

## MAIN PAPER

# HYPNOTIZABILITY, DISSOCIATION AND THREE FACTORS OF EATING BEHAVIOUR

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## INTRODUCTION

Concepts such as hypnosis and dissociation have attracted increasing interest within dietary disorder research, especially in the investigation of bulimia nervosa and bulimic tendencies. A number of studies have revealed that, compared with age-matched controls, individuals expressing bulimic tendencies demonstrate elevated levels of hypnotizability (e.g., Pettinati, Horne & Staats, 1985; Groth-Marnat & Schumaker, 1990; Barabasz, 1991; Kranhold, Baumann & Fichter, 1992; Covino, Jimerson, Wolfe, Franko & Frankel, 1994) and increased dissociative capacity (e.g., Sanders, 1986; Torem, 1986; Demitrak, Putnam, Brewerton, Brandt & Gold, 1990; McCallum, Lock, Kulla, Rorty & Wetzel 1992; Vanderlinden, Van Dyck, Vandereycken & Vertommen, 1993; Rosen & Petty, 1994). Despite evidence that dissociative and hypnotic capacities are both greater in bulimics, measures of these two capacities are themselves only modestly correlated (Nadon, Hoyt, Register & Khilstrom, 1991; Frischholz, Braun, Sachs, Schwartz, Lewis, Shaeffer, Westergaard & Pasquotto, 1992; Oakman, Woody & Bowers, 1996) and may represent the operation of different, yet related, psychological processes. Given that hypnosis and dissociation are only loosely correlated and, in view of the complex nature of bulimic aetiology, it appears likely that hypnotic and dissociative mechanisms may operate on different psychological aspects of this type of eating disorder.

The use of specific psychological measures of eating behaviours and attitudes is helpful in constructing theoretical frameworks that may relate aspects of bulimic tendencies to hypnotic and dissociative mechanisms. Unfortunately, few studies have as yet identified specific behavioural and psychological patterns, relating to hypnotic and dissociative capacity, which are associated with bulimic behaviour and bulimic tendencies. Groth-Marnat and Schumaker (1990) did find interesting associations between hypnotizability and concerns over weight and fat, suggesting the operation of social factors, possibly moderated by hypnotic capacity. Similarly, Wybraniec and Oakley (1996) found moderate correlations between hypnosis in a waking context and cognitive aspects of dietary restraint. In terms of dissociative capacity Rosen and Petty (1994) found high to moderate correlations in a college population between both affective and loss-of-control aspects of dissociation and a wide range of eating disordered behaviours and attitudes, including bulimic tendencies.

The present study aimed to further identify specific dimensions of bulimic tendencies that may be significantly associated with hypnotizability and dissociative capacity. Of specific interest were non-clinical precursors of subsequent bulimic pathology possibly influenced by hypnotizability and dissociation. One suggested risk factor for developing bulimic tendencies, as well as anorexia and obesity, has been the conscious attempt to restrain dietary intake and the related factor of disinhibited or impulsive eating (e.g., Herman and Mack, 1975; Herman & Polivy, 1975, 1980, 1984; Charnock, 1989; Heatherton & Polivy, 1992). Both hypnotizability and dissociative capacity may relate to social and cognitive processes relevant to the expression and/or maintenance of dietary restraint and disinhibited eating. This study used a measure of dissociative capacity, and a measure of hypnotizability, emphasizing waking susceptibility which may have direct relevance to processes operating in everyday social contexts. Cognitive restraint and disinhibited eating patterns, along with susceptibility to hunger, form the three central dimensions of the Three Factor Eating Questionnaire (Stunkard & Messick, 1985), which constituted the main measure for this study.

## METHODS

### *Subjects*

All participants were female undergraduates of normal body weight from various departments in University College London. Individuals with a history of medical or psychological treatment for an eating disorder were excluded from the study. Forty volunteer subjects were recruited into the study (mean age 22.4 years), with three dropped from final analysis due to incomplete questionnaires, leaving a total of 37 participants.

