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Research Article

Adolescents with Eating Disorders: Are there Identifiable Characteristics?

Abstract

Aim: Adolescents with eating disorders frequently present late for treatment or not at all. This study aimed to determine whether there were any identifying characteristics of adolescents with eating disorders that might assist health care professionals with earlier detection. A secondary aim was to determine whether there were any differences between adolescents who required inpatient treatment versus outpatient treatment only. Early identification could allow treatment modification aiming to avoid admission.

Methods: A 4 year (October 2010-October 2014) retrospective chart review of all adolescents with an eating disorder seen at Tauranga Hospital was undertaken. Data was gathered on characteristics considered potentially associated with eating disorders.

Results: A total of sixty three patients were seen. Ninety four percent of the patients were female and six percent male. Patients came from a variety of socioeconomic and ethnic groups. There was a high incidence of maternal eating disorder history (18%) and a high rate of suicidal thoughts (40%). There were no statistically significant differences between inpatients and outpatients, except that inpatients had higher rates of self-harm.

Conclusion: Female gender continues to be the most identifiable characteristic of adolescents with eating disorders but there are few other distinctive characteristics. Health care professionals therefore must consider the diagnosis possible in all situations rather than rely on the traditional stereotype.

Introduction

Eating disorders are characterised by inappropriate eating behaviours underlined by a psychopathology centred on food, eating and body image. They have both significant physical and psychological consequences including a high mortality rate. The classic 'face' of anorexia nervosa (AN) as a white, western, wealthy adolescent female remains the dominant perception [1]. However, there is emerging evidence that this 'face' is changing with eating disorders described in males, various ethnic groups and all socioeconomic groups [2,3].

Purported risk factors for developing an eating disorder include family history, urban living, participation in gymnastics, low self-esteem, high levels of perfectionism, early menarche, migrants from developing countries, sexual and physical abuse, substance abuse, parental marital status, sexual orientation and experience of bullying [4-10]. However, the low incidence of eating disorders means there are few current studies describing the characteristics of adolescents with eating disorders.

This study aimed to determine whether there were any identifying characteristics of adolescents with eating disorders that might assist health care professionals with earlier detection. Unfortunately, most patients with eating disorders don't seek treatment or seek treatment late [11]. This is compounded because health professionals often do not recognise the signs of eating disorders [12,13]. It is a pertinent issue because early treatment is associated with better outcomes [14].

A secondary aim was to determine whether there were any differences between adolescents who required inpatient treatment versus those who received outpatient treatment only. Outpatient treatment is considered superior to inpatient treatment whenever possible [2]. Early identification of patients at risk of admission could allow treatment modification aiming to avoid admission.

Methods

A 4 year (October 2010-October 2014) retrospective study of the records of all adolescents with a diagnosis of an eating disorder seen at Tauranga Hospital, either by the Paediatric

Service and/or the Child and Adolescent Mental Health Service was undertaken. Tauranga Hospital is part of the Bay of Plenty District Health Board, in the North Island of New Zealand (NZ). It serves a population of more than 150,000. The population has a greater proportion of Maori (indigenous people) and people in lower decile groups than the national average. Eating disorders were diagnosed using the Diagnostic Statistic Manuel (DSM) IV or V criteria [15]. Cases were identified through the Paediatrician entered outpatient coding database. The characteristics under study were not documented in all records and the results specify the denominator where this is the case.

Ethical approval was not sought as this study was a retrospective audit and therefore ethical approval was not required as per the New Zealand Health and Disability Ethics Committee.

The data was entered in a excel spreadsheet (Microsoft Corporation, Redmond, Washington) and statistical analysis was performed using Wizard for Mac version 1.7. Student t test was used for continuous variable and Fischer exact test was used for nominal data.

Results

Sixty three patients were seen. Fifty nine patients (94%) were female and four male (6%). The age range was from nine to 18 with an average age range of 14.5 years and a mode of 14 years. Seventy five percent (47) identified as NZ European, 14% (9) European, 5% (3) Maori, 1.5% (1) Pacific Island and 6% (3) other. Sixteen patients (26%) were from the highest socioeconomic groups (1-3), 22 (37%) from the middle (4-6) and 22 (37%) from the lowest (7-10). The socioeconomic status was not recorded in three cases.

The majority of patients came from homes with both parents and other siblings. Table 1 lists the family characteristics of patients.

Forty three patients (68%) went to a co-educational school, 13 (21%) a single sex school, two (3%) were home schooled, two (3%) were attending Northern Health Schools (school for children with medical conditions), one patient (2%) was not in school and two patients (3%) did not have their school status recorded. Table 2 describes the school characteristics of patients.

Fifty seven percent (36) of patients were diagnosed with AN, 38% (24) Eating Disorder Not Otherwise Specified (EDNOS), 3% (2) Avoidant/restrictive food intake disorder (ARFID) and 2% (1) Bulimia Nervosa (BN). The BMI at presentation ranged from 13-21.9 with a mean of 17. The weight range was 23.3-61.9 kilograms with a mean of 45.8 kilograms. Patients with anorexia nervosa presented with a mean BMI of 16.49 compared with 17.72 for patients with EDNOS/Bulimia/ARFID. There was a mean delay in seeking treatment of nine months (2-36 months). Table 3 describes the health characteristics of the group.

The data was analysed to see whether there were any differences in the characteristics between those patients with anorexia nervosa and the other eating disorder categories. There were no statically significant differences.

Table 1: Family characteristics.

