ALINEA
NUTRITION

MARCH 2023

TABLE OF
CONTENTS

What We Know, Think We Know, or Are Starting to Know

The term 'intuitive eating' was coined by research dietitians Evelyn Tribole and Elyse Resch in 1995, and is characterised by eating according to internal hunger and satiety cues, rather than external stimuli or situational and emotional cues [1]. Intuitive eating may be considered an "adaptive eating style", a term which broadly encompasses ways of eating that promote a positive relationship with food and are guided by internal physiological cues [1].

Clarity in the operational definitions for adaptive eating styles is important because different conceptual frameworks exist under the broad umbrella of "non-diet nutrition" [2]. For example, the 'Health at Every Size' [HAES] approach and 'mindful eating' both fall within the definition of non-diet nutrition, however, they are conceptually distinct from intuitive eating [although there is some overlap] [2].

Intuitive eating encompasses a number of principles; an emphasis on physical hunger and satiety cues; unconditional permission to eat; food choices for both health and eating satisfaction, rather than for emotional coping; respect for the body irrespective of size and shape, and exercising for the enjoyment of activity rather than deliberate weight loss pursuit or energy expenditure [1].

Tracy Tylka's research group clustered the principles of intuitive eating into four overall domains in order to measure intuitive eating using the validated Intuitive Eating Scale-2 [IES-2]: 1) unconditional permission to eat; 2) eating for physical rather than emotional cues; 3) reliance on hunger and satiety cues, and; 4) body-food choice congruence [3,4].

A 2016 systematic review showed that higher intuitive eating scores were associated with lower levels of disordered eating and dieting behaviours in women, while also associated with higher levels of positive body image and emotional functioning [5]. However, no meta-analysis of intuitive eating research and psychological outcomes had yet been conducted until publication of the study we now Deepdive into...

The Study

The investigators conducted a meta-analysis of intuitive eating [IE] and psychological outcomes, using the following inclusion criteria:

- **Design**: Cross-sectional studies

- **Exposure**: IE measured using validated intuitive eating scales

- **Comparator**: Any psychological construct to which IE was compared

- **Duration**: Not applicable [cross-sectional comparisons are point-in-time comparisons]

- **Outcome**: Correlations between intuitive eating and psychological health outcomes

The study aimed to investigate the overall strength and direction of effect of IE on psychological health outcomes, and to determine whether gender differences, and factors such as age and body mass index [BMI] moderated associations between IE and relevant outcomes.

The analysis also investigated whether the effects of IE differed between individuals with or without an eating disorder. The final aim of the study was to determine the strength of evidence for the 'Acceptance Model of Intuitive Eating'***** [***see Geek Box** below for further details].

The results for psychological correlates of IE were reported as strength of correlation, represented by *r*, where *r* = 0.10 was considered weak, 0.30 considered moderate, or 0.50 considered strong strengths of correlation.

The results for the analysis comparing the effects of IE between men and women and eating disorders compared to healthy participants were reported as effect sizes, where effect sizes of 0.2, 0.5, and 0.8 were considered weak, moderate, and strong effect sizes, respectively.

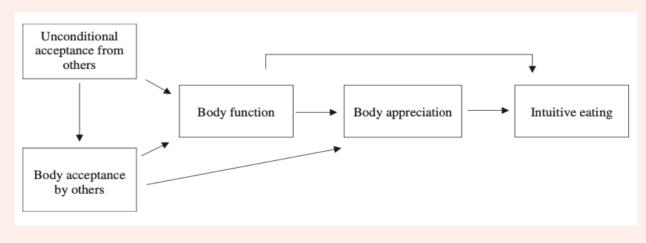# *Geek Box: The Acceptance Model of Intuitive Eating

It is easy to think of intuitive eating as a construct purely related to diet, and also to see it is an outcome, i.e., something to develop by reference to dietary behaviours. However, as can be gleaned from certain of the principles of intuitive eating, the body is a crucial aspect of the overall construct, in particular respect for the body, a focus on the body's function [i.e., exercising for enjoyment], and food choices based on congruence with the body.

