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Food addiction relations to depression and anxiety in Egyptian adolescents

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KEYWORDS

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Abstract *Introduction:* Food addiction (FA) is a recent term used to describe craving for food in addition to functional impairment. FA has not been thoroughly studied in adolescents, so the aim of this study was to assess its presence in Egyptian adolescents and its relations to some psychiatric correlates; anxiety and depression.

Subjects and methods: A cross sectional design was used. Four hundred adolescents were interviewed from the different geographic locations in Cairo to assess FA by the Yale Food Addiction Scale (YFAS), depression by the Child Depression Inventory (CDI) scale and anxiety by the Screen for Child Anxiety Related Disorders (SCARED) child version questionnaire.

Results: FA was present in 12% of the studied adolescents. Depression was present in 74 adolescents (18.5%). FA and depression coexisted in 5 subjects (10.4%). The diagnosis of anxiety was met in 38 adolescents (9.5%) and it coexisted with food addiction in only one adolescent (2%). FA scores showed moderately significant positive correlations with most of the anxiety subtypes as well as with the total score for anxiety and depression. Some FA symptomatology were significantly different between those with and without anxiety and depression.

Conclusion: FA exists in Egyptian adolescents and has strong associations with psychiatric comorbidities. Anxiety and depression should be evaluated in every individual with FA and vice versa as these psychiatric morbidities may be the inciting factor for the development of food addiction. Evaluation and treatment should address all the existent comorbidities. Careful attention should be paid to the presence of excess food consumption despite knowledge of adverse consequences, tolerance, withdrawal symptoms and important social or occupational activities given up or reduced because their presence coincided in this study with the presence of depression and/or anxiety which makes psychiatric evaluation more valuable.

Introduction

Obesity is one of the major public health problems particularly in adolescents as they are highly predisposed to become obese

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adults if they don't lose weight.[1] Obese adolescents are more likely to suffer more obesity related complications than their lean counterparts.[2] Therefore, measures taken to reduce obesity are of paramount importance nowadays. However, not all measures are successful; namely healthy food habits and doing regular physical exercise which reflect the difficulty in weight control as the larger percentage of those who lose weight regain the lost weight again.[3] This may largely be due to food craving and the negative impact that food abstinence causes, which was termed in recent years food addiction (FA).[4] FA has been widely discussed and proposed in recent years as a documented obesity phenotype.[5] FA has been well documented in adults as a contributor to obesity[4] but very few studies addressed its presence in adolescents.[6] Addictive behaviour to food shares some common features with substance dependence[7] and its presence in an individual is multifactorial including the genetic make-up, environmental influences regarding the proximity and availability of some palatable foods, neurotransmitters particularly dopamine and the rewarding effect of food that provides pleasurable sensation for some individuals particularly some high-fat and high-sugar foods.[6] Gearhardt et al. 2013[4] developed the Yale Food Addiction Scale to assess the presence of FA according to some symptomatology in addition to functional impairment. The new terminology of FA explains some of the eating behaviours that are not currently classified under one of the known categories of disordered eating.[8] Seeing or tasting highly palatable foods stimulate the striato-nigro-striatal circuit as addictive substances do. The concept of FA highlights the role played by the presence of an environment rich in highly palatable foods in the current obesity epidemic.[6] Adults seeking bariatric surgery for weight loss who were interviewed by the YFAS and diagnosed with FA showed higher levels of depression.[9] There were very few data on children and adolescents suffering from FA regarding their psychiatric comorbidities.

This primary aim of this study was the detection of FA prevalence in a representative sample of adolescents in primary and secondary schools and relation of the presence of FA to the comorbid depression and/or anxiety. The secondary aim was to correlate the presence of depression and anxiety to the individual components of the FA score to highlight for further studies the possible neuronal circuits involved in these comorbidities so that therapy can be tailored according to each individual patient.

Subjects and methods

Study design

This was a cross sectional study that was conducted over 9 months from September 2014 to May 2015. The study included 400 adolescents, 196 (49%) males and 204 (51%) females in preparatory and secondary schools distributed equally between governmental and public domains. Their ages ranged from 12 to 17.6 years.

Sample size justification

The sample size was 400 adolescents which is the maximum number that could be calculated for measuring the prevalence in a cross section study. The sample was estimated based on the formula given in the following equation:

$$n = \frac{z^2 \times (p * 1 - p)}{\delta^2}$$

z = z value (e.g. 1.96 for 95% confidence interval).
p = Percentage picking a choice.
δ = Error margin = 0.05.

Psychiatric evaluation

All the involved subjects had an interview and completed questionnaires to detect:

Food addiction: through the Yale Food Addiction Scale (YFAS) for children[4] which is a validated self-administered questionnaire containing 25 questions assessing the symptoms of FA in addition to significant functional impairment. Translation into Arabic was done by the researchers and reviewed by three experts to be sure of its validity. Food addiction was diagnosed if the symptom count is 3 or more and clinically significant impairment or distress is present.[10]

Depression was assessed by the Child Depression Inventory (CDI) Scale[11] which is a validated questionnaire containing 27 questions about the different symptomatology of depression then according to the symptom score, the participant is classified as either having no depressive symptomatology, mild, moderate or severe depression.

Anxiety was assessed by the Screen for Child Anxiety Related Disorders (SCARED) child version questionnaire[12] which is a 41 self-assessed questionnaire that covers the subtypes of anxiety; namely, panic disorder, generalised anxiety disorder (GAD), separation anxiety disorder, social anxiety and significant school avoidance. A score >30 is specific for the presence of anxiety.

Ethical approval

The study was approved by the local ethics committee of Ain Shams University and the Egyptian Ministry of Education as

Table 1 Prevalence of food addiction and its symptomatology in the studied participants.

Food addiction symptom (Number = 400)	Number of subjects fulfilling criteria (%)
Loss of control (large amount taken in longer period)	79 (19.8)
Persistent desire or repeated unsuccessful attempts to quit	204 (51.0)
Much time and activity taken to recover	76 (19.0)
Important social or occupational activities given up or reduced	126 (31.5)
Use continues despite knowledge of adverse consequences	92 (23.0)
Tolerance (marked increase in amount, marked decrease in effect)	216 (54.0)
Withdrawal symptoms, substance taken to relieve withdrawal	137 (34.3)
Use causes clinically significant impairment or distress	63 (15.8)
Food addiction	48 (12.0)