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Anorexia Nervosa, Body Dissatisfaction, and Problematic Beliefs

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Abstract

Body dissatisfaction has long been considered an integral component of and driving force behind anorexia nervosa. In this paper, I characterise body dissatisfaction in terms of problematic beliefs about body size and the value of thinness. I suggest two methods for understanding these beliefs. Regarding body size beliefs, I suggest focusing on certain forms of misleading phenomenal evidence that sufferers of anorexia nervosa are exposed to. Regarding beliefs about the value of thinness, I suggest focusing on the benefits of such beliefs.

Keywords

Anorexia Nervosa; Eating Disorders; Body Dissatisfaction; Problematic Beliefs; Phenomenal Evidence; Motivated Cognition

Introduction

This paper aims to characterise and explain the body dissatisfaction associated with anorexia nervosa. In section 1, I characterise body dissatisfaction in terms of problematic beliefs about one's body size and the value of thinness. In sections 2 and 3, I suggest two ways to explain these beliefs. In the case of body size beliefs, I suggest focusing on certain forms of phenomenal evidence that sufferers of AN are exposed to. In the case of beliefs about the value of thinness, I suggest focusing on the benefits of such beliefs—most notably, their simplifying nature. In section 4, I discuss the explanatory scope of my account.

1. Body dissatisfaction and problematic beliefs

Body dissatisfaction can be defined as "negative subjective evaluations of one's physical body, such as figure, weight, stomach, and hips" (Stice & Shaw, 2002, p. 985). It is standardly measured by structured interviews or self-report questionnaires (Cash & Deagle, 1997). For example, participants are asked to rate their satisfaction with the size of different body parts or presented with propositions such as "I think my stomach is too large" and asked to rate their agreement or disagreement with the statement (Garner et al., 1983). Body dissatisfaction (measured in this way) consistently correlates with the development and maintenance of AN (Stice, 2002; Stice & Shaw, 2002; Striegel-Moore &

Cachelin, 2001). Consequently, many assume it is the primary driving force behind weight loss in AN (Palmer, 2003; cf. section 4).

1.1. Desiring and valuing thinness

A natural view of dissatisfaction (towards the body, or any object) is as comprised of two mental states: a belief and a desire. To be dissatisfied with something is to believe it to be one way but desire it to be another. The desire aspect of body dissatisfaction is heavily emphasised in the literature on AN, as the condition is widely associated with a desire to be thin. However, there is little discussion of how best to characterise this desire. Here, I will discuss how the desire for thinness associated with AN is often underpinned by a belief about the value of thinness.

First, some caveats. Some with AN do not desire to be thin (Lee, 1995; Steiger, 1993). My focus here, however, is on those who do. Within this group, we can further distinguish between those with value-consistent and value-inconsistent desires. One's desires need not be consistent with their values. Someone who is determined to quit smoking may, at various points, desire to smoke a cigarette without valuing such behaviour. Some cases of AN might similarly involve value-inconsistent desires—to exercise, lose weight, avoid food, or be thin (Hope et al., 2011, p. 24). Nevertheless, many with AN not only desire thinness but value it:

> … in general it's the most important thing in my life. In comparison with relationships, it's much more important than that… (Tan et al., 2006, p. 11).

> Interviewer: What is the importance of your weight and body size to you?
> I just want to be thin.
> How important is that to you?
> Very.
> Why?
> It just is, it's all I want. (*ibid.*)

> Participant: It [losing weight] was the most important thing in my life at the time.
> What about things like, compared to say your physical health or your life or, you know, risk to life?
> I didn't care, as long as I lost weight, I didn't care about things like that. (Charland et al., 2013, p. 358)

These are the cases I will focus on, wherein those with AN desire and value thinness—and do so intensely. In such cases, we can understand why thinness is desired by understanding why it is valued.

Finally, I will adopt a cognitivist stance towards values, which assumes they are kinds of beliefs (van Roojen, 2018). According to this approach, to say that someone values thinness is simply to say that they believe thinness is valuable. Consequently, we can try to understand these problematic values in the same way that we try to understand other problematic beliefs.

1.2. Body size beliefs

Consider a few self-reported beliefs about body size from patients with AN:

> I am fat now at 49 kg … and I must lose 5 kg … to regain a normal weight (Konstantakopoulos et al., 2012, p. 483)
>
> I am not thin now at 42 kg … I do not need to gain any weight (ibid.)
>
> If I gain 2 kg and weigh 45 kg … I will have a pot belly and look awful (ibid.)

I will refer to beliefs like these as *evaluative* body size beliefs, as the relevant content takes an evaluative form, i.e., "fat", "not thin", "awful [looking]", [not] normal".

As the above quotes illustrate, it is not simply that those with AN believe they are overweight. Some believe that they are not thin or that if they gained even a small amount of weight, they would qualify as overweight. This is consistent with the diversity of weight loss behaviour. The problem is not always that those with AN continue to lose weight, but sometimes that they try to maintain a (dangerously) low weight.

