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Understanding the ‘Anorexic Voice’ in Anorexia Nervosa

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## 1 Abstract

2 In common with individuals experiencing a number of disorders, anorexia nervosa  
3 sufferers report experiencing an internal ‘voice’. The anorexic voice comments on the  
4 individual’s eating, weight and shape, and instructs the individual to restrict or compensate.  
5 However, the core characteristics of the anorexic voice are not known. This study aimed to  
6 develop a parsimonious model of the voice characteristics that are related to key features of  
7 eating disorder pathology, and to determine whether anorexia nervosa patients fall into  
8 groups with different ‘voice’ experiences. The participants were 49 women with full  
9 diagnoses of anorexia nervosa. Each completed validated measures of the power and nature  
10 of their voice experience, and of their responses to the voice. Different voice characteristics  
11 were associated with current body mass index, duration of disorder, and eating cognitions.  
12 Two subgroups emerged, with ‘weaker’ and ‘stronger’ voice experiences. Those with  
13 stronger voices were characterised by having more negative eating attitudes, more severe  
14 compensatory behaviours, a longer duration of illness, and a greater likelihood of having the  
15 binge-purge subtype of anorexia nervosa. The findings indicate that the anorexic voice is an  
16 important element of the psychopathology of anorexia nervosa. Addressing the anorexic  
17 voice might be helpful in enhancing outcomes of treatments for anorexia nervosa, but that  
18 conclusion might apply only to patients with more severe eating psychopathology.

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## 20 Key practitioner message:

- 21 • Experiences of an internal ‘anorexic voice’ are common in anorexia nervosa.
- 22 • Clinicians should consider the role of the ‘anorexic voice’ when formulating eating  
23 pathology in anorexia nervosa, including how individuals perceive and relate to that  
24 voice.

- 1       • Addressing the ‘anorexic voice’ may be beneficial, particularly in more severe and  
2       enduring forms of anorexia nervosa.
- 3       • **10.** When working with the anorexic voice, clinicians should aim to address both the  
4       content of the voice and how individuals relate and respond to it.

5       Keywords: Anorexia nervosa; anorexic voice; body mass index; duration; eating attitudes

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## 1 Understanding the 'Anorexic Voice' in Anorexia Nervosa

2 There are frequent references to the construct of the 'anorexic voice' in the clinical  
3 literature on anorexia nervosa (Higbed & Fox, 2010; Williams, King & Fox, in press). 1. In a  
4 similar way to pseudo-hallucinations (Hare, 1973; Jaspers, 1963), this voice is most often  
5 perceived as internally-based rather than externally-generated, albeit alien to one's sense of  
6 self. As opposed to more typical thoughts, the anorexic voice is usually described as a second  
7 or third person commentary on actions and consequences relating to eating, weight and  
8 shape. In addition, the anorexic voice is often described in relational terms, in that individuals  
9 report negative and positive interactions with their voice. Similar 'voice' phenomenon are  
10 widely recognised in other non-psychotic disorders, including obsessive-compulsive disorder,  
11 post-traumatic stress disorder, and emotionally unstable personality disorder (Brewin & Patel,  
12 2010; Gangdev, 2002; Hepworth, Ashcroft & Kingdon, 2013). In anorexia nervosa, the voice  
13 is described as primarily critical (e.g., of body size and shape), and as providing the  
14 individual with messages about the importance of engaging in anorexic behaviours (e.g.,  
15 restriction, compensation) and avoiding external pressures to eat more normally (Tierney &  
16 Fox, 2010; Williams & Reid, 2012). As such, the anorexic voice might be seen as an  
17 important factor in maintaining the disorder (Pugh & Waller, in press). Early studies (e.g.,  
18 Tierney & Fox, 2010) have detailed how the voice can change characteristics according to the  
19 context – beginning by being beguiling during the development of the anorexia nervosa (e.g.,  
20 praising the sufferer for losing weight), and then becoming more insistent and threatening if  
21 the individual or others make efforts to overcome the disorder.

