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Restrictive Eating, Social Comparison, and Body Image Disturbance: A Psychological Case Study of an Adolescent Female with Anorexia Nervosa

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ABSTRACT

Anorexia Nervosa (AN) is a severe eating disorder associated with marked psychological, physical and psychosocial impairment. It is particularly prevalent among adolescent females. This case study presents S.M., a 17-year-old female referred for outpatient psychotherapy with a progressive history of food restriction, compulsive post-meal walking, body image disturbance and secondary amenorrhea. Onset followed a period of upward social comparison with an older sister who received positive attention for her fitness. The client internalized these ideas as a personal standard of worth tied to thinness. Comprehensive assessment, including the Mini-Mental State Examination, the Eating Disorder Examination Questionnaire, the Eating Attitudes Test, the Beck Depression and Anxiety Inventories and the House-Tree-Person projective technique indicated intact

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cognitive functioning alongside clinically significant eating-disorder psychopathology, mild depressive symptoms, moderate anxiety. The client met DSM-5-TR criteria for Anorexia Nervosa, Restricting Type. A phased outpatient intervention combining Cognitive Behavioral Therapy and Exposure and Response Prevention was implemented, addressing psychoeducation, structured eating, fear-food exposure, cognitive restructuring of appearance-based self-worth and relapse prevention. This case illustrates how sibling-based social comparison and contingent self-worth can interact with cognitive and behavioral mechanisms to initiate and sustain Anorexia Nervosa, and underscores the utility of an integrated CBT and ERP framework in adolescent eating-disorder treatment.

Keywords: Anorexia Nervosa, Restrictive Eating, Social Comparison, Body Image Disturbance, Contingent Self-Worth, Cognitive Behavioral Therapy, Exposure and Response Prevention, Adolescent Psychopathology

Introduction

Anorexia Nervosa (AN) is characterized as an eating disorder with a persistent pattern of restrictive eating leading to a significant loss in body weight and often paired with intense fear of gaining weight (Zipfel et al., 2015). There are two clinical presentations that are recognized in Diagnostic and Statistical Manual of Mental Disorders (DSM), one is a restricting type which is marked by dieting and excessive exercise without recurrent binge eating or purging. The other one is binge-eating/purging type where the individual has recurrent purging and binge eating episodes. As per the recent reviews, the overall of prevalence of the diagnosed eating disorders has substantially increased in the recent decades. The estimates suggest an increase of roughly 3.5% of the population in the early 2000s to nearly 8% by the mid-2010s (Galmiche et al., 2019). This raises the concerns related to the cause of this increase and the need to look into this with more gravity.

The literature suggests that the onset typically starts at adolescence which is marked as a period of development with increasing concerns about body image (Keski-Rahkonen et al., 2007). During this time, the peers and family often compare adolescents to their friends and people of their age which inevitably leads to self-image issues (Fairburn & Harrison, 2003). Fairburn et al., (1999) proposed that AN is maintained by an extreme need for self-control that becomes channeled into the

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control of eating, weight, and shape. He further stated that these are frequently present in individuals with pervasive low self-esteem and perfectionistic tendencies. This formulation formed basis for the transdiagnostic model which proposes that a common set of cognitive and behavioral mechanisms, most notably the over-evaluation of shape and weight are the basis for distorted self-worth. This plays a crucial role in maintaining the various eating-disorder presentations and provides the rationale for a unified cognitive-behavioral treatment approach (Fairburn et al., 2003).

