



Review article

Eating disorders in older women



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ABSTRACT

Eating disorders (EDs) are disturbances that seriously endanger the physical health and often the lives of sufferers and affect their psychosocial functioning. EDs are usually thought of as problems afflicting teenagers. However, the incidence in older women has increased in recent decades. These cases may represent either late-onset disease or, more likely, a continuation of a lifelong disorder.

The DSM-5 classification differentiates 4 categories of eating disorder: anorexia nervosa, bulimia nervosa, binge-eating disorders and other specified feeding and eating disorders.

The weight loss and malnutrition resulting from EDs have widespread negative consequences for physical, mental and social health. The main risk factors for developing long-term consequences are the degree of weight loss and the chronicity of the illness. Most of the cardiac, neurological, pulmonary, gastric, haematological and dermatological complications of EDs are reversible with weight restoration. EDs are serious illnesses and they should never be neglected or treated only as a manifestation of the fashion for dieting or a woman's wish to achieve an imposed standard feminine figure.

Additionally, EDs are associated with high risk of morbidity and mortality.

The literature concerning EDs in older, postmenopausal women is very limited. The main aim of this paper is to ascertain the epidemiology and prognosis of EDs in older women, and to review their diagnosis and management.

Eating disorders in older women.

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1. Introduction

Eating disorders (EDs) involve serious disturbances in eating behavior, such as extreme and unhealthy reduction of food intake or severe overeating, as well as feelings of distress or extreme concern about body shape or weight [1]. They are a heterogeneous group of complex psychiatric disorders characterized by abnormal eating behaviors and have high rates of morbidity and mortality unless adequately treated [2].

EDs are usually thought of as problems afflicting people in their twenties. The typical age of presentation is between 16 and 25 years, with most published series suggesting a mean age of 17 years for anorexia nervosa (AN) and 18–25 years for bulimia nervosa (BN) [3]. However, significant numbers of middle-aged people, especially women, have these disorders. This group of women will comprise those who never recovered from adolescent eating problems and those who develop these disorders for the first time in middle age [4]. Epidemiological data show that the former group is the predominant one [5].

Older women appear less likely to exhibit AN and BN and are more likely to exhibit binge eating disorder (BED) and other eating disorders [6]. Mangweth- Matzek et al. [7] studied a group of 715 middle-aged women and found that 4.6% of them reported symptoms meeting the full DSM-IV criteria for EDs, but only BN, BED and eating disorders not otherwise specified (EDNOS) – none displayed AN. Another 4.8% displayed subthreshold eating disorders.

The US Gender and Body Image (GABI) study recruited 1849 women aged 50 and above [8]. About 13% of the sample had some form of core current ED symptom. The most common symptoms were current binge eating (3.5%) and purging in the absence of binge eating in the past five years (7.8%) [7].

The incidence of EDs in older women has been increasing in recent decades [9]. Moreover, EDs can greatly damage older women's health. Menopause, like puberty, may represent a window of vulnerability to these conditions, likely because of changes in hormonal function, body composition, and conceptions of womanhood.

2. Eating disorders – definition and classification

EDs are usually classified according to the Diagnostic and Statistical Manual (DSM). DSM has appeared in five editions. DSM-I was published in 1952, DSM-5 in 2014 [1]. The latter differentiates four categories of eating disorder (Table 1):

- anorexia nervosa
- bulimia nervosa
- binge eating disorders
- other specified feeding and eating disorders.

Previously, DSM-IV (the last edition to be given a roman numeral) had included binge eating disorder as one of what was subsequently felt to be an overly large category of 'eating disorders not otherwise specified' (EDNOS).

Unfortunately, the literature concerning EDs in postmenopausal women is very limited. The main aim of this paper is to ascertain the epidemiology and prognosis of EDs in older women, and to review their diagnosis and management.

3. Description of eating disorders in older women

3.1. Anorexia nervosa

AN is defined as a decline in appetite leading to significant loss of body weight. AN may present in middle-aged women and older women, although this is thought to be rare. These cases may represent a late-onset disease or, more likely, a continuation of a lifelong disorder.

The frequent age-associated reduction in energy intake has been termed anorexia of aging. The phenomenon affects 18% of individuals over 65 years of age; its prevalence may be higher in women than in men.

AN is associated with high risk of morbidity and mortality and therefore is a subject of growing recognition and research; research has sought to elucidate the risk factors, identify the pathophysiology and to develop more targeted and efficient treatments.