22 Given the complexity of engaging anorexia nervosa patients in active change towards  
23 recovery and the attendant low remission and recovery rates, understanding the anorexic  
24 voice might provide therapeutic direction (Pugh, 2016). However, while interventions have  
25 been designed to target the anorexic voice (Dolhanty & Greenberg, 2009; Maisel, Epston &

1 Borden, 2004; Mountford & Waller, 2006; Schaefer, 2004), their effectiveness is yet to be  
2 established. 1. Experiences of the anorexic voice have also attracted some criticism, including  
3 difficulties distinguishing this phenomenon from other cognitive events such as negative  
4 automatic thoughts and overvalued beliefs regarding the shape and weight (Pugh, 2016).  
5 Whilst these issues warrant clarification, preliminary studies indicate that individuals are able  
6 to discriminate voice-related experiences from other types of cognition such as a self-  
7 criticism (Noordenbos, Aliakbari & Campbell, 2014). Alternatively, it has been argued that  
8 attempts to parse different types of voice experience may lack validity, as demonstrated by  
9 previous studies failure to prove such distinctions (Moskowitz, Corstens & Kent, 2012).

10 It is generally accepted that hearing voices is a common experience across  
11 psychopathologies. A key lesson from the psychosis literature is that it is necessary to  
12 understand the qualities of the anorexic voice from a multi-dimensional perspective, as the  
13 experience of the voice and the individual's responses to it can each have different impacts  
14 on how pathology and distress are maintained or ameliorated (Romme & Escher, 1989). A  
15 number of characteristics of the voice are critical to psychotic experiences, including its  
16 power (Birchwood, Meaden, Trower, Gilbert & Plaistow, 2000) and its perceived nature. Key  
17 elements of the nature of the voice include its levels of benevolence, malevolence and  
18 omnipotence (Chadwick & Birchwood, 1994). However, the impact of voices can also be  
19 maintained by the individual's responses to them. Such responses can include fighting,  
20 escaping or surrendering to the voice (Gilbert, Birchwood, Gilbert, Trower, Hay, Murray,  
21 Meaden, Olsen & Miles, 2001). There is some preliminary evidence that these characteristics  
22 might be relevant to the eating disorders (Tierney & Fox, 2010; Williams et al., in press).

23 Although the anorexic voice appears to differ from the psychotic hallucinatory  
24 experiences observed in schizophrenia, it is possible that the same voice characteristics are  
25 relevant to anorexia nervosa. However, the literature to date does not allow us to determine

1 the role of these characteristics in the aetiology, maintenance or treatment of anorexia  
2 nervosa. Is the anorexic voice most strongly related to the power of the voice, to the nature of  
3 the voice, to the ways in which the individual responds to it, or to a combination of the three?

4 This exploratory study will determine the voice characteristics that are most strongly  
5 associated with the pathology of anorexia nervosa. The first aim is to determine the most  
6 parsimonious model of the voice characteristics and responses that are associated with key  
7 aspects of anorexia nervosa – body mass index (BMI), eating cognitions and attitudes, eating  
8 behaviours, and duration of the disorder. The second aim is to determine whether anorexia  
9 nervosa patients fall into distinct ‘types’, as defined by voice characteristics and responses,  
10 and whether those ‘types’ are validated by their anorexia nervosa characteristics.

## 11 Methods

### 12 Ethical Approval

13 The project received approval from a UK National Health Service Research Ethics  
14 Committee.

### 15 Participants

16 The participants were 49 adult female patients with full ICD-10 diagnoses of anorexia  
17 nervosa (World Health Organisation, 1992), recruited from a public health service eating  
18 disorders clinic. Eighteen met criteria for the binge-purge subtype, and 31 for the restrictive  
19 subtype. Their mean age was 23.3 years (SD = 10.1, range = 18.7), and their mean BMI was  
20 16.0 (SD = 1.46; range = 12.0-17.5). 11. The mean duration of their eating disorder was  
21 approximately seven years (SD = 76.9). Three-quarters of the sample were of Caucasian  
22 ethnicity.

