1.04)	**0.66 (0.59 to 0.74)**	0.78 (0.61 to 1.00)
Not yet school-aged (vs attending regular school)	**0.35 (0.29 to 0.44)**	**0.14 (0.11 to 0.20)**	0.99 (0.62 to 1.58)
Attending special education (vs attending regular school)	**3.21 (2.79 to 3.71)**	**7.77 (7.07 to 8.54)**	**10.17 (8.62 to 12.00)**
No longer school-aged (vs attending regular school)	1.22 (0.82 to 1.83)	**1.52 (1.23 to 1.88)**	**3.11 (2.25 to 4.31)**
Neighbourhood team characteristics			
Caseload	**0.89 (0.82 to 0.96)**	1.04 (0.98 to 1.10)	0.98 (0.87 to 1.10)
Turnover	**1.57 (1.04 to 2.37)**	**1.57 (1.17 to 2.11)**	**0.51 (0.27 to 0.95)**
Team size	**1.01 (1.00 to 1.02)**	**0.99 (0.98 to 0.99)**	**1.02 (1.00 to 1.04)**
Team performance	1.05 (0.90 to 1.23)	0.91 (0.81 to 1.02)	1.10 (0.86 to 1.42)
Team cohesion	0.89 (0.74 to 1.07)	0.96 (0.85 to 1.10)	0.84 (0.62 to 1.12)
Transformational leadership	0.98 (0.87 to 1.12)	1.01 (0.92 to 1.11)	0.99 (0.94 to 1.03)
Time by individual characteristics			
Time by gender	**0.97 (0.94 to 1.00)**	**1.04 (1.01 to 1.07)**	0.99 (0.94 to 1.03)
Time by age	**0.98 (0.98 to 0.99)**	**0.96 (0.95 to 0.96)**	0.98 (0.97 to 0.98)
Time by single parent	**0.92 (0.89 to 0.95)**	1.01 (0.98 to 1.04)	
Time by residential	0.99 (0.84 to 1.16)	0.97 (0.85 to 1.12)	
Time by different family type	0.99 (0.89 to 1.10)	1.04 (0.96 to 1.14)	
Time by Moroccan background	**0.87 (0.83 to 0.92)**	0.98 (0.94 to 1.03)	0.99 (0.90 to 1.10)
Time by Turkish background	1.00 (0.93 to 1.07)	0.96 (0.90 to 1.02)	1.02 (0.90 to 1.15)
Time by Surinam background	0.96 (0.90 to 1.01)	1.02 (0.97 to 1.07)	1.07 (1.00 to 1.16)
Time by Antillean background	0.95 (0.89 to 1.01)	1.05 (0.99 to 1.11)	1.03 (0.95 to 1.11)
Time by other non-Western background	**0.93 (0.89 to 0.98)**	1.00 (0.96 to 1.05)	1.06 (0.98 to 1.14)
Time by Western background	1.01 (0.95 to 1.08)	1.01 (0.96 to 1.06)	1.04 (0.95 to 1.12)
Time by not yet school-aged	**1.12 (1.04 to 1.21)**	1.01 (0.90 to 1.15)	0.98 (0.84 to 1.13)
Time by attending special education	**1.22 (1.15 to 1.29)**	**0.88 (0.85 to 0.92)**	0.95 (0.90 to 1.01)
Time by no longer school aged	**0.80 (0.68 to 0.95)**	**0.57 (0.50 to 0.65)**	**0.53 (0.44 to 0.65)**
Time by community-based support team characteristics			
Time by caseload	1.0 (0.97 to 1.03)	1.00 (0.98 to 1.03)	1.03 (0.99 to 1.07)
Time by turnover	0.98 (0.84 to 1.14)	1.06 (0.93 to 1.20)	**1.23 (1.01 to 1.51)**
Time by team size	1.00 (0.99 to 1.00)	1.00 (1.00 to 1.01)	1.00 (0.99 to 1.00)