Social and familial context also olays a crucial role in leading to the emergence of disordered eating. This has been emphasized in the Festinger's (1954) theory of social comparison in which he proposed that individuals evaluate their own abilities and attributes by comparing themselves with others. He further stated that such comparisons are particularly influential when the comparison target is similar to the individual or is emotionally close to especially in the case of siblings (Turk et al., 2026). Within families, appearance-related commentary and comparison from siblings has been linked to heightened body dissatisfaction and disordered eating in adolescent girls (Schaefer & Salafia, 2014). Similarly, Crocker and Wolfe (2001) proposed that self-esteem is not a fixed trait but is contingent on success or failure in domains in which an individual has staked their sense of worth. He stated that when an individual ties their self-worth narrowly to a single domain, such as appearance, then the perceived failure in that domain produces disproportionate distress and motivates behavior intended to protect or restore worth such as losing weight (Williams et al., 2016). Despite this growing evidence base, AN remains frequently under-recognized in the South Asian communities. The present case contributes a detailed biopsychosocial formulation of an adolescent female with Anorexia Nervosa, Restricting Type and sheds light on family environment towards contributing to the development of AN.

Case Study

Identifying Information

The patient, S.M., is a 17-year-old female and an O-Level student in a nuclear family system. She was referred for outpatient psychological evaluation and management with her mother serving as the primary informant.

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Presenting Complaints

S.M. was referred because of progressively restrictive eating behavior. She has an intense fear of gaining weight despite already being underweight which was accompanied by a persistent preoccupation with caloric intake. There was an extreme avoidance behavior towards foods she perceived as calorie-dense or social situations involving food. She also engaged in some compulsive behavior such as walking after meals and constantly checking her weight. A prominent physical sign was amenorrhea, with absence of menstruation for approximately seven months which was consistent with the physiological effects of sustained nutritional restriction.

History of Present Illness

The onset of S.M.'s difficulties was around the age of 15 where her elder sister became the reason for her comparison. While her elder sister began exercising regularly to improve her fitness and subsequently received positive attention and compliments, the patient started evaluating her worth based on it. As a result of this, she began imitating her sister's exercise behavior with the initial intent to seek similar validation. However, this gradually escalated into rigid and excessive exercise with sessions lasting up to two hours despite an already low body weight (approximately 46 kg).

Concerned about the intensity of her exercise, her parents intervened by removing exercise equipment from the home. Following this, S.M. shifted from excessive exercise to increasing control over food intake, marking the onset of restrictive eating. Over time her eating behavior became progressively more rigid, eliminating entire food groups, particularly oil, meat, and other calorie-dense foods. Even small amounts of food provoked significant anxiety and were followed by compensatory compulsive walking. This pattern of restriction and compensation became habitual, reflecting a loss of behavioral flexibility and an increasing psychological reliance on these behaviors as a means of coping. She also began avoiding eating outside the home and avoiding food-related social situations, which further narrowed her exposure to normal eating contexts. Physiologically, prolonged restriction led to amenorrhea for approximately seven months. Across this course, the trajectory moved from social comparison, to excessive exercise, to restrictive eating, to

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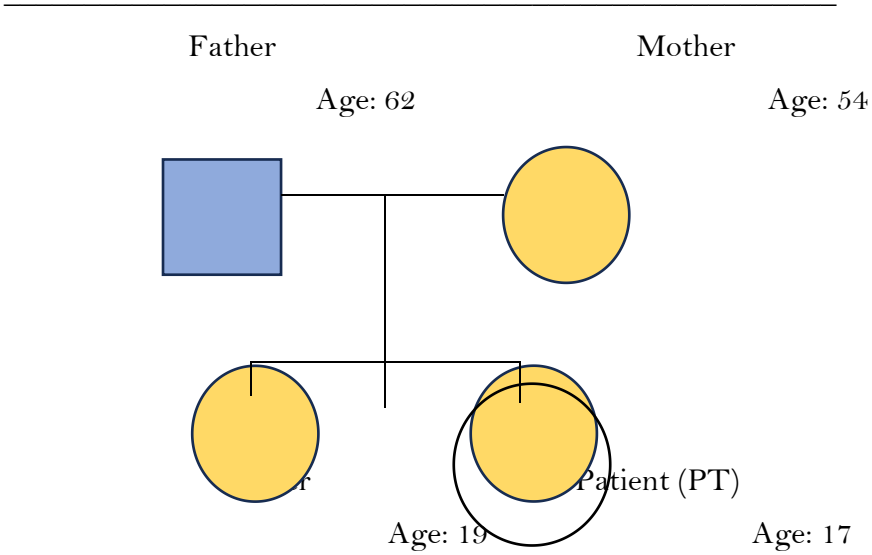
compensatory behaviors, with increasing cognitive rigidity and emotional distress over time.

