Are Eccentric Eating Habits Eating Disorders?

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ABSTRACT

Background: The study deals with particular kinds of eating habits that are unusual, not focused on weight, different from eating disorders, and not pathological. They are characterized by features such as the kind, amount, manner and style of eating that deviate from the common ones in their family or culture. They would be included today under the DSM-5 categories of Avoidant restricting food intake disorder (AR-FID), and unspecified feeding or eating disorders (US-FED). The question was whether they are mild forms of eating disorders or an independent set of behaviors. The objective was to examine to which extent these atypical eating behaviors may be subsumed under the diagnostic category of eating disorders by testing their scores on the Cognitive Orientation Questionnaire of Eating Disorders (CO-ED), which is a measure of the general tendency for eating disorders.

Methods: The sample included 250 high school students (120 boys, 130 girls), 16-18 years old. They were administered the Eating Attitudes Test (EAT-26), the Eccentric Eating Habits (EEH) questionnaire and the Cognitive Orientation of Eating Disorders (CO-ED).

Results: EAT-26 and EEH were uncorrelated. High scorers on the EAT-26 scored higher than high and low scorers on EEH in several variables of the CO-ED. High and low scorers on EEH differed in most variables of the CO-ED.

Conclusions: EEH is manifestation of the general tendency for eating disorders but differs from eating disorders and may be considered as an independent manifestation of eating disorders.

INTRODUCTION

Food consumption or eating fulfills a very important role in our lives well beyond its function for survival. A great many habits and expectations grew around eating, many of which are supported by cultures, religions and specific community life (1). Some unusual eating habits have been organized in specific diets. At present there are several hundreds of diets including religious (e.g., Moslem, Buddhist, Jewish), vegetarian, medically-based, weight-control and healthy eating diets, etc. Over and beyond the particular diets adopted by many people all over the world, there are bizarre or abnormal eating habits devised and kept by particular individuals, some publicly and some rather in secrecy. Bizarre eating habits may refer to amounts of food, specific combinations of foods, narrowing down of food preferences to a highly limited number characterized by some feature (e.g., color, shape, place of origin), times of eating (e.g., only at a specific time), duration of eating (e.g., only during a certain number of seconds or minutes), conditions of eating (e.g., only when alone, or only when facing a certain direction), and swallowing and chewing abnormalities. Some of the abnormalities have earned a particular name, grazing (i.e., eating small amounts of food with short pauses), or hyperphagia (abnormally increased appetite). In the present study we chose the adjective eccentric because it has no specific clinical or judgmental connotation.

The present study deals with eating behaviors that fall short of clinical diagnosis and are yet reminiscent of disordered eating. These behaviors cannot be considered as secondary to a medical or psychiatric disorder, but contrary to eating disorders they are not intended to control weight and they do not significantly impair physical health or psychosocial functioning. Some time after conclusion of the present study, the new diagnostic categories of eating behaviors were published in the DSM-5 (2). These categories turned out to include most of the aberrant eating behaviors that have been noted and studied in the present context. Most prominent are pica, defined as eating of non-nutritive substances for a period of at least one month, with no cultural or medical support; rumination, defined as repeated regurgitation of food for a period of at least one month; avoidant/restrictive food

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intake disorder (ARFID), manifested in persistent failure to attain the required weight or energy, without a medical or explicit eating disorder basis; and unspecified feeding or eating disorder (UFED), which applies to behaviors causing distress or impaired functioning but do not meet the full criteria of any of the feeding or eating disorders.

Not much is known about unusual eating habits mainly because they have not been defined clearly enough or in a standard manner. There are no valid estimates of their frequency in the population (3). They seem to be more frequent in certain age groups (e.g., adolescents) (4) or the elderly (5), and individuals with particular diagnoses (e.g., autism, Asperger) (6, pp. 325-326).

There is disagreement about the nature and function of the deviant eating habits. In view of the many different cultural food norms and individual differences in regard to food and eating as well as the highly common tendency to diet it is admittedly difficult to differentiate between unusual eating behaviors and clinically significant eating disorders (7). Some investigators assume that unusual eating habits form a moderate kind of eating disorder on a subclinical level that is relatively frequent in adolescence and college age but tends to abate with time and growing maturity (8-11). Others assume that unusual eating habits constitute a precursor of more serious EDs (12-15).

