Analysis and clinical implications of the Binge Eating activating stimuli in patients with eating disorders

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Abstract

Background: Binge eating is a symptom which can be present in all the eating disorders. Subjects with binge eating describe such experience as unpleasant and however they keep on repeating it: that makes necessary a detailed analysis of the real function of this behaviour.

Aims: The focuses of this study are to examine the various factors (outside, emotional, cognitive and physiological) which can trigger the binge eating crisis and to compare the frequency of these triggers.

Methods: The analysis has been led through the administering of Binge Eating Checklist Trigger (BETCH), a self-report scale in which 4 different categories of triggers are distinguished. Correlations have been made using the analysis of variance (ANOVA).

Results: The triggers more represented result to be the emotional (depression), combined with the external triggers and with the physiological stimuli (hunger). The most frequent triggers are those which involve the biggest uneasiness.

Conclusions: Binge eating, as perceived by the patients, is not precipitated by a specific trigger, but by a triggers’ combination, which is not significantly different between various diagnostic groups.

Introduction:

The DSM-IV TR defines a binge-episode as marked by the following requirements:

1. Eat, in a determinate time period (e.g. a 2 hour period), an amount of food major of that than most people would eat in the same time and under similar circumstances.

2. Sensation to lose the control during the episode (e.g. sensation of not being able to stop eating).

Both conditions are necessary in order that an episode of hyperalimentation is considered as an episode of "binge eating".

A "binge eater" refers to consume a big amount of food in a short period of time, during which he perceives a total control loss. During the binge, hypercaloric and "forbidden" food is consumed above all.

Before the binge, subject carries out an intense "craving" feeling (an irresistible urgency to eat), while after it, he feels guilty, depressed and disgusted. (Jansen, 1990; Bruce & Agras, 1992).

Binge eating episodes can be present in all the eating disorders: recurring binge eating episodes constitute the central diagnostic requirement both of bulimia nervosa and binge eating disorder, but are also characteristic of the bingeing-purging subtype of anorexia nervosa (Wardle & Beinart, 1981); (Polivy & Herman, 1985).

From rates of prevalence of the eating disorders (APA, 2000), it’s evident that from 2% to 8% of the female population has been subject to clinically significant binge eating episodes.

People with binge eating describe such experience as unpleasant and however keep on repeating it: such paradoxical situation requires a detailed analysis of the real function of this unpleasant and apparently self-destructive behaviour.

From literature we know that various hypotheses have been formulated about the factors which can trigger the binge in patients with eating disorders.

Fairburn and Cooper (1989) assume that irrational convictions, especially about physical aspect, are the most important factors determining the “fast-binge” circle in most of patients who present binge eating episodes. Others,
instead, (Schmidt & Marks, 1989) suggest that the binge is triggered by emotional feelings correlated to the food (as seeing, smelling, tasting the food) in combination with diet and hunger.

Many patients with bingeing crisis refer negative emotions which immediately precede the binge, as confirmed by many researches (Grilo, Schiffman & Carter-Campbell, 1994); (Stickney, Miltenberger & Wolff, 1999) which speak about "emotional hyperalimentation". The function of binge eating, in this sense, would be to act like an "emotional anaesthesia", a way to escape and/or avoid the comparison with emotions and negative thoughts, in fact some patients describe it like an extra-life episode.

Moreover, recent researches support the hypothesis that recurring binges are a mechanism to face negative stressful situations and mood states in an important number of patients, in both clinicians and sub-clinicians samples. (Waters, Hill & Waller, 2001).

Environmental stimuli, being in a negative mood, irrational convictions can so work as triggers for binge eating (Jansen, 1998).

Beginning from these considerations, instead of focussing the attention on each of these factors, it seems more useful to interpret and analyse this phenomenon in relation to a multifactorial model, which could help us to understand as many different conditions can trigger the nosh-up.

**Objective:**

The main aim of the present study is to examine the various factors (outside, emotional, cognitive and physiological) which could trigger the binge eating crisis in patients with eating disorders, and then to compare the frequency of these activating stimuli or "binge eating triggers" in the various diagnostic groups.

**Materials and methods:**

*The sample:*

42 subjects, selected in the year 2005 among the patients that are in treatment in the surgery service and in the Day Hospital service of the Complex Operative Unit For Alimentary Conduct Disorders of Policlinico Umberto I, have taken part in this study. The participants, 36 females and 6 males, turn out to be a middle age of 26,7 years (DS 4,5), an average weight of 68,9 kg (DS 24,1), a 1,67 mt medium height (DS 0,07) and a body mass index (BMI) of 24,5.

