Sociodemographic and clinical characteristics of eating disorder patients treated in the specialized residential settings in Belgium

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Abstract

Introduction Epidemiologic information on sociodemographic and clinical characteristics in eating disorders in Western European countries are scarce.

Purpose In this study, we report demographic and clinical characteristics of eating disorder (ED) patients undergoing treatment in five specialized ED centers in Flanders (Belgium).

Method Data from 642 ED patients were collected by means of a structured questionnaire.

Results Data show that 93.8% of patients are female, with an average age of 22.6 years. The largest subgroup in our sample suffers from anorexia nervosa, namely 52.8%. Bulimia nervosa (BN), binge eating disorder (BED) and eating disorder not otherwise specified (EDNOS) account for 17.7%, 10.7% and 18.8% of the sample, respectively. Mean age of onset was 17 years. Mean duration of illness was 5.6 years, but 20.2% of patients had their illness for over 8 years. Anorexia nervosa patients of the restricting type (AN-R) have the shortest duration of illness. BED patients stood out because they were older on average, more often in a relationship and more often in ambulatory treatment. 70% of patients over 20 years old completed higher education, but one-third of this group was unemployed and/or disabled. Remarkably, ED patients grow more up in intact families compared to the general population.

Conclusions Epidemiology of ED patients in treatment in Flanders (Belgium) seems to resemble worldwide findings. The long duration of illness, the common evolution towards chronicity and the early work impairment underline the severe personal and societal impact of ED and call to the need for early detection and treatment of these patients.

Level of evidence Level V: cross-sectional descriptive study.

Keywords Eating disorders · Anorexia nervosa · Bulimia nervosa · Binge eating disorder · Demographic characteristics

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Introduction

Current diagnostic classifications recognize three main eating disorders (EDs), anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED) [1]. Based on the prevalence estimates of EDs obtained in the framework of the European Study of the Epidemiology of Mental Disorders project [2, 3], lifetime prevalence of AN, BN, BED, sub-threshold BED, and any binge eating (this entity included all cases of BN, BED and sub-threshold BED as well as cases of AN with binge eating) is 0.48%, 0.51%, 1.12%, 0.72%, and 2.15%, respectively. Prevalence across genders is uneven, with women having 8–10 times higher odds than men of developing an ED [4, 5]. In a recent Italian study [6] regarding pathways to specialist care for EDs, the data also showed almost 90% of the patients were

female. Moreover, the paper of Preti, de Girolamo, Vilagut et al. [3], argues that EDs are not rare and that prevalence rates for both AN and BN seem higher in Belgium than in other European countries, namely 3.54% of the general population. One in every six or seven young women having an ED or AN is very common. The peak onset of ED is 15–25 years, while the average duration of illness is about 6 years [4, 5]. A recent Italian study showed that AN and BN patients had an age of onset around 18 years [7]. Many people with eating disorders have long impairments in social functioning and employment. Data show that one in four has no paid employment [5]

When reviewing the literature, very few studies have been studying sociodemographic data of eating disorder subjects under specialized treatment. For instance, Arcelus and Button [8] studied clinical and sociodemographic characteristics of university students referred to an eating disorder unit, but only report few demographic characteristics such as that 93% of the patients were female, their mean age was 21 and that the majority (75%) was referred by their general practitioner. One limitation of this study was the fact that they included only university students in their sample. No other demographic data are reported such as characteristics of family of origin, educational level and actual living situation. An Australian cross-sectional population survey of adults [9] studied mostly socio-economic correlates of ED patients and showed that eating disorders are distributed equally across levels of socio-economic status.

Only very few studies studied the association between employment status and ED prevalence. The same Australian cross-sectional population survey of adults [9] showed that participants who were unable to work due to disability and those unemployed showed an increased risk for objective binge eating. A cross-sectional survey of college students in Greece [10] found no effect of employment status on ED risk. One recent study on prevalence and sociodemographic correlates of DSM-5 eating disorders in the Australian population [11] explored age, gender, income and educational attainment in a large sample ($N=6041$). The data showed that people with an eating disorder had a younger age than people without an eating disorder and were mostly female. The majority of the AN patients were female (83%) in contrast with the patient sample with recurrent binge eating (only 57% female). No differences were found regarding educational attainment between people with ED compared to that of the community. The authors report also some data on median incomes showing that most people with ED had similar incomes compared to the general population. Overall, the literature review showed that data on sociodemographic characteristics of ED patients such as family constellation, actual civil and occupational status and educational level are scarce.

