

Experiential avoidance and low mindfulness associated with eating disorder symptoms: the mediating role of ruminative brooding.

Felicity A Cowdrey* and Rebecca J Park

Department of Psychiatry, University of Oxford

Background

- A process account of eating disorders (EDs) (1) proposes that preoccupation with ruminative themes of eating, weight and shape may be important in ED maintenance by causing desensitization to other aspects of experience.
- It has been demonstrated that avoidance of experience and low mindfulness may contribute to disordered eating patterns.
- However, the specific process by which experiential avoidance and mindfulness are associated with ED symptoms remains unknown.

Hypotheses

- Experiential avoidance and low mindfulness will be associated with ED symptoms.
- Rumination on themes of eating, weight and shape will mediate the effects.

Methods

A sample of healthy females ($N = 228$) completed a battery of on-line self-report measures which included:

- Eating Disorder Examination-Questionnaire (EDE-Q).
- Ruminative Response Scale for Eating Disorders (RRS-ED) (2)
 - A new 9-item measure designed and validated with the aim of improving the evaluation of ruminative processes in Eds. It is comprised of two subscales; brooding and reflection on eating, weight and shape concerns.
- Patient Health Questionnaire-9 (PHQ-9).
- Generalised Anxiety Disorder Questionnaire-7 (GAD-7).
- Five Factor Mindfulness Questionnaire (FFMQ).
- Acceptance and Action Questionnaire-II (AAQ-II).
- Analysis:**
 - A non-parametric bootstrapping approach (3), with 5000 resamples, was used for mediation analyses. Confidence intervals at 95% were adopted to test for statistically significant levels of the indirect effects of mediators.