### 23 Measures and Procedure

24 The patients completed four self-report measures, at assessment or during treatment  
25 with the service. All were interviewed by experienced clinicians at the time of participation to

**Comment [GW1]:** Seriously? 77 years?  
Is this meant to be months, by any chance?  
Convert if it is, as it should be in years (just  
divide by 12, obviously)

1 confirm their diagnosis (using ICD-10 criteria) and self-reported length of illness (continuous  
2 time period with a diagnosis of anorexia nervosa to the point of interview). 2. Their weight  
3 and height were also recorded using mechanical scales. Any uncertainty about diagnosis or  
4 duration of illness was resolved through team discussion and review of case file notes.

5 **Eating Disorder Examination Questionnaire** (EDE-Q, version 6; Fairburn, 2008).  
6 The EDE-Q is a 28-item self-report measure of eating pathology, which addresses eating  
7 disorder cognitions (weight concern, shape concern, eating concern, dietary restraint –used to  
8 produce a global score) and reported frequency of eating disorder behaviours. 13. For the  
9 current study, only the frequency of disordered eating behaviours and the global attitudinal  
10 score were used. The EDE-Q has been shown to have acceptable psychometric properties,  
11 though its subscales do not always map onto factor analyses of the measure (e.g., Allen,  
12 Byrne, Lampard, Watson & Fursland, 2011).

13 **Voice Power Differential Scale** (VPDS; Birchwood et al., 2000). The VPDS is a  
14 seven-item self-report questionnaire, which measures the subjective power and dominance of  
15 voices. Higher scores indicate greater voice power. The measure was adapted for the current  
16 purposes by replacing ‘voices’ with ‘anorexic voice/thoughts’. The VPDS has acceptable  
17 psychometric properties in schizophrenic patients (Birchwood et al., 2000), and has adequate  
18 internal consistency in patients with anorexia nervosa (Pugh & Waller, in press).

19 **Beliefs About Voices Questionnaire-Revised** (BAVQ-R; Chadwick, Lees &  
20 Birchwood, 2000). The BAVQ-R is a 35-item self-report questionnaire, which measures  
21 beliefs about voices (benevolence, malevolence, omnipotence) and responses to them  
22 (engagement and resistant responses). Only the beliefs scales were used in this study.  
23 Benevolence refers to beliefs that voices are helpful, malevolence refers to beliefs that voices  
24 are persecutory, and omnipotence relates to experiencing the voices as controlling. Higher  
25 scores indicate greater levels of that voice characteristic. The BAVQ-R was adapted for this

1 study by changing the term ‘voices’ to ‘anorexic voice’. The BAVQ-R has demonstrated high  
2 internal consistency in previous anorexic voice research (Noordenbos et al., 2014; Pugh &  
3 Waller, in press).

4 **Fight, Flight and Entrapment to voices Scale** (FFES; Gilbert et al., 2001). The  
5 FFES is a 20-item questionnaire, which measures intrapersonal response styles to voices  
6 (‘fighting back’ against voices; ‘escaping’ from voices; ‘feeling entrapped’ with voices).  
7 Higher scores indicate greater use of a response style. The questionnaire was extended to  
8 include five additional items measuring a ‘defeated’ responses to voices (e.g. “I have given  
9 up struggling against my voices”). The measure was further adapted for this study by  
10 changing the term ‘voices’ to ‘anorexic voice/anorexic thoughts’. The original FFES has  
11 acceptable psychometric properties (Gilbert et al., 2001). In this study, the four scales each  
12 had adequate internal consistency: ‘Fighting back’ – Cronbach’s alpha = .797; ‘Escaping’ –  
13 alpha = .840; ‘Feeling entrapped’ – alpha = .865; and ‘Defeated’ – alpha = .819.