According to the first approach, follow-up is the only means that could be recommended in cases of serious disordered eating habits. In contrast, according to the second approach it is highly recommended to treat disordered eating habits even when not blatantly severe in order to prevent their development into serious clinical states of eating disorders.

Hence, it may be of benefit theoretically as well as from the viewpoint of clinical practice to examine whether tendencies for unusual eating habits are a manifestation of an underlying tendency for eating disorders. Accordingly, our hypothesis was that a high level of unusual eating habits will be related to high scores on the Cognitive Orientation Questionnaire of Eating Disorders, which assesses the tendency towards eating disorders (16). Confirmation of the hypothesis would support the assumption that unusual eating habits are a specific manifestation of a tendency toward eating disorders and may be considered as precursors or a risk factor of eating disorders.

**Method**

**Participants**

The participants were 250 high school students of both genders (130 girls, 120 boys), from three different schools in three parts of the country. The age range was 16-18 years. The mean was 16.8 (SD=0.5)

**Tools**

They were administered three questionnaires. One was the questionnaire of eccentric eating habits (EEH) (17) assessing tendencies for unusual eating habits and preferences (e.g., in regard to foods, diets, quantities). The items were collected in different groups of subjects ranging in age from 15 to 55. The original list included 95 items, of which 35 were deleted because in pretests (with two samples of high school students, with n=50, n=42) they got the score of 1 in over 20% of the responses. The EEH was validated by reports of teachers and instructors in regard to 20 respondents. The reliability of the EEH is satisfactory (Cronbach’s alpha=.78).

The EEH consists of a list of 60 items to which the respondent is requested to respond by checking one of the following response alternatives: never, rarely, sometimes, often, scored as 1 to 4. The sum of the responses yielded a total score ranging from 60 to 240. The items of the EEH are listed in Supplement 1. A factor analysis of the EEH yielded three factors which were labelled characteristics of the kind of food, characteristics of food preparation and presentation, and external conditions of eating which accounted for 31%, 22% and % of the variance, respectively.

The second questionnaire was the Eating Attitudes Test (EAT-26) (18), which is a widely used screening measure of eating attitudes and concerns that may be indicative of eating disorder risk, as has been shown in regard to high school students (19). The EAT-26 has been shown to be a reliable and valid instrument in Hebrew (20). In the present study its reliability was in the acceptable range (Cronbach’s alpha=.87). It includes 26 items, each with four response alternatives (often, sometimes, rarely, never), referring to three scales: Diet Scale assessing attention to calories ingested and burned doing physical exercise, desire to be thin, sense of guilt after eating; Bulimia Factor which is scale of bulimia and concern about food; and Oral Control which assesses food intake mode and its control. The EAT-26 was used mainly for identifying participants at high risk for eating disorders (the cut-off point of above 20 was used for this purpose).

The third questionnaire was the Cognitive Orientation Questionnaire of eating disorders (CO-ED) (16) that assesses the tendency towards eating disorders by means of beliefs defined in terms of formal features and contents.

The CO-ED was constructed in the framework of the cognitive orientation theory based on the assumption that
behaviors and disorders are a function of a motivational disposition, determining the directionality of behavior, and a behavioral program, determining the manner of performance of the motivational disposition (21, 22). The motivational disposition is neither conscious nor under voluntary control. It is defined by beliefs of four types – about the self, goals, norms and general beliefs – referring to specific themes, identified with a particular interviewing procedure, that represent meanings relevant for the particular disorder. A series of studies led to the identification of specific themes characteristic for anorexia, for bulimia, and for obesity, and enabling a significant differentiation between the groups and between each and healthy controls (23-26). Comparing the sets of themes for the three disorders (24-26, respectively) revealed 10 themes shared by all three disorders that have been suggested to constitute the “general CO-EDs core” (16).

The themes making up this “general CO-EDs core” are the following: 1) Avoiding emotional expression of all kinds; 2) Avoiding negative emotions, including anger and hostility; 3) Rejecting or down-playing one’s gender role, which in the case of women relates to femininity, including the roles of mother and wife; 4) Fear of death, which might be amplified by the attraction towards death; 5) Persistent guilt; 6) Concealing one’s inner self, including on the one hand, concealing from others one’s feelings and weaknesses, and on the other hand, blurring of one’s identity and the maintaining of a façade, so that a gap may arise between the inner and external self; 7) Dissociation from one’s body; 8) Withdrawal from others, manifested as the avoiding of dependence on others and as withdrawing from contacts with others; 9) Not being in control over one’s life, which may be manifested as outer-directedness and/or as feeling controlled by external forces, such as other people or biological factors; 10) Absence of enjoyment, manifested as anhedonia, and as a rejection of pain and suffering coupled with a strong tendency for enjoyment in the case of obesity.

