

**Psychological and physiological consequences of exposure to the thin ideal promoted by mass media in eating disorder patients**  
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**Author**

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**Abstract**

**Introduction**

Repeated exposure to thin ideals via mass media is part of our daily routine and has been shown to play an important role in the maintenance of low self-esteem, depressive or anxious feelings, disordered eating behavior and eating disorders (EDs) in young females (e.g. Levine & Murnen, 2009; Lopez-Guimera et al., 2010). It is important to elucidate the circumstances under which exposure to thin ideals develops its impact.

**Objectives**

The study examines the influence of the exposure to magazines prompting the thin ideal versus to neutral magazines, applying a "waiting room design" (Turner et al., 1997) on body image, mood and eating behavior in a sample of patients suffering from Anorexia and Bulimia nervosa (AN, BN) compared to healthy controls and individuals with mixed mental disorders before and after treatment as usual. In addition, the influence of cognitive distortions such as "Thought-Shape Fusion" (TSF), aspects of "emotion regulation" (ER) as well as the question, whether exposure to the magazines presenting thin ideals activates the psychophysiological stress system is explored.

Following key questions are investigated: (1) Does laboratory exposure to thin ideals impair body image, mood and eating behavior and does this procedure elicit a biological stress response in young females suffering from AN and BN compared to female healthy controls and to a sample of females suffering from mixed mental disorders (depression, anxiety and somatic symptom disorder (SSD))? (2) How do cognitive distortions (TSF), and correlates of ER moderate the influence of the exposure? (3) Are these characteristics amenable to change during treatment?

**Methods**

In this multicenter randomized study, altogether 250 females, aged 18-35 years, including patients with AN, BN, depressive, anxiety and SSD and healthy women will be recruited in Switzerland and Germany. In Switzerland recruitment of the main study (co-funded by SANS and lead agency of the Swiss National Foundation, SNF) started in January 2014. In Germany, the recruitment of the main study started in November 2014. Currently, recruitment is still ongoing in both countries. Up to now, 87% of the overall pre and 67% of the post treatment data set has been recruited (mean age 22.6 years, SD = 3.8).

Participants are assigned to either exposure to a fashion magazine depicting thin ideals and subsequent vivid imagination of the female bodies ("Imaging to lie next to this person at the beach, then....") or to the exposure to a nature magazine and

subsequent vivid imagination of landscapes in the waiting room design. Self-report data and correlates of the activation of the stress system, salivary-cortisol, amylase, heart rate (HR) and heart rate variability (HRV) are assessed before, during and after the experimental design, pre- and posttreatment are assessed.

## **Results**

This section provides an overview over the results of pretreatment analyses (T1). Posttreatment data will fully be assessed only by mid 2017.

### ***Selected outcomes at T1 assessment:***

*Self-report data on the effect of media exposure and TSF induction on mood, body image and eating behavior (N=172):*

The analysis reveal interesting findings: In contrast to previous data, in our study, mere media exposure (exposition to thin ideals in magazines) did not impair mood, body image and eating behavior in terms of restrictive eating. It was only after TSF-induction (vivid imagery of thin ideals), where these self-reported parameters were impaired. Again contrary to our hypothesis, this pattern was pronounced in the healthy control group, whereas both clinical groups (AN, BN, mixed) were almost not affected.

*Cortisol response during media / TSF-induction (N=172):*

Salivary cortisol was analyzed and total release of cortisol (Area under the curve with respect to ground, AUCg) was calculated. Cortisol levels differed among groups with the AN group exhibiting the highest and the mixed group the lowest levels throughout the study. Patients showed higher cortisol reactivity after thin ideal than after exposure to landscape images, whereas cortisol release was not activated in the healthy control group. Further, patients with high ER difficulties showed a smaller decrease in overall cortisol secretion between thin ideal exposure and TSF-induction than in the landscape condition.

*Emotion recognition in female patients with EDs compared to females with mixed mental disorders and healthy controls (N= 247):*

The computerized assessment of the recognition thresholds, i.e. how much information a person needs to recognize a facial emotional expression correctly revealed that among all 6 presented emotions, "happiness" was discriminated at the lowest threshold by all groups. Much more information was needed by all groups to correctly identify "fear". Contrast analyses between groups revealed that AN patients had a significantly higher threshold to correctly identify "happy" faces compared to the other groups, whereas the mixed group performed worst on "disgust". The BN group performed similarly to the healthy controls. The degree of ED pathology was significantly correlated to difficulties in correctly identifying emotions in the AN group.

## **Conclusions**

Contrary to our expectations, preliminary findings show that only healthy young females *self-reported* impaired mood, eating behavior and to a lesser extent body image when imagining thin ideals having been exposed to previously. ED and mixed mental disorders patients were not significantly affected. When saliva cortisol reactivity was considered, findings were opposite. The findings highlight the role of cognitive processes when it comes to explain how pictures of thin ideals relate to eat and weight related experiences and behavior. Young females with ED before treatment might treat information about thin ideals as confirming their current weight and eating behavior, whereas in healthy young females, discrepancies could be elicited. Besides, the discrepancy between self-report and biological measures underlines the importance of multilevel assessments of psychological phenomena.

In our study, the AN group needed more information and thus more time to correctly identify the emotion in another's face (independent of BMI). It remains open, whether this emotion recognition difficulty leads to increased failure in reading others' emotions and thus increases the probability of interpersonal misunderstandings and conflicts, known to contribute to the maintenance of EDs.

Replication of these preliminary analyses with the complete sample size and inclusion of data after treatment (T2) will complement the findings.

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