#### 14 **Data Analysis**

15 To address the first aim, three multiple regression analyses (simultaneous entry  
16 method) were used, 3 with the eight voice characteristics (subscales of the three relevant  
17 questionnaires) entered as independent variables at the same time, and the key clinical  
18 variables (BMI, EDE-Q Global score, duration of illness, EDE-Q behavioural scales) as  
19 dependent variables. To address the second aim, two-step cluster analysis was used to  
20 determine whether there are naturally-occurring sub-groups of anorexia nervosa patients,  
21 defined by the nature of their anorexic voice (using the subscales of the measures of the three  
22 voice characteristics). Those clusters were validated using independent-sample t-tests  
23 (correcting for unequal variance where appropriate) to compare them on dimensional  
24 characteristics, and using a chi-squared test to compare them on the categorical variable of  
25 subtype of anorexia nervosa.

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## Results

### Descriptive Statistics

The group's mean scores on the measures were as follows: EDE-Q Global – mean = 3.94, SD = 1.23; VPDS – mean = 24.3, SD = 4.67; BAVQ-R Malevolence – mean = 9.66, SD = 4.68; BAVQ-R Benevolence – mean = 4.86, SD = 4.52; BAVQ-R Omnipotence – mean = 11.7, SD = 3.31; FFES Fight – mean = 11.4, SD = 4.49; FFES Escape – mean = 14.0, SD = 4.67; FFES Defeat – mean = 10.6, SD = 4.60; and FFES Entrapped – mean = 14.0, SD = 3.97. **15. Where relevant clinical norms were available, participants' scores were found to be broadly comparable with those reported in previous eating disorders and voice-related research (Glenn – not sure if we ought to include some references here?).**

**Comment [GW2]:** Yes – that looks necessary. Probably just need to refer to the previous papers that you have already used in here.

### Association of Voice Characteristics and Clinical Severity of Anorexia Nervosa

Table 1 shows the results of the multiple regressions, showing associations between the characteristics of the anorexic voice and the key clinical indicators (BMI; EDE-Q Global score; duration of disorder). BMI was related to two scales relating to the individual's response to the voice – the degree to which they 'fight' the anorexic voice and the level of 'entrapment' by the voice. In each case, the associations were negative, indicating that lower BMI (more severe anorexia) was associated with a greater desire to resist the voice but also with a greater sense of being unable to get away from it. Eating attitudes (EDE-Q score) were positively associated with a more 'benevolent' anorexic voice, suggesting that experiencing the voice as being on the individual's side is related to more unhealthy eating attitudes. Finally, the duration of anorexia nervosa was associated with seeing the anorexic voice as being more in control (BAVQ-R omnipotence).

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Insert Table 1 about here

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1 In addition, similar multiple regressions analyses (simultaneous entry method) were  
2 carried out with the same independent variables, using the EDE-Q behavioural scales as  
3 dependent variables<sup>1</sup>. There was no significant effect of these variables for the frequency of:  
4 objective binges ( $F = 0.88$ ;  $P = .544$ ; explained variance = 0.0%); vomiting ( $F = 0.82$ ;  $P =$   
5  $.591$ ; explained variance = 0.0%); laxative abuse ( $F = 0.80$ ;  $P = .61$ ; explained variance =  
6 0.0%); or over-exercise ( $F = 1.39$ ;  $P = .234$ ; explained variance = 6.1%). In all four multiple  
7 regression analyses, no individual voice characteristic had a significant effect ( $P > .05$  in all  
8 cases).