As with thinness desires, there are important distinctions related to what sufferers of AN believe about their body size. First, not all diagnosed with AN hold beliefs like those above. To quote one such patient, "I've never thought that I was too fat. Actually, I've always seen that; gosh, I'm getting too thin now" (Espeset et al., 2011, p. 182). In such cases, the relevant beliefs about body size are not problematic, and we must turn to other ways to explain weight loss (section 4).

For those with evaluative body size beliefs, we can distinguish between ideal-consistent and ideal-inconsistent cases. In ideal-consistent cases, those with AN have yet to achieve (or surpass) their ideal body size. Such individuals believe that they are "not thin" or "fat" because, according to their standards, this is true. I will not address these cases here, wherein the problem appears to lie in the extreme ideals that these individuals adopt.[1]

My target here is ideal-inconsistent cases, wherein those with AN have already achieved (or surpassed) their ideal size yet believe they have not (Gadsby, 2022). Evidence of such cases comes from studies where participants report their ideal size by selecting from silhouettes representing different-sized bodies. When Moscone and colleagues (2017) compared the self-reported ideal size of their participants with AN against their actual size, they found that many had already surpassed their ideal (Moscone et al., 2017, p. 46). This suggests that some AN sufferers' claims of being "too fat" or "not thin" are inconsistent with their own standards. These are the cases which I will attempt to explain.

[1] An attractive explanation for such cases is that one's ideal body size shifts during weight loss (just as someone whose ideal income might shift as they earn more) (Hope, et al., p. 28; Schmidt & Treasure, 2006, p. 348).

2. Phenomenal evidence and body size beliefs

A puzzling feature of the body size beliefs associated with AN is that they appear entirely disconnected from the available evidence. Sufferers believe they are overweight and yet don't appear to possess evidence supporting such beliefs. Even more puzzling is that when clinicians, family, and friends provide evidence to the contrary, it has little effect. Indeed, many who suffer from AN struggle even to articulate why they hold the body size beliefs they do in the face of such overwhelming counter-evidence (O'Connell et al., 2018). One possible explanation is that those who suffer from AN are simply irrational—their beliefs are neither based on nor responsive to evidence. In contrast, I suggest we search for a particular kind of evidence. As I will illustrate, the nature of this evidence goes some way towards explaining this ostensible irrationality.

The relationship between beliefs and evidence is complex (Kelly, 2016), but drawing from the philosophical literature on this relationship is useful for understanding the problematic beliefs associated with mental disorders (Flores, forthcoming). Here, I will assume that how things *seem* or *appear* to us constitutes a form of evidence. This *phenomenal evidence* can take different forms. It can, for example, be perceptual (it seems as if a computer screen is in front of me) or intuitive (2 + 2 = 4 seems intuitively obvious) (Tucker, 2013, p. 1). Phenomenal evidence can guide us to the truth but also mislead us. In the Müller-Lyer illusion, for example, the two lines appear to be of different lengths, but that appearance is misleading.

We can usefully distinguish between *typical* and *idiosyncratic* phenomenal evidence. Phenomenal evidence is typical in cases where numerous people can generate similar evidence. The appearance of the Müller-Lyer illusion is typical in this sense: many (though not all) people can generate similar kinds of evidence under similar conditions. In contrast, idiosyncratic phenomenal evidence can only be generated by select individuals.

Cognitive neuroscientists have long argued for the importance of idiosyncratic phenomenal evidence for explaining certain kinds of problematic beliefs (Hohwy & Rosenberg, 2005). Consider the case of Capgras delusion, wherein sufferers believe that a loved one has been replaced by an impostor (Pandis et al., 2019). Cognitive neuroscientists hypothesised that Capgras involves a breakdown in the system responsible for autonomic responses to familiar faces. As a result, those with Capgras visually recognise their loved ones while lacking the usual feeling of familiarity (Ellis & Young, 1990). This unusual experience constitutes the evidence that grounds their belief. It is idiosyncratic in virtue of emanating from a unique form of neural dysfunction (for more examples, see Coltheart et al., 2010).

In what follows, I discuss three forms of misleading (but idiosyncratic) phenomenal evidence associated with AN, which may be responsible for evaluative body size beliefs.

2.1. Visual body comparison

In *visual body comparison* tasks, participants are presented with pictures of variously sized bodies and asked to judge whether the bodies are larger or smaller than their own. When faced with such tasks, participants with AN consistently misjudge their (comparative) size, reporting that bodies thinner than themselves are larger (Cornelissen et al., 2017). These tasks involve a form of visual recognition, wherein participants recognise a stimuli's property (body size) as matching that of a known property (their body size). Consequently, they rely on a mental representation of the known property (own body size) (Smeets et al., 1999). In the case of AN, evidence suggests that this representation is distorted, causing the observed visual misjudgements (Gadsby, 2017b).