Continued

Table 4 Continued

	Primary youth care	Specialised youth care	Residential youth care
	OR (99% CI)	OR (99% CI)	OR (99% CI)
Time by team performance	1.02 (0.96 to 1.08)	1.00 (0.95 to 1.05)	0.98 (0.90 to 1.06)
Time by team cohesion	1.02 (0.95 to 1.09)	0.97 (0.91 to 1.03)	0.97 (0.88 to 1.07)
Time by transformational leadership	0.97 (0.93 to 1.02)	1.01 (0.98 to 1.05)	1.03 (0.97 to 1.10)

Multivariate models were used, fully adjusted for individual characteristics and community-based support teams characteristics. For residential youth care family status was left out of the model. Bold=significant at p<0.01.

2018 among Canadian youth between 12 and 24 years of age revealed an increase in mental health consultations from 12% to 18%.[26] In the Netherlands, a rise in use of child and adolescent mental health services from 3.5% to 5.9% has been reported between 1993 and 2003.[27] Also a rising trend was reported in institutionalised care between 2002 and 2006 in a study in nine European countries, including the Netherlands.[28]

Explanations for these increases in service use are generally not found in an increase in psychosocial or mental health problems among youth, although some small increases in psychosocial problems are found in some studies and gaps between need for care and care use are still observed.[1 25 26] In the Netherlands, general population based studies do not indicate large increases in parent, teacher or self-reported emotional and behavioural problems in the last few decades.[29–32] Rather, enabling factors on the contextual level may explain the changes in the observed youth care use patterns.[13 14] In 2015, the city of Rotterdam implemented an integrated preventive youth policy programme aimed at increasing the number of children that grow up in a safe, healthy and promising home environment.[33] An important part of this programme is collaborative planning of preventive measures and interventions at the neighbourhood level focusing on an increased use of evidence-based preventive interventions especially on the domain of mental health promotion.[34] Furthermore, the community-based support teams may have increased the availability, accessibility and acceptability for primary youth care, which may have resulted in a reduced gap between those in need for care and actually receiving care. Earlier studies found improved access to care as a result of integrated forms of care[35 36] and colocation of social workers.[37] A higher degree of coordination between different child and youth services were found to contribute to increased service use and diminishing ethnic disparities.[38] Indeed, more integrated services for adolescents and young adults in Australia, Ireland and the UK have been evaluated positively and were seen to improve access rates to care.[39] The community-based support teams in Rotterdam offer their services in the direct proximity of their clients. They are closely collaborating with other youth service providers in the community, and they provide integrated care including social support for parents and adults. This may have contributed to the prevention of more serious problems needing specialised youth care. However, the increase in primary youth care use and decrease in specialised youth care use we found could also be due to an increased competence of community-based support teams or an increased familiarity of these teams in the communities they serve. Future research urgently needs to enlarge our limited knowledge base on how the way we organise our youth (mental health) care and support systems influence and enable care use and impacts on inequities in access to care as well as on patterns and individual trajectories of care use. Possible determinants as proximity of care and support, level of integrated services of care and support, and level of collaboration among different providers in the chain of care should be included in these studies. Moreover, future research should elucidate underlying mechanisms and preferably be evaluative.

Our study indicates sociodemographic characteristics are associated with youth care use as well as changes in youth care use over time. Most remarkable are the higher likelihood to receive youth care among children from other than two-parent families and attending special education in youth care. This finding is in agreement with earlier research.[40 41] Also remarkable is the finding that children of migrant origin in general are more likely to receive primary youth care and less likely to receive specialised youth care, while the likelihood to receive residential youth care differs depending on country of origin. This is particularly of concern as little changes in time are found for children of migrant origin. Apparently, access to specialised youth care did not improve for children of migrant origin and is in line with other research on lower access to mental healthcare for minority children.[42–44] The higher access of children with a migrant background to primary youth care probably indicates that community-based support teams serve different populations and maybe even populations that formerly may have been underserved. The small increases in time for the likelihood of younger children and preschool children to receive youth care and the decrease of this likelihood in time of no longer school-aged children might indicate a trend towards more timeliness of care. However, further research is needed to confirm these hypotheses and explore underlying mechanisms.