Drawing on research from different psychological theories and eating disorders research, Tracy Tylka's research group developed the 'Acceptance Model of Intuitive Eating' [AMIE]. This model drew on humanistic theory, that individuals who receive unconditional acceptance from others are more likely to accept their own self as they are. It also drew on objectification theory, commonly applied in eating disorders research, where the experience of being objectified leads to self-objectification, and ultimately body shame, which manifests as disordered eating/eating disorder.

Take a look at the figure from the present paper, below. In sum, AMIE posits that the experience of acceptance and/or unconditional acceptance from others reduces self-focus on the body's appearance, in turn leading to an increased orientation towards body function, i.e., what the body can do. This focus on what the body can do leads to an appreciate for one's body.

Both a greater focus on the body's function and increased appreciation for the body contribute to more intuitive eating because the individual is eating for physical rather than emotional reasons, and because they are eating in accordance with their body's physiological needs [i.e., for exercise].

The research to date, albeit limited, has been suggestive of this direction of effect; that body acceptance by others predicts body function appreciation and bodily self-acceptance, which in turn predicts intuitive eating. However, the research does suggest potential differences according to age [i.e., stronger in early middle-aged women vs. younger adult women], and sex [stronger in women vs. men]. Importantly, prior to the present study there had been no research quantitatively synthesising the available research on the AMIE.

Results: Results: 91 studies were included in the overall analysis. Almost all studies used either the Intuitive Eating Scale [IES] or Intuitive Eating Scale 2 [IES-2] to assess IE. Of the populations included, four studies were conducted in participants with a clinical eating disorder; the remainder were conducted in students or community-living adults.

Eating Behaviour, Body Image Disturbances, and BMI: IE scores were inversely associated [i.e., higher IE scores meant lower levels of the outcome] with BMI [r = -0.20, a modest correlation], binge-purge symptoms [r = -0.53, a strong correlation], restrained eating [r = -0.41, a moderate correlation], emotional eating [r = -0.58, a strong correlation], eating disorder psychopathology [r = -0.47, a moderate-strong correlation], internalised appearance ideals [r = -0.21, a modest correlation], low interoceptive awareness [r = -0.49, a strong correlation], and body shape/weight concerns [r = -0.46, a moderate-strong correlation].

Positive Body Image and Adaptive Factors: IE scores were positively associated [i.e., higher IE scores meant higher levels of the outcome] with body acceptance by others [r = 0.37, a moderate correlation], body appreciation [r = 0.48, a moderate-strong correlation], body function [r = 0.39, a correlation], self-compassion [r = 0.41, a moderate correlation], and general wellbeing [r = 0.33, a moderate correlation].

General Psychopathology: IE scores were inversely associated [i.e., higher IE scores meant lower levels of the outcome] with anxiety symptoms [r = -0.34, a moderate correlation], and depressive symptoms [r = -0.29, a moderate correlation].

Sex Differences: Comparing men to women on IE scores showed an effect size of 0.39, a small to moderate effect size, indicating that overall, men reported higher levels of IE compared to women. However, moderation analysis indicated that this effect was strongest in studies with a high percentage of White/Caucasian participants.

Eating Disorders: Comparing healthy participants to those with clinical eating disorders on IE scores showed an effect size of 1.80, a very large effect size that indicated individuals without clinical eating disorders have substantially higher levels of IE compared to those with a clinical eating disorder.

Acceptance Model of Intuitive Eating [AMIE]: For this model, each step in the pathway was significantly associated with its subsequent step [e.g., body function to body appreciation; body appreciation to intuitive eating], except for the pathway beginning with unconditional acceptance by others [more under *Interesting Finding*, below]. Overall, this model accounted for 29% of the variation in IE scores. Similar findings were observed when confining the analysis of the AMIE to women or men, however, in women the overall model accounted for more of the IE scores [32%] compared to men [24%].