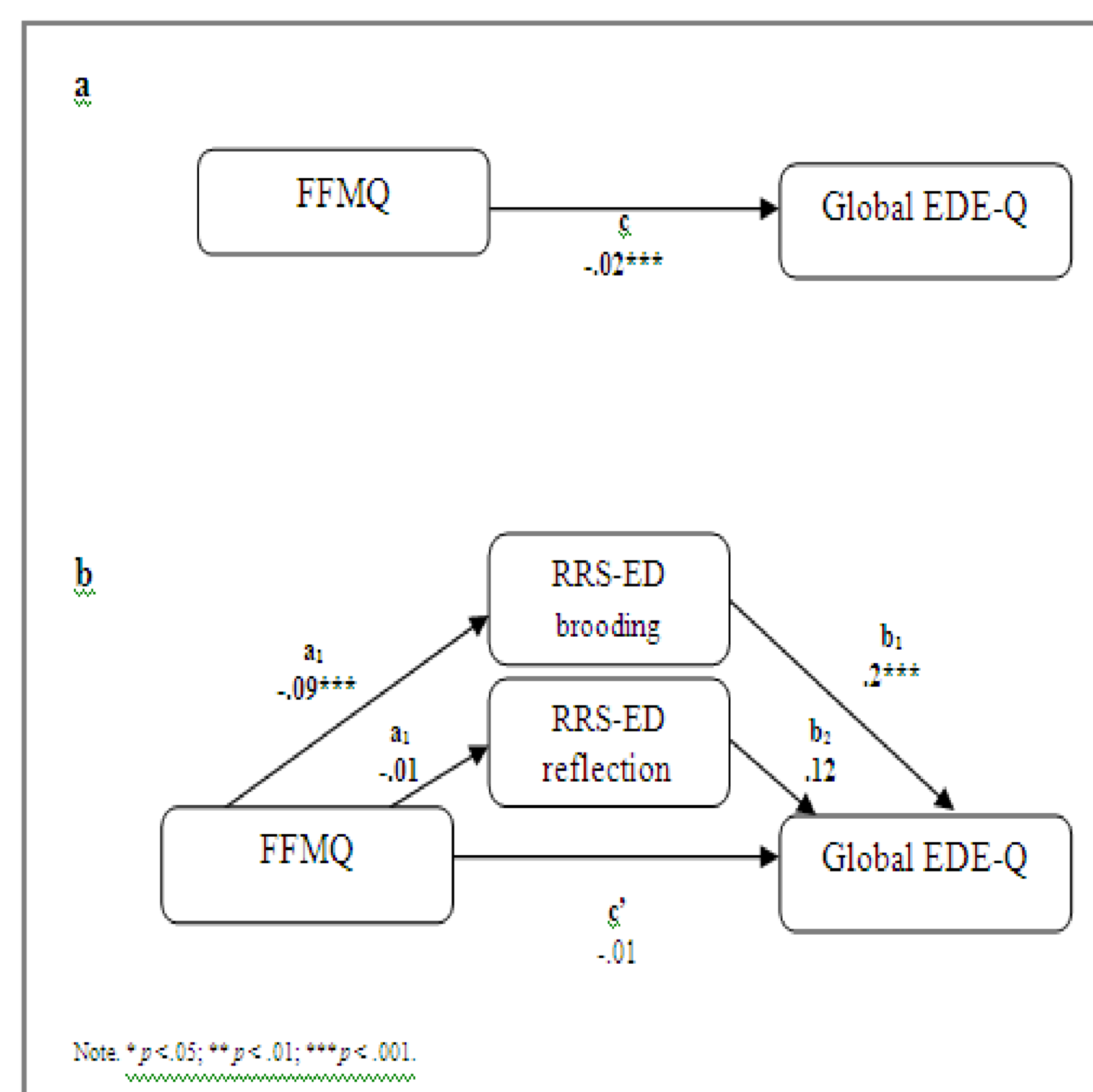
Results

Table 1. Demographic and psychosocial variables.

Variable	Mean	SD
Age	24.03	7.62
BMI	22.03	2.75
EDE-Q - Global	1.53	1.26
RRS-ED - total	12.35	4.48
Brooding	8.86	3.84
Reflection	3.49	1.08
PHQ-9	6.29	5.39
GAD-7	4.93	4.56
FFMQ	122.5	18.07
AAQ-II	18.86	7.65

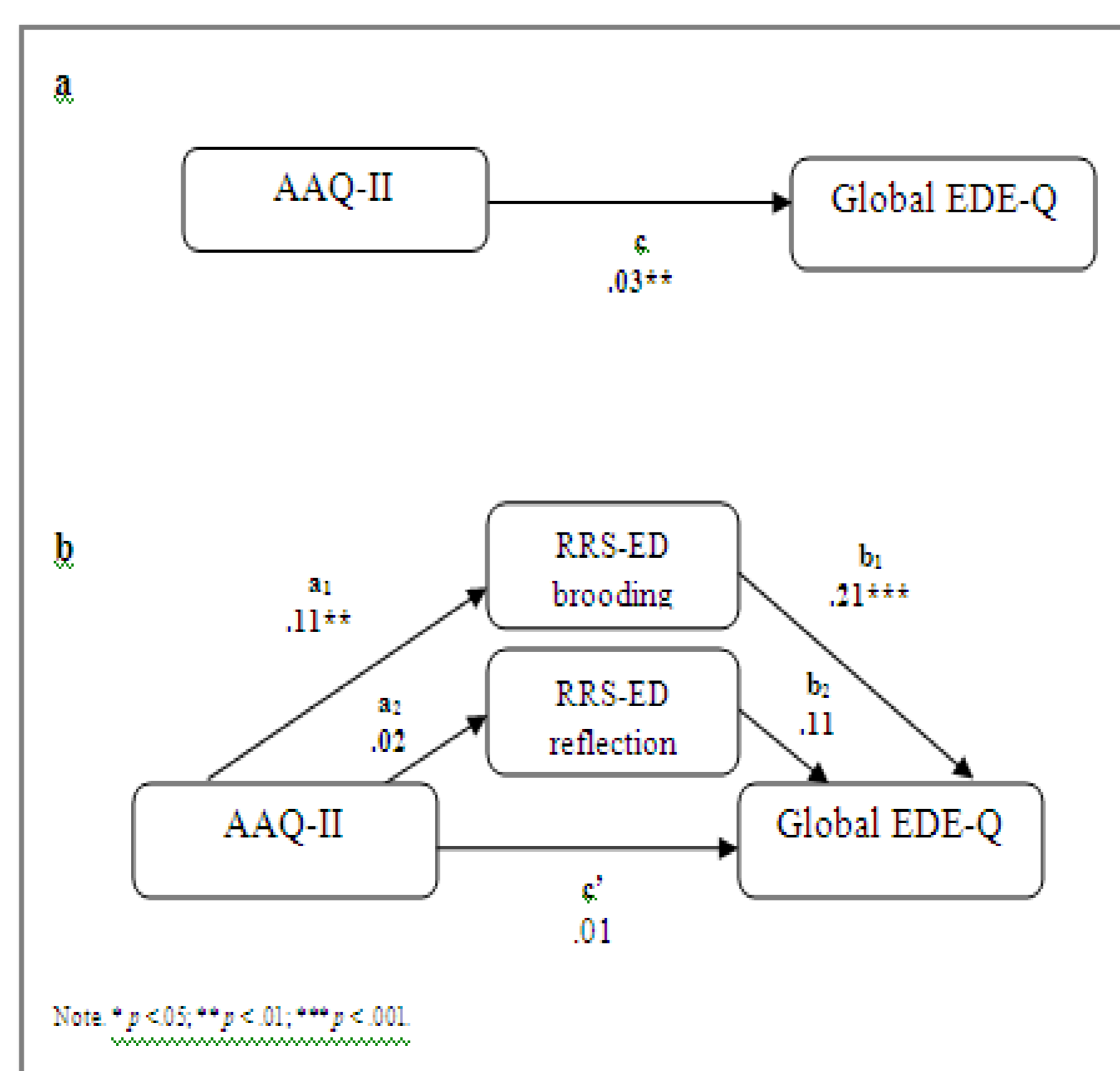
Does rumination mediate the association between mindfulness and ED symptoms?