Family History

Both of S.M.'s parents are physicians and the household overall maintained a health-conscious environment in which fitness and appearance carried particular salience. S.M. reported frequent comparisons with her sister who is older than her. These family dynamics functioned as both a predisposing and a maintaining factor in the development of her eating-disorder symptoms.



Psychological Assessment

A comprehensive psychological assessment was conducted using structured clinical interview, behavioral observation and standardized tools to assess emotional and cognitive functioning. The tests that were done included Mini-Mental State Examination (MMSE), Eating Disorder Examination Questionnaire (EDE-Q), Eating Attitudes Test (EAT-26), Beck Depression Inventory (BDI) and House-Tree-Person Test (HTP).

Mini-Mental State Examination (MMSE)

The MMSE is a brief version of Mental State Examination which is widely used measure to check orientation, attention, memory and general cognitive functioning

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((Folstein et al., 1975). S.M. obtained a score of 30/30, indicating intact cognitive functioning with preserved orientation, attention and memory.

Eating Disorder Examination Questionnaire (EDE-Q)

The EDE-Q is a self-report measure of eating-disorder psychopathology across the domains of restraint, eating concern, shape concern and weight concern ((Fairburn & Beglin, 1994). S.M. obtained a score of 4.5 which falls within the clinical/severe range and indicates marked dietary restraint together with significant preoccupation with weight and overvaluation of shape.

Eating Attitudes Test (EAT-26)

The EAT-26 is a widely used screening measure of disordered eating attitudes and behaviors, with scores at or above 20 indicating risk for a clinical eating disorder ((Garner et al., 1982). S.M. obtained a score of 32, well above this cut-off, confirming the presence of high-risk disordered eating attitudes and behaviors consistent with Anorexia Nervosa.

Beck Depression Inventory (BDI)

The BDI assesses the severity of depressive symptoms ((Beck, 1996). S.M. obtained a score of 15, indicating mild depressive symptoms, including low mood, reduced self-worth and feelings of inadequacy.

Beck Anxiety Inventory (BAI)

The BAI assesses the severity of anxiety symptoms (Beck,1988). S.M. obtained a score of 24, in the moderate range, reflecting heightened anxiety particularly in relation to food intake, body image and fear of weight gain.

House-Tree-Person Test (HTP)

The HTP is a projective drawing technique used to assess personality and emotional functioning ((Buck, 1948). S.M.'s drawings were characterized by constriction, limited detail and rigidity. This suggested emotional withdrawal and a heightened need for control. The house was small and lacked openness, indicating insecurity and a reduced sense of emotional safety. The tree showed a relatively thin trunk with limited grounding, reflecting fragile ego strength and low resilience. The person drawing showed a notable emphasis on physical features along with simplification

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and rigidity, consistent with body-image preoccupation, low self-esteem and overcontrol. Taken together, the HTP findings are consistent with themes of inferiority, internalized criticism and a strong need to maintain control, which are also reflected in S.M.'s restrictive eating and compensatory behaviors.

Results

Taken together, the assessment findings indicate a clinical picture of severe eating-disorder pathology accompanied by mild depressive and moderate anxiety symptoms, alongside underlying personality features marked by low self-worth, perfectionism and control-oriented coping. Cognitive functioning was fully preserved, indicating that S.M.'s presentation reflects a primary eating disorder rather than a cognitive or neurological process. A summary of the quantitative and qualitative findings is presented in Table 1.