3.1.1. Definition

The weight loss in AN is accompanied by body image disturbance, denial of the medical seriousness of symptoms and an intense fear of gaining weight, with persistent behavior that prevents weight gain (DSM 5) [1]. Amenorrhoea was included in the previous definition (DSM-IV) but presently is not a diagnostic criterion for AN. There are two main subtypes of anorexia nervosa: the restricting type and the binge-eating and purging type.

3.1.2. Epidemiology

This serious psychiatric illness is diagnosed predominantly in females around pubertal age. The mean age of onset in females is between 15 and 19 years, with reported incidence rates of 109–270 per 1,00,000 person-years [10,11]. Overall incidence rates derived from general practice databases are lower, at between 4.2 and 7.7 per 1,00,000 person-years [9,12]. The disease affects 0.9–2.2% of women over their lifetime [10,13].

AN among middle-aged and older women is relatively rare [14]. An Austrian study assessing the prevalence of eating disorders among 715 women aged 40–60 years found three women (0.4%) presenting symptoms of AN without amenorrhoea [6]. A European population-based study reported a 0.17% lifetime risk of AN in women aged over 45 years [5]. An American study assessing weight and eating disorder symptoms in 1849 women aged 50 and above found that 1.6% of them were underweight (< 18.5 kg/m²) [7]. It has not been established whether presentations of AN in middle-aged and older women represent a continuation of a lifelong illness or late onset of the disease. In a Spanish population-based study new cases of eating disorders, including AN, above the age of 45 were observed [15]. However, the data collected from one of the largest

Table 1
EDs classification currently recognized in medical manuals, according to DSM-5 and International Statistical Classification of Diseases and Related Health Problems ed. 10.

Anorexia nervosa (AN)

Is characterized by lack of maintenance of a healthy body weight, an obsessive fear of gaining weight or refusal to do so, and an unrealistic perception, or non-recognition of the seriousness, of current low body weight. Anorexia can cause menstruation to stop, and often leads to bone loss, loss of skin integrity, etc. It greatly stresses the heart, increasing the risk of heart attacks and related heart problems. The risk of death is greatly increased in individuals with this disease. The most underlining factor researchers are starting to take notice of is that it may not just be a vanity, social, or media issue, but it could also be related to biological and or genetic components.

Bulimia nervosa (BN)

Is characterized by recurrent binge eating followed by compensatory behaviors such as purging (self-induced vomiting, excessive use of laxatives/diuretics, or excessive exercise). Fasting and over-exercising may also be used as a method of purging following a binge.

Binge eating disorder (BED)

Is characterized by binge eating at least 2–3 times a week without compensatory behavior along with feelings of shame and guilt after overeating. This type of eating disorder is more common than either bulimia or anorexia. The disorder can develop within individuals of a wide range of ages and socioeconomic classes.

Other specified feeding or eating disorder (OSFED)

Is an eating or feeding disorder that does not meet full DSM-5 criteria for AN, BN, or BED. Examples of otherwise-specified eating disorders include individuals with atypical anorexia nervosa, who meet all the criteria for AN except being underweight, despite substantial weight loss; atypical bulimia nervosa, who meet all criteria for BN except that bulimic behaviors are less frequent or have not been ongoing for long enough; purging disorder; and night eating syndrome.

national referral centres in the UK suggests that AN in patients aged over 50 years is a chronic and enduring mental illness with the age of onset being under 25 years [16]. A population-based study carried out in six European countries detected no new cases of AN in women over 20 years old [14]. These findings support the opinion that AN in middle-aged and older women is mainly a chronic presentation of a disorder of earlier onset.

3.1.3. Pathophysiology

The pathogenesis of AN remains elusive. Genetic vulnerability and multigenic effects may relate to the personality traits associated with AN, such as perfectionism, harm avoidance and neuroticism [17,18]. These individuals are vulnerable to environmental factors, such as the cultural tying of self-esteem to a thin body. Increased risk of AN is observed during the abrupt hormonal changes of adolescence. It has been postulated that the menopausal transition, with its hormonal changes, may likewise represent a time of vulnerability for EDs [8].

Patients develop habitual cognitive and compulsive behavioural patterns that promote dieting. Research indicates that extreme weight loss in AN is associated with aberrant neurological mechanisms of reward that promote compulsive behavior [19,20]. Neuroimaging studies have shown structural and functional brain changes in patients with AN [21,22]. Deficits in dopaminergic, opioidergic and serotonergic brain functions (involved in mood, motivation, reward, impulse control and obsessional behavior) have also been found in individuals with AN [17].