### 9 ‘Types’ of Voice Experience among Anorexia Nervosa Sufferers

10 Two-step cluster analysis was used to determine whether the anorexia nervosa  
11 patients fell into distinct groups on the basis of the three BAVQ-R scales, the four FFES  
12 scales, and the VPDS voice power measure. The analysis demonstrated a two-cluster  
13 solution, with a silhouette score of 0.3, indicating a ‘fair’ level of cohesion and separation.  
14 The smaller group ( $N = 19$ ) was characterised by low scores on the measures, while the larger  
15 group ( $N = 30$ ) had higher scores. They differed significantly (95% CI) on four of the eight  
16 scales – FFES Entrapment ( $M = 16.7$  vs 10.4); FFES Defeat ( $M = 13.4$  vs 6.63); VPDS Power  
17 ( $M = 16.7$  vs 10.4); and BAVQ-R Omnipotence ( $M = 13.6$  vs 8.89). Given these  
18 characteristics, the groups were labelled ‘Stronger anorexic voice’ and ‘Weaker anorexic  
19 voice’.

### 20 Validation of the Clusters of Voice Experience Type

21 Table 2 shows the dimensional clinical characteristics of the two anorexic voice  
22 groups, and the results of one-tailed t-tests used to compare them. The ‘Stronger anorexic  
23 voice’ group were characterised by greater anorexia nervosa cognitive pathology (as  
24 indicated by higher EDE-Q attitudinal scores), more severe levels of compensatory

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<sup>1</sup> As these analyses were not significant, the full results are not reported in Table 1. However, they can be obtained from the first author.

1 behaviours (vomiting, laxative use, exercise), and a longer duration of disorder. However,  
2 they were not different in age, BMI, or frequency of binge-eating.

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Insert Table 2 about here

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7 Finally, a chi-squared test was used to determine whether there was an association  
8 between the nature of the anorexic voice and the diagnostic sub-group. Of the 31 patients  
9 with a diagnosis of anorexia nervosa of the restrictive subtype, 14 were in the ‘Stronger  
10 anorexic voice’ group, while 17 were in the ‘Weaker anorexic voice’ group. Among the 18  
11 patients with anorexia nervosa of the binge/purge subtype, those figures were 16 (‘Stronger’)  
12 and two (‘Weaker’) respectively. The chi-squared test showed that the association between  
13 the two variables was reliable ( $X^2 = 9.17$ ,  $df = 1$ ,  $P < .002$ ). Thus, the stronger anorexic voice  
14 was significantly more likely to be present in anorexia nervosa patients with bulimic features.

### 15 **Discussion**

16 This study has examined the potential factors that might explain the clinical impact of  
17 the ‘anorexic voice’ in the maintenance and treatment of anorexia nervosa. It has considered  
18 the perceived power and appraisals of the voice, and the individual’s response style. The  
19 group studied was a clinically representative sample of female patients who met full  
20 diagnostic criteria for anorexia nervosa.

21 The first aim was to determine the associations of the characteristics of the anorexic  
22 voice with key clinical features of anorexia nervosa. There were different associations for  
23 each feature. **9. The nature of the voice explained variance in the patients’ eating attitudes, in  
24 that perceived voice benevolence was associated with more pathological eating attitudes, and  
25 whilst a longer duration of disorder was associated with perceiving the voice as omnipotent.  
26 In contrast, the patients’ reported response to the voices (i.e. wanting to fight or feeling**

1 entrapped by their voice) was associated with lower BMI. Notably, the power of the voice  
2 and its malevolence were not linked to these clinical variables. Nor were the voice  
3 characteristics related to the frequency of bingeing or compensatory behaviours. 7. To  
4 summarise, the severity of key elements of eating pathology in this sample was influenced by  
5 appraisals and responses to the anorexic voice. These findings mirror the psychosis literature,  
6 wherein voice-related appraisals and response styles have been shown to interact with the  
7 severity of pathology (e.g., Gilbert et al., 2001; Peters, Williams, Cooke & Kuipers, 2012),

8 The second aim was to determine whether anorexia nervosa patients fall into natural  
9 clusters, defined and differentiated by the anorexic voice characteristics and their responses  
10 to them. Two groups emerged – those with a ‘stronger’ and a ‘weaker’ anorexic voice –  
11 differentiated reliably by levels of voice power, by appraisals of omnipotence, and by  
12 entrapment and defeat responses. The validity of this clinical grouping was supported by  
13 differences in eating attitudes, eating behaviours and diagnostic sub-type. It is noteworthy  
14 that this distinction included two characteristics - voice power and the new ‘defeat’ response  
15 scale - that were not related to the dimensional characteristics outlined above. 7. The  
16 importance of perceived voice strength in maintaining pathology mirrors findings in the  
17 psychosis literature, which have associated higher levels of voice power with greater levels of  
18 pathology in schizophrenic groups (Birchwood et al., 2000).