While recognition of an object relies on visual comparison, we are typically unaware of any comparison taking place (Kosslyn, 1996, p. 126). It simply seems to us that the perceived body is larger or smaller than our own.[2] Visual judgments, therefore, generate an important form of phenomenal evidence, related to the comparative size of the perceived body and one's own (Gadsby, 2017a).

Visual body comparisons are not exclusive to experimental settings. Individuals with AN often compare their body size with others—especially their peers and those they judge as thin (Corning et al., 2006; Espeset et al., 2012; Hamel et al., 2012). This is likely exacerbated by in-patient treatment, as one patient describes:

> when you're in the in-patient … it's a very, very competitive erm environment to be in … I found myself watching other people and comparing with other people, you know, are they thinner than me? Am I thinner than them? (Higbed & Fox, 2010, p. 319)

Given what we know about the inability of those with AN to make accurate comparative judgments, this self-comparison generates misleading phenomenal evidence, "that body is thinner than mine". Consistent with this suggestion, some individuals with AN report being surprised at the comparative size of their (similarly-sized) peers:

> I know another girl with anorexia, we are exactly the same height and weight. But we both feel three times as big as the other. We have even taken pictures of ourselves. In fact, I feel three or four times as big as she is. (Espeset et al., 2011, p. 185)

> I just feel like they [other patients] look really thin and you know they look a bit ill. … I feel just massive next to them, and they're all small (Higbed & Fox, 2010, p. 318)

Such reports are to be expected from those who visually misjudge their comparative size.

Visual misjudgements produce misleading evidence regarding comparative body size. Such evidence could trigger beliefs about not being thin.

[2] This strikes me as more like intuitive, rather than perceptual, phenomenal evidence (more like it seeming as if 1+1=2, rather than it seeming as if the lines in the Muller-Lyer illusion are of different lengths). However, I take no principled stand on this issue.

2.2. Action judgments, proprioception, and the body model

When gaps are wide enough to accommodate our bodies, we walk through them without turning. The shoulder-to-gap ratio at which neurotypical people start to turn is roughly consistent; on average, they turn their shoulders when gaps are narrower than 1.3 times their body (Warren & Whang, 1987). In contrast, those with AN turn their shoulders at a significantly larger ratio, as if their bodies were wider (Beckmann et al., 2020; Keizer et al., 2013; Metral et al., 2014).

Differences in turning ratios between neurotypical individuals and those with AN can be explained with reference to a distorted mental representation of body size, which I will refer to as the *body model* (Longo & Haggard, 2010). Just as we rely on a mental representation of our body for visual comparisons, we rely on the body model to control our movements (Gadsby, 2019; Peviani & Bottini, 2018). As I will show, the body model not only facilitates movement but generates phenomenal evidence about body size, in two forms.

The first form of evidence stems from *action judgments*. We judge our ability to act by taking our motor system offline and employing the body model to simulate the relevant actions (Jeannerod, 2001). Consequently, people with AN not only move through gaps as if they were wider, but they judge their ability to do so as if they were (Engel & Keizer, 2017; Guardia et al., 2012; Guardia et al., 2010; Metral et al., 2014).

Just as visual body comparison generates phenomenal evidence regarding body size, so do action judgments. When one misjudges their ability to act, this provides misleading phenomenal evidence regarding their body size. Judging that you cannot fit through a gap is evidence that your body is wider than that gap. This can reinforce problematic beliefs about body size if, for example, the gap is of a size that an ideal body ought to be able to fit through.

As with visual body comparisons, action misjudgements occur in various everyday contexts. For example, when passing through crowded or cluttered environments, choosing which chair to sit on, or shopping for clothes. Indeed, when shopping for clothes, "many sufferers of AN [are] surprised to discover that they can wear an even smaller size than they anticipated" (Casper et al., 1979, p. 60). Action misjudgements explain this observation.

Close your eyes and focus on your body. In doing so, you should have a (rough) sense of your bodily boundaries. This experience of bodily boundaries is mediated by the body model. If your body model represents you as larger, you will experience yourself as such. Consistent with this, many sufferers of AN report misleading proprioceptive experiences of body size:

> I feel huge. I feel so goddamn fat … I feel like a big blob … It feels like I'm overflowing. (Wooldridge, 2018, pp. 196-197)

> I feel fat all day long. I feel fat and fat rolls all over my body, and especially after I eat something it feels as if my face, stomach and legs are blown up (Keizer, 2014, p. 10).

> … something happens when I eat. It feels as [if] my thighs immediately expand (Nordbø et al., 2012, p. 64)

Such reports, I have argued, are attempts to describe instances of proprioceptive misperception of body size, induced by body model distortion.[3] This represents another form of misleading phenomenal evidence regarding body size.

2.3. Some notable epistemic features

The three forms of phenomenal evidence introduced can ground and reinforce false beliefs about body size. As such, they offer a potential explanation for why sufferers of AN falsely believe that they are larger than their ideal size. I will finish by noting a few important epistemic features of this evidence.