3.1.4. Prognosis

Only approximately half of patients fully recover [23,24]. The rest take a chronic course and experience repeated relapses [23]. Prognostic factors for poor outcome include: greater severity of the disease, with an extremely low body mass index; additional psychiatric comorbidity; age; and worse social functioning [23–25]. Recovery rates in middle-aged and older women with AN are unknown, due to the rarity of the disorder in this group of patients. Among seven women with AN aged over 50 years, referred to a large eating disorders service in one decade, only one patient fully recovered; while approximately half had restored their weight to the normal range, they continued to exhibit significant ED psychopathology [16].

The chronic and lifelong character of AN is partly due to the high incidence of treatment drop-out and relapse: around 20–50% of patients with AN drop out prematurely from treatment [26,27] and relapse rates even for successfully weight-restored patients are as high as 41% within a year of discharge [28].

Mortality rates in AN are the highest of all psychiatric disorders. Crude mortality rates in follow-up studies are around 5%

[24,29]. The standardized mortality ratio (ratio of observed deaths to expected deaths in the general population) for AN sufferers is 5.2 [30]. Moreover, AN patients are 18.1 times more likely to die by suicide than females in the general population [30]. The risk of premature death is highest with older individuals.

Psychiatric comorbidities are frequent in AN. The most common are: depression, obsessive-compulsive disorder, agoraphobia, social phobia and panic disorders [29]. The percentage of adult patients with a diagnosis of a major depression as comorbidity can be as high as 56.4% [31]. It has been reported that 46% of women aged over 50 years with EDs (mainly AN) suffer from depression at the time of referral to an ED service, and all subjects described recurrent episodes of depression in their past [16].

In spite of the serious and chronic course of the disease, affected patients do seem able to carry on with normal life. In a 21-year follow-up study, 60% of adult patients lived with a partner, 68% had at least one child and 71% were able to work [23].

3.1.5. Long-term consequences

Medical complications are a direct result of weight loss and malnutrition. The main risk factors for developing long-term consequences are the degree of weight loss and the chronicity of the illness. Most of the cardiac, neurological, pulmonary, gastric, haematological and dermatological complications of AN are reversible with weight restoration.

Long-term consequences, which may affect patients who have fully recovered from AN, are associated with endocrine shifts. Endocrine changes in AN include hypothalamic amenorrhoea, growth-hormone resistance, relative hypercortisolaemia, and a slight decrease in thyroid function. Some of these changes, although usually temporary, may have permanent adverse effects on bone structure or reproductive health [32].

In the older population, the decrease in bone mass density in AN patients is of special concern, due to the aggravation of bone resorption related to hormonal changes and decreased mobility. Approximately 38% of AN patients have osteoporosis, and 92% can be diagnosed with osteopenia [33]. In one series of women aged over 50 years with EDs, osteoporosis was diagnosed in 73% [16]. The risk of bone fracture is seven times higher in AN patients than in the general population [34].

3.1.6. Treatment

AN in adults has been described as one of the most difficult diseases to treat. Reluctance to engage in treatment and increase body weight, along with denial of the seriousness of the condition, are intrinsic characteristics of the disease. Most patients seek only temporary relief from the physical consequences, preferably without gaining significant weight. The course of the disease

in adults is often long and fluctuating, with recurrent treatment attempts and dropouts, repeated hospitalization, and high rates of relapse and chronicity. Because the outcome is worse in adults, it has been postulated that the duration and intensity of therapy should be doubled in older patients [35]. The NICE guidelines recommend the active involvement of families in treatment for adults, as is often done in AN therapy for adolescents [36].

Treatment is carried out in inpatient, day patient and outpatient settings. Previously, inpatient treatment was regarded as standard. Now, there is agreement that the outpatient setting should be preferred unless patients are at high risk. The therapeutic plan should be tailored individually. This is especially important for older patients, who are at the late phase of a protracted illness and who will likely have experienced many prior failed attempts at treatment. Treatment is based on psychotherapy, dietary interventions aimed at body weight restoration and regular physical risk assessment and monitoring. Recovery from AN is a two-stage process consisting of weight restoration followed by relapse prevention.

Nutritional rehabilitation and weight gain are essential for successful outcomes. Nutritional treatment, including supervised meals, oral liquid nutrition or nasogastric tube feeding, gradually increase caloric intake. Expected rates of controlled weight gain are generally 0.5–1.4 kg per week. In significantly malnourished patients, nutritional replenishment may precipitate refeeding syndrome, with hypophosphataemia as the hallmark of this complication [37].