In our study, we find several team characteristics to be associated with the three studied types of youth care, yet

no clear associations of most of these characteristics with changes in youth care use over time. Although we know from studies in the public administration field that the team characteristics we studied are associated with team functioning,[11 12 45 46] only one characteristic—team turnover—was positively associated with change in residential youth care use. High team turnover might result in changes in the professionals providing care to children, youngsters and families with negative consequences for consecutive alliance and probably higher referrals to more intense forms of care.[47] Our findings are comparable with a study among a USA sample of youth in where a high caseworker turnover was found to be associated with less favourable outcomes.[48] Other explanations are possible, including an erroneous finding. Possible explanations for the lack of other significant findings include little variability between teams in the characteristics or the fact that characteristics were only measured at one moment in time. Research on the role of professional teams on patterns of different forms of youth care is limited to a few implementation studies that show the relevance of interprofessional communication and collaboration for successful provision of integrated care.[49–51] Stiffman *et al* found provider knowledge of resources and providers burden to explain mental health service use.[52] We did not include interprofessional communication and collaboration or providers knowledge of resources as measures in our study. However, caseload certainly is an indication of providers burden and social cohesion and team performance probably are conditions for good interprofessional communication and collaboration. Still, we did not find associations of these team characteristics with youth care use over time. Also, concerning professional and team characteristics more transdisciplinary research is warranted to understand how these factors may contribute to the quality of youth care.

Our study is one of the few studies on contextual determinants of youth care use. It has several strengths. We did not rely on self-reported data but on registry data that are gathered from youth care providers by the Dutch statistics agency based on the Youth Act. Our data are population based and constitute a large sample. Because of the nature of our data, there are also limitations. No comparison could be made with use of youth care before 2015, because youth care data were not collected systematically before 2015. However, we assumed the 2015 reform would not lead to instant changes in patterns of youth care use in 2015 but would show a lag period. Still, as trends before 2015 are unknown, caution is needed in interpreting our findings. Furthermore, the study period of 2015–2018 might have been too short to capture the possible changes resulting from the 2015 reform. Other limitations are that registry data can be incomplete or hold mistakes, causing bias. Because of missing data on individual characteristics, we had to exclude many records (27%) in the analysis. Also, team characteristics were measured in 2016 a year after the teams were set up. The team characteristics precede the reports on youth care use in the other years but may not have been stable in time. Furthermore, the team characteristics have been included in the analysis on the individual level. Therefore, our findings need to be interpreted with care.

Notwithstanding these limitations, our study has some practical implications. As caseload and team turnover are associated with youth care use and trends of youth care use in time, careful planning of community-based support teams and size of the community they are serving seems warranted and needs more research. Furthermore, children attending special education are a lot more likely to receive youth care than children attending regular education, but our findings indicate a trend towards more primary youth care and less specialised care. This might reflect a greater need for integrated care as provided by the community-based support teams in this group of children.

In conclusion, as children with migrant backgrounds are less likely to receive specialised youth care and this is not changing over time, reaching this group of children with proper forms of care is of utmost importance for youth care providers as well as policymakers. Evaluative and transdisciplinary research is needed to further elucidate the role of contextual factors on patterns of youth care use. Our study shows an increase in use of primary youth care use and to a lesser extent in residential youth care as well as a decrease in specialised youth care use since 2015, when community-based support teams were introduced in the Netherlands. This corresponds at least partly with the intended trends in the new Youth Act to reduce more intensive forms of youth care. Sociodemographic characteristics and characteristics of community-based support teams were found to be associated with the prevalence of different types of youth care use. There are indications that primary youth care that is provided by community-based support teams reaches new groups of children, especially children from migrant origin. Furthermore, there are indications that timeliness of care, as intended by the new Youth Act, is improved as the proportion of younger children receiving care increased in time. However, access of care to specialised youth care by children of migrant origin did not improve in time. Little evidence was found for the role of team characteristics on changes in youth care use in time.

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