

Mini-Review Article

Overview of the Japanese Situation for Supporting Anorexia Nervosa

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Abstract

Anorexia nervosa (AN) is a serious behavioral illness characterized by an excessively low body weight, intense fear of gaining weight, and a distorted perception of body image. AN patients demonstrate several abnormal behaviors including severe eating restriction, laxative misuse, excessive exercising, or binge-eating/purging. This mental and psychosomatic illness is intricately associated with biopsychosocial factors, and is considered a socio-cultural condition. Differences between Western and other countries have been implicated, indeed comparing those in Japan. This review summarizes Japanese findings and support systems for AN, and especially focuses on its prevalence, comorbidities, etiological research, and treatment services. The review also summarizes recommendations applicable to clinical settings based on domestic guidelines and highlights the need to accumulate evidence to improve local networking in Japan.

Abbreviations: AN: Anorexia nervosa; ED: Eating disorder; BP: Binge eating/purging; MHLW: The Ministry of Health, Labor and Welfare; OCD: Obsessive compulsive disorder; ASD: Autism spectrum disorders; PD: Personality disorders; CBT: Cognitive behavior therapy; FBT: Family based treatment; FPT: Focal psychodynamic therapy; DP: Day-patient; BMI: Body mass index; JSDE: Japanese Society for Eating Disorders; CEDRI: The Center for Eating Disorder Research and Information; SCID: Structured clinical interview for DSM disorders; BN: Bulimia nervosa

INTRODUCTION

Anorexia nervosa (AN) is a serious behavioral illness of adolescence characterized by an excessively low body weight, intense fear of gaining weight, and a distorted body image perception. AN patients place a lot of importance on controlling their weight and shape; therefore, they demonstrate extreme efforts to prevent weight gain or to maintain emaciation by severely restrictive eating or feeding. Some patients control calorie intake by misusing laxatives and diet aids. Others try to lose weight by exercising excessively or binge-eating/purging (bulimic episode and self-induced vomiting). Irrespective of the weight loss mode, patients have a pathological fear of obesity. This mental and psychosomatic illness is intricately associated with biopsychosocial factors, and can be linked with dysfunctional coping and low self-esteem. AN had been considered a cultural behavior reflecting the socio-cultural conditions. Particularly, several articles have discussed differences between Westernized and Asian cultures [1-3]. This mini-review summarizes the Japanese findings and data on the support system for AN, especially focusing on the prevalence, comorbidities, etiological research, treatment approaches, and medical health service in Japan.

PREVALENCE

This section summarizes the major findings from Japan, as reported in the author's previous review [3]. The first official research committee for AN (including atypical eating disorders) by the Ministry of Health, Labor, and Welfare was developed in 1981. During 1980-81, 1985, 1992, and 1998, annual surveys were conducted targeting only representative hospitals in Japan. Previously published reviews [4-6] were based on surveys targeting all university hospitals and larger hospitals with ≥300 beds (1,030, 5,283, 5,057, and 23,041, respectively), and used questionnaire-based AN criteria for case detection. In the first two surveys, the original criteria for AN were developed according to Feighner's criteria [7], as the Diagnostic and Statistical Manual for Mental Disorders (DSM)-III criteria were considered unsuitable for the Japanese cases. These criteria consisted of the following: ≥20% emaciation, ≥3 months duration of illness, ≤30 years old, female gender, amenorrhea, eating abnormality, desire for thinness, hyperactivity, ignorance of disorders, and differentiated diagnosis. In 1989, these criteria were revised so that cases fulfilling 6 items in this criteria were diagnosed as confirmed AN. The DSM-IV criteria were applied in 1998; consequently, the surveys identified 980, 2,391, 2,068, and 5,417 patients in each annual survey, respectively. Based

on the differences in response rate (33.0%, 64.3%, 37.4%, and 61.0%, respectively), the research committee estimated patient numbers (annual prevalence per 100,000 populations) as follows: 2.2–2.75 in 1980–81; 2.9–3.7 in 1985; 3.6 in 1992; and 8.3–11.9 in 1998. In a sample containing only females aged 10–29 years, the estimated patient numbers were 14.4–18.0 in 1980–81, 20.4–25.3 in 1985, 21.8 in 1992, and 51.6–73.6 in 1998. There were more cases in the teenage population and over 90% of the patients were women. The estimated prevalence of AN in Japanese hospitals has increased by approximately five times during the last 20 years [8].