This also applies to sociodemographic and clinical profiles of ED patients who are under treatment in the Belgian specialized eating disorder units. No data are currently available. This study will attempt to fill part of this gap by reporting basic demographic and clinical characteristics of ED patients who are receiving treatment in the main specialized ED centers in Flanders. Flanders is the northern, Dutch-speaking part of Belgium, with a population of 6.8 million habitants. More in detail, we aim to answer three research questions: (1) what are the general sociodemographics and clinical characteristics of eating disorder patients in specialized ED treatment? More specifically we will inform about age, occupation, gender, educational level, marital status, nationality, composition of family of origin and actual living situation, while regarding clinical data, duration of illness, previous and current treatments, treatment duration, and DSM-4 ED diagnosis were evaluated; (2) are there differences between several ED subsamples such as AN of the restricting type (AN-R), AN of the bingeing/purging type (AN-P), BN, and BED in these parameters?; (3) are there differences between different age groups?

Methods

Participants and procedure

After approval by the Ethical Committee of the University Psychiatric Center KULeuven, all specialized ED centers in Flanders offering both out- and inpatient treatment were contacted with an electronic invitation letter explaining the purpose of the research and asking for collaboration. Within Flanders, there are six highly specialized clinical centers for both the diagnosis and treatment of ED patients and these six centers are really representative of the assistance for ED in Belgium. Four centers are part of the University Psychiatric Hospitals in Flanders and belong, respectively, to the University of Gent (30 inpatient beds), University of Antwerp (20 inpatient beds), University of Brussels (12 inpatient beds) and the Catholic University of Leuven (16 inpatient beds). In all these four university psychiatric hospitals, a specialized eating disorder unit exists, in Antwerp and Brussels for the assessment and multidisciplinary treatment of children and adolescents, in Gent and Leuven for adults. One other psychiatric hospital (Tienen, 35 inpatient beds) has a highly specialized eating disorder unit and is part of the Broeders Alexianen. They were also invited to participate in our research and agreed to collaborate. One small inpatient unit with only six inpatient beds refused to collaborate. In all centers, an evidence-based multidisciplinary treatment for ED patients exists. All hospitals are public hospitals and hence the majority of the hospitalization costs are paid by the national health system.

At the start of the research, all patients under treatment and all the other patients who were referred to the different treatment centers during the year 2014 were invited to participate in the research. All patients who started in either out- or inpatient treatment were contacted to participate in the research. First, the purpose of the research was explained and next, when patient gave informed consent, the patient was invited in the presence of a highly trained clinician (psychologist or psychiatrist) to answer the questions of the structured questionnaire. DSM-IV diagnosis [1] was made by the psychiatrist of the several treatment centers. In case the patient did not answer all the questions, information was gathered from the electronic medical records of the patient. All data collected were anonymized.

Structured questionnaire

A questionnaire was developed containing several items assessing sociodemographic and clinical information. Sociodemographic data included age (years), occupation (employed, unemployed, disabled + cause, study), gender, educational level (basic school, first and secondary grade, bachelor and master degree), marital status (unmarried, married, living together, divorce, widow, other, etc.), nationality, composition of family of origin (intact family of origin, parents divorced, newly reconstituted family with one or both of the parents previously divorced, number of brothers, number of sisters), and actual living situation (family of origin, student house, alone, with partner, living alone with supervision). Intact families are nuclear families in which membership has remained constant, in the absence of divorce or other divisive factors. Clinical data entailed duration of illness (months and years), previous and current treatments (outpatient, forced inpatient, inpatient, day hospital), treatment duration (months and years), and DSM-IV ED diagnosis [1]. All patients were given diagnosis in accordance with DSM-IV 1criteria [1] by the supervising psychiatrist of the eating disorder unit. All patients who initiated either out- or inpatient treatment were contacted to participate in the study.

