



PSYCHOLOGICAL FLEXIBILITY MEDIATES CHANGES IN INTUITIVE EATING IN ACT- INTERVENTIOS

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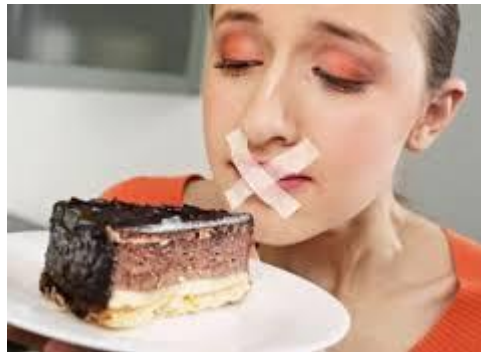
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What works in weight management – Strong control or acceptance-based approach?



- STUDY I: Sairanen, E., Tolvanen, A., Karhunen, L., Kolehmainen, M., Järvelä, E., Rantala, S., Peuhkuri, K., Korpela, R. & Lappalainen, R. (2015). Psychological Flexibility and Mindfulness Explain Intuitive Eating in Overweight Adults. *Behavior modification*.
- STUDY II: Weight-Related Psychological Flexibility Mediates Changes in Intuitive Eating Regulation in Overweight Adults (manuscript)



Today I will feast tomorrow I will diet.



How many calories I can eat today?



All - nothing



I need more willpower.

The diet language

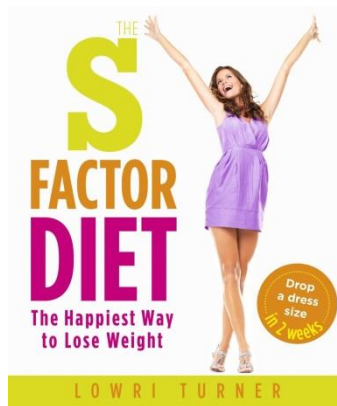
How many calories I burned in one hour running?



Foods To Avoid

Foods To Embrace

MY PROJECT:
ME



I won't go to the restaurant, because it would ruined my diet.

I JUST WANT TO BE
fucking skinny

Challenge of long-term weight management

- The majority of individuals eventually regain the weight they had lost (Jeffery et al., 2000; Mann et al., 2007).
- Motivations for weight management are (eventually) overwhelmed by a biological predisposition to consume high-energy foods, which are universally available in the modern environment.
- Implicit processes are likely to favor hedonic pleasure and comfort over long-term objectives (Friese, Hofmann, & Wänke, 2008; Mai et al., 2011).



The problem of control

- People have an innate ability to respond to body signals and thus be able to adequately regulate food intake (Birch, Johnson, Andresen, Peters, & Schulte, 1991).
- This ability can be overridden by environmental pressure or individual experiences, such as dieting (Herman & Polivy, 1983) that may habituate individuals to negate their body signals of hunger and satiety and, as a result, become less sensitive to internal cues but more responsive to various environmental factors.
- The rigid limitations in food intake may evoke food cravings and make the dieter vulnerable to disinhibited and emotional eating.
- Rigid restraint of eating is consistently associated with higher body mass index (BMI) and poorer weight loss (e.g., Meule, Westenhöfer, & Kübler, 2011).



Intuitive eating - The alternative approach to eating regulation

- ...is a style of eating that focuses on eating motivated by physical reasons, with an individual relying in their connection with and understanding of physical hunger and satiety cues, rather than on emotional or environmental motivators (Avalos & Tylka, 2006; Tylka, 2006).
- Three components of intuitive eating:
 1. *Unconditional permission to eat when hungry and what food is desired* (i.e. lack of restriction in eating)
 2. *Eating of physical rather emotional reasons* (i.e. using food to satisfy hunger rather than using food to alleviate emotional distress)
 3. *Reliance on internal hunger and satiety cues to determine when and how much to eat*



- Intuitive eating is negatively related to cognitive restraint, emotional eating, and uncontrolled eating (Camilleri et al., 2015).
- Intuitive eating is related to lower BMI, the absence of eating disorder symptomatology and better physical and psychological well-being (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Bacon & Aphramor, 2011; Bacon, Stern, Van Loan, & Keim, 2005).



How to promote intuitive eating style?