19 Whilst the anorexic voice is a well-established phenomenon in the eating disorders  
20 (e.g., Noordenbos et al., 2014), this study has shown that its severity varies across subgroups  
21 of anorexia nervosa patients. Therefore, interventions that address that voice (e.g., Dolhanty  
22 & Greenberg, 2009; Maisel et al., 2004; Mountford & Waller, 2006; Schaefer, 2004) might  
23 best be considered in individuals who describe a more powerful anorexic voice. Those  
24 treatments might include behavioural and cognitive challenges of voice content, addressing  
25 appraisals of the voice (e.g., challenging beliefs about omnipotence; querying the perceived

1 benevolence of a voice that maintains negative eating attitudes), and developing more  
2 effective behavioural responses than fighting, submitting or feeling entrapped by the voice.  
3 For example, Mountford and Waller (2006) suggest that the patient should be encouraged to  
4 see the voice as reflecting a dominant mode of information processing that operates in ways  
5 that maintain its dominant position (e.g., prioritising maintaining behaviours; rejecting  
6 alternative thoughts as being threats to the self). They detail cognitive and behavioural  
7 challenges that can be used to experiment with changing that dominant position.  
8 Alternatively, the individual might be encouraged to develop more de-centred and  
9 metacognitive perspectives on the anorexic voice (e.g., Chadwick, 2006; Mayhew & Gilbert,  
10 2008).

11         Given the relatively low success rate with different therapies for anorexia nervosa  
12 (e.g., Fairburn, Cooper, Doll, O'Connor, Palmer & Dalle Grave, 2013; Schmidt, Magill,  
13 Renwick, Keyes, Kenyon, Dejong, Lose, Broadbent, Loomes, Yasin, Watson, Ghelani,  
14 Bonin, Serpell, Richards, Johnson-Sabine, Boughton, Whitehead, Beecham, Treasure &  
15 Landau, in press), it will be necessary to determine whether voice characteristics moderate  
16 treatment effectiveness. If so, it will be important to address the anorexic voice within routine  
17 treatment for anorexia nervosa, particularly in the binge/purge subtype of the disorder, where  
18 the 'strong' anorexic voice is far more likely to be found. Research to establish the  
19 effectiveness of such an approach needs to take these findings into account, to determine  
20 whether it is possible to modify the power, nature and manner of responses to it, as has been  
21 demonstrated in the schizophrenia literature (Trower, Birchwood, Meaden, Bryne, Nelson &  
22 Ross, 2004). A further line of research will be to determine whether this anorexic voice is  
23 limited to anorexia nervosa, or whether it is present (and takes the same form) in other eating  
24 disorders, as a transdiagnostic model might suggest. **1. Understanding within this area would**  
25 **benefit from further clarification as to how the anorexic voice differs from other forms of**

1 cognition observed in eating disorders (for example, self-critical thoughts and overvalued  
2 beliefs). The temporal relationship between the voice phenomena and anorexic symptoms  
3 should also be considered in longitudinal research, to determine the causal structure of that  
4 relationship. It could be hypothesised that the anorexic voice is a reflection of the experiences  
5 and cognitions that trigger the individual into restriction, or that the voice develops as a  
6 maintaining factor for the eating behaviours, operating via a process of cognitive dissonance.