Statistical analysis

Analyses were conducted using SPSS Statistics 20.0 and SAS 9.3. We ran descriptive statistics [N and % for categorical and mean (SD) for continuous variables]; differences between groups were analyzed using Chi² statistics (for categorical variables). For the analysis of data on duration of illness, an ANCOVA was performed controlling for age in the model.

Results

Research question 1: what are general sociodemographic and clinical characteristics of eating disorder patients in Flanders?

Gender and age

Data from 642 ED patients were collected. The vast majority of patients, i.e., 93.8%, were women. Mean age of the sample was 22.6 years (SD=9.9), ranging from 8 to 65 years (see Fig. 1 for age distribution).

Diagnosis

Based on DSM-IV classification [1], 39.5% ($n = 244$) patients met criteria for a diagnosis of anorexia nervosa of the restricting type (AN-R), 13.3% ($n = 82$) of anorexia nervosa of the purging type (AN-P), 17.7% ($n = 109$) of bulimia nervosa (BN), 18.8% ($n = 116$) of eating disorder not otherwise specified (EDNOS), and finally 10.7% ($n = 66$) of binge eating disorder (BED).

Duration of illness

With regard to duration of illness (DOI), patients in our sample reported an average of 66.7 months or 5.6 years. Age of onset was 17 years on average. Following the guidelines suggested by Robinson [12] with regard to chronicity, 130 patients (20.2%) suffered from a severe, enduring ED (duration of illness longer than 8 years).

Fig.1 EDs and age

Table 1 Actual civil status

Civil status	Frequency	Percent
Valid		
Unmarried	538	83.8
Married	56	8.7
Living together	10	1.6
Divorced	19	3.0
Widow	1	0.2
Unknown	2	0.3
Total	626	97.5
Missing	16	2.5
Total	642	100.0

Table 2 Actual occupational status

Occupational status	Frequency	Percent
Valid		
Unemployed	33	5.1
Disabled	66	10.3
Student	391	60.9
Working	121	18.8
Total	611	95.2
Missing	31	4.8
Total	642	100.0

Socio-economic demographics

The vast majority of the sample was unmarried (see Table 1). Sixty-eight percent of the patients grew up in intact family of origin, 26% had divorced parents, and 6% in a new family configuration. The majority of our patients had at least one peer [sister (40%) or brother (36%)], while 14% were an only child.

Data regarding occupational status of patients (see Table 2) showed that the majority of patients were students (61%), 20% was employed and 5% was job hunting. Most chosen professions were teachers (10%) and nurses (9.2%). More than one patient in ten (11%) was disabled and incapable of working.

With regard to obtained educational status, our sample showed to be highly educated. As much as 36.5% of the patients had completed some form of higher education, while 13% lagged behind having completed only secondary education.

Current treatment choice

Fifty-one percent of the patients were following a residential treatment, 8.8% patients received day treatment and 40% were following outpatient treatment (see Table 3). Only

Table 3 Actual treatment type

Actual treatment	Frequency	Percent
Valid		
Outpatient	251	39.1
Residential forced	1	0.2
Residential unforced	326	50.8
Day treatment	56	8.7
Total	634	98.8
Missing	8	1.2
Total	642	100.0

Table 4 Average age of the different diagnostic categories

AN-R ^a	AN-P ^a	BN ^a	BED ^b
20.2	23.0	22.0	31.7

Diagnostic samples with different subscript are significantly different at $p < 0.05$

AN-R anorexia nervosa restricting type; AN-P anorexia nervosa purging type; BN bulimia nervosa; BED binge eating disorder

one patient received involuntary treatment. The majority (59%) of outpatients were treated by a psychologist, 26% by a dietician, 23% by a general practitioner and 21% by a psychiatrist. Remarkably, self-help was only reported by 1% of the patients and only eight patients (2%) reported to have received involuntary treatment in the past.

Research question 2: are there differences between AN-R, AN-P, BN, and BED on sociodemographic and clinical characteristics?