Phenomenal evidence triggers a *pre-potent doxastic response*: when exposed to such evidence, we automatically endorse it as belief (Davies et al., 2001). This response can be inhibited, but this only occurs under certain conditions. The first condition is when phenomenal evidence is implausible. We do not endorse phenomenal evidence that contradicts the laws of physics, for example. Implausibility generally triggers attempts at *reality testing*, wherein one employs alternative methods to ascertain the truth (cf. Hohwy & Rosenburg, 2005). The second condition is possession of *undercutting evidence*, which undermines the link between evidence and belief. If one knows that they are under the influence of hallucinogens or are watching a magic show, then they might inhibit the automatic endorsement of the phenomenal evidence generated in these contexts.

Whether the aforementioned forms of evidence are endorsed or trigger inhibition of the prepotent doxastic response depends on their plausibility and relationship to undercutting evidence. Those who suffer from AN possess no undercutting evidence to undermine their visual comparisons, action judgments, or proprioception. Their doxastic response would, therefore, not be inhibited for this reason.

Visual comparisons and action misjudgements convey evidence related to others being thinner than oneself or being unable to carry out an action. In most cases, such evidence is plausible: there is nothing prima facie unusual about seeing someone thinner or being unable to fit through a gap. As such, this evidence would not trigger inhibition on the grounds of implausibility. Some instances of proprioceptive misperception are undoubtedly implausible. For example, when someone with AN experiences their thighs expanding immediately after eating (Nordbø et al., 2012, p. 64). However, if the body models of those with AN misrepresent them as larger, then this would generate many

[3] While I assume that these forms of proprioceptive misperception stem from distortion of the body model, there are other possible explanations. For example, proprioception misperception might involve a kind of spontaneous mental imagery (Gadsby, 2017c) or stem from a shift in the form of awareness that is directed at the body (Bowden, 2012). Neither of these alternative hypotheses assumes a change in stored representational content.

subtler instances of proprioceptive misperception, representing the body as only marginally larger. Subtler pieces of evidence, like these, are plausible and therefore likely to be endorsed.

The second thing to note relates to the amount of misleading phenomenal evidence. Comparing oneself to one's peers, assessing one's possibilities for action, and proprioceptively attending to one's bodily boundaries are pervasive features of everyday life. If these activities generate misleading evidence, they generate a considerable amount of it. Contrary to the suggestion that the body size beliefs associated with AN are based on no evidence, they may be based on a significant amount of it.

Finally, note that most of the phenomenal evidence discussed is not only plausible but what we might call *unremarkable*. Unremarkable evidence nudges our beliefs without drawing our attention. In such cases, we can hold beliefs without recalling the evidence that induced them (Gadsby, 2023). To illustrate, consider the belief: "I am not as fit as I used to be". Many hold such a belief. Some might recall when and how they formed it: a sudden realisation when timing oneself on a five-kilometre run, for example. For others, this belief stems from consistent exposure to various pieces of unremarkable evidence: heavier breathing when walking up some steps, clothes feeling tighter at various points in the day, and so on. In such cases, one may be able to articulate why their belief is true but not why they believe it. The misleading phenomenal evidence associated with AN appears similarly unremarkable. All of us (neurotypical and neurodivergent alike) are exposed to evidence in these forms: proprioceptive awareness of our bodily boundaries and judgments of being larger than others or unable to carry out certain actions. We rarely take notice—such evidence is too mundane. The unremarkable nature of such evidence may explain why those with AN struggle to explain why they believe as they do. Over time, their beliefs about being overweight have been subtlety nudged and reinforced from consistent exposure to unremarkable evidence, in ways they barely notice, let alone recall. This is, of course, a speculative hypothesis, but one that merits attention.

3. Motivated cognition and the value of thinness

3.1. Valuing thinness as a worldview

In this section, I focus on beliefs about the value of thinness. A common assumption is that those with AN value thinness because it is equated with beauty. Many clinicians and patients, however, reject this characterisation. To quote one patient, "[it is] less like, well there's a model, a skinny model in a magazine … so you just wanna' be like them … I don't agree with that at all. I think that completely trivialises it" (Holmes et al., 2017). When queried about their reasons for valuing thinness, patients offer a range of justifications. For example, thinness represents accomplishment, self-worth, uniqueness, and moral superiority, while fatness represents worthlessness, laziness, and failure (Bruch, 1978; Tan et al., 2006; Vitousek et al., 1998; Wolf & Serpell, 1998). An account of thinness values should ideally explain why patients associate body size with such properties. This is what I will attempt.

One possible explanation for thinness values refers to cultural transmission: sufferers of AN believe that thinness is valuable because that is a dominant cultural ideal, transferred to them through mediums like advertising, social media, and peer interactions (Tiggemann, 2011). However, thinness being more valuable than life itself is not a widely held cultural value and it is difficult to see how contemporary media landscapes could transmit such a value. Clinical testimony also suggests that thinness only becomes valued with such intensity at later stages of the disorder (Vitousek et al., 1998, p. 393). While cultural transmission plausibly explains why those with AN initially value thinness, it struggles to account for this shift in intensity.