The four types of beliefs form together with the 10 themes a matrix in which the beliefs are the columns and the themes in the rows. The four types of beliefs represent the direction and strength of the motivational disposition and the themes its contents.

Accordingly, the CO-ED questionnaire includes beliefs of four types – referring to the self, goals, norms and reality (others, situations, events) in regard to 10 themes which constitute the “general CO-ED core.” Each theme appears in the form of each of the four belief types. Thus, the total number of items in the CO-ED is 40. The beliefs are presented as statements followed by four response alternatives: very true, true, not true, not at all true. The following are examples of beliefs, the first referring to the self and the second to norms: “I often feel as if my body does not quite belong to me,” and “One should never feel anger or envy.” The CO-ED yields four scores for the belief types and 10 scores for the themes. The CO-ED has been validated in several samples and its reliability has ranged from Cronbach’s alpha=.77 to .82.

PROCEDURE

All three questionnaires were administered together, in random orders for different groups of respondents, in a classroom setup. An experimenter was present in order to answer questions that the participants may have. The study was approved by the Helsinki committee of ethics. Prior to responding to the questionnaires the parents’ consent for participation in the study was obtained. All students signed an informed consent form before responding to the questionnaires. The questionnaires were anonymous. Full respondents’ anonymity was preserved in all phases of the study.

RESULTS

Preliminary control analyses showed that the scores of the three questionnaires (EEH, EAT-26 and CO-ED) did not differ significantly in the three schools participating in the study. Further, the mean differences between the genders were of only borderline significance (p=.08 for CO-ED and p=.07 for EAT-26, with the girls scoring higher). Therefore the data for the whole sample were analyzed together.

The correlations between EEH and EAT-26 were positive but nonsignificant for the total score (r=.07), and the diet scale (r=.10), and bulimia factor (r=.11) and only for the scale of oral control the correlation was significant (r=.14, p<.05). These findings suggest that EEH assesses tendencies that are largely independent of eating disorders as commonly defined.

Out of the whole sample, 29 subjects (11.6%) of both genders (65.5% girls, 34.5% boys) scored in the EAT-26 above 20, which is indicative of possible eating disorders. Hence, they were defined as a separate group. The remaining subjects were split into two groups in line with the median score on EEH (=125): high in EEH versus low in EEH.

Table 1 presents the results of mean comparisons by ANOVA of the three groups of subjects (high in EAT-26, high in EEH and low in EEH) on the four belief types and the 10 themes of the CO-ED. The table shows that...
in regard to the four belief types the mean differences between the three groups are significant except for general beliefs in which the differences are only of marginal significance. In regard to all belief types the highest means are in the group of high EAT-26, next in the group high in EEH and lowest in the group of low EEH.

The findings relate also to mean comparisons between the pairs of groups. Concerning the group high in EAT-26 the comparisons show that the means of EAT-26 are significantly higher than the means of the group high in EEH in regard to beliefs about self and goal beliefs. Further, the means of the group high in EAT-26 are significantly higher than the means of the group low in EEH in all four belief types. These findings suggest that the group high in EAT-26 tends to have higher scores on the four belief types than the groups with EEH, particularly the group with the low scorers on EEH.

Concerning the groups high and low in EEH, the mean comparisons show that the means of the group high in EEH are significantly higher than those of the group low in EEH in three belief types (about self, norms and goals) and of borderline significance in general beliefs.

Table 1 provides information also about the 10 themes of the CO-ED. The table shows that the three groups (EAT-26 high, EEH high, EEH low) differ significantly in eight of the 10 themes (all except TH 6 and TH 8). In eight of the 10 themes the highest mean is in the group of EAT-26, followed by the group of EEH high and then by the group of EEH low (the only deviations were in TH 6 where EEH high scored higher than EAT-26 high, and TH 7 where the highest mean was in EEH low).

Mean comparisons of pairs of groups show that the group scoring high in EAT-26 differed significantly from the group high in EEH in two themes (TH 1 and TH 10) and differed significantly from the group scoring low in EEH in five themes (TH 1, TH 3, TH 4, TH 5, TH 8). Comparison of the two EEH groups showed that EEH high scored significantly higher than EEH low in seven of the 10 themes (all except TH 7, TH 8, TH 10).