We compared patients with AN restricting type (AN-R), AN binge-purging type (AN-P), bulimia nervosa (BN) and the binge eating disorder (BED) patients, with regard to gender, age, socio-economic status and treatment choice.

Age

Patients with BED had a significantly ($p < 0.05$) older age, of about 31.7 years, than all the other diagnostic categories (see Table 4). No significant differences in age existed between the other diagnostic categories.

Duration of illness

Results showed significant differences ($F(4, 478) = 112.3$, $p < 0.0001$) between diagnostic categories. AN-R patients had a significant lower duration of illness (47.5 months)

compared to AN-P (80 months), BN (71 months) and BED patients (127 months) who showed the longest duration of illness.

Socio-economic status

Most patients with AN-R (91%), AN-P (89%) and BN (90%) were unmarried or not living together with a partner, whereas 30% of BED patients were either married or living together. No significant differences were detected between the four diagnostic groups when comparing the constellation of the family of origin (intact family, divorced, newly reconstituted).

With regard to educational level, most AN-R, AN-P and BN patients were still attending school (76%, 61% and 55% respectively), while BED patients—as expectable from the older age—were either working (45%) or studying (36%). As much as 37% of the AN-R sample, 49% of the AN-P, 44% of the BN patients and 51% of the BED patients had a bachelor and/or master degree.

Actual treatment choice

Analyses of data on the choice of treatment highlighted significant differences between diagnostic categories ($X^2(6, N=495)=56.1, p \leq 0.0001$). In fact, BED patients made significantly more use of outpatient treatment and more frequently contacted dieticians than all other ED categories. Patients with AN-P tend to be treated in inpatient units more frequently (77%) compared to AN-R (48%), BN (42%) and BED (25%). Data further showed no significant differences regarding the use of day treatment when comparing the different ED categories.

Research question 3: are there differences between different age categories (age < 15; 15–20 and > 20)?

The sample was divided into three age groups (> 15, 15–19 and > 20) and compared them with regard to gender, age, socio-economic demographics, treatment choice and trajectory.

Gender and age

Most of patients were in the 15–19 years sample (44%) and 12.5% was under 15 years (see Fig. 1). Compared to the other age groups, male patients are significantly more present in the youngest sample (age < 15) ($X^2(2, N=639)=13.1, p=0.001$).

Socio-economic demographics

Regarding the family constellation (intact family, divorced, newly reconstituted), data showed significant differences between the three age categories ($X^2(4, N=595)=13.0898, p=0.01$). The number of newly reconstituted families is significantly higher in the youngest age group (age < 15). Data also showed a higher incidence of divorce in the families of younger age groups (age < 15 and age 15–20) compared to the older ones (age > 20). With regard to education, 70% of the patients in the oldest group had a bachelor or master degree. However, 35% of them were not attending school or working, were diagnosed disabled (10%), or were unemployed (5%).

Actual treatment choice

When comparing different age groups regarding the ‘actual’ type of treatment, data showed significant differences ($X^2(4, N=631)=37.6, p < 0.0001$). The youngest group (age < 15) is mostly treated in outpatient (61%) or day treatment (14%), while the patients in the age group 15–20 were receiving either residential treatment (56%) or outpatient treatment (40%). Patients in the oldest group (age > 20) were mostly receiving residential treatment (55%), outpatient treatment (33%) or day treatment (12%) and consulted a psychologist more frequently than the younger age categories ($X^2(2, N=588)=14.2, p=0.001$).

Discussion

The present study shows data on ED patients treated in specialized third-line treatment facilities, with a focus on sociodemographic and clinical variables.

Several findings confirm data from previous studies showing that the majority of our patients are female and have an average age between 15 and 25 years of age [4, 5]. On average, patients are young and, due to the early onset of their disorders, have already been in a chronic process of ED: a substantial number of patients was younger than 15, confirming the general trend for an ED diagnosis to start at a younger age [3, 13]. While these findings are in line with data from other studies [6, 7, 9, 14], data show greater gender differences, with a lower ratio of male patients being treated in specialized centers than reported in previous studies (e.g., [3, 13]). This gap in gender distribution could be due to stigma and different gender liabilities in the help seeking or, maybe, to a lack of knowledge about male ED in the general health care practices.