Intensely valuing thinness is highly consequential. For example, it prescribes a way in which to evaluate other things (i.e. as comparatively meaningless). To quote one patient, "...the main priority, is losing weight and so when you don't value anything else, you don't attribute meaning to anything else" (Keeler et al., 2022, p. 8). Intensely valuing thinness also dictates a large proportion of one's behaviour, as those with AN structure much of their daily activities in pursuit of this goal. In this way, valuing thinness can be understood as an integral feature of a *worldview*—a set of core beliefs that shape how the world is understood and evaluated and prescribe behaviours to be pursued.[4] Thinness values are not simply problematic beliefs but integral features of problematic world views.

To better understand why those with AN are unwilling to abandon a view of the world that fiercely prioritises thinness, we can draw insights from research on *motivated cognition* (Kunda, 1990). Motivated cognition theory claims that we are attracted to beliefs (and worldviews) for the benefits that they provide (Bénabou & Tirole, 2016; Sharot & Sunstein, 2020). Consider the superiority bias, our widespread tendency to overestimate our positive attributes (such as intelligence or attractiveness) in relation to our peers (Taylor & Brown, 1988). While inaccurate, such beliefs bestow various benefits, for example, increasing self-motivation and helping to persuade others that one possesses such attributes (Taylor & Brown, 1988; Williams, 2021). Consequently, beliefs about our superiority are valuable.

According to the motivated cognition framework, the more valued a belief, the more intransigent it becomes. People cling to their valued beliefs, in part, by dismissing, ignoring, and explaining away counter-evidence (Bénabou & Tirole, 2016), which is precisely what clinicians encounter when trying to challenge the worldviews of their clients with AN (Vitousek et al., 1998). To understand thinness values through the lens of motivated cognition, we must first ask what benefits they provide.

3.2. Complexity reduction (and other benefits)

People are attracted to beliefs that reduce the perceived complexity of the world (Chater & Loewenstein, 2016; Sharot & Sunstein, 2020; Wojtowicz et al., 2022). This insight can

[4] While I have attempted to put this claim in theoretically neutral terms, it is similar to Charland and colleagues' (2013) proposal that AN should be characterised as a *passion*, involving an enduring pursuit of thinness that organises and determines a broad range of feelings, emotions, cognitions, and motivations.

help to understand the attraction to problematic worldviews. Nguyen (2021), for example, applies it to conspiracist worldviews. Specifically, he focuses on the worldview espoused by the American conservative political commentator Rush Limbaugh, known for promoting politically divisive conspiracy theories. Drawing from research by Jamieson and Cappella (2008), Nguyen notes that "Limbaugh presents a world of sharply divided forces locked in a life-or-death struggle. There are no onlookers or reasonable moderates" (p. 242). This worldview bears considerable complexity-reducing benefits:

> Once his world-view is accepted, difficult-to-categorize actions suddenly become easily categorized. Previously hard-to-explain facts – like the existence of substantive moral disagreement between apparently sincere people – suddenly become easily explicable in terms of a secret war between good and evil. … The conspiracy theory offers a ready and neatly unified explanation for all sorts of behavior. And those explanations are easy to create. The world suddenly becomes more intellectually manageable (Nguyen, 2021, p. 243)

According to this suggestion, the attraction to (some) conspiracist worldviews stems from their complexity-reducing nature.[5]

We are generally oblivious to the benefits of certain beliefs. Nevertheless, first-person reports are indispensable for understanding these benefits. Those with AN often become aware of the benefits that their worldviews bestow, without realising that those benefits drive their beliefs. Even in cases where patients with AN cannot recognise such advantages, clinicians and family members often can, rendering third-party testimony another valuable resource.

The hypothesis that sufferers of AN are attracted to their worldview because of its complexity-reducing benefits is consistent with various reports. As the clinician Craig Johnson, remarks "anorexia nervosa is about making everything small again and reducing the complexity of everything" (Arnold, 2012, p. 66). Or, as one former patient describes:

> When I would get into the eating disorder … it was also a way to rapidly decrease any complexity that I had because it didn't matter. It was totally extraneous to what am I going to eat, when am I going to exercise, and how much do I weigh
> …
> Interviewer: You made yourself small by essentially organising yourself around the rules of anorexia nervosa
> …
> Yes … My first psychiatrist told me, 'When you have too much on your plate metaphorically, you make sure you have too little on your plate literally' (Arnold, 2012, p. 66)

[5] Of course, this will not apply to all conspiracy theories, which often portray the world as vastly more complex than it appears. It is most relevant for world views that simplify complex events into manifestations of an overarching theme: a struggle between right and wrong.