Nakamura et al. [9] determined the AN prevalence by asking doctors in all relevant medical facilities (130 hospitals and 1,326 clinics) in a local prefecture to report patients with DSM-IV-diagnosed eating disorders (ED), who presented or were admitted during 20–24th October in 1997 (response rate, 94.4%). The estimated AN prevalence reported in this study was 4.8 per 100,000 women. Specifically, for the age group of 15–29 years, AN prevalence was 17.1. This prevalence was lower than that reported for the European Caucasian populations. Thereafter, there have been only a few epidemiological studies on ED in a large clinical sample from Japan. However, Nakai et al. [8,10] followed 532 patients with ED discharged from any hospital or clinic during 2007. Approximately 55% of these patients finally visited clinics, but not hospitals, which led them to report a prevalence that was approximately double than that reported by the national surveys of only targeted hospitals.

The research committee [11] conducted other epidemiological surveys for non-clinical samples in 1983 and 1993. Similar questionnaire-based investigations for student samples (junior high or high school girls aged 12–18 years) were performed during 1983–2002 [4,5,6,12,13]; many of these studies used the national survey's original self-rating or interview, the DSM-IV based interview, or the Eating Attitude Test - 26. The number of participants ranged from 456 to 21,153; the findings indicated that AN prevalence determined based on interviews was higher than that determined based on questionnaires [6]. These data indicated that 0.04–1.4% of Japanese students may have had AN, and the numbers were gradually increasing (almost 4 times in 10 years) [10]. Only one study was designed to interview 1,130 women in 13 Japanese high schools by nursing teachers, and reported the highest prevalence: 2.03% in 2002 [14]. A recent survey by Hotta et al. [15] reported the point prevalence of AN among girls, including strongly suspected cases, in the three grades of junior high school and three grades of senior high school as: 0–0.17%, 0–0.21%, 0.17–0.40%, 0.05–0.56%, 0.17–0.42%, and 0.09–0.43%, respectively. The authors stressed that approximately 30–50% of diagnosed and strongly suspected cases had not received medical consultation or treatment.

COMORBIDITY

According to a Japanese study [16] on mood disorders using the structured clinical interview for DSM disorders (SCID) for 171 patients with ED, 57% subjects had a current or past episode fulfilling any criterion of DSM-III-R mood disorders. With only 62 AN patients, the study revealed 32% major depression

and 10% dysthymic disorder cases. The authors discussed two possibilities for the close association: one disorder induced vulnerability to develop the other disorder, or there were common interacting factors for the development of two disorders including biopsychosocial variables.

A previous study reported that 49% of ED patients had a current or a past history of any anxiety disorders (AD) (including obsessive compulsive disorder [OCD]) [17]. Within the subcategories of AD, the study indicated that OCD was the most frequent comorbidity (noted in 27% of subjects). Among three ED subtypes, anorexia nervosa restricting (ANR) type was the least frequent comorbidity (24%), whereas anorexia nervosa binge-purging (ANBP) type was the most frequent comorbidity (71%). AD and OCD are thus important comorbidities of AN in Japan.

A Japanese expert reviewed [18] alcoholism and ED, and reported relatively lower rates of comorbidity (approximately 15%) than that reported by Western studies (20–30%). The author speculated that a genetic weakness in decomposing alcohol may result in this racial difference. The author also emphasized that comorbidity with alcoholism had a more severe pathological course with both physical and psychological effects [19]. Additionally, the rate of use of other drugs (e.g., amphetamine, cocaine, or opioids) in ED patients is reported to be lower in Japan than that in the US owing to social situation on relative calm spread of illegal drugs in Japan.