Discriminant function analysis showed that correct group identification only on the basis of the CO-ED was correct in 55% which deviates significantly from the 33% expected by chance (z=5.29, p<.001). The highest percent of correct identifications was in the group of EAT-26 scorers (92%), next in the group of high EEH scorers (65%) and lowest in the group of low EEH scorers (59%).

**DISCUSSION**

The present study focused on identifying the nature of EEH by answering the question to which extent it is a manifestation of the tendency for an eating disorder. The major tool for answering the question was the CO-ED which is a validated measure of the general tendency for eating disorders. The findings show that high EEH scorers score higher than low EEH scorers on all four belief types, significantly so in the three belief types about self, norms and goals. Previous studies showed
that high scores on at least three of the belief types suffice for predicting reliably the behavior in question (23). In addition, the findings show that high EEH scorers score significantly higher than low EEH scorers on seven of the 10 themes comprising the CO-ED. The sum total of these findings suggests strongly that EEH is related to the general tendency for eating disorders as assessed in term of the CO-ED questionnaire.

However, does this set of findings indicate that EEH is an eating disorder? This conclusion is possibly challenged by the findings concerning EAT-26, which assesses risk for the standard kinds of eating disorders. One relevant finding is that EEH was found not to be correlated with EAT-26. Further, the group of high scorers on EAT-26 has been found to score higher on two types of beliefs (about self and goals) than high EEH scorers and higher than low scorers on EEH in all four belief types. Similarly, in regard to themes, the high scorers on EAT-26 scored higher than the high EEH scorers on two themes and higher than the low EEH scorers on five themes. Also the findings based on the discriminant analysis indicate that EAT-26 is related to CO-ED much closer than EEH.

There are two sets of findings that need to be considered: the one concerning the differences in CO-ED variables between the high and low scorers in EEH and the other concerning the differences in CO-ED between the high scorers on EAT-26 and the high and low scorers on EEH. One possibility for interpreting the results is that both EAT-26 and EEH are manifestations of CO-ED. Both are indicative of eating disorders of the standard type that is assessed by EAT-26, namely the three syndromes of anorexia, bulimia and obesity. The only difference between EAT-26 and EEH would be in the strength or intensity of the manifestations of eating disorders, those of the high scorers of EAT-26 being stronger than those of EEH.

Another interpretation of the two sets of findings would emphasize the possibility of a difference between EAT-26 and EEH not only or not merely in the intensity of the manifestations of CO-ED but in the kind or nature of the manifestations. Those of EAT-26 seem apparently to be the standard three major eating disorders, while those of EEH are of a completely different order. This is the reason why EAT-26 and EEH are not correlated. If this interpretation is valid, it may be carried one step further and proceed to the hypothetical claim that perhaps manifestations of the standard eating disorders require a stronger and more complete grounding in the CO-ED than EEH. This may be the reason why high scorers on EAT-26 score significantly higher than high EEH scorers and particularly low EEH scorers on the belief types and the themes.

At present with the given findings it is not very possible to underscore the correct interpretation. It may suffice to state that according to the first interpretation, EEH are a weak form of eating disorders which has the potential of developing into full-fledged eating disorders. According to the second interpretation EEH are simply a different kind of eating disorder that does not resemble the standard disorders of anorexia, bulimia and obesity and does not have the potential to develop into such full fledged disorders. Those who score high or low on EEH may simply continue to maintain those behaviors on the same or a different level of intensity.

Both interpretations of the findings rely on the construct of the general CO-ED score. This construct represents a general motivational tendency toward eating disorders without specifying the particular kind of manifestation that this tendency will assume. In the case of EEH the particular manifestation is the unusual eating disorders. On the basis of the findings of the study there is no justification to reject the conclusion that EEHs are a particular manifestation of eating disorders, autonomous in its own right similar to anorexia, bulimia and obesity. Further, it may even be hypothesized that there could be further types of eating disorders that differ from EEH as well as the standard eating disorders. Further support for the conclusion that EEH is an eating disorder in its own right could be obtained from a study that would provide proof for the existence of particular themes within the framework of the CO approach orienting toward EEH, just as is the case in regard to the specific standard eating disorders (16). Additionally, it would be advisable to examine whether all EEHs are of the same kind or whether they differ in their manifestations and in the particular CO variables orienting toward them.

