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Demographic trends in a paediatric psychiatric emergency room in Copenhagen

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ABSTRACT

INTRODUCTION: Little is known about visiting patterns in paediatric psychiatric emergency departments (PPEDs) in Denmark. Our aim was to examine changes in the number of visits in the walk-in PPED in Glostrup, Copenhagen, since its inception in 2012 and to provide a clinical and demographic profiling of the visiting patients.

METHODS: This was a retrospective descriptive study based on the registration logs kept by the triage nurses, comprising data of 2,062 visitors aged 5-17 years over a one-year period (2017). In addition, visiting numbers for the years 2012-2016 were extracted from electronic logs.

RESULTS: Visits almost doubled from 2012 to 2017. A total of 66.9% of the patients were female. The median age was 15 years. The most common reason for inquiry was suicidality. We found strong associations between female gender and suicidality as reason for inquiry and between male gender and mental anguish as reason for inquiry.

CONCLUSIONS: The substantial increase in visits may partly be explained by increased attention to paediatric mental health issues and a growing public expectation to psychiatric treatment. The fact that a large proportion of patients presents with suicidality shows that there is a need for acute paediatric psychiatric evaluation and treatment. Knowledge is lacking about how many patients present to the PPED with non-acute and mainly social problems and how best to handle this group of patients.

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The peak age of onset for psychiatric disorders such as anxiety, bipolar affective disorder, depression, eating disorders, psychoses and drug abuse is adolescence [1].

Children and adolescents with mental health issues may, like other age groups, experience acute psychological crises that may require acute evaluation by professionals [2]. A paediatric psychiatric emergency department (PPED) provides easily accessible assistance that is available at any time of day without medical referral.

In the past decades, a remarkable rise has been observed in the number of visits made to American [3, 4], Australian [5], Canadian [6] and Belgian [7] PPEDs. We lack investigations and descriptions of Danish PPED visits.

A small Danish study [8] found an increase in PPED visits in Glostrup, Copenhagen, from 200 visits in 2000 to 532 visits in 2010. In the same period, the incidence of paediatric suicidality [9] and schizophrenia [10] followed an increasing trend. This may be a sign of a growing need for acute psychiatric care, or it may reflect a change in help-seeking behaviour among adolescents.

Before 2012, there were no exclusively paediatric PEDs in Denmark. Instead, paediatric psychiatric patients were referred to an adult PED. In 2012, the walk-in PPED in Glostrup, Copenhagen, opened, providing acute care specifically for patients below the age of 18 years.

The aim of this study was to describe the visiting numbers in the Glostrup walk-in PPED since its opening in 2012, to analyse the clinical and demographic data of the patients and to describe the role that the Glostrup PPED plays in the management of critically ill patients.

METHODS

This is a retrospective descriptive study of (almost) all visits to the Glostrup PPED from 1 January 2012 to 31 December 2017.

Visiting numbers for 2012-2016 were acquired by extracting data from electronic logs. Data for 2017 were acquired by manual count of handwritten registration logs. Almost all visits were registered and all registered visits were included. The following was noted for all visits in 2017: date of birth, date and time of visit, gender, catchment area, reason for inquiry and visiting outcome. Data analyses were conducted in Excel and SPSS.

The Danish Data Protection Agency was consulted beforehand and confirmed that the study did not require notification.