Recently, some Japanese studies reported that 6–20% of patients with autism spectrum disorders had AN [20,21]. The studies suggested that these patients showed lower adaptability, strong solitudes, interpersonal problems, and rigid obsessions to eating attitudes, and thus it was very challenging to deal with comorbid cases by the approaches usually used. Studies on comorbidity with personality disorders (PD) showed a high prevalence of comorbidity with borderline (unstable) PD or cluster-C PD (obsessive-compulsive, avoidant, or dependent) in AN patients [22], findings that are identical to those of studies from other countries.

ETIOLOGY

Biological factors

This section will introduce biological implications based on the recent developments in research regarding ED-related neuroscience in Japan.

Komaki et al. [23] performed family and twin studies; he found overlapping genetic factors among ED subtypes (AN and bulimia nervosa [BN]), and reported linkage areas on chromosomes 1, 3, and 4, similar to that noted in AN. Conversely, the authors' genome-wide association study indicated two sensitive genome areas (CNTN5 and SPATA17 genes) linked to AN [24]. Kawai et al. [25,26] reported that polymorphisms in serotonin (5-HT) or catechol-O-methyltransferase associated with mood/anxiety/reward/temperament/memory may be related to AN development. The authors also reported complex influences of internal peptides (leptin, ghrelin, NPY, etc.) on AN,

which may increase appetite; however, the psychopathological mechanism may surpass the physiological mechanism. From the view of feeding centers and internal system to control eating, Aou [27] discussed that never experienced environments to creatures might be related to ED such as low exercise load or satiation. The fMRI studies by Miyake et al. [28,29] suggested that AN patients show lower activation of the amygdala, prefrontal cortex, and anterior cingulate in response to cognitively negative words concerning interpersonal relationships. The authors suggested that this may contribute to the impairments of emotional processing that are hallmarks of alexithymia.

Our neuroimaging group has performed a series of studies on brain function in ED patients and its psychopathology using multi-channel near infrared spectroscopy [30,31]. Regional hemodynamic changes in the orbitofrontal and frontotemporal regions were significantly smaller in ED than in controls, and oxygenation changes indicated decreased supply and demand of cerebral blood. Negative correlation with dieting tendency scores in Eating Attitude Test - 26 was shown in the right frontotemporal regions, and with eating restriction and binge eating scores in the left orbitofrontal regions. The psychopathology of ED could consist of two components: dieting tendency that correlates with the right frontotemporal cortex and eating behavior that correlates with the left orbitofrontal cortex.

Socio-cultural factors

Since the 1980s, the number of ED patients has increased rapidly in Japan. Several hypotheses were reported from various fields, including mass media. Some psychological, anecdotal, or social concerns included “anorexic mothers”; mother/daughter connectivity; over-maternal Japanese culture; Westernization of lifestyle; satiation or engorgement; feminist perspective such as “Male-dominated” distortion; societal pressure for girls to be thin including fashion magazines, TV stars “idols”, or celebrities.

The societal pressures owing to Westernization of Japan, including eating attitudes, have continued to increase [32]. Engorgement seems to play a key role in AN development; however, Westernized eating styles in Japan started in 1950s after World War II. In fact, the average height of a 20 year-old Japanese has not changed since 1980 except for growth during 1950–1980 due to improvement in nutrition [33]. Thus, it is impossible to consider over-satiation as a key AN etiology [34]. Conversely, the preponderance of ‘Convenience Stores’ nationwide, promoting “anytime and anywhere” eating, might be a factor related with increased ED prevalence [35].

After high economic growth in Japan in the latter period around 1990, societal, media, and peer pressure to be thin definitely exaggerated. Additionally, advances in social status of women were coincident with a suspicious trend to consider thinness or appearance for women or girls as ability or validity. However, the growth of AN in the Asian countries could be associated with male-dominant society and media literacy.