The association between AN and complexity reduction was most carefully explored by Vitousek & Holton (1990), who described the "cognitive structures" associated with eating disorders as:

> [providing] a clear template for evaluating daily experience; [prescribing] a simple set of rules for seeking safety and avoiding danger; [and reducing] the complexity of formulating attributions about the past and expectations for the future (p. 193)

In interviewing several current and former eating disorder sufferers about the "cognitive essence" of their disorders, they further note:

> although each nominated some contributing factors not shared by the group as a whole, every one implicated the 'simplification of life' as a major component of her disorder. (p. 206)

Testimony from patients, clinicians, and researchers converges on the idea that the worldview associated with AN functions to reduce complexity. Interestingly, patients' testimony also gestures at a reason why they might be especially attracted to world views with this feature:

> My anorexia was there when everything else seemed unpredictable, excessive, in a frantic state. Its austerity, its plain, straightforward and concrete nature infused the unsure with something safe—it served as a channel to something more basic, minimalist, uncluttered, pure. … I think my anorexia helped to restore some order and direction to my life, and return to something more wholesome when my environment seemed overwhelming with endless choices. It assisted me in having not to choose. It was like a static, uncluttered refuge within me. (Skårderud, 2007, p. 168)

> I well remember when I became sick, the world was difficult, it was full of perhapses; perhaps Mum and Dad were going to divorce, perhaps we were moving . . . and I was just supposed to stand there and be too little to understand anything. Everything was just DOUBLE. At the same time everything gradually became chaos; nothing fitted; things weren't the way I saw them, they said. I found the world difficult … When I got anorectic, I felt safer. … At last I'd found a way of bringing order to a world that had been nothing but chaos. (*ibid.* 170)

These reports suggest that many with AN represent difficult or traumatic experiences as highly complex and uncertain. Their thinness valuing worldview grants them a reprieve.

The idea of complexity reduction can help to explain some of the affective benefits associated with AN patients' world view, wherein they experience "safety, comfort, and psychological ease when engaging with thoughts consistent with [eating disorder] maintenance" (O'Connell et al., 2018, p. 6). There is a large body of literature focused on the pleasure of understanding (for example, in so-called "aha" experiences) (Van de Cruys et al., 2023; Van de Cruys et al., 2021). Perhaps, then, patients derive comfort from

their worldview because it replaces the unpalatable complexity of the world with a pleasurable sense of understanding.

We can draw some connections between this account and a long-standing explanation of schizophrenia. In the *prodromal* phase of schizophrenia, random things— e.g. the patterns of colour on the front doors of houses (Chadwick, 2007) or the fifth lamp-post along a street being unlit (Sims, 1988)—become highly salient. This phase is both overwhelming to the senses and "fraught with dread, anxiety and a sense of uncertainty" (Ritunnano et al., 2022, p. 4). According to one explanation, the delusional beliefs associated with schizophrenia are formed in response to this unsettling experience (Conrad, 1958; Jaspers, 1997). For example, in the case of the pattern of colours on doors, the relevant belief could be that a secret organisation is trying to communicate with oneself (Chadwick, 2007). Forming such beliefs helps to alleviate anxiety and re-establish a sense of understanding the world (Ritunnano et al., 2022). Perhaps, then, valuing thinness plays a similar role in AN, albeit in response to traumatic experiences in early childhood, which are perceived as overwhelmingly complex.

I will finish with two more insights regarding the benefits of valuing thinness. A long-standing view of AN is as a disorder of control, wherein sufferers lose weight to establish control (Slade, 1982). This is related to a common feature of the thinness-valuing worldview: the belief that thinness is a comprehensive solution to life's problems. As Bruch describes (1978, p. 145) "[sufferers] feel that in extreme thinness they have found the perfect solution to their problems", or as a patient puts it, "thinness will fix everything" (Williams & Reid, 2010, p. 558). Simple worldviews prescribe simple rules for action, which, in this case, involve weight loss. Given that weight is a domain that patients see as ultimately under their control (Higbed & Fox, 2010, p. 315), worldviews that reduce problems to this domain provide a sense of control. The worldview associated with AN delivers a sense of control by reducing life's perplexing and intractable problems to a transparent and manageable domain of action.

The second point pertains to how individuals with AN identify with their worldview. Over the course of the disorder, those with AN often start to incorporate valuing and pursuing thinness into their identity (Bryant et al., 2022; Hope et al., 2011; Nordbø et al., 2006; Schiff, 2022).[6] This relates to a critical insight from the motivated cognition framework: people are especially attached to and protective of beliefs associated with their social identity (Kahan, 2017). Identity protection represents another benefit that, via the mechanisms of motivated cognition, may help maintain these worldviews.

3.3. Explanatory benefits of the motivated cognition account

In this section, I will illustrate how the motivated cognition account explains the associations between thinness and positive attributes, the shift in how extremely thinness is valued, and the attraction of Pro-Ana communities.

[6] Identifying with AN is often conceptualised as identification with the disorder itself. However, when discussing how they identify with their disorder, many patients specifically note that they identify with pursuing, valuing, and being thin (rather than having AN) (Bryant et al., 2022).