Living with both parents	48/63 (76%)
Biological siblings	51/63 (81%)
Half/step siblings	16/63(25%)
Oldest Child	22/63 (35 %)
Middle Child	5/63 (8%)
Youngest Child	30/63 (47%)
Twins	3/63 (5%)
Exposure to domestic violence	3/58 (5%)
Maternal mental health disorder (past or present)	14/56 (25%)
Maternal eating disorder (past or present)	10/56 (18%)
Paternal mental health disorder (past or present)	7/51 (14%)
Paternal eating disorder (past or present)	0/51 (0%)

Table 2: School characteristics.

Top achiever (self-reported)	33/60 (55%)
Average achiever (self-reported)	15/60 (25%)
Struggling at school (self-reported)	12/60 (20%)
Participation in sports, dance or modelling	20/62 (32%)
Experienced bullying	21/52 (40%)

Table 3: Health Characteristics.

Menstruation stopped (female and had previously started)	36/49 (73 %)
Food restricting	63/63 (100 %)
Binging	14/60 (22 %)
Purging	22/59 (37 %)
Excessively exercising	43/59 (73%)
Laxative use	6/53 (11 %)
Chronic medical problems	27/63 (43 %)
Anxiety	17/63 (27 %)
Depression/Low mood	2/63 (3%)
Smoking	14/61 (23%)
Drug use	6/58 (10%)
Alcohol consumption	12/58 (21%)
Self-harm	17/60 (28%)
Suicidal thoughts	24/60 (40%)
Experienced sexual abuse	9/59 (15%)
Experienced physical abuse	6/59 (9.5%)

Seventeen of the sixty three patients received inpatient treatment during the four year period. The only statistically significant difference between the inpatient group and the outpatient treatment group was in levels of self-harm (6/15) ($p < 0.047$) with inpatients having higher rates.

Discussion

Our study demonstrates eating disorders affect a broad range of adolescents. Female gender was the only characteristic of the stereotype that holds true. Patients came from all ethnic groups in similar proportions to the New Zealand demographics except for Maori. The low number of Maori patients is

surprising given the prevalence of Maori in Tauranga, and that Maori women have been reported to have higher rates of eating disorders [16]. This raises a number of possibilities: Is the prevalence of Maori with eating disorders lower than previously reported? Are Maori less likely to be identified as having an Eating Disorder because of the perception that it is a Caucasian illness? Are Maori less likely to access services? These are questions for future studies.

Patients in our study were not exclusively wealthy and in fact were more likely to come from middle to low socioeconomic groups. Patients were also younger than previous reports [6,7]. Patients presented to services at a mean age of 14.5 years and most had a delay in seeking treatment of 9 months suggesting a peak age of onset under 14. This has significant service provision implications as patients with eating disorders will be presenting increasingly to General Practitioners and Paediatricians rather than Adult Physicians.

This study identified a few characteristics of interest. Compared to the general adolescent population our patients had lower rates of alcohol use but much higher rates of smoking [17]. This observation is supported by other studies, which have found an increased incidence of smoking in patients with eating disorders [18,19]. It is presumed that patients smoke to disrupt hunger signals. Our results showed a higher association of smoking in patients with anorexia nervosa, which to our knowledge has not been elsewhere reported. Smoking has significant health impacts especially on bone health [20]. To an already burdened young person. The lower use of alcohol may represent the concern about calories [21], the young age group, or that adolescents with eating disorders may be less socially engaged.

Another characteristic of note was a surprisingly high proportion of young people were European. Presumably these were immigrants from European countries. Previous studies have reported that immigrants from developing countries have higher rates of eating disorders [6,7]. This is attributed to moving to a country with a more pervasive culture to be thin. Our results would suggest that migration in and of itself is a risk factor. Migration is known to be associated with increased rates of mental illness [22].

Another risk factor identified was maternal history of eating disorders. A higher proportion of patients had a mother with a history of disordered eating (18%) than would be expected in the general population (12 month prevalence of 0.5%) [19]. Genetics is a well-known risk factor for eating disorders [23,24]. Could more cases be diagnosed with screening questions for children of mothers with previous eating disorders?

This study also highlighted the significant distress associated with eating disorders. There were high rates of suicidal thoughts, which are much higher than the general adolescent population [16]. However the rates of self-harm were comparable to the general population [16]. The rate of self-harm was higher for those patients admitted. The association between self-harm and increased risk for admission may reflect that these patients were admitted because of these

concerns. This raises the issue about where adolescents with eating disorders should be admitted; medical or psychiatric wards.

In addition patients with eating disorders had higher rates of pre-morbid chronic medical conditions than the general population (43% vs. 20%) [17]. These consisted of mostly mild conditions such as asthma and dyslexia. While studies have shown that a chronic medical condition can increase risk of an eating disorder [25,26]. To our knowledge this is the only study that has shown a link between mild pre-existing medical conditions and eating disorders. It is unclear why mild medical conditions are associated; perhaps such patients have greater contact with the health system, which increases the chance of diagnosis.

There are several notable limitations to this study. Firstly, the numbers reviewed were small, which is a common difficulty with diseases with a low incidence. However, the variables reviewed were extensive and were on adolescents rather than on the more commonly studied adults. Secondly, there was incomplete data for some of the variables reviewed. Given that there is no standard record it is perhaps surprising how many of the records included information on variables considered potentially important. Thirdly, the study involved people who were receiving treatment who may be different from young people with eating disorders who do not seek treatment.

Overall, patients with eating disorders continue to be predominately female but otherwise have diverse characteristics. Clinicians therefore can't rely on having a higher degree of suspicion when seeing those previously deemed at risk. Instead efforts to ensure patients are identified early should be aimed at increased education of clinicians, teachers and parents that they need to be mindful of the diagnosis in all young people.

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Ethics

Ethical approval was not sought as this study was a retrospective audit and therefore ethical approval was not required as per the New Zealand Health and Disability Ethics Committee.

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