### *Materials*

#### *The Three Factor Eating Questionnaire*

The Three Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) represents a measure of eating behaviours that relate primarily to restrained eating, but also measures factors of importance in relation to clinical and non-clinical bulimic tendencies. The questionnaire consists of 51 items, divided into three categories, corresponding to measurement of the following factors: cognitive restraint of eating (e.g., 'I deliberately take small helpings as a means of controlling my weight'), disinhibition of control over eating (e.g., 'sometimes when I start eating I just can't seem to stop'), and susceptibility to hunger (e.g., 'I sometimes get very hungry very late in the evening or at night'). Total scores for each factor can range from 0 (lowest) to 17 (highest). Slight modifications were made to the original TFEQ by altering wording in questions mentioning meat to prevent negative bias due to vegetarian food preferences and current worries about BSE.

#### *The Creative Imagination Scale*

Hypnotizability was measured using the Creative Imagination Scale (CIS; Wilson & Barber, 1978; Barber & Wilson, 1978/79), which acts as an effective predictor of hypnotizability when presented in hypnotic contexts (e.g., Spanos, Gabora, Jarrett & Gwynn, 1989), though tending to measure cognitive and imagery based dimensions of hypnotizability. In this study the CIS was presented without prior hypnotic induction in order to act as a measure of waking susceptibility. The CIS consists of 10 imaginary

scenarios relating to events (e.g., arm levitation) and sensations (e.g., hallucinating music), which participants are encouraged to imagine actively. No authoritarian or challenge based items are used in order to reduce negative motivational set (Wilson & Barber, 1978). Participants rate the subjective reality of each imagined scenario on four point Likert-type scales, ranging from 0 (not at all the same as a real experience) to 4 (almost exactly the same), presented in questionnaire format. Total scores may range from 0 (lowest) to 40 (highest). The CIS was recorded on audio tape, preceded with motivational 'think with' instructions designed to promote active imaginative engagement. 'Think with' instructions were based on those used by Wilson and Barber (1978).

### *The Dissociative Experiences scale — II*

Level of dissociative capacity was measured using the Dissociative Experiences scale — II (DES II; Bernstein & Putnam, 1993). The DES II consists of 28 statements describing dissociation like experiences of self-identity (e.g., 'Some people have the experience of looking in a mirror and not recognizing themselves'), memory (e.g., 'Some people have the experience of finding themselves in clothes they don't remember putting on'), and absorption (e.g., 'Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them'). The overall scale tends to measure cognitive-control aspects of dissociation (Fisher & Elnitsky, 1990). Participants are invited to rate the presence of such experiences in their daily lives on a interval percentage scale (0–100%, with intervals of 10%), circling the appropriate percentage value. Total scores consist of the sum of participants circled responses divided by the number of statements, with a range of 0–100.

### *Procedure*

Informed consent was obtained from all participants, who were tested either individually or in small groups ( $n < 4$ ) at the University College London Hypnosis Unit. All participants were informed that the CIS would be given as a measure of hypnotizability followed by one or more questionnaires assessing eating behaviours and dissociative experiences. Testing procedures consisted of administration of the audio-taped CIS followed by presentation of the CIS rating sheet, then the DES II, and finally the TFEQ. All participants were informed of the importance of honesty when replying to questionnaire items.

## RESULTS

Total scores from the CIS, DES II, and TFEQ sub-scales for all participants were analysed using correlational techniques in order to investigate the relationships between the factors involved. This analysis revealed the correlations shown in Table 1. All correlations correspond to Pearson's product moment ( $r$ ).

These results clearly reveal that hypnotizability, measured in a waking context using the CIS, correlated significantly and at a high level with the TFEQ cognitive restraint factor only. The reverse pattern of correlations was found in relation to dissociative experiences as measured using the DES II, with high significant correlations between the DES II and the disinhibition of control and susceptibility to hunger factors of the TFEQ, but not the cognitive restraint factor. In addition, correlational analysis of the CIS and the DES II demonstrated a high level of association ( $r = 0.59$ ,  $P < 0.001$ ).