Another issue that needs further clarification relates to the findings showing that EEH scorers, both high and low, score lower than EAT-26 high scorers on several of the CO measures. This suggests that the contribution or support of the CO-ED score for EEH is in general weaker than for the standard eating disorders or that it was weaker in the particular assessed sample.

The high correlations between the CO-ED variables and high scorers of EAT-26 provide further validation of the general CO-ED as a measure of the tendency toward eating disorders. The findings also indicate the relevance of the general CO-ED for detecting EEHs. Additionally, the identification of the motivational understructure
of EEH in terms of the CO variables provides a basis for intervention targeted at the treatment of EEH, if considered necessary and desirable.

The findings of the study contribute to strengthening the construct of a general tendency for eating disorders that may be used for identifying individuals at risk who have no particular manifestations of eating disorders and for defining possibly new forms of manifestations of the general CO tendency for eating disorders, which may develop as autonomous forms as well as preceding eating disorders or remaining after recovery from eating disorders.

The results need to be evaluated in light of the difference between the criteria applied for assessment in this context and the new diagnostic criteria of the DSM-5 which was published after the study was completed. It is likely that the matching between the two sets of criteria is not perfect. Further, there is another finding of a different order that needs to be considered. In the recent study the percent of subjects identified as at risk for eating disorders according to the EAT-26 (11.6%) was appreciably lower than in other studies: for example, 25% in (27) or 33.15% (28). One reason may be that high school students may have become aware of the significance of EAT-26 questions and responded in the lower scoring end of the scale, especially that the EAT-26 was administered together with two other questionnaires concerning eating. However, the hypothesis that the proximity of other relevant questionnaires may affect the responses as well as other possible hypotheses need to be studied in further research.

The limitations of the study focus mainly on the following two issues. First, the fact that the eccentric behaviors studied in the present context were not defined in terms of the new criteria of the updated diagnostic system DSM-5 that was published after the study was carried out. Second, the study examined individuals 16-18 years old. This age range is too limited in view of the fact that 95% of individuals with eating disorders are 12 to 25 years old (29) and that eccentric eating behaviors may be found also in adults and elder individuals (30).

Source of support
Regular support for the work of students paid by the research funds of the Center for Research in Psychooncology, Sheba Medical Center, Tel Hashomer.

References
20. Ianuca I. Validation of the EAT in Israel. Unpublished doctoral dissertation, School of Medicine, Tel Aviv University, Israel, 1990.

Supplement no. 1. Items of the EEH

All items start with the words “Eating only or mainly”
A specific number of times a day (e.g., once), in the morning, at noon, at night, at precise times (e.g., 13:10), dry things, foods with some kind of sauce, foods in a soup, foods that have been immersed in water before eating, one specific kind of food in each meal (e.g., 1 or 2), in each meal a specific number of varied food stuffs, in each meal only one kind of food substance (e.g., carbohydrates), drinking water after each mouthful, not drinking water before or after eating for at least one hour, when one is alone, when all windows are closed, outside the home, at home, things that have a specific color (e.g., green, white), with wooden cutlery, foods with a specific surface (e.g., smooth, rough), with the fingers, when it is possible to produce sounds during eating, in a completely silent environment, foods whose precise composition is known, foods prepared in one’s presence, foods prepared only by oneself, vegetables, fruits, proteins, for a specified duration of time (e.g., 2 or 5 minutes), in a standing position, in dim light (raw food), things that have not been cooked in any way, things that have been cooked for at least one hour, on wooden plates, on plates of a certain shape, pauses of specific duration between different plates, a specific time after being outside, specific time after doing sport, fasting one or two days a week, foods without odor, foods with specific size on the plate, foods with specific form (e.g., round, long, grains), foods that have not been refrigerated, foods that have been cooked no more than 10 minutes prior to serving, after making relaxation for at least 15 minutes, after taking a bath or a shower, changing one’s diet completely every two weeks, one specific kind of food (e.g., chicken legs, liver, sausage), without any sugar, tiny quantities, chewing each mouthful a specific number of times (e.g., 12), keeping the food in the mouth for a specific duration of time before swallowing it, spitting a specific number of times prior to putting food in one’s mouth, keeping strange materials in the mouth before putting in food (e.g., matches, pebbles), meat that comes from herbivorous animals, food without any spices whatsoever, foods that have been consumed by the Neanderthals, powdery food.