Table 1. Summary of Assessment Findings

Measure	Score	Interpretation
MMSE	30/30	Intact cognitive functioning; orientation, attention and memory preserved
EDE-Q	4.5	Clinical/severe range; marked dietary restraint, weight preoccupation and shape overvaluation
EAT-26	32	Above clinical cut-off of 20; high-risk disordered eating attitudes and behaviors
BDI	15	Mild depressive symptoms (low mood, reduced self-worth, feelings of inadequacy)
BAI	24	Moderate anxiety, particularly related to food intake, body image and fear of weight gain
HTP	Qualitative	Constriction, rigidity, fragile ego strength, low self-esteem and an overriding need for

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Measure	Score	Interpretation
		control

Discussion

This case illustrates how Anorexia Nervosa can emerge from the convergence of cognitive, social and family-level processes. Consistent with cognitive-behavioral models of AN, S.M.'s restrictive eating and compulsive exercise functioned as maladaptive attempts to manage anxiety and shame tied to a deeply held belief that her worth depended on thinness (Fairburn et al., 1999, 2003). When formulating the case, it was found that these maladaptive believes did not arise in isolation rather they were shaped by an extended process of upward social comparison with her sister. This is consistent with Festinger's (1954) social comparison framework and with research linking sibling appearance-related comparison to body dissatisfaction and disordered eating in adolescent girls (Johnson & Blodgett Salafia, 2022; Schaefer & Blodgett Salafia, 2014). The intensity of S.M.'s distress increased when she was confronted with feared foods and the ill coping strategies are well explained by Crocker and Wolfe's (2001) account of contingent self-worth, in which threats to a narrowly defined source of value provoke disproportionate emotional reactions. The family of the patient was health conscious which significantly contributed to the way patient perceived idea of health and fitness.

The treatment approach drew on an evidence base supporting exposure and response prevention for food-related anxiety and avoidance in AN (Steinglass et al., 2014) and mirror exposure for body-image disturbance (Delinsky & Wilson, 2006). The interventions were integrated within a broader cognitive-behavioral framework targeting the appearance-based contingent self-worth identified in the case formulation. During the treatment, the patient showed insight. With the Exposure and Response Prevention (ERP) method, S.M. was able to tolerate exposure to feared foods without resorting to compensatory walking.

Conclusion

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This case highlights Anorexia Nervosa, Restricting Type, as a multifactorial condition shaped by cognitive vulnerability, sibling-based social comparison and family environment. Appearance-contingent self-worth played a central role in both the onset and maintenance of symptoms in this case. An integrated, phased CBT and ERP intervention, combining psychoeducation, structured eating, fear-food exposure, cognitive restructuring, mirror exposure and relapse-prevention planning provided a coherent framework for addressing both the behavioral and the underlying cognitive features of the disorder. The first phase of the treatment focused on building therapeutic alliance and psychoeducating S.M. on her difficulties. A self-monitoring routine for her eating behaviors, compulsions and avoidance behaviors was established. In the second phase of treatment a structured three-meals-a-day eating plan and began addressing her compulsive post-meal walking through an ERP lens. Her food-related fears in the thought records helped trace her back to deeper beliefs about self-worth. The third phase centered on a graded fear-food hierarchy, with in-session and homework exposures paired with strict response prevention (no compensatory walking) and behavioral experiments to test and disconfirm her predictions about weight gain. The final phase shifted toward independence and relapse prevention and encouraged an unsupervised exposure tasks (eating outside the home, social food situations), building self-compassion to counter her harsh self-criticism and developing a personalized relapse-prevention plan with identified triggers, warning signs and coping strategies to sustain her gains long-term.

By the termination of the treatment, S.M. showed clinically meaningful improvement across the domains that were targeted in therapy. She was able to consume a wider range of previously feared foods, including items from her fear-food hierarchy, without the level of distress and avoidance present earlier in treatment. The compulsive urge to walk after eating, initially a repetitive and difficult-to-control behavior, was substantially reduced which also reflected successful response prevention and a weakening of the restriction–compensation cycle described in the case formulation. S.M. was also able to eat outside the home and travel to food-related social situations that she had previously avoided altogether, indicating that gains made within structured exposure sessions had generalized to naturalistic, real-world contexts.

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