7 **6.** This study has a number of limitations. Firstly, research should further establish the  
8 psychometric properties of voice measures used in this study, including their test-retest  
9 reliability. **12.** Participants also completed the study measures at different time points  
10 (assessment, start of treatment or during treatment) which may have had differential effects  
11 upon their responses. **14.** Lastly, future studies should utilise measures which explore the  
12 impact of the anorexic voice more specifically, rather than considering the more general  
13 'anorexic thoughts/voice' (as defined within the measures used here).

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Table 1

Association of anorexic voice characteristics with core clinical variables <sup>1</sup>

<b>Dependent variable</b>	<b>F</b>	<b>P</b>	<b>Explained variance</b>	<b>Significant independent variables</b>	<b>t</b>	<b>P</b>	<b>Beta</b>
Body Mass Index	2.73	.02	23.9%	VPDS Voice power	0.13	NS	-0.027
				FFES Entrapment	2.33	.03	-0.583
				FFES Fight	3.00	.005	-0.552
				FFES Defeat	0.40	NS	0.091
				FFES Escape	1.71	NS	0.287
				BAVQ Malevolence	0.47	NS	-0.080
				BAVQ Benevolence	0.06	NS	-0.010
				BAVQ Omnipotence	1.65	NS	
EDE-Q global	6.20	.001	47.0%	VPDS Voice power	1.89	NS	0.287
				FFES Entrapment	1.15	NS	0.161
				FFES Fight	0.85	NS	-0.133
				FFES Defeat	0.37	NS	0.065
				FFES Escape	1.15	NS	0.161
				BAVQ Malevolence	0.60	NS	0.090
				BAVQ Benevolence	3.35	.002	0.441
				BAVQ Omnipotence	0.93	NS	0.135
Duration of illness	2.33	.04	18.4%	VPDS Voice power	0.21	NS	-0.043
				FFES Entrapment	0.97	NS	-0.234
				FFES Fight	0.48	NS	0.090
				FFES Defeat	0.28	NS	-0.065
				FFES Escape	0.24	NS	0.041
				BAVQ Malevolence	0.53	NS	0.092
				BAVQ Benevolence	0.21	NS	-0.035
				BAVQ Omnipotence	3.42	.001	0.642

<sup>1</sup> EDE-Q = Eating Disorders Examination-Questionnaire; VPDS = Voice Power Differential Scale; FFES = Fight, Flight and Entrapment to voices Scale; BAVQ = Beliefs about Voices Questionnaire (Revised)

Table 2

Validation of the ‘anorexic voice’ clusters via differences on dimensional eating disorder characteristics

Variables	Weaker anorexic voice		Stronger anorexic voice		t-test	
	M	(SD)	M	(SD)	t	P
Age (years)	25.8	(6.47)	29.3	(12.4)	1.10	NS
Duration (months)	66.9	(59.3)	109.5	(89.7)	1.82	.04
BMI	16.2	(1.34)	15.6	(1.63)	1.30	NS
<b>EDE-Q<sup>1</sup> attitude scales</b>						
Global	3.09	(1.12)	4.44	(1.00)	4.32	.001
Restrictive	2.81	(1.18)	4.24	(1.38)	3.68	.001
Weight	2.97	(1.44)	4.54	(1.34)	3.84	.001
Eating	2.88	(1.44)	3.83	(1.33)	2.33	.02
Shape	3.70	(1.47)	5.14	(1.01)	3.66 <sup>a</sup>	.001
<b>EDE-Q<sup>1</sup> behaviours per month</b>						
Objective binges	3.06	(5.75)	3.47	(6.32)	0.26	NS
Vomiting	1.67	(6.14)	18.4	(47.5)	1.90 <sup>a</sup>	.04
Laxatives	0.00	-	5.43	(12.9)	2.30 <sup>a</sup>	.02
Over-exercising	2.56	(4.05)	12.2	(12.8)	3.81 <sup>a</sup>	.001

<sup>a</sup> Equal variances not assumed

<sup>1</sup> EDE-Q = Eating Disorders Examination-Questionnaire