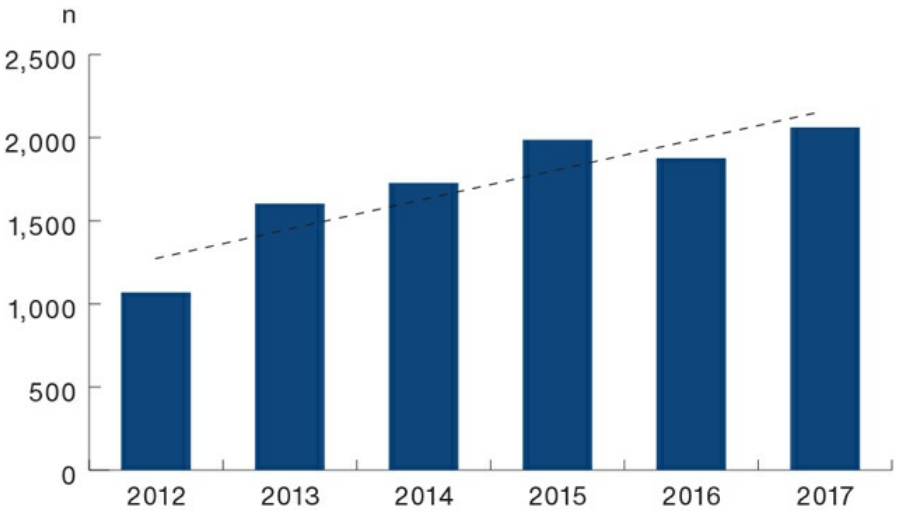
Trial registration: none.

RESULTS

Visiting numbers for 2012 to 2017

Figure 1 shows annual visiting numbers from 2012 to 2017, totalling 10,327 visits. From 2012 to 2015, a constant annual rise was seen. A 50% increase was recorded from 2012 to 2013, a 7.8% increase from 2013 to 2014 and a 15% increase from 2014 to 2015. The year 2016 saw 1,877 visits, which is the only year-to-year decrease seen at –5.6%. In 2017, 2,062 visits were recorded, corresponding to approximately six visits per day. The year 2017 recorded the highest number of visits of any year in the observation period and a 9.9% increase was seen compared with the previous year. Peak hours were 1-2 p.m. and 4-5 p.m. (data not shown).

FIGURE 1 Number of visits, 2012-2017[a].

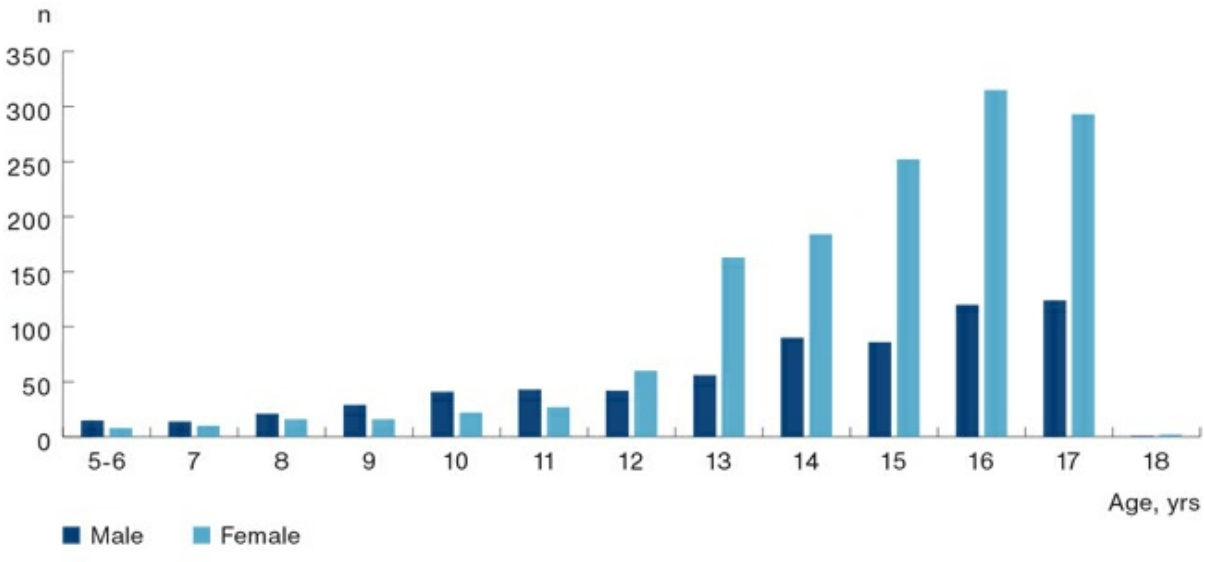


a) The slope of the dotted line ≈ the average increase rate.