Table 1. Patterns of Pearson's product moment correlations for the CIS and DES on each of the three dimensions of the TFEQ with significance levels, based on data from 37 participants

	Cognitive restraint	Disinhibition of control	Susceptibility to hunger
CIS	0.66*	0.28	0.16
DES II	0.31	0.55*	0.49**

Significance levels: \* =  $P < 0.001$ , \*\* =  $P < 0.01$ )

Explorative stepwise regressions conducted on each of the TFEQ factors with the CIS and DES II scores as predictors ( $n = 37$  in all cases) supported the above results, with the CIS on its own being the best predictor of cognitive restraint (adj.  $R^2 = 0.42$ ,  $F_{1,35} = 27.51$ ,  $P < 0.00001$ ), whilst the DES II scores alone were the best predictors of the disinhibition of control, and hunger factors (disinhibition: adj.  $R^2 = 0.29$ ,  $F_{1,35} = 15.64$ ,  $P < 0.0005$ ; hunger: adj.  $R^2 = 0.23$ ,  $F_{1,35} = 11.53$ ,  $P < 0.001$ ).

## DISCUSSION

Hypnotizability, measured in a waking context by the CIS, displayed a strong significant correlation only with the cognitive restraint factor of the TFEQ, whilst dissociative capacity, measured by the DES, correlated significantly with the remaining factors, disinhibition of control and susceptibility to hunger, but not with the cognitive restraint factor. The high correlation between the CIS and DES II is surprising given that past research has suggested that hypnotizability and dissociative capacity are related but principally orthogonal factors (Nadon *et al.*, 1991; Frischholz *et al.*, 1992), though the cognitive nature of both the DES II (Fisher & Elnitsky, 1990) and the CIS measures may account for this strong association. The high correlation between the CIS and DES II scores may be problematic in statistical separation of associations between both hypnotizability and dissociation and the sub-scales of TFEQ, but the stepwise analysis lends partial support to the separate predictive power of the hypnotizability and dissociation as measured by CIS and DES II respectively. Causal analysis of these contrasting associations is precluded by the study's correlational design, but these results appear to support two hypotheses outlined below as the Socio-Hypnotic and Dissociative Escape approaches.

The Socio-Hypnotic hypothesis (e.g., Groth-Marnat & Schumaker, 1990) suggests that high hypnotizability influences internalization of socio-cultural body-related ideals, leading to 'hyper-internalization' of such ideals (Striegel-Moore, Silberstein, & Rodin, 1986), resulting in increased motivation towards achieving social acceptability and social success. The strong association between hypnotizability and cognitive restraint found in the present study may reflect underlying socio-hypnotic mechanisms, especially if restraint is interpreted as an attempt to reduce discrepancies between a 'hyper-internalized' ideal and an actual body image and weight. 'Hyper-internalization' of social ideals has previously been proposed as a factor in the development of eating difficulties (Striegel-Moore *et al.*, 1986), and has been associated with hypnotizability and weight concerns in earlier studies (e.g., Groth-Marnat & Schumaker, 1990). Additionally, hypnotizability may moderate the capacity to distort body image towards larger body sizes in restrained eaters

(Wybraniec & Oakley, 1996), increasing the discrepancy between social and individual body representations.

The relationship between the representational processes involved in social internalization and those involved in hypnosis is as yet unclear. It is possible that the increased salience of social acceptability in bulimics, which has been illustrated in a number of studies (e.g., Blanchard & Frost, 1983; Striegel-Moore, Silberstein & Rodin, 1993), may parallel increased social compliance and a partial increase in suggestibility experienced under hypnosis, with high hypnotizables experiencing accentuated effects. The present study concentrated on more cognitive and imaginal aspects of hypnosis in a waking context and the extent to which the results obtained here generalize to other hypnotic dimensions and contexts is the subject of future research.

The second major hypothesis, the Dissociative Escape approach (Heatherton & Baumeister, 1991; McManus, 1995), focuses on dissociation as a disintegrating of thought, affect, and behaviour, from controlling conscious influence and awareness, possibly responsible, in part, for loss-of-control experiences found especially during eating binges. The association between dissociative capacity and disinhibited eating found in this study may reflect the operation of dissociative mechanisms, either as defences against aversive self-realizations or self-attention (Heatherton & Baumeister, 1991; McManus, 1995), or as a consequence of binge behaviour acting as an attentional focus occupying or disrupting higher level control functions. Susceptibility to hunger may also be stronger if higher level attentional control is weakened, therefore reducing cognitive efforts to ward off hunger signals. Approaches in cognitive psychology that distinguish lower level action systems, responsible for routine or automatic behaviours, from higher level executive (Hilgard, 1986) or supervisory attentional control and regulation (e.g., Norman & Shallice, 1980), already provide frameworks for understanding dissociation (e.g., Woody & Bowers, 1994) and may be useful in understanding bingeing and disinhibited eating. Such approaches need to be tempered with caution, however, as recent work (Valdiserri & Khilstrom, 1995a,b) has identified depression as a possible confounding factor when considering the influence of dissociation upon eating behaviour. Also, dissociation, like hypnosis, is not a monolithic concept. The term 'dissociation' may encompass several dimensions that affect eating behaviour to differing extents (Rosen & Petty, 1994), and, again, which of those dimensions are relevant requires further investigation.