■ Acceptance and mindfulness methods

- Improve connection with inner experiences (such as hunger) → attenuate the sensitivity to external or emotional cues to eat
- Defusion can weaken rigid thinking, like dividing foods to accepted and non-accepted.
- Increase distress tolerance by acceptance → Decreasing emotional eating and eating based on external cues.

Experiential avoidance

- Emotional eating
- Rigid rules
- Dichotomous thinking



Psychological flexibility

- Connecting with inner experiences
- Distress tolerance



Research protocol

- 306 overweight adults, who had stress and risk for type II-diabetes, were randomized for
 1. ACT group intervention
 2. ACT mobile intervention
 3. CBT-web coaching
 4. Control group

- Pre-, post, and 6-month follow-up measures:
 - Psychological, lifestyle and physical measurements (blood samples, body composition, heart beat-analysis...etc.)



STUDY I: Psychological Flexibility and Mindfulness Explain Intuitive Eating In overweight adults

■ Measurements:

- AAQ-II
- AAQW
- FFMQ: *Observe, Describe, Act with awareness, Non-react and Non-judgment*
- IES: *Unconditional permission to eat, Eating for physical reasons, and Reliance on hunger/satiety cues*
- Body mass index



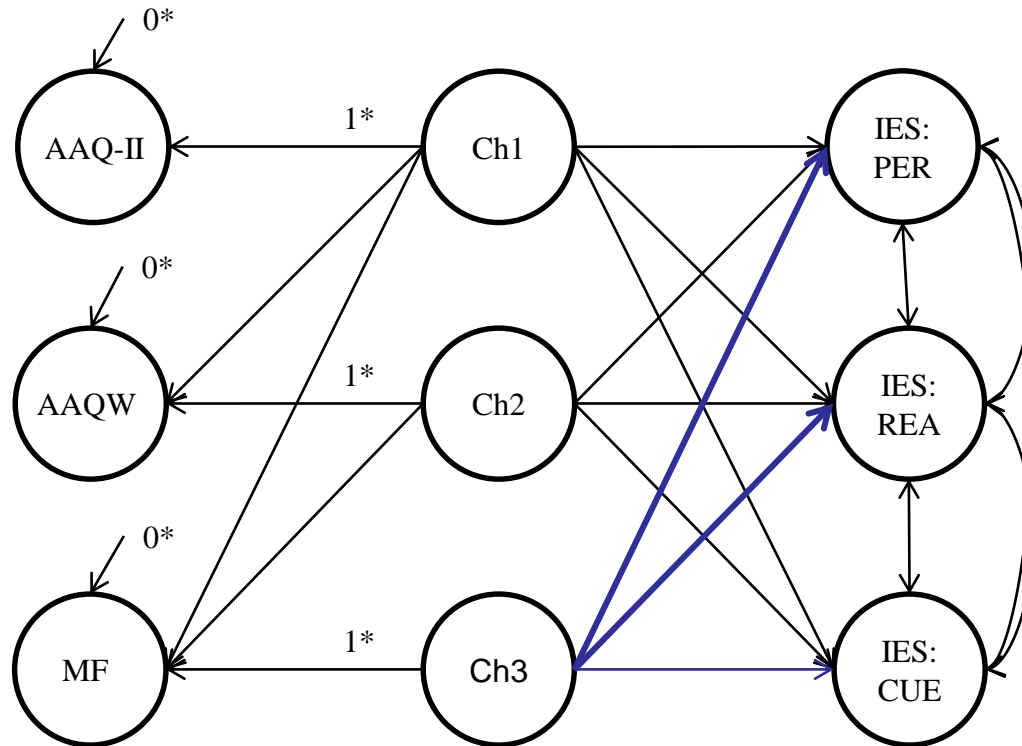
Correlations

- Better psychological flexibility (general and weight specific) was related to better mindfulness skills, except for *observing*, and to higher levels of all intuitive eating factors.
- Better mindfulness skills, except for *observing*, were related to higher levels of all intuitive eating factors.
- *Observing* correlated only with *reliance on hunger and satiety cues* thus showing that persons who attend more to their internal and external experiences rely more on their body's hunger and satiety cues.
- Persons who have a lower BMI eat more intuitively and have more psychological flexibility regarding their weight.



Does psychological flexibility and mindfulness account for unique variances in intuitive eating?