Interestingly, patients from our sample come from more intact families compared to the general population. Moreover, even if approximately one in three patients reported

divorce of their parents, the number of divorced families in the general population of Flanders is much higher (52%) [15]. Another finding is a much lower frequency of being the only child in the ED population (one in ten) compared to the general population of Flanders, showing that almost half of the families have only one child [16].

Our study confirmed the observation of Striegel-Moore and Bulik [17] that high-educated women are commonly represented in the clinical population of ED treatment. Indeed, patients in this sample were highly educated, with more than a third having achieved higher education (bachelor and/or master level). Patients with AN had a lower level of education level than other subgroups but after controlling for current age no differences were highlighted. Remarkably, in the oldest group, almost three out of four patients had either a bachelor or master degree, compared to only 30% in the general population of Flanders [18]. Moreover, in spite of their ED, only 13% lagged behind in secondary education compared to 27% of the Flemish population [18]. Of those patients in our sample who work (19%), roughly one in five works either as a teacher or as a nurse. Data show a specific inclination of ED patients towards professions that provide help and education to others.

As expected in a specialized third-line setting, a large part (i.e., one patient in 5) suffers from a severe, enduring ED lasting more than 8 years [12]. The majority of patients were treated in a residential setting, while only one patient was actually following a compulsory treatment. The extremely low number of forced treatments in Belgium can be considered as a remarkable finding, demonstrating the milder attitude in most psychiatrists to introduce forced treatments in their ED patients.

When comparing different ED samples, BED patients had a significantly older age compared to the other groups, while AN-R patients have the shortest duration of illness. Remarkably, our patients report a shorter duration of illness compared to the data of other studies showing a much longer duration of illness for all ED categories [4, 5]. BED patients are mostly treated in outpatient treatment by a dietician while the other groups (AN-R, AN-P and BN) were treated in a residential setting. Remarkable is the fact that the patients with AN-P have the longest hospitalization time. In the AN-P sample, 1 patient in 3 reported at least one hospitalization, 1 in 5 had two hospitalizations and 1 in 15 reported three hospitalizations which is significantly more than any other ED. Data from other studies are in line with this finding [5, 23].

One of the limitations of this study is the specific selection of the patient sample: only patients asking for help in the specialized treatment centers were included. Therefore, it is possible that this sample is not fully representative for the eating disorder patients in general considering the fact that only a minority is asking for professional help [4, 5].

The strong points of this study are its multi-center nature, the high number of participants, the high participation rate and the use of the methodological consistency in all the involved residential centers. Our results build on previous studies [22, 23] and underline the severe impact of ED on the life of patients, the levels of impairment and the difficulty of treating such cases. In consideration of the high amount of highly educated individuals, the number of patients disabled or on sick leave from work highlights the high social cost associated to ED. Most of these critical, chronic cases start looking for help before adulthood, usually getting in contact with specialized centers only as a third line “last resort”. In line with the suggestion of other colleagues [6], these data call for the importance of prevention and assistance in the first line, with further development of the role of mental health professionals in the primary care.

What is already known on this subject?

Many studies report data on general ED patient characteristics such as age, sex, age at onset, duration of illness, showing that ED patients are mostly female, have an age between 15–25 years and they have an early onset of the disease. However, very few studies report more specific sociodemographic characteristics such as family constellation, actual civil and occupational status and educational level of the ED patients.

What this study adds?

This study shows that ED patients in Belgium are highly educated much more when compared with the general population and that they grow up in more intact families compared to the general population. Notwithstanding their young age, a large sample (one patient in five) suffers from a severe, enduring ED provoking incapacity to study and/or work. This finding calls to the need for early detection and treatment of these patients.

Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there are no conflicts of interest.

Research involving human participants and/or animals All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee, i.e., the Scientific and Ethical committee of the University Psychiatric Center KULeuven, campus Kortenberg and the Faculty of Psychology of KULeuven and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. In case

participants were minors, informed consent was obtained from the parents/legally authorized representative.

Informed consent Informed consent was obtained from the parents/legally authorized representative.

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