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Impact of patient characteristics on clinicians' decisions to involve dietitians in eating disorder treatment

Abstract

Background & Aims: Dietetic involvement in eating disorder (ED) treatment is often initiated by other members of a patient's treating team. This study aimed to examine the impact of patient characteristics on clinicians' decisions to involve a dietitian in a patient's ED treatment, as well as the influence of clinician characteristics on their decision-making.

Methods: ED clinicians were recruited to complete an online survey, which used case vignettes to assess their likelihood of referring patients to a dietitian or consulting with a dietitian for guidance. Questions were also included measuring clinician anxiety, beliefs about the therapy they deliver, beliefs about dietitians and views on evidence-based practice, to determine if these were related to their responses to case vignettes.

Results: Fifty-seven clinicians completed the survey, with the largest group being clinical psychologists (n=22, 39%). ED diagnosis, weight status, medical co-morbidities and progress in treatment were all shown to be influential on whether clinicians involved dietitians in ED treatment. Clinician characteristics and their beliefs about dietitians were generally not correlated with the likelihood of seeking dietetic input.

Conclusions: This study indicates that clinicians' decisions to involve dietitians in ED treatment are systematic rather than random decisions influenced by individual clinician characteristics. Clinicians require further education on the potential for malnutrition regardless of patients' ED diagnosis or weight status, and the dietitian's role in addressing this.

Keywords: feeding and eating disorders, dietetics, clinical decision-making, evidence-based practice, malnutrition

Introduction

Clinical practice guidelines recommend a multi-disciplinary team approach in the assessment and treatment of eating disorders (EDs), including medical, psychological and dietetic input ([1, 2]). Whilst barriers to ED treatment in general have been studied previously ([3, 4]), factors that hinder patients engaging in dietetic intervention are not well understood. Reasons for this include: (1) the current scarcity of research to guide how and when dietetic input is integrated into patient care ([5, 6]) despite publication of approaches to dietetic practice ([7, 8]); and (2) low endorsement of dietetic input in current psychological manualized therapies ([9]). Additionally, there is a lack of consensus amongst ED specialists and ED consumers and carers about the inclusion of dietetics in patient care ([5]), with dietetic input more highly endorsed by ED consumers and carers compared to specialists ([5, 10]).

In November 2019, the number of government-subsidized outpatient sessions available to Australians with severe EDs received a significant enhancement. With a referral from their general practitioner (GP), psychiatrist or pediatrician, patients are able to access 40 sessions of subsidized psychological therapy, which requires a mid-point review by a psychiatrist or paediatrician, and 20 sessions of subsidized dietetics per year ([11]). This positions these referring clinicians as 'gatekeepers' to dietetic involvement, as without their endorsement by referral, patients are unable to access government-subsidized dietetic treatment. Non-dietetic clinicians providing ED treatment may also suggest dietetic involvement to the patient and help to co-ordinate a multi-disciplinary treatment approach for the patient. Patients' entry into dietetic treatment for EDs often follows a similar process in the United Kingdom and Europe ([12]). Therefore, it is important to understand the patient characteristics that influence clinicians' decisions to involve dietitians in treatment and to identify potential barriers to referral, particularly in the context of a recent study which showed that only 6% of patients presenting to their GP with an ED were referred to a dietitian ([13]). This issue is also relevant given patients may be ambivalent to engage in dietetics ([14, 15]), and are likely influenced by recommendations of their treating clinicians.

This study examined the impact of patient characteristics (ED diagnosis, presence of a co-morbid medical condition, progress in treatment) on clinicians' decisions to involve a dietitian in a patient's treatment. In addition, we explored the role of clinician characteristics (anxiety, beliefs about their own therapy, beliefs about dietitians, views on evidence-based practice) on their decision-making given evidence showing clinician characteristics and attitudes often influence use of evidence-based treatments ([16, 17]). It was hypothesized that: (1) clinicians' involvement of dietitians would be more likely for patients diagnosed with anorexia nervosa (AN) compared to bulimia nervosa (BN); and (2) clinicians would be more likely to involve dietitians if patients had a medical co-morbidity

and/or were not progressing in treatment. Thirdly, we anticipated that clinicians would be more likely to involve a dietitian if they had lower levels of anxiety or had higher endorsement of positive beliefs about dietitians, the therapy they deliver and the importance of adherence to evidence-based practice.

Methods

This study used an online survey consisting of self-report questionnaires and a series of clinical case vignettes similar to the survey design used by Daglish and Waller ([18]). Ethics approval was received from [removed for blind peer review].