Indeed, a number of issues raised by this study need to be addressed in future research. Especially important is participants' use of socially desirable response sets when answering eating related questions, and how such response biases relate to social factors influencing eating difficulties. The vagueness currently pervasive in the definition and quantification of concepts such as hypnosis, dissociation, restrained eating and related behaviours, also poses problems for such research, especially considering their multi-faceted nature. The preliminary data presented here nonetheless illustrate potentially interesting associations between the areas of hypnotizability, dissociation, and eating behaviour, which may be helpful in expanding our understanding of how hypnosis, hypnotizability and dissociation relate to aspects of bulimic tendencies, especially in non-clinical contexts.

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## REFERENCES

- Barabasz, M. (1991). Hypnotizability in bulimia. *International Journal of Eating Disorders* **10**, 117–120.
- Barber, T.X. & Wilson, S.C. (1978/79). The Barber Suggestibility Scale and the Creative Imagination Scale: Experimental and clinical applications. *American Journal of Clinical Hypnosis* **21**, 84–108.
- Bernstein, E. & Putnam, F.W. (1993). An update on the dissociative experiences scale. *Dissociation* **6**, 16–27.
- Blanchard, F.A. & Frost, R.O. (1983). Two factors of restraint: Concern for dieting and weight fluctuation. *Behaviour Research and Therapy* **21**, 259–267.
- Charnock, D.J.K. (1989). A comment on the role of dietary restraint in the development of bulimia nervosa. *British Journal of Clinical Psychology* **28**, 329–340.
- Covino, N.A., Jimerson, D.C., Wolfe, B.E., Franko, D.L. & Frankel, F.H. (1994). Hypnotizability, dissociation, and bulimia nervosa. *Journal of Abnormal Psychology* **103**, 455–459.
- Demitrak, M.A., Putnam, F.M., Brewerton, T.D., Brandt, H.A. & Gold, P.W. (1990). Relation of clinical variables to dissociative phenomena in eating disorders. *American Journal of Psychiatry* **147**, 1184–1188.
- Fisher, D.G. & Elnitsky, S. (1990). A factor analytic study of two scales measuring dissociation. *American Journal of Clinical Hypnosis* **32**, 201–207.
- Frischholz, E.J., Braun, B.G., Sachs, R.G., Schwartz, D.R., Lewis, J., Shaeffer, D., Westergaard, C. & Pasquotto, J. (1992). Construct validity of the dissociative experiences scale II: Its relationship with hypnotizability. *American Journal of Clinical Hypnosis* **35**, 145–152.
- Groth-Marnat, G. & Schumaker, J.F. (1990). Hypnotizability, attitudes toward eating, and concern with body size in a female college population. *American Journal of Clinical Hypnosis* **32**, 194–200.
- Heatherton, T.F. & Baumeister, R.F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin* **110**, 86–108.
- Heatherton, T.F. & Polivy, J. (1992). Chronic dieting and eating disorders: A spiral model. In Crowther, J.H., Tannenbaum, D.L., Hobfoll, S.E. & Stephens, M.A.P. (Eds), *The Etiology Of Bulimia Nervosa: The Individual and Familial Context*. HPC: Bristol.
- Herman, C.P. & Mack, D. (1975). Restrained and unrestrained eating. *Journal of Personality* **43**, 647–660.
- Herman, C.P. & Polivy, J. (1975). Anxiety, restraint, and eating behaviour. *Journal of Abnormal Psychology* **84**, 666–672.
- Herman, C.P. & Polivy, J. (1980). Restrained Eating. In Stunkard, A.J. (Ed.), *Obesity*. Philadelphia: Wiley.
- Herman, C.P. & Polivy, J. (1984). A boundary model for the regulation of eating. In Stunkard, A.J. & Stellar, E. (Eds), *Eating and its Disorders*. New York: Raven Press.
- Hilgard, E.R. (1986). *Divided Consciousness: Multiple Controls in Human Thought and Action*. New York; Wiley.
- Kranhold, C., Baumann, U. & Fichter, M. (1992). Hypnotizability in bulimic patients and controls. A control study. *European Archives of Psychiatry* **43**, 129–133.
- McCallum, K.E., Lock, J., Kulla, M., Rorty, M. & Wetzel, R.D. (1992). Dissociative symptoms and disorders in patients with eating disorders. *Dissociation* **5**, 227–235.
- McManus, F. (1995). Dissociation and the severity of bulimic pathology among eating-disordered and non-eating disordered women. *European Eating Disorders Review* **3**, 185–195.
- Nadon, R., Hoyt, I.P., Register, P.A. & Khilstrom, J.F. (1991). Absorption and hypnotizability: Context effects re-examined. *Journal of Personality and Social Psychology* **60**, 144–153.
- Norman, D.A. & Shallice, T. (1980). Attention to action: Willed and automatic control of behaviour. In Davidson, R.J., Schwartz, G.E. & Shapiro, D. (Eds), *Consciousness and Self-Regulation* (vol. 4). New York: Plenum press.