Although evidence for the effectiveness of psychological therapies for AN is inconsistent, psychotherapy is regarded as a mainstay. Specific interventions include: cognitive-behavioral therapy, interpersonal psychotherapy, specialist supportive clinical management, family therapy and focal psychodynamic psychotherapy. No clear primacy of any approach has been demonstrated [38].

There is very limited evidence of the effectiveness of pharmacotherapy. Medications serve rather as adjuvants to outpatient treatment, or are used to alleviate associated physical symptoms or to treat comorbidities. Atypical antipsychotics and selective serotonin reuptake inhibitors are used to treat the high rates of comorbidity with depression in patients with AN [38,39].

The effect of AN on bone density can be severe and debilitating. Body weight restoration, estrogen replacement, human recombinant IGF-1, or bisphosphonates and teriparatide therapies have been applied in individuals with AN [40]. A systematic review and meta-analysis of the clinical efficacy of estrogen preparations on bone mineral density and bone fractures concluded that such treatment is of uncertain benefit [41]. In adults with a history of AN, repeated densitometry scans every two years to monitor bone mineral density and the response to treatment for osteoporosis is recommended.

3.1.7. *Anorexia nervosa of aging*

Alterations in body weight occur over a woman's lifespan. The highest body mass index is typically achieved in the middle decades, and is followed by a decline thereafter. Aging is associated with modifications in eating habits, with significant changes in appetite and food intake. The age-related reduction in energy intake has been termed 'anorexia of aging' (AA). AA affects 16–20% of individuals over 65 years of age [42]. In institutionalized patients, AA has a higher prevalence and is more common in women than in men (approximately 34% vs. 27%) [42]. AA correlates with sarcopenia (loss of muscle tissue) and a decline in functional status, decreased bone mass, micronutrient deficiencies, reduced cognitive function, increased hospital admission, immune dysfunction, poor wound healing and even premature death.

Loss of body weight in older individuals seems to be secondary to a decline in energy intake. Elderly persons eat smaller meals at a slower pace. Older women eat 30% fewer calories with 55% less fat and 40% less carbohydrate than younger women [43,44]. Dysregulation of the food intake drive in older individuals is multifactorial. Social isolation, depression and poverty may contribute to diminished food intake. Medical factors can include serious chronic diseases and the administration of pharmacological agents; reduced appetite may reduce energy intake. In hospitalized patients, disease-associated AN is a recognized factor associated with increased morbidity and mortality, longer hospital stays and an almost doubled risk of being readmitted to hospital within 15 days [45]. The prevalence of malnutrition among hospitalized patients is around 30%, with the highest incidence in geriatric patients [46,47].

However, the main recognized reason for AA is impaired homeostatic regulation of feeding. The satiety system is regulated by the central feeding system, dependent on neurotransmitters and peripheral hormones (opioids, noradrenaline, NPY, orexins, galanin, ghrelin, corticotrophin releasing factor, cholecystokinin, insulin, GLP-1, leptin) [48]. There is growing evidence that some of the feedback signals (i.e., cholecystokinin, opioid) are altered in senile individuals [44]. Other physiological factors underlying decreasing food intake with age include a slight increase in taste and smell thresholds and a decline in gastric emptying [42]. A few studies have looked at the treatment of AA using megestrol acetate, dronabinol or cholecystokinin inhibitors. No treatment, however, has yet been proved effective [49].

3.2. *Bulimia nervosa*

3.2.1. *Definition*

BN is characterized by recurrent episodes of eating a larger amount of food than most people would eat in the same period, with a lack of control during the episodes (binge eating), as well as by recurrent inappropriate compensatory behaviours to prevent weight gain (i.e., fasting or excessive exercise, self-induced vomiting, or misuse of laxatives, diuretics or other medications). The pathological behaviours must occur at least twice per week for 3 months [1]. Depending on the presence of activities intended to lose excessive energy load (vomiting, use of medicines), purging and non-purging types of bulimia can be distinguished.

3.2.2. *Epidemiology*

The lifetime prevalence of BN is estimated to be between 1.7% and 2.9%. In the most affected age group, 16–29 years, the incidence of BN ranges from 300 to 438 per 1,00,000 people/year [50]. According to Mangweth-Matzek et al. [7] 10 of 715 (0.2%) women aged 40–60 displayed BN as defined by DSM-IV. Preti et al. [51] estimated the lifetime risk of BN in women aged 45 and over as 0.21%. The scant literature on the topic suggests that most of the late-onset cases are actually sequels of early-onset EDs: only one-third are new cases in older women (above 40 years) [52].