People strive to protect their valued beliefs. They do so by dismissing counter-evidence but also by generating *rationalisations* for the beliefs (Schwitzgebel & Ellis, 2017; Williams, 2022). This suggests an explanation for why sufferers of AN associate thinness with extreme positive attributes like self-worth and moral superiority. Such associations do not cause them to value thinness—they value thinness for the benefits provided by the associated worldview—but instead function to rationalise thinness being valuable and therefore protect the associated worldview. Of course, this is unlikely to explain all cases, and there are undoubtedly other complicating factors (culture being one). Nevertheless, this provides an attractive hypothesis for the extreme associations between thinness and positive attributes that patients with AN report.

The motivated cognition account also explains the shift in how intensely thinness becomes valued by sufferers of the disorder. Those with AN strengthen their valuing of thinness as the associated worldview generates benefits. As they experience the world through a new lens, the perceived complexity of it reduces, and they accrue other benefits, such as a sense of control and identity. As these benefits are realised, their worldview is more highly valued, and, in turn, they strive to strengthen and protect it by generating rationalisations (see above), along with other strategies (see below).

In Pro-Ana online communities, people with AN gather to share their opinions regarding the positive aspects of the disorder (Gavin et al., 2008). While participation in these communities provides various overt advantages, such as knowledge about weight loss techniques, emotional support, and a sense of belonging (Osler & Krueger, 2021), the motivated cognition framework suggests two additional advantages.

The first advantage is a source of rationalisations for valuing thinness. Those seeking to protect and reinforce their motivated beliefs not only generate rationalisations but also seek out communities of like-minded individuals to provide such rationalisations (Williams, 2022). Participation in Pro-Ana communities may serve this function, providing rationalisations for valuing thinness and the associated worldview.

The second advantage is a source of evidence that thinness is valuable. Beyond generating rationalisations, motivated cognisers seek out evidence that confirms and strengthens their valuable beliefs (Bénabou & Tirole, 2016). If others believe that thinness is valuable, then this constitutes evidence that thinness is indeed valuable. Therefore, one can collect such evidence by seeking out individuals who also value thinness. This is consistent with the observation that projecting the value of thinness is a crucial feature of such communities:

> many posts and comments do not simply disavow or deny the potential risks of extremely restrictive eating practices. Rather, they see the end result as worth it — they hold thinness, control, and self-discipline as more important than the associated health risks. … the content of ProAna sites … [promotes] a set of epistemic values, beliefs, and practices that its members subscribe to. (Osler & Krueger, 2021, p. 886)

These two hypotheses regarding the advantages of pro-Ana forums unlock new opportunities for research into why sufferers of AN participate in these communities.

4. Closing remarks on explanatory scope

In this section, I address the explanatory scope of the preceding account for weight loss behaviour in AN.

Many researchers have proposed explanations for weight loss in AN that refer neither to body dissatisfaction nor problematic beliefs. For example, the cognitive-interpersonal maintenance theory claims that weight loss functions as a form of direct emotion regulation (Schmidt & Treasure, 2006). Similarly, Varga and Steglich-Petersen (2023) have recently suggested that a recalcitrant fear of being overweight (or gaining weight) might drive weight loss behaviour in the absence of any belief that one is overweight (and perhaps even in the absence of a desire to be thin; p. 11). Other researchers argue that while weight loss is initially driven by body dissatisfaction, it is maintained habitually (Steinglass & Walsh, 2006; Walsh, 2013).[7] According to this model, food restriction is a 'bottom-up' process … requiring minimal, if any, conscious effort" (Coniglio et al., 2017). Finally, AN has long been associated with a need for control, so much so that Slade (1982, p. 172) remarked that "a far more apt label [for AN] would probably be that of pathological self and bodily control" (cf. Branley-Bell et al., 2023). A need for control may operate in conjunction with body dissatisfaction, wherein being thin is represented as being in control. However, it may independently drive weight loss by manifesting as a need to control one's eating or weight, which need not involve body dissatisfaction (Fairburn et al., 1999, p. 4).

Phenomenologists argue that to understand AN, we should focus on the kinds of experiences (rather than cognitive states) involved. In doing so, they have proposed several novel forms of bodily misperception associated with AN, for example, claiming that those with AN experience their bodies as *object-like* and *alien* (Bowden, 2012) or *noisy* and *disruptive* (Osler, 2021). Phenomenologists generally downplay the role of body dissatisfaction (or any cognitive state) in driving AN. However, their accounts might help explain some cases of body dissatisfaction, albeit without reference to problematic beliefs. For example, those with AN might desire to reduce their body size not because they value thinness but because they experience their bodily presence as unbearably distressing (in virtue of its alien-like or disruptive nature). Consistent with this proposal, many with AN complain not about the dimensions of their body but about it taking up too much space (Bryant et al., 2022). For these individuals, their desire to be thin may stem from a desire to alleviate the aversive experience of their own bodily presence.