Age and gender for 2017

Figure 2 shows age and gender for all visits in 2017. Teenagers (13-17 years of age) represented 82.7% of all visits, whereas children under 12 years of age represented 17.3%. A clear female preponderance was recorded, with females constituting 66.9% of visits, and males 33.1%. Most of the female visitors were between 13 and 17 years of age with a clear increase in visits from age 12 to age 13. Furthermore, most of the male visitors were between 13 and 17 years old, but without an increase from 12 to 13 years of age. However, in the age group 5-11 years, males were overrepresented in every age interval.

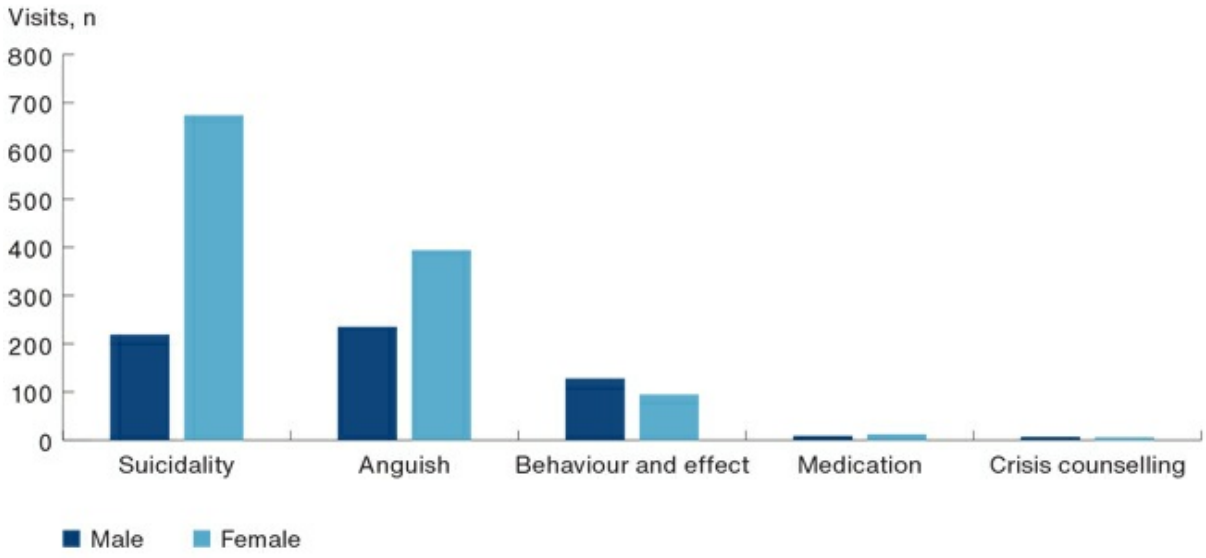
FIGURE 2 Visits by age and gender, 2017.



Reasons for inquiry in 2017

Among the 2,062 visits recorded in 2017, 83.2% (n = 1,715) had a reason for inquiry registered. **Figure 3** shows the distribution of reasons for inquiry by gender for 2017. With 893 visits (52.1%), almost half of the reasons for inquiry were "suicidality". This group had a clear overrepresentation of female visitors. The second most frequent reason for inquiry was "anguish" (a group comprised of psychosis, OCD, anxiety, depression and mania). This group also had female overrepresentation. The third most frequent reason for inquiry was "behaviour and affect". Here, we saw an overrepresentation of males.

FIGURE 3 Reason for inquiry by gender, 2017.



The most frequent female reason for inquiry was suicidality (57.1%) with anguish being the second most frequent reason (33.4%) and behaviour and affect the third (8.0%). The male reasons for inquiry were more unevenly distributed with anguish (39.3%) being the most frequent, suicidality (36.6%) the second most and behaviour and affect the third (21.4%) (Figure 3).

Table 1 shows the three most frequent reasons for inquiry by gender with p-values from the χ^2-test.

TABLE 1 Reason for inquiry by gender. The values are n (%).