Participants

A sample size calculation using G*Power was performed *a priori* to determine the sample size needed to minimize the risk of Type 2 error. The power calculation was informed by the hypotheses that patient ED diagnosis and presence of a medical co-morbidity would influence clinicians' decisions to involve a dietitian. Assuming a two-way, within-subject ANOVA, a medium effect size of f=0.25, a power of 0.8 and an alpha of 0.05, the study required a sample of 28 participants.

Participants were recruited using advertisements through four ED organisations: (1) Australia and New Zealand Academy of Eating Disorders (ANZAED); (2) National Eating Disorder Collaboration (NEDC); (3) Inside Out Institute for Eating Disorders; and (4) Eating Disorders Victoria. The only inclusion criteria specified for participation in the study was that the respondent was a non-dietetic clinician currently working with individuals with an ED.

Procedure

Members of ANZAED (comprising 636 ED clinicians, researchers, consumers and carers at the time of survey distribution) and members of NEDC who indicated they were clinicians or researchers (1716 members at the time of survey distribution) were sent an invitation to participate in the study via e-mail. The study invitation contained information on the aims of the study, eligibility criteria, why the study was being conducted, requirements of participants, a link to the survey, and investigator and ethics committee contact details. All four organisations included advertisements for the study on their websites as well as promotion via social media.

The survey was hosted online using the [removed for blind peer review] Research Electronic Data Capture (REDCap) platform ([19, 20]). Data collection took place in June and July of 2020. A link to the survey was included in e-mail invitations sent to members of ANZAED and NEDC and as part

of website and social media postings. Participants provided consent online prior to the completion of the survey and were able to download a participant information sheet to retain.

Measures

Survey questions were divided into four sections: (1) clinician background and demographics; (2) clinician characteristics; (3) clinician beliefs about dietitians; and (4) case vignettes. The full survey, including references used to develop the questions, is provided in ***Supplementary File 1***.

Clinician background and demographics

Clinicians were asked to provide demographic information (age, gender) as well as details of their clinical background and experience (discipline, years of involvement in clinical work with patients with an ED, percentage of clinical load EDs comprises, work setting, top three treatment modalities they typically use when working with patients with an ED). Clinicians were also asked to estimate the percentage of patients with an ED they would typically refer to a dietitian, and their top three reasons for doing so from a list of 20 options. Finally, clinicians were asked how often they perceived their dietetic-referred patients encountered the following barriers: (1) finding a dietitian close to where they live; (2) ability to afford to see a dietitian; (3) ability to see a dietitian in a timely manner; (4) ability to see a dietitian experienced in EDs; and (5) limitations in the number of appointments they could access. Barriers were rated on a five-point Likert scale where 1=none of the time to 5=all of the time.

Clinician characteristics

Three validated questionnaires were included to measure clinicians' anxiety, their beliefs about their own therapy and their attitudes towards evidence-based practice. The first was measured using the 12-item Intolerance of Uncertainty Scale-Short Form (IUS-12) ([21]) which measures prospective anxiety (anticipation of uncertainty) and inhibitory anxiety (inaction when faced with uncertainty) using a five point Likert scale (1=not at all characteristic of me to 5=entirely characteristic of me). The IUS-12 has shown strong psychometric properties (Cronbach's alpha = .91 and test-retest reliability r = .77) ([21, 22]) as well as strong correlation with the original 27-item version ([21]). Clinicians' beliefs about their own therapy was measured using the 23-item revised version of the Therapist Belief Scale (TBS) ([23]) which asks participants to rate statements regarding beliefs about the therapy they provide on a six point Likert scale (1=strongly agree to 6=strongly disagree). Examples of statements include *"I am responsible if therapy is not successful", "There is no room for mistakes in therapy"* and *"If I don't have all the information, I'm uncomfortable with therapy"*. The TBS has demonstrated overall internal reliability of 0.78 ([24]) and has been suggested as a

potentially useful tool in the delivery of clinical supervision given it is yet to be tested in a broad sample of therapists ([23]).

Finally, clinicians' attitudes towards evidence-based practice were measured using the 15-item version of the Evidence Based Practice Attitude Scale (EBPAS-15) ([25]). This validated measure comprises four attitude domains regarding evidence-based practice: (1) the intuitive appeal of evidence-based practice; (2) the likelihood of adopting evidence-based practice given requirements to do so; (3) openness to new practices; and (4) the perceived divergence of one's usual practice with research-based/academically developed interventions, rated on a five point Likert scale (0=not at all to 4=to a very great extent). The EBPAS-15 has been shown to have good psychometric properties among mental health care providers (Cronbach's alpha of .77) ([26, 27]).