Hierarchical regression model



Note. AAQ-II = Acceptance and Action Questionnaire; AAQW = Acceptance and Action Questionnaire for Weight; MF = Mindfulness Facet; IES = Intuitive Eating Scale; PER = *Unconditional Permission to Eat*; REA = *Eating for Physical Reasons*; CUE = *Reliance on Hunger/Satiety Cues*.

*Fixed values. Other connections were estimated freely.



Unique explanation of mindfulness skills

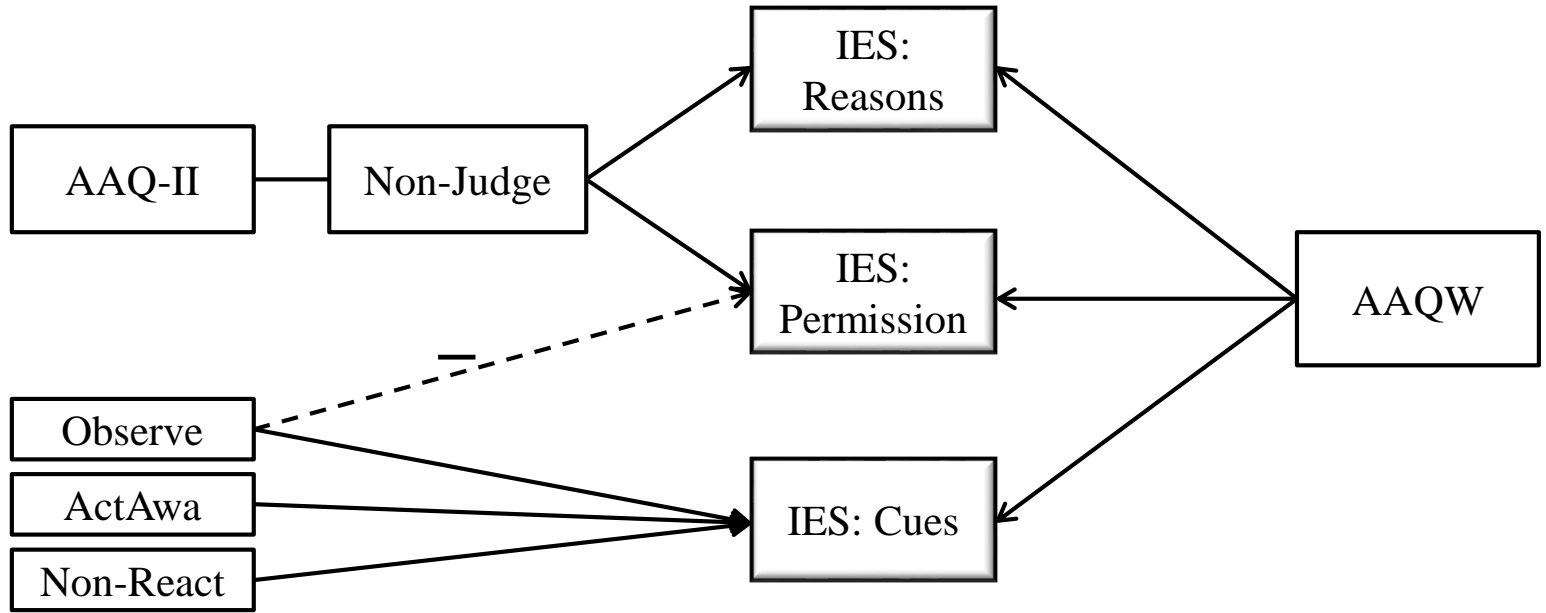
- Mindfulness skill, observing showed an inverse relation to **unconditional permission to eat**, indicating that persons who observe their internal and external experiences more have less unconditional permission to eat. This relationship was independent of the levels of psychological flexibility (AAQ-II and AAQW).
- Acting with awareness, observing and non-reacting explained **reliance on hunger/satiety cues** when psychological flexibility and psychological flexibility for weight were controlled for.