Male	Male	Female	p-value, χ^2-test
Suicidality			< 0.0001
Yes	219 (36.6)	674 (57.1)	
No	379 (63.4)	507 (42.9)	
Anguish			0.014
Yes	235 (39.3)	394 (33.4)	
No	363 (60.7)	787 (66.6)	
Behaviour/affect			< 0.0001
Yes	128 (21.4)	95 (8.0)	
No	470 (78.6)	1,086 (92.0)	

Visiting outcome for 2017

Among the 2,062 visits, 88.8% (n = 1,831) had an outcome registered. Most of the visitors in the Glostrup PPED in 2017 were discharged (70.9%). Almost one fourth (24.6%, n = 451) of the visits led to an admission to the acute psychiatric ward. Only 3.5% (n = 64) of patients left the PPED before being seen by a physician. Unfortunately, no data are available on waiting time. Very few patients were hospitalised in a somatic ward (0.9%). The social services were involved in several visits, either by phone or by being present in the PPED, but data are lacking. Data on revisits and readmissions were not available.

DISCUSSION

By examining the number of visiting patients from 2012 to 2017, we were able to show that more children and adolescents visit the Glostrup PPED than ever before. An uneven gender and age distribution was observed with two thirds of visitors being females and an average visiting age of barely 15 years. Overall and for females alone, the most frequent reason for inquiry was suicidality. The reasons for inquiry of the males were more unevenly distributed with anguish being the most frequent. About a fourth of all visits lead to admission.

Visiting numbers

Since the dedicated PPED opened in 2012, it seems plausible that patients and health workers alike have become progressively aware of its existence, which may partially explain the increase in visiting numbers in the study period. We speculate that the visiting numbers have become more stable in recent years.

The catchment area for the Glostrup PPED remained relatively stable in the 2012-2017 period, increasing from 360,000 to 364,000. This slight increase in population is not likely to explain the increase in visits.

If we assume that visits in the Glostrup PPED reflect the general need for paediatric psychiatric care in the population, our study confirms the Danish Health Authority's estimates from 2006 [11], predicting an increased need for paediatric psychiatric care, including emergency rooms and other types of low-threshold services. As stated by The Danish Health Authority, several possible explanations for this can be speculated, including an increased focus in society on children and adolescents with mental health challenges and growing expectations

to paediatric psychiatric treatment. These expectations could partly be met by PPED visitation, which the Glostrup PPED does offer.

Gender and age

Our finding that the majority of PPED visitors are teenage girls seems to match the findings of several other studies [4-8, 12-15].

However, one other study of PPED visits in Baltimore, Maryland, USA [16], found a preponderance of male visitors and an average age of 12 years. The population in Baltimore consists of 63.7% African Americans [17], and it remains to be elucidated if ethnicity is associated with gender in PPED visits. We had no data on ethnicity available in our study, which is a limitation.

Reasons for inquiry

Four studies on PPED visits provide reasons for inquiry [5, 7, 12, 15]. Five studies [4, 6, 8, 13, 14] state diagnoses, which is not directly comparable to our results. A Belgian [7], an Australian [12] and a Canadian study [15] all found suicidality to be the most common PPED reason for inquiry, which is in accordance with our findings. An Australian study [5] found that 20% of psychiatric visits in an emergency department in Sydney were due to an "overdose", "other deliberate self-harm" or "suicidal ideation", but reported much lower numbers of visits presenting with suicidality than our study. This may reflect a lower prevalence of suicidality among children and adolescents in Sydney; still, a more plausible explanation is that these patients seek help in other places than the emergency department.

Since suicidality was the most common reason for inquiry in the Glostrup PPED, in-depth study of this group of patients is warranted. Several Danish studies [9, 18-20] have investigated risk factors for suicide among children and adolescents. They have found that female gender, psychiatric illness, parents with psychiatric illness, low socioeconomic status and dysfunctional family relations are all factors that increase the risk for suicidal attempt or consummated suicide. Unfortunately, we had no data on the diagnoses of patients or their parents, socio economic status or family relations, which is a limitation.