Clinician beliefs about dietitians

Clinicians were asked to rate their level of agreement with 19 statements relating to their beliefs about dietitians on a five-point Likert scale (1=strongly disagree to 5=strongly agree). This measure was developed for the purpose of this study and included positive beliefs about dietitians (e.g., *"Dietitians can make an important contribution to a patient's treatment for an ED")* and negative beliefs about dietitians (e.g., *"Seeing a dietitian will make my patient's ED worse"*). The measure showed good internal consistency in this study (Cronbach's alpha of .76).

Case vignettes

Eight clinical case vignettes were collaboratively developed by the authors to examine clinicians' likelihood of referring the patient to a dietitian or consulting with a dietitian for input into the patient's treatment. A core clinical vignette was developed describing a 30-year-old individual who had completed five sessions of individual treatment for an ED. Gender-neutral names were used to avoid association of the patient as male or female. The eight vignettes were created by varying three aspects of the patient's clinical presentation: (1) ED diagnosis (AN or BN); (2) presence or absence of a medical co-morbidity (examples used included irritable bowel syndrome, type 1 diabetes, dairy and peanut allergy and Coeliac disease); and (3) a marker of progress in treatment (for AN – either "*gained 2kg since commencing treatment*" or "*has gained no weight since starting treatment*" and for BN – either "*has a less restrictive diet compared to the start of treatment*" or "*reports ongoing restriction of foods due to fears of weight gain*"). Examples of included case vignettes are provided in ***Table 1***. For each vignette, clinicians were asked to rate on a scale between 0% (never) and 100% (all the time) how likely they would be to: (1) refer the patient to a dietitian; (2) consult with a dietitian for guidance; and (3) not refer to or consult with a dietitian, if treating the patient

described. They were asked to make ratings based on the current work context with their current access to dietetic services. This measure also showed good internal consistency in this study (Cronbach's alpha of .77).

Data analysis

Data were exported from REDCap and analyzed using SPSS statistical software (Version 26. 2019; IBM Corp., Armonk, NY). Clinicians who did not complete responses to all case vignette questions (n=58) were removed from the dataset. Descriptive statistics were calculated to report on clinician background, demographics and level of agreement with statements about dietetics. As a large proportion of the data violated the assumption of normality, non-parametric statistical analyses were used to address the developed hypotheses. Friedman tests with post hoc Wilcoxon tests were used to address hypotheses 1 and 2 with significance set at $p<0.05$ (two tailed). Hypothesis 3 was tested using Spearman's rho correlations.

Results

Survey responses

One hundred and fifteen survey responses were received, n=58 (50%) of which were removed due to participants not having completed responses to all case vignette questions. Participants who completed responses to all case vignette questions reported a significantly higher percentage of ED patients in their current case load [mean (SD)=48.5% (32.9%) for completers vs 28.8% (26.6%) for non-completers, p=.004]. No significant differences were observed between completers and non-completers with regards to age, sex, clinician discipline, years involved in clinical work with EDs, percentage of patients typically referred to a dietitian, or percentage who had worked with a multi-disciplinary team involving a dietitian. As the recruitment methods used a combination of individual e-mail invitations and postings in newsletters and online forums, and it is likely that clinicians were members of more than one of the organizations used, it was not possible to accurately calculate the response rate. Additionally, data were not available on the number of dietitians and non-dietetic clinicians who received the survey invitations to determine the number of eligible non-dietetic clinicians.

Clinician background and demographics

Participant characteristics are shown in ***Table 2***. The sample was predominantly female (n=54, 95%) with an average of 10.4 (SD=8.5) years' experience working with EDs. Clinical psychologists, psychologists and nurses made up the highest proportion of clinicians (39%, 19% and 19% respectively) and half of all respondents worked in an outpatient service specifically for

the treatment of EDs. Clinicians indicated they would typically refer an average of 60% (SD=36%) of their ED patients to a dietitian, with n=19 (33%) indicating they referred all patients to a dietitian. The two most common reasons clinicians referred patients to a dietitian were if the patient had a co-morbid medical condition or the patient needed to gain weight and had been unable to do so. The three most commonly used treatment modalities used were cognitive behavior therapy, family-based treatment and Specialist Supportive Clinical Management.