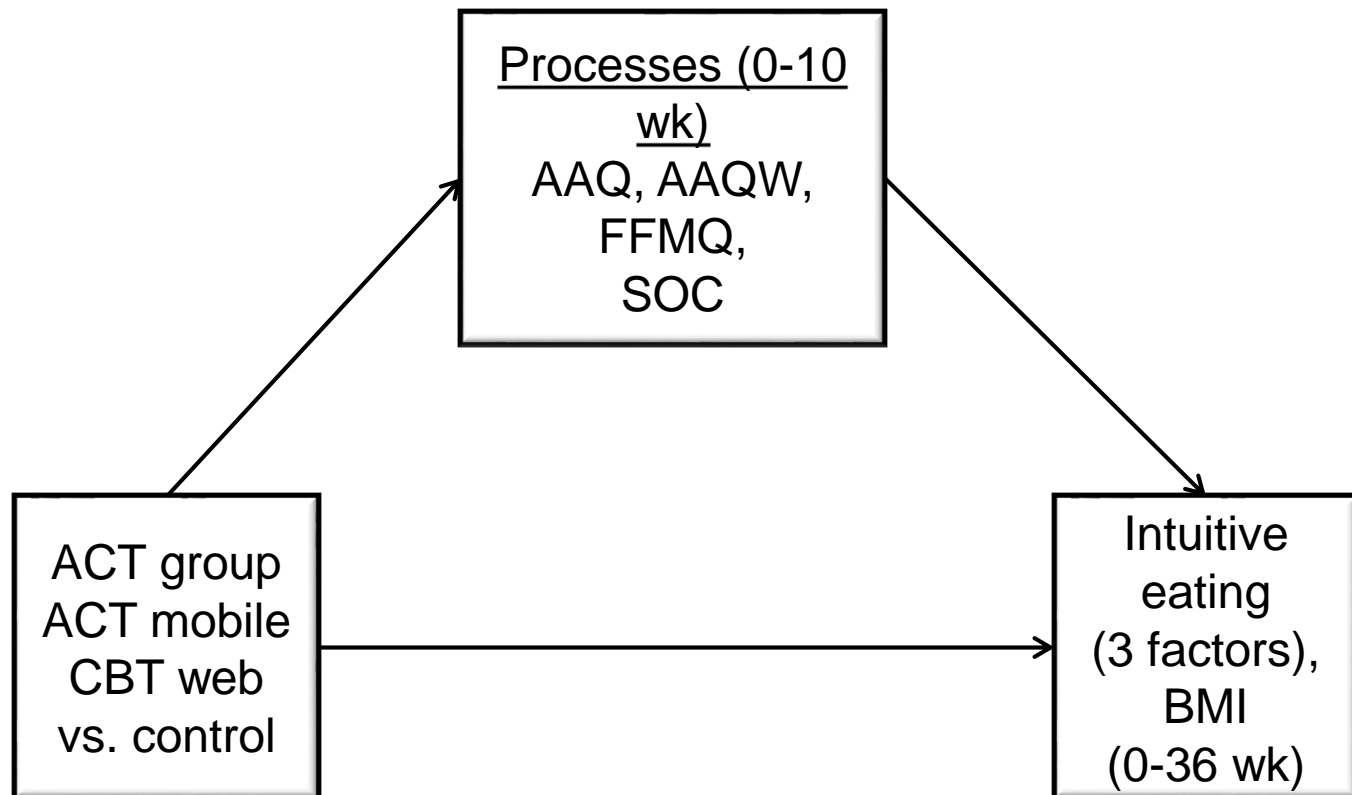
Unique explanation of psychological flexibility

- General psychological flexibility did not explain intuitive eating independently; but, the AAQW explained all intuitive eating factors independently of mindfulness skills and the AAQ-II.
- General psychological flexibility explained **unconditional permission to eat** and **eating for physical reasons** independently from single mindfulness facets, apart from non-judgment.