TREATMENT APPROACHES

Treasure [36] reported that advances in ED treatment for adults has been scarce, especially for AN, except for cognitive behavior therapy (CBT), or interpersonal psychotherapy and antidepressants for BN. For adolescent AN patients, family psychotherapy practiced according to the Maudsley method is recommended based on moderate evidence and moderate beneficial effect. The Maudsley family treatment is well known in both US and Japan as Family Based Treatment (FBT), and some specialists have introduced FBT by textbook translations (e.g., Lock and Le Grange, 2007) [37] or by inviting an original author to Japan.

Two recent German randomized controlled trials (RCTs): ‘Focal psychodynamic therapy (FPT), CBT, and optimized treatment in outpatients with AN’ [38], and ‘Day-patient (DP) treatment after short inpatient care versus continued inpatient treatment in adolescents with AN’ have been reported [39]. Based on these reports, combined psychotherapy and structured care from a family doctor should be regarded as baseline treatment for adult outpatients with AN. FPT proved advantageous at 12-month follow-up, and enhanced CBT was more effective with respect to speed of weight gain and improvements in eating disorder psychopathology. DP after short inpatient care in adolescent patients with non-chronic AN seems no less effective than inpatient care for weight restoration and maintenance during the first year after admission. FPT, CBT, or DP might be an effective, safe, and less costly approach; however, it would take time to confirm its effectiveness and to apply these in routine clinical settings in Japan.

The Japanese Meeting for Eating Disorders was established in 1997, and later developed into the Japanese Society for Eating Disorders (JSED) in 2005. The society planned a committee to formulate guidelines for improved diagnosis and treatment of ED, and the first Japanese guideline according to the Japanese evidence was developed by the JSED in 2012. This guideline [40] covers various broad therapeutic approaches to ED: inpatient management; individual supportive psychotherapy; behavioral therapy; physical and nutritional management; CBT; group therapy; IPT; psychodynamic psychotherapy; family therapy; family psychoeducation; mutual support; art therapy; and medication. The ‘reparenting’ therapy, originally and uniquely developed in Japan, is also included in this guideline.

This section briefly explains a Japanese specific treatment for AN; inpatient behavioral (limit setting) therapy in the internal medical unit [41]. This was developed in the department of psychosomatic medicine, Kyushu University Hospital, and is characterized as an integrated treatment including motivation, insight, and growth based on operant behavioral therapy and physical management. It consists of individual, family, and group management in an internal medical unit using limit setting. It provides support to deal with problems adaptably, and enhances shutting out to avoid real situations (anorexia mechanism). The intervention is applied to pure or core AN better than complex cases. The approach requires multidisciplinary team and structured settings; thus in many Japanese hospitals, practitioners tend to use a modification of this approach.

Additionally, the clinical examination of human ghrelin (SUN11031) injection to patients with AN started in 2009, but unfortunately positive efficacy was not proved.

The Center for Eating Disorder Research and Information

As the author has already summarized in the previous review [3], due to increase of ED in Japan, special treatment and care need to be developed to rationally cope with this difficult disorder. The public medical insurance would not be sufficient to provide intensive treatment for complicated disorders like AN, requiring multidisciplinary approach. Therefore, clinicians, patients, families, and relatives collaborated for a nationwide signature campaign to form a national institute to support ED systematically. The MHLW decided to present a preliminary initiative for an ED care system in Japan, as a result. The Center for Eating Disorder Research and Information (CEDRI) [42] was launched by the Department of Psychosomatic Research of the National Institute of Mental Health in the National Center of Neurology and Psychiatry in 2015, and a few hospitals and institutes from local districts have applied for grants.

The center recommends policies for clinical settings based on worldwide evidence, and it has to improve social approaches such as rehabilitation and local networking. Thus we Japanese health professionals need to practice according to the Japanese guideline and under the guidance of CEDRI or local centers, and should accumulate more accurate data and experience to support, prevent, and manage AN in Japan.

DISCLOSURE

The author declares no conflicts of interest.

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