The sample has been divided into 3 groups in compliance with the diagnostic DSM-IV TR criteria.

The first group is composed of 6 patients (5F/1M) with Anorexia Nervosa with binge/elimination behaviours, an average age of 25,8 years (DS 4,5), an average weight of 46,8 kg (DS 7,8), a 1,66 mt medium height (DS 0,07) and an average BMI of 16,8 (DS 1,7).

The second group is composed of 26 females with Bulimia Nervosa, with a middle age of 26,9 years (DS 4,5), an average weight of 62,5 kg (DS 13,4), a 1,66 mt medium height (DS 0,04) and an average BMI of 22,7 (DS 5,4).

The third group is composed of 10 patients (5F/5M) with Binge Eating Disorder, with a middle age of 26,8 years (DS 4), an average weight of 100,2 kg (DS 19,4), a 1,73 mt medium height (DS 0,08) and an average BMI of 33,6 (DS 5,9).
Table 1: Age and BMI in the various groups of eating disorders

<table>
<thead>
<tr>
<th>Patients</th>
<th>Age</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>DS</td>
</tr>
<tr>
<td>Total (n = 42)</td>
<td>26,7</td>
<td>4,5</td>
</tr>
<tr>
<td>AN (n = 6)</td>
<td>25,8</td>
<td>5</td>
</tr>
<tr>
<td>BN (n=26)</td>
<td>26,9</td>
<td>4,5</td>
</tr>
<tr>
<td>BED (n=10)</td>
<td>26,8</td>
<td>4</td>
</tr>
</tbody>
</table>

AN = Anorexia Nervosa (Bingeing/Purging subtype)
BN = Bulimia Nervosa
BED = Binge Eating Disorder

*Procedures:*

The analysis has been led through the administering of Binge Eating Checklist Trigger (BETCH), a self-report scale of recent formulation which gives information about the binge, evaluating the patient’s perspective. We have chosen this tool because it allows to register in real time the stimuli which activate the binge: BETCH allows the patient to observe and catalogue his cognitive, emotional and physical experiences (therefore) during, or soon after, the hyperalimentation crisis, so avoiding that the memory is altered because of the excessive time passed by the episode.

At the beginning of every therapy, various scale copies are delivered to the patients. Patients are then invited to take BETCH with them and compile it as soon as possible after every single binge, answering questions concerning the conditions in which it appears, the activating stimuli and the feelings of uneasiness.

In BETCH 4 different categories of activating stimuli or triggers are distinguished:
- Cognitive activating stimuli ("cognitive triggers"): negative thoughts about body in combination with low self-esteem.
- Physiological activating stimuli ("physiological triggers"): episodes of fast or restrictive diet which hesitates in a physiological urgency to feed (hunger induced by an hypoglycemic state).
- Outside activating stimuli ("external triggers"): environmental and correlated stimuli to the food (vision of the food preferred or forbidden).
- Emotional activating stimuli ("emotional triggers"): various emotional solicitations or characteristic moods.

The 36 triggers are furthermore divided into 5 subscales:
- Subscale 1: Comparison with emotions and negative knowledge
- Subscale 2: Comparison with body
- Subscale 3: Comparison with food and/or hunger
- Subscale 4: Comparison with sexuality
- Subscale 5: Comparison with positive emotions
Through the administering of BETCH, a total evaluation of the different triggers has been executed “before” and “after”, so that it has been possible to put in comparison predominant triggers in various groups of eating disorders (patients with anorexia nervosa, bulimia nervosa and Binge Eating Disorder).

Even though this "real time monitoring” could induce resistances in the subjects for several reasons, its application to patients already in treatment for eating disorders and therefore justified to undertake an introspective process, also aiming to increase the “insight”, has avoided such oppositions, above all valuing the possibility of orienting and modelling the therapy on the single individual, so making it more appropriate and custom-made.

The statistical analysis:

The obtained data concerning the frequency of the different triggers in the sample, so as those concerning the intensity of the associated uneasiness, have been extrapolated by the raw data with the help of an electronic calculation sheet. Correlations have been made using the most opportune analysis of variance (ANOVA).