- Oakman, J.M, Woody, E.Z. & Bowers, K.S. (1996). Contextual effects of the relationship between absorption and hypnotic ability. *Contemporary Hypnosis* **13**, 19–28.
- Pettinati, H.M., Horne, R.L. & Staats, J.M. (1985). Hypnotizability in Patients with Anorexia Nervosa and Bulimia. *Archives of General Psychology* **42**, 1014–1016.
- Rosen, E.F. & Petty, L.C. (1994). Dissociative states and disordered eating. *American Journal of Clinical Hypnosis* **36**, 267–275.
- Sanders, S. (1986). The Perceptual Alteration Scale: A scale for measuring dissociation. *American Journal of Clinical Hypnosis* **34**, 266–275.
- Spanos, N.P., Gabora, N.J., Jarrett, L.E. & Gwynn, M.I. (1989). Contextual determinants of hypnotizability and of relationships between hypnotizability scales. *Journal of Personality and Social Psychology* **57**, 271–278.
- Streigel-Moore, R.H., Silberstein, L.R. & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist* **41**, 246–263.
- Streigel-Moore, R.H., Silberstein, L.R. & Rodin, J. (1993). The social self in bulimia nervosa: Public self-consciousness, social anxiety, perceived fraudulence. *Journal of Abnormal Psychology* **102**, 297–303.
- Stunkard, A.J. & Messick, S. (1985). The three factor eating questionnaire to measure dietary restraint, disinhibition, and hunger. *Journal of Psychosomatic Research* **29**, 71–83.
- Torem, M.S. (1986). Dissociative states presenting as an eating disorder. *American Journal of Clinical Hypnosis* **29**, 137–142.
- Valdiserri, S. & Kihlstrom, J.F. (1995a). Abnormal eating and dissociative experiences. *International Journal of Eating Disorders* **17**, 373–380.
- Valdiserri, S. & Kihlstrom, J.F. (1995b). Abnormal eating and dissociative experiences: A further study of college women. *International Journal of Eating Disorders* **18**, 145–150.
- Vanderlinden, J., Van Dyck, R., Vandereycken, W. & Vertommen, W. (1993). Dissociative experiences and trauma in eating disorders. *International Journal of Eating Disorders* **13**, 187–193.
- Wilson, S.C. & Barber, T.X. (1978). The Creative Imagination Scale as a measure of hypnotic responsiveness: Applications to experimental and clinical hypnosis. *American Journal of Clinical Hypnosis* **20**, 235–249.
- Woody, E.Z. & Bowers, K.S. (1994). A frontal assault on dissociated control. In Lynn, S.J. & Rhue, J.W. (Eds). *Dissociation: Clinical Theoretical and Research Applications*. New York; Guildford Press.
- Wybraniec, A. & Oakley, D. (1996). Dietary restraint, hypnotizability, and body image. *Contemporary Hypnosis* **13**, 150–155.

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