Clinician characteristics

Clinicians' IUS-12 scores were slightly below the mean for a non-clinical sample ([21]) for prospective anxiety (mean=14.1, SD=4.6) and inhibitory anxiety (mean=6.9, SD=2.4). Clinicians' responses to the EBPAS-15 were comparable to norms for mental healthcare providers ([26]) for the appeal subscale (mean=2.9, SD=0.8), but higher than norms for the requirements subscale (mean=2.6, SD=1.0) and lower than the norms for the openness (mean=2.5, SD=0.8) and divergence subscales (mean=0.7, SD=0.5).

Clinician beliefs about dietitians

Clinicians ratings of positive and negative statements about dietitians are shown in ***Table 3***. Overall, there was strong endorsement of the important role dietitians can play in ED treatment and clinicians feeling relieved if their patient was also seeing a dietitian. There was generally low endorsement of negative beliefs about dietitians. However, clinicians moderately agreed with the following statements: only wanting to work with dietitians who they had worked with previously and whose ability they were confident in; dietitians being likely to talk about dieting with patients; and treatment amongst dietitians being inconsistent.

Case vignettes

Results regarding involvement of dietitians by patient diagnosis, presence of medical co-morbidity and progress in treatment are shown in ***Table 4***. For case vignettes relating to patients with AN, clinicians were most likely to refer to or consult with a dietitian for patients with a medical co-morbidity, particularly if they had not gained weight. Responses to case vignettes relating to patients with BN followed a similar pattern, with clinicians indicating they were most likely to refer to or consult with a dietitian if the patient had a medical co-morbidity, particularly if they exhibited ongoing dietary restriction. However, clinicians were significantly less likely to involve a dietitian in a patient's treatment if the patient did not have a medical co-morbidity; whether the patient showed ongoing dietary restriction or not.

The pattern of correlations showed that clinicians' beliefs about dietitians, positive or negative, were generally not linked to their likelihood of involving a dietitian in treatment of patients with AN or BN (***Supplementary File 2***). A moderate correlation was observed between clinicians' likelihood of referring patients to a dietitian and their endorsement of: (1) whether dietitians can make an important contribution to a patient's treatment (r_s=0.40, p<0.01 for AN; r_s=0.46, p<0.01 for BN); and (2) whether dietitians understand the role of clinicians of other disciplines in the treatment of EDs (r_s=-0.43 , p<0.01 for AN; r_s=-0.49, p<0.01 for BN). The correlations showed no relationship between likelihood of referral and clinician characteristics on any of the subscales for IUS-12, TBS or EBPAS-15.

Discussion

This study examined the impact of patient characteristics on clinicians' decisions to involve a dietitian in a patient's treatment, as well as the influence of clinician characteristics on their decision-making. Eating disorder diagnosis, presence of a medical co-morbidity and patient progress in treatment were all shown to influence clinicians' decisions. Our first hypothesis, that clinicians would be more likely to involve a dietitian for patients with AN compared to those with BN, was confirmed. Clinicians considered weight a key indicator for whether they would involve a dietitian, and were more likely to do this for patients with AN who had not gained weight.

While weight is an important consideration in assessing a patient's nutritional status ([28]), these results suggest clinicians are not aware that malnutrition can occur in any patients engaging in disordered eating behaviours regardless of weight status ([29, 30]). An essential aspect of dietetic intervention is to assess the nutritional quality of a patient's diet and work with them to improve it ([28, 31]). The importance of this in the treatment of AN has been highlighted in previous research showing that patients continue to restrict calories and exhibit nutritional deficiencies beyond weight restoration ([32, 33]). Additionally, the variety and energy density of a patient's dietary intake has shown to be more predictive of outcomes than patient's overall calorie intake ([34, 35]). The use of patients' weight as a proxy for improvements in dietary intake is reflective of the approach of several current manualized psychological ED treatments ([9]) but overlooks the significance of malnutrition and dietary restriction in the maintenance of EDs ([36]). It is also in contrast to recently developed consensus-based guidelines where panels comprising ED specialists, non-ED specialists and ED consumers and carers agreed a patient's weight should not be used as the main indication for whether a patient is referred to a dietitian ([5]).

Our second hypothesis, that clinicians would be more likely to involve a dietitian for patients with a

co-morbidity and/or who were not progressing in treatment, was also confirmed. Clinicians were significantly more likely to involve a dietitian if the patient presented with a medical co-morbidity. This approach is warranted given individuals with co-morbid medical conditions that impact on the patient's diet have an increased risk of developing an ED [e.g., Type 1 diabetes ([37]), irritable bowel syndrome ([38]), Coeliac disease ([39])]. However, similar to weight status, consensus-based guidelines also showed that clinicians, consumers and carers agreed that presence of a co-morbid condition that impacts of a patient's diet should not be the only consideration when a referral is made to a dietitian ([5]).