3.2.3. *Pathophysiology*

The first diagnosis of BN was made in the 1980s, but the condition was not well understood. The key difference between a patient with BN and a healthy person is that the former does not feel sufficiently full after consuming a normal amount of food [53]. This is the reason why overeating occurs. Several studies were conducted to prove this disparity. It was obvious that a biological mechanism was at play, and the release of cholecystokinin (CKK) was identified as a potential mechanism. Post-prandial increase of CKK is a trigger to meal termination. In control groups, CKK was released after a meal, but this release

was blunted in BN patients [54–56]. Other potential mechanisms related to the quantity of food or size of meals have been proposed. A group of scientists proved that there is a reduced rate of emptying of the gastric load to the duodenum in BN patients [54,57]. This leads to an augmented stomach capacity, which allows them to ingest a greater amount of food. This model explains the discrepancy in sensing how much has been consumed [58].

3.2.4. *Bulimia nervosa in older women*

As pointed out above, EDs in the elderly have not been widely studied. It is debated whether their frequency remains the same or decreases, but the most important question is why older women suffer from this illness. It is possible that the Western world does not accept the non-ideal body of a mature woman. The great value attached to slenderness and youthfulness often generates dissatisfaction among older women in how their bodies change. It may also be linked to a loss of control and power. Self-induced vomiting may give women a sense of regaining control and attracting the attention of family members who normally ignore the elderly. Studies have shown that the importance of body image and dissatisfaction does not differ across age groups, but what changes is the impact of these factors on self-esteem [59]. High self-esteem may be a protective mechanism.

A list of causes of EDs in patients over age of 50 was published by Lapid [60]. The following precipitating events were identified: falls and hip surgery, widowhood, bereavement, family member moving, domestic crisis, health problems of husband, re-marriage of ex-husband, retirement, marriage of daughter, prisoner during World War II, stressful life events, cholecystectomy, stomach operation, immigration, marital dissatisfaction, stress from child rearing, pneumonia, residential move, and facial surgery. The most common were widowhood and bereavement. Most of the factors on this long list are not medical but rather social in nature [60].

3.2.5. *Therapy*

Treatment strategies for EDs tend not to differ across age groups. Psychological treatment is indicated for patients with chronic and relapsing disorders [61]. Fairburn developed a manualized form of cognitive-behavioral therapy (CBT). The treatment lasts about 5 months and consists of 15–20 sessions. The aim of the therapy is to change the female patient's beliefs and her conclusions. In this model, self-induced vomiting is caused by a cascade of dysfunctional beliefs which follow binge eating. They appear because of the role body image has for the patient and the negative emotions that appear after binge eating. The goal of the therapy is to make body image less important for the patient and to modify her conclusions about herself (e.g., "I started eating a lot, so I cannot control myself. To control myself I need to vomit so that I do not to put on weight. It is important for me to look good – I do not want to put on weight"). Evidence from controlled studies suggests that CBT helps some patients with BN [61], but there is also a group of patients who do not benefit from it. Some patients are given brief educational or self-help therapies. Other types of psychological therapies, such as interpersonal psychotherapy or dialectical behavior therapy [62], are not frequently selected but nonetheless can be offered to BN patients. Psychodynamic therapy has the longest history; it used to be a long-term treatment but has since become time-limited and more structured [63].

A range of studies show the role of antidepressants, anti-anxiety and antipsychotic medications for BN sufferers if given for a short time [64]. Combined treatment (psychotherapy, medication and involvement of family members) is most beneficial.

20% of elderly patients reported in 46 case studies died of EDs or their complications (e.g., cachexia, pneumonia or cardiac failure). Once the diagnosis is suspected, doctors should investigate

as quickly as possible and start treatment immediately. Approximately 42% of patients benefited from treatment (which reduced their symptoms). The most successful approach was combined therapy (CBT and medications – 9 out of 19 cases). Solo CBT therapy (4 out of 12) and pharmacological agents alone (5 out of 8 cases) were less successful [52].