How many cases of AN can be explained without reference to body dissatisfaction or problematic beliefs? This is an open question that will only be resolved by empirical evidence. There is, however, an important methodological lesson to draw here, which can be illuminated with a brief look at the history of research into the disorder.

[7] For an illuminating discussion of the relationship between this model and the sense of agency, see Evans (2022).

While body dissatisfaction is currently the dominant theoretical framework, psychoanalysis reigned throughout the 1940s and 1950s. According to the psychoanalysts of the time, "anorexia nervosa was clearly a painful re-enactment of the infantile relationship with mother and father" (1988, p. 225). This assumption shaped the questions clinicians asked their patients and the answers they accepted as legitimate. As a result, clinical reports became filled with symbolic interpretations of different foods, for example, "chocolate (feces), sausages (phallus), and almonds (testicles)" (*ibid.*). This interpretation was so dominant that, as the clinician Bruch (1974, p. 217) frustratedly noted, important symptoms were overlooked due to the emphasis on "the symbolic significance of food, the fear of oral impregnation, incestuous involvement, and the like" (see also: Bruch, 1994, p. 37).

As researchers and clinicians became aware that body dissatisfaction was a viable explanation for weight loss, theories that referenced this factor gradually replaced those using psychoanalytic vocabulary (Habermas, 1989). The way psychoanalysis shaped (and distorted) our understanding of AN patients' symptoms bears an important lesson for contemporary researchers focusing on body dissatisfaction and problematic beliefs. We should take care not to allow the theoretical dominance of our perspective lead to overextending its application (Gutiérrez & Carrera, 2016). We should remain open to alternative explanations like those listed above.

While it is plausible that, like the psychoanalysts in their time, we have overestimated the explanatory scope of body dissatisfaction, we should also be wary about making the opposite mistake: underestimating it. Some appear to be heading in this direction. Varga and Steglich-Petersen (2022), for example, suggested recently that the ascription of problematic beliefs may only be appropriate in a few "relatively rare" cases (p. 11).

I suspect the explanatory scope of any account that does not posit body dissatisfaction and (some form of) problematic belief is limited. Many who suffer from AN report being dissatisfied with their body size (Stice & Shaw, 2002), valuing thinness (Tan et al., 2006; Vitousek et al., 1998), and believing that their bodily dimensions are of a size that is larger than their actual dimensions (Mölbert et al., 2017). There are reasons why patients with AN might misreport such attitudes (Vitousek et al., 1991). However, these reasons cast equal doubt on the reports of those who claim not to hold the relevant attitudes (Thomas et al., 2013; Vitousek et al., 1991). More importantly, while there are potential motives for misreporting body dissatisfaction, we do not yet have evidence that patients are, en masse, doing so. Until we possess such evidence, we ought not to dismiss their testimony. We should take these individuals at their words and accept that they hold the relevant attitudes. If they do, then the simplest and most plausible explanation of weight loss behaviour refers to such attitudes.

5. Conclusion

I characterised body dissatisfaction in AN in terms of beliefs about body size and the value of thinness. I then suggested an explanation for both kinds of beliefs. Regarding body size beliefs, I argued that certain forms of idiosyncratic phenomenal evidence

ground them. Regarding beliefs about the value of thinness, I argued that they are maintained for their benefits.

Many important facets of body dissatisfaction have been left out of this discussion, most notably its affective dimension (Charland et al., 2013). The desire for thinness and dissatisfaction with the body associated with AN are unusual in virtue of the intense and protracted forms of negative affect involved, such as the fear of weight gain (Varga & Steglich-Petersen, 2023). A complete account of body dissatisfaction ought to explain this affective dimension.

One implication of the preceding discussion regards the importance of first-person reports in understanding AN. Idiosyncratic phenomenal evidence cannot be generated by others and therefore can be challenging to identify as the source of misbelief. The best clues we have for understanding where this evidence stems from and how it misrepresents the world is through patients' descriptions of their experiences. Researchers ought to pay close attention to such descriptions and, in turn, use them to design methods for further probing the extent, nature, and role of this phenomenal evidence. First-person reports are also indispensable for understanding the benefits associated with the thinness-valuing worldview and why those benefits would be attractive to those who suffer from AN. While this paper is not the first to emphasise the importance of lived experience in understanding AN, it reinforces this importance.

To finish, I return to a point made in the previous section. AN is an overwhelmingly complex and causally heterogeneous disorder. It is unlikely that body dissatisfaction drives weight loss in all cases, and, for those cases where it does play a role, there are other contributing factors to consider. Furthermore, idiosyncratic phenomenal evidence and motivated cognition may not explain all cases of AN-related body dissatisfaction. Just as a piecemeal approach to researching AN is required, a piecemeal approach to researching body dissatisfaction is also. That said, given what we know about the extent of misleading phenomenal evidence associated with AN and the benefits bestowed by valuing thinness, focusing on these features represents a fruitful approach towards explanation and treatment.

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