Such operations have been realized by the statistical analysis software SPSS (Statistical Package for the Social Science).

Data concerning the studied correlations are considered valid for a significance level set up on 0,05.

Results:

In the multifactorial model which is the base of BETCH, the binge eating, as perceived and referred by patients with eating disorders, seems to be caused by different antecedents’ combination: an interaction or a different triggers’ association in the same moment and in the same subject would exist.

On average, patients with eating disorders have shown 13,4 (DS = 6,0) different triggers for every binge.

For studying in a better way the importance of the different triggers, it has been evaluated for each of them the percent frequency of the patients who were showing it as the principal antecedent of the binge eating episode, as well as the associated uneasiness level.
Picture 1: Percent frequency of the different triggers and associated uneasiness

Picture 1 shows that triggers more frequently referred are also those with the highest quotes of associated uneasiness. From the analysis it's evident that the most important trigger, referred from 76% of all the patients, and with the highest associated uneasiness level is: "I have felt depressed". This activating stimulus is part of the emotional triggers of subscale 1 (comparison with emotions and negative knowledge). Then, it is important to point out that patients with eating disorders report mostly emotional triggers as antecedents of their binge eating episodes. Most emotions precipitating the binge refer directly or indirectly to feelings of depression and anxiety: "I have felt depressed, unsatisfied, a failure, alone, in anxiety, empty in, misunderstood".

As shown in the picture 2, after the emotional triggers of subscale 1 are mentioned, in decreasing order of frequency and uneasiness reported, those of subscale 3 (comparison with food and/or hunger), both external (environmental stimuli correlated to the food, like the vision of the preferred and forbidden food) and physiological (urgency to feed for the hunger induced by the fast and the restrictive diet). In this group stimuli are included as: "I have not respected the dietetic rules", "I have heard the impulse to eat cakes", "I have eaten forbidden food", "I have eaten cakes". The less frequent triggers and those with the lighter uneasiness are those included in subscale 2 (compare with the body), 4 (compare with the sexuality) and 5 (compare with the positive emotions), reported only by a little number of patients.

Then, a comparison between the antecedents of binge eating in the 3 different groups of alimentary troubles [Anorexia Nervosa (n = 6), Bulimia Nervosa (n = 26), Binge Eating Disorder (n = 10)] has been done.

As shown in the designer 3, when the 3 subscales are compared, the results show that, while patients with Anorexia Nervosa and Binge Eating Disorder show, on average, a similar number of antecedents for their binge eating episodes (A= 10,2); DS = 5,0; versus A= 11,6; (DS = 6,6), bulimic patients refer a really higher number of activating stimuli for their binges ( A = 14,8; (DS = 5,8), significantly contributing to increase the total average number ( Total Average = 13,4; (DS = 6,0).
Also the comparison between the total level of uneasiness associated with the launchings items shows important differences (Graf.4). Patients with Bulimia report an average uneasiness (M=118, DS=48,4) significantly higher than the patients with Binge Eating Disorder (M=90,8, DS=53,6) and with Anorexia (M=72,8, DS=47,5).

From pictures 3 and 4, therefore, it’s evident that bulimic patients not only present a visibly higher number of situations setting off the binge eating behaviour, but also the uneasiness such situations involve appears more marked for them in comparison to the other patients with eating disorders.

Finally, it’s been done a comparison among the 3 subscales for each item separately, using analysis of variance (ANOVA).

Some significant differences have been identified (Picture 5):

- In item 1 ("I have felt alone"), patients with Anorexia Nervosa have assigned an uneasiness score significantly lower than the patients with Bulimia Nervosa (p<0,05). As expected, solitude and abandonment sense result clearly less hegodistonic for anorexic patients.

- Besides, patients with Binge Eating Disorder have attributed to the item 7 ("I have felt depressed") an uneasiness strongly major than the other 2 diagnostic categories (p<0.05). This significant difference agrees with the hypothesis of comorbidity of Binge Eating Disorder with the depressive symptoms.

- At last, in item 10 ("I have skipped meals"), another significant difference between patients with Bulimia Nervosa and those with Binge Eating Disorder has been discovered. In fact, bulimic subjects have shown an uneasiness significantly major for this trigger (p<0.05). This last difference could be attributed to the absence of any compensation behaviour (like the fast) in the patients with Binge Eating Disorder.
Therefore the comparison among diagnostic groups, made for every item separately, has shown that patients with AN try smaller impulse to the binge than the patients with BN when they perceive a solitude sense, while patients with BED decidedly attribute their crises more to the depressed mood and much less to the hunger induced by the fast.