3.3. *Binge eating disorder (BED)*

DMS-5 defines BED as recurrent episodes of binge eating, which in turn is defined as eating, in a discrete period of time (for example, within any 2-hour period), an amount of food that is larger than most people would eat in a similar period of time under similar circumstances. The episode of binge eating is accompanied by a sense of lack of control over eating during the episode (for example, a feeling that one cannot stop eating or control what or how much one is eating) [50]. The binge eating occurs, on average, at least once a week for three months. BED is distinguished from BN by the lack of inappropriate compensatory behavior, such as purging.

BED is the most common form of ED, with a lifetime prevalence between 1% and 3% [65]. It is also the most prevalent disorder in older age. Among women aged 45 or more, its prevalence has been estimated at 0.61% [65]. As with other EDs among older women, studies show that most cases represent either a chronic presentation or a relapse of early-onset disease. Even though BED is a relatively rare condition in the older population, episodes of binge eating are strikingly common. In a sample of women between the ages of 42 and 55, 11% reported binge eating at least two times a month [66]. In another study, binge eating behaviour at least once per week was reported by 7.1% of women aged 50–54, by 2.5% of women aged 55–64 and by 0.9% of women over 64 years old [66]. Epidemiological data suggest a higher prevalence in perimenopausal women than in postmenopausal women [66].

As with BN, BED is believed to be of multifactorial aetiology. Genetic background is of importance, since a high heritability has been demonstrated for this disorder [67]. Nonetheless, acquired factors are also of concern, especially psychiatric traits such as anxiety, depression and low self-esteem. Personality traits such as impulsive or borderline personality are also known risk factors for BED [68,69]. Brain functional imaging has revealed hypoactivity in the inferior frontal gyrus, ventromedial prefrontal cortex and insula, which are the brain areas involved in self-regulation and impulse control [70].

The impact of BED on health is of special concern in the older population, due to metabolic disturbances influencing the cardiovascular system. BED leads to obesity, dyslipidaemia, insulin resistance and hypertension. Obesity aggravates the psychiatric symptoms, especially depression and low self-esteem, and this leads to a vicious circle, with increasing severity of BED symptoms [71].

4. *Conclusions*

Anorexia nervosa, bulimia nervosa, binge eating disorder and other specified eating disorders (e.g. nocturnal eating, pica) are classified as mental illnesses; their pathogenesis involves a complex of genetic, biological and environmental factors. Eating disorders are a diverse group of psychiatric disorders characterized by an extreme reduction of food intake or severe overeating; in either case there will be serious complications.

Often, it is believed that eating disorders concern only young people. However, it appears that the problem increasingly also applies to older people, and women in particular. Eating disorders disrupt an individual's mental and social life for many years, and have severe consequences. Menopausal women and those under-

going puberty are at higher risk of developing eating disorders because both groups are undergoing marked hormonal changes.

It has not been established whether presentations of eating disorders in middle aged and older women represent a continuation of a lifelong illness or late onset of the disease. However, it appears that anorexia in middle-aged and elderly women is mainly a chronic presentation of an earlier onset.

The most dangerous effects of eating disorders are: decreased bone mass density, due to aggravation of bone resorption related to hormonal changes, and decreased mobility. Special attention needs to be paid to potential dysregulation of the endocrine system, brain dysfunction, cardiac, gastric and hematological complications, and also nutrient deficiencies as pathophysiological complications of starvation or excessive vomiting.

The treatment of eating disorders relies on a multidisciplinary approach, including medical, nutritional, social and psychological components. Cognitive-behavioral therapy plays a fundamental role. The chronic and lifelong character of eating disorders and patients' susceptibility to negative aspects of treatment are often the source of therapy failure and worsening of the disease.

Unfortunately, the complexity of physiological and environmental factors leads to an increase in the morbidity of eating disorders. However, eating disorders in the elderly have not been widely studied. Research is needed into the proper diagnosis and management eating disorders in older women. Improvements are required in the mode of treatment, and in particular in multidisciplinary secondary healthcare.

As many older people have multiple severe illnesses, treating them can be challenging. It is often the case that doctors overlook eating disorders in this group, which may lead to serious complications. Moreover, because older people have few compensatory mechanisms, a wide range of health issues secondary to eating disorders arises, the most common of which are cardiac, gastric, bone and metabolic problems [3]. This makes it all the more important to make a proper diagnosis and start treatment immediately.

Conflict of interest

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Authors contribution

B. Meczekalski: The chief of the department, the supervisor of the project, the idea giver of the project, the author of the project, preparation of manuscript.

Agnieszka Podfigurna-Stopa: The author of the project, preparation of manuscript.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.maturitas.2015.06.036>

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