Our findings should be understood in a social and cultural context. Direct comparison of findings across countries cannot be made due to considerable variation between countries in the types of services available to children and adolescents who experience a psychiatric crisis. In Denmark, other options are available for this group of patients, including the Centre for Suicide Prevention and other outpatient clinics (to which the Glostrup PPED also refers patients). Other options include the social psychiatric services, telephone helplines, various non-governmental organisations and municipal counselling services, but the families need to find their own way to these services.

Outcome

The admission rate in our study is comparable to those of some studies [4, 5, 14, 15], whereas others found either higher [8, 13] or lower rates [12, 16]. Interestingly, another Danish study found an admission rate of 19.2% in 2003 and 15.7% in 2006, which is lower than our 24.6%.

The acute psychiatric ward in Glostrup, to which the PPED admits patients, only has capacity for ten patients. Therefore, it should be considered that the decision to admit a patient depends not only on the patient's condition, but also on the number of available beds in the acute ward. When only few patients are admitted, the threshold for hospitalisation is lower than when the acute ward is full. Occasionally, the acute ward runs out of space for new patients and PPED patients in need of admission are asked to come back the next day for a new evaluation, or, in severe cases, they are transferred to one of the non-acute wards. Before 2012, paediatric psychiatric patients would either be admitted to the paediatric somatic ward, the adult psychiatric ward or, most

likely, not be admitted at all.

The possibility of asking a patient to return to the PPED for a re-evaluation a few days later is a strength of the PPED setting, which is not possible in the outpatient clinic. This is especially relevant for the patients who are not quite ill enough for admission, but even so require short-term follow-up; and re-evaluation is also relevant if the patient's condition is characterised by strong affect, impulsivity or conflict and would be expected to have levelled down after some hours or days.

The first author of this paper worked in the Glostrup PPED from 2017 to 2019. The clinical impression is that waiting hours are normally not an issue, with patients usually waiting 1-2 hours before being seen by a doctor. During busy periods, longer waiting hours may occur. When many patients were waiting, those who seemed the least ill were asked to return the following day.

The Glostrup paediatric psychiatric unit has a small outgoing team dedicated to the acute treatment of patients who are not quite ill enough for admission, but too ill to be treated in outpatient clinics; however, data describing this service are lacking.

Generally, more studies are needed to elucidate the reason for the increasing demands for paediatric psychiatric care, including qualitative studies about patient needs, motivation and characteristics.

Strengths and limitations

The strengths of this study include a large population of patients from an extensive geographical area; comprehensive data on age distribution, diagnosis and reason for inquiry; and carefully and systematically collected data directly from the emergency room underpinned by the daily routines of skilled professionals established over a long period.

The limitations of this study include that no information was available on family relations, socio economic status, ethnicity or drug abuse. Similarly, we had no data on revisits, readmissions, previous diagnoses, number of patients brought in by police, ambulance or social services, and no data on acute medical treatment and use of force.

Reason for inquiry was missing in 16.8% of all visits. Usually, the nurses have a short conversation with the patient on arrival to screen and triage the patient before examination by an attending physician. For critically ill patients, this is usually skipped to accelerate evaluation and treatment. Therefore, registration of reason for inquiry might be missing in these cases, which would bias the data and limit the representation of critically ill patients.

Our data were drawn from handwritten logs and are thus prone to simple human errors of forgetfulness, unclear handwriting and mistakes.

CONCLUSIONS

Since the inception of the Glostrup paediatric PPED in 2012, the number of visitors has almost doubled from 1,069 to 2,062. Females present with suicidality and males with behavioural problems. Almost a fourth of all visits lead to admission, which testifies to a real need for acute psychiatric care and underlines the need for an acute service providing easily accessible help. Drawing on our findings, we believe that the Glostrup PPED is of great value as it provides much needed help in the acute psychiatric care of critically ill patients in dangerous states of affect. We anticipate that open access to a PPED facilitates early intervention, reduces cases of involuntary medication and involuntary admission, and helps prevent severe outcomes such as suicide attempts or consummated suicide, but this remains to be elucidated. We hope that the other regions in Denmark may be

inspired by this and will consider implementing PPEDs.

Further studies are needed, including qualitative studies, in order to elucidate the visiting patterns and needs of children and adolescents in acute psychiatric crises.

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