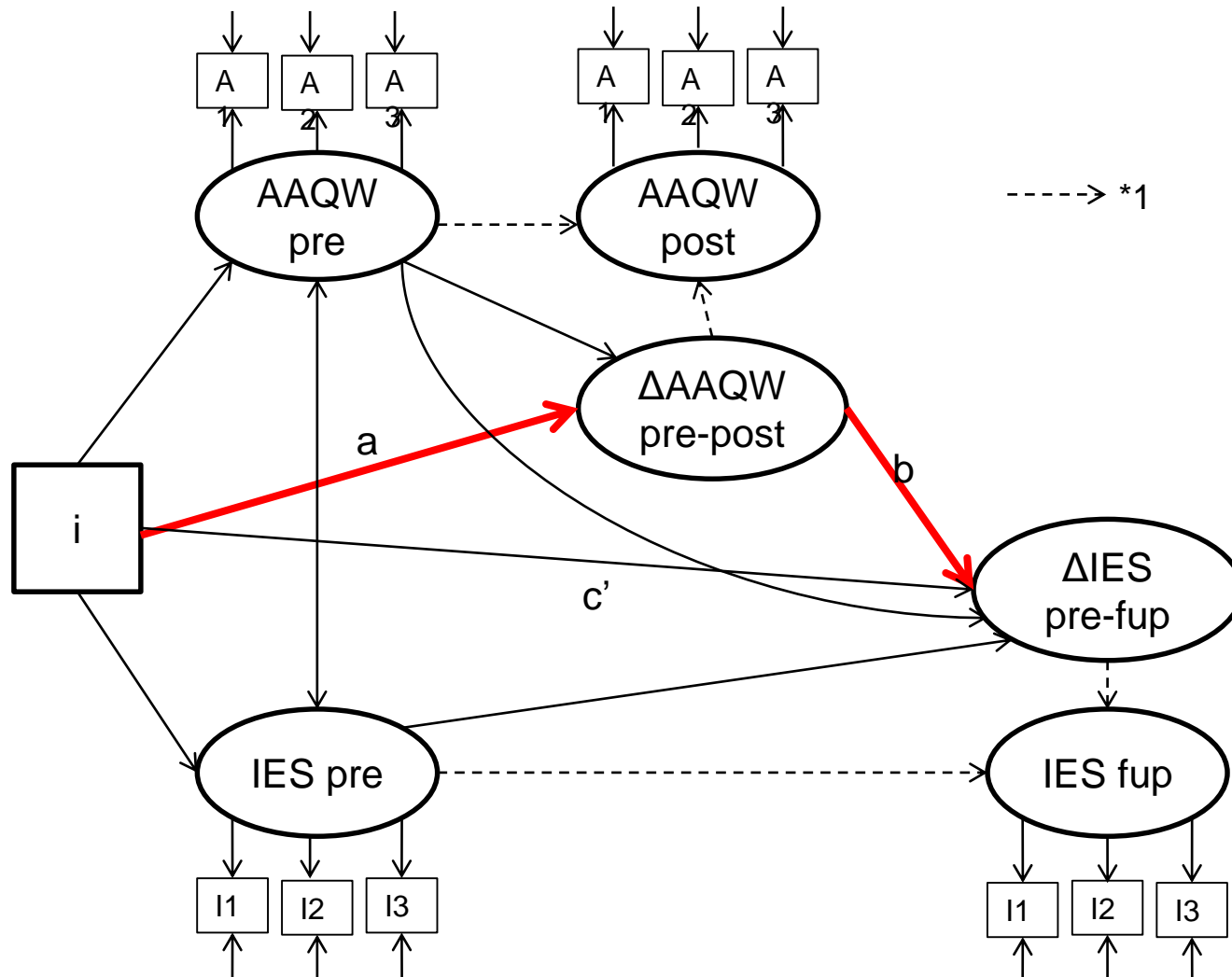




STUDY II: Weight-Related Psychological Flexibility Mediates Changes in Intuitive Eating Regulation in Overweight Adults



The latent difference score (LDS) mediation model where intervention effect on IES (change from pre to follow-up) is mediated by AAQW (change from pre to post).



Note. $i = 0$, for control group, $i = 1-3$, for intervention groups.

IES = Intuitive Eating Scale, AAQW = Acceptance and Action Questionnaire for Weight.



Effects of the interventions

- Both the ACT interventions (group face-to-face and ACT mobile) increased eating for physical rather than emotional reasons (as compared to the control group).
- Psychological flexibility for weight (AAQW), and mindfulness skills observing and describing improved significantly in the ACT-based face-to-face and mobile groups.



Mediation processes

- The effect of the ACT-based interventions (group face-to-face and mobile) on weight (BMI) and intuitive eating (IES total and three subscales) were mediated by change in weight related psychological flexibility (AAQW).
- In the ACT-based mobile intervention, changes in **Reliance on internal hunger and satiety cues** were mediated by improvements in mindfulness skills (FFMQ total).



Conclusions and future directions

- Mindfulness and psychological flexibility promote healthy eating behavior with overweight adults.
- ACT interventions for lifestyle changes function as predicted: through enhanced mindfulness skills and an ability to continue with valued activities when confronted with negative emotions and thoughts related to weight.
- Research investigating the benefits of intuitive eating, while considering physiological factors and the vulnerability to hedonic eating with overweight people are warranted in future.



Thank you!

10 August 2015



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