**Conclusions and clinical implications:**
The focus of this study has been to examine the various factors (outside, emotional, cognitive and physiological) which can trigger the binge eating crisis in patients with eating disorders; besides, a comparison has been made among these “binge eating triggers” in the subgroups for the different diagnostic categories.

For these aims, BETCH has revealed itself a valid screening tool able to analyse a wide variety of possible binge-triggers and to give important information about the perspective of the singular patient.

Binge eating, as perceived and referred by patients with eating disorders, is not precipitated by a single specific trigger, but by a combination of different activating stimuli.

Also, comparing the percent frequency of every trigger with their specific average score concerning the associated uneasiness, it’s evident that the most frequent triggers are those which involve also the biggest uneasiness.

The combination of triggers more represented in the sample results being composed of emotional activating stimuli of subscale 1, concerning the comparison with emotions and negative knowledge, and of subscale 3, concerning the comparison with the food and/or with the hunger.

That’s to say that the emotions referable directly or indirectly to feelings of depression and anxiety, but however agreed with environmental outside stimuli correlated to the food and with physiological stimuli correlated to the urgency to feed induced by the fast, are the central triggers for the binge eating episodes.
The well known "typical" knowledge of the eating disorders, concerning the negative evaluation of its weight and its body (subscale 2 of the comparison with the body), is also suitable, but does not appear in the most frequent triggers. The hyperalimentation driven by emotions would seem, therefore, strongly present in this sample, and this evidence supports the hypothesis that the binge eating could have the function to remove or to "freeze" these negative feelings. Comparing the 3 groups, it’s been understood that not only patients with BN refer an average triggers number for binge higher than the other 2 diagnostic categories, but also the relative uneasiness appears more intense.

The comparison of triggers among the subgroups has shown few but interesting significant differences: anorexic patients feel less anxious in comparison with bulimic ones when they feel alone, while patients with Binge Eating Disorder strongly attribute their crises more to the depressed mood and much less to the hunger induced by the fast. All these data show that it is important to explore, for each patient separately, the specific triggers of binge eating, with special attention to the possible presence of negative emotions.

The identification of the activating stimuli, in fact, turns out to be the priority, in order to plan the most appropriate therapeutic strategy (Di Gioacchino, 1997).

For this purpose, according to Loro and Orleans (1981), the treatment of the Binge Eating Disorder should focus on the reaching of the complete control of the antecedents, the triggers and the binge episode consequences, and also Waters, Hill and Waller (2001), more recently, have suggested that the handling of binge eating in the subjects with Bulimia Nervosa and Binge Eating Disorder should necessarily value the activating stimuli and the immediate strengthening consequences, in order to treat effectively them. Studying the triggers of the binge eating, both researchers and therapists can reach a better evaluation and comprehension of the real cause of that behaviour, and therefore, they could develop better self-management strategies assembled specifically for the subject. (Vanderlinden, 2004).

Through the identification of triggers, in fact, it is possible to carry out a few specific therapeutic interventions.

The patient can learn to:

1) identify the emotions and the other triggers of the binge;
2) learn alternative strategies to face these emotions (as self-control techniques);
3) learn to express the negative feelings;
4) carry out an auto-monitoring of the alimentary habits through the combination of BETCH with the alimentary diary.

Therefore, the identification of the function of binge eating for each patient would seem essential to optimize the validity of the therapy, as the interactive role of the different triggers and their contemporary presence in many patients suggest the necessity of considering more than one factor during the setting up of the therapy of a binge eater.

So, the development of therapies based on the singular subject instead of generic formulations is proposed (Meyer, 1998).

In this optics, BETCH could be used in the clinical practice as reference which drives the therapeutic work, as it allows to analyse the trigger factors and the functions of binge eating for each subject. Through this test it is possible, in fact, to realize some "individual formulations" for therapeutic operations focused on the specific and personal triggers’ combination. In relation to that, it will be possible to direct the psychotherapeutic approach more toward a single component, cognitive, physiological, environmental or emotional, which would result,
in the context of the complex mosaic of the binge eating activating stimuli, more decisive than the other ones in determining the single individual's symptomatology.

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