Figure 1. (a) Illustration of the direct effect of FFMQ on Global EDE-Q scores. (b) Mediation model. Mindfulness exerts an indirect effect on ED symptoms through ruminative brooding but not reflection*



Does rumination mediate the association between experiential avoidance and ED symptoms?

Figure 2. (a) Illustration of the direct effect of AAQ-II on Global EDE-Q scores. (b) Mediation model. Experiential avoidance exerts an indirect effect on ED symptoms through ruminative brooding but not reflection*



* The analyses were re-run with depression as a covariate. The results remained the same.

Preliminary results for anorexia nervosa

- Data from 42 female participants with a history of **anorexia nervosa (AN)** were analysed as a preliminary test of the mediational models in a vulnerable sample (*mean age = 24 years, SD = 8.31; mean BMI = 19.60, SD = 2.46*).

- Brooding (but not reflection) significantly mediated the effects of mindfulness on ED symptoms in AN/
- Brooding and reflection on ED symptoms significantly mediated the link between experiential avoidance and ED symptoms in AN.

Table 2. Summary of mediation results for ED symptoms with mindfulness and experiential avoidance as independent variables.

DV	IV	M	Effect of IV on M	Effect of M on DV	Direct effect of IV on DV	Direct effect of IV on DV (through M)
ED symptoms	Mindfulness	Brooding	-.20***	.15***	-.05***	-.01
		Reflection	-.02	.26***		
ED symptoms	Experiential Avoidance	Brooding	.54***	.21**	-.10***	-.01
		Reflection	.09**	.33**		

Note: DV, dependent variable; M, mediating variable; IV, independent variable
** $p < .01$ *** $p < .001$

Conclusions

- Rumination in EDs has a disorder-specific content.
- ED symptoms are associated with low mindfulness and experiential avoidance.
- Ruminative brooding on eating, weight and shape concerns mediates the association between:
 - mindfulness and ED symptoms.
 - experiential avoidance and ED symptoms.
- Cultivating a more accepting and non-judgmental mode of processing may be useful for reducing ED symptoms.
- Further analysis of rumination in ED samples is necessary.

References

- Park RJ, Dunn B and Barnard P. Schematic models and modes of mind in anorexia nervosa: a novel process account with treatment implications. *International Journal of Cognitive Therapy*. In press.
- Cowdrey FA, and Park RJ. Assessing rumination in eating disorders: principle component analysis of a minimally modified Ruminative Response Scale. *Under review*.
- Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36, 717-731.

Acknowledgements

This work has been supported by a Sir Jules Thorn Charitable Trust PhD scholarship.

Contact details

Felicity Cowdrey: Department of Psychiatry, University of Oxford, Warneford Hospital, Headington, Oxford, OX37JX.
Email: felicity.cowdrey@psych.ox.ac.uk. Tel: 01865223918