The Critical Breakdown

Pros: This was the first quantitative synthesis of research on IE and psychological correlates. The aims and objectives of the meta-analysis were clearly stated. A substantial body of research was included in the overall study, comprising 91 papers. 90/91 studies had used the validated Intuitive Eating Scale 1 or 2 [the other study used another scale, but one still specifically designed to assess intuitive eating]. For almost all of the specific analyses of psychological correlates, the meta-analysis drew from large sample sizes with a minimum of 1,000 participants. For example, the associations between IE and BMI were based on a sample of 28,916 participants, while the analysis for body appreciation was based on a sample of 14,405 participants. The pathway analysis for the Acceptance Model of Intuitive Eating was the first quantitative evaluation of the strength of this model.
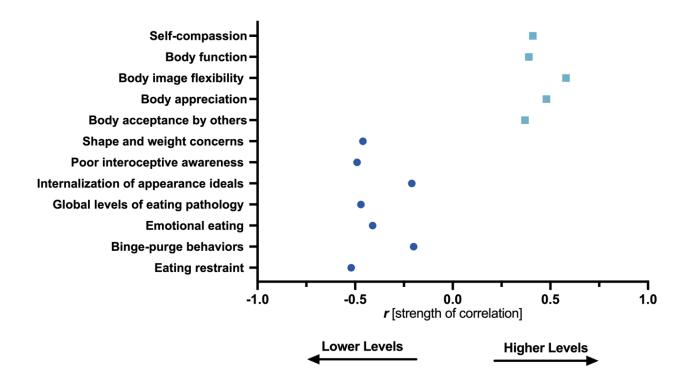
Cons: The analysis was based on cross-sectional data only, and there remains a real lack of prospective longitudinal studies examining IE and changes in relevant outcomes over time. 14 of the included studies were unpublished, but it is unclear to what extent these contributed to the respective analyses. The average study quality score was 3.64 [out of 7], indicating a moderate overall quality of included research. Typical of this research area, the majority of the participants included were White/Caucasian females, thus some caution is required in generalising the strength of the findings to specific population subgroups. There was very high heterogeneity between the majority of included studies, with heterogeneity scores of >90%, i.e., studies were very different. One important potential limitation of this research, which the authors highlight to their credit, is that in a cross-sectional design it is possible that participants answer IE assessment questions as a reflection of how they would like to eat, rather than how they do in fact eat. This is another reason why more prospective research is warranted in this area.

Key Characteristic

While there is the obvious caveat that this first synthesis of research on IE and psychological correlates is based entirely on cross-sectional data, it nevertheless lends weight to the positive effect of this adaptive eating style on multiple measures of both dietary and behavioural correlates of psychological wellbeing.

The first narrative review of IE in 2014 was not a systematic review and included studies on other adaptive eating styles such as HAES and mindful eating [2]. The second review in 2016 was a systematic review of 24 cross-sectional studies, and included only studies that assessed IE specifically using validated IE scales [5]. That systematic review found that higher IE scores were associated with positive body image and appreciation, lower levels of body dissatisfaction, and lower levels of unhealthy weight control behaviours [5].
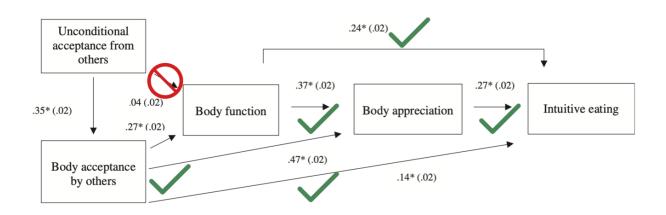
Take a look at the **figure** below, in which the square light blue dots represent positive body image measures; higher IE scores were associated with higher levels of these measures with mostly strong correlations [r = ~0.5]. The **circle royal blue dots** represent negative eating behaviours and body image measures; higher IE scores were associated with *lower* levels of these measures with modest to strong correlations. Thus, the present study adds quantitative values to this evidence, and importantly, corroborates the direction of effect of the findings from previous narrative and systematic reviews.

Interesting Finding

Arguably the most interesting aspect of the present study's analysis is the Acceptance Model of Intuitive Eating [AMIE]. To try to simplify the interpretation of this analysis, check out this **figure** below from the paper, which has been adapted to include a symbol representing whether a particular pathway was significantly correlated.

For example, you can see from the red 'stop sign' that unconditional acceptance from other was not significantly correlated with body function. And you can see that body acceptance by others was significantly correlated with body function, body appreciation, and directly to IE. The arrows indicate the direction of effect, e.g., body acceptance by others positively influences body function, body appreciation, and IE. We can also see that an emphasis on body function and body appreciation, respectively, predict IE.

The lack of effect of unconditional acceptance from others is consistent with previous research on the AMIE [6,7]. However, the strong predictive effect of *body* acceptance by others is consistent, further supported by the present meta-analysis. A study in adolescent girls found that body acceptance by others influenced both body appreciation and IE through social appearance comparison and self-objectification, i.e., being accepted for their body lowered levels of self-objectification and comparing oneself to the appearance of others, which in turn influenced IE [8].

The available research suggests that general social acceptance may not be sufficient, and that it is acceptance specifically related to the body that predicts improved body image and appreciation, and consequently, IE.

Relevance

While the research on IE continues to expand, the obvious limitation to the overall body of evidence is the lack of prospective data. However, the limited prospective data that has examined associations between IE and eating behaviour outcomes over time is consistent with what may be expected from the more voluminous cross-sectional data.

For example, in a previous Deepdive we covered a paper from the U.S.-based Project EAT, which showed that participants who were classified as 'intuitive eaters' as young adults exhibited lower BMI, less dieting, less unhealthy weight control behaviours, and less binge eating, compared to 'non-intuitive eaters'.

The present study is also consistent with previous research indicating that, overall, men exhibit higher IE scores compared to women [9]. If we take the pathway analysis on the AMIE in the present study together with previous research, this may be because women face greater bodily objectification and pressure to conform to beauty ideals [10].

Consequently, self-objectification, bodily surveillance and dissatisfaction, and lack of perceived bodily acceptance, based on the directions of effect of different factors in the AMIE that predict IE, would all converge to act as barriers to IE. Thus, as an adaptive eating style, IE may not be independent of social and environmental factors, and this is something that should be considered both in the research on IE and its application in real world contexts.

The research trajectory of this area is encouraging, and positive. For the present study, we are left with the conclusion that higher IE scores correlate with overall positive psychological wellbeing, including body image related and dietary related outcomes. It remains for more prospective studies, and intervention trials in particular, to improve the robustness of this evidence-base.

Application to Practice

The fact that it is bodily acceptance by others that appears to be the genesis of other adaptive, positive body image correlates, and ultimately IE, is something all nutrition professionals should consider. It is also important to note that when we are referring to "intuitive eating" such as in the present study, we are referring to a psychometric evaluation using the validated IE scales.

However, the application of the principles of IE in nutrition practice is different to assessing IE in an individual using a validated scale. To apply IE in practice requires training, and this would be something to encourage for any nutrition professionals and coaches that would want to implement these principles with clients.

References

1. Tribole E, Resch E. Intuitive eating: A revolutionary program that works. . 3rd ed. New York: St. Martin's Griffin; 2012.

2. van Dyke N, Drinkwater EJ. Review Article Relationships between intuitive eating and health indicators: literature review. Public Health Nutr. 2014 Aug 21;17(8):1757–66.

3. Tylka TL. Development and psychometric evaluation of a measure of intuitive eating. J Couns Psychol. 2006 Apr;53(2):226–40.

4. Tylka TL, Kroon Van Diest AM. The Intuitive Eating Scale–2: Item refinement and psychometric evaluation with college women and men. J Couns Psychol. 2013;60(1):137–53.

5. Bruce LJ, Ricciardelli LA. A systematic review of the psychosocial correlates of intuitive eating among adult women. Appetite. 2016 Jan;96:454–72.

6. Avalos LC, Tylka TL. Exploring a model of intuitive eating with college women. J Couns Psychol. 2006 Oct;53(4):486–97.

7. Oh KH, Wiseman MC, Hendrickson J, Phillips JC, Hayden EW. Testing the Acceptance Model of Intuitive Eating With College Women Athletes. Psychol Women Q. 2012 Mar 27;36(1):88–98.

8. Andrew R, Tiggemann M, Clark L. Predictors of Intuitive Eating in Adolescent Girls. Journal of Adolescent Health. 2015 Feb;56(2):209–14.

9. Argyrides M, Anastasiades E. Intuitive eating in Greek-Cypriot adults: Influence of gender and body mass. Front Psychol. 2022 Nov 24;13.

10. Frederick DA, Pila E, Malcarne VL, Compte EJ, Nagata JM, Best CR, et al. Demographic predictors of objectification theory and tripartite influence model constructs: The U.S. Body Project I. Body Image. 2022 Mar;40:182–99.