Limited progress in treatment (i.e., lack of weight gain for patients with AN or ongoing dietary restriction for patients with BN) was also shown to be an indicator for dietetic involvement. At present, research has not been conducted into whether it is more effective to: 1) incorporate dietetic input from treatment outset to encourage early behavior change, a factor that has been shown to facilitate recovery ([40]); or 2) monitor patients' progress in treatment and integrate dietetics if the patient does not achieve sustained behaviour change. The latter approach of patients commencing treatment with a mental health clinician who can then determine if referral to a dietitian is warranted was not endorsed in consensus-based guidelines ([5]). However, there was also disagreement between panellists in the same study as to whether all patients should receive a multi-disciplinary assessment at treatment onset or all patients with an ED should be referred to a dietitian. Taken together, these findings highlight the need for further research to explore: 1) patient factors that indicate the need for dietetic involvement; and 2) when this occurs in treatment, given the current paucity of literature to guide these clinical decisions ([6, 9]).

Our final hypothesis was not supported as clinician characteristics were not correlated with their decision to involve dietitians in treatment. Of note is clinicians' preference to refer their patients to a dietitian who they have worked with previously, as well as moderate agreement that treatment provided by dietitians is inconsistent and dietitians are likely to discuss weight loss and dieting with patients. These attitudes speak to potential barriers to patients engaging in dietetics if clinicians are hesitant to refer a patient to a dietitian who they have not worked with or who does not have experience in EDs. Given evidence of a lack of training in EDs in university programs ([41]) and an absence of post-graduate training opportunities ([5, 42]), this may present barriers to patients receiving dietetic assessment and intervention if patients are only referred to dietitians who have completed further study or training. Recently published dietetic practice and training standards have begun to address this issue ([28, 31]). These standards detail the minimum requirements for dietitians to provide safe and effective treatment for this population, however, further implementation and evaluation of

these standards is required.

Recommendations for clinical practice and research

The results of this study suggest three important recommendations for clinical practice and research. First, weight status should not be the only factor used for collaboration with dietitians, and greater recognition is required of the risk of malnutrition and associated nutritional issues that are a sequelae of disordered eating behaviour ([43]). Additionally, dietitians should advocate for a thorough assessment of a patient's nutritional status and involvement of dietetic intervention as clinically indicated from that assessment. This is particularly important given that most patients with an ED do not experience low weight ([44]), and there is an increasing prevalence of obesity and co-morbid ED behaviours ([45]). Furthermore, patients with atypical AN have been shown to be at the same or higher risk of malnutrition and medical concerns compared to individuals with AN ([30, 46]).

Second, the results of this study together with recent research ([47]) indicates clinicians are likely to have gaps in their understanding of the role and responsibilities of dietitians. Specifically, a lack of understanding about the importance of dietetic involvement in addressing malnutrition which may be present regardless of ED diagnosis or weight status. These findings speak to the importance of ED clinicians having a clear understanding of the role of each member of a patient's treating team. Additionally, ongoing communication between dietitians and other members of a patient's multi-disciplinary team is essential to facilitating a united and cohesive treatment approach. It is also recommended that dietitians give greater attention to promoting their core clinical responsibilities and role in a patient's ED treatment. Finally, further work is required to evaluate the dissemination of recent dietetic practice standards and adherence of dietitians to these standards. For example, in Australia, a credentialing system is being developed to promote implementation of these practice standards through formal recognition of ED clinicians' qualifications, knowledge, training and professional activities to meet minimum standards for delivery of safe and effective ED treatment ([48]).

Limitations

Whilst this study is the first to consider patient characteristics that influence clinicians' decisions to involve dietitians in patient care, it has several limitations. First, for brevity, the case vignettes did not include patients with ED diagnoses other than AN and BN. Additional research examining referral patterns for patients with BED and avoidant/restrictive food intake disorder is recommended, to provide a more thorough examination of clinicians' involvement of dietitians in ED treatment. Second, our online survey did not allow the order of case vignettes to be randomized,

therefore participant responses may have been influenced by attentional bias or fatigue. It is also likely that clinicians' responses were skewed by an overall high endorsement of patients in their current clinical environment being able to access appropriately qualified dietitians in a timely manner. As recruitment was conducted using ED organizations and the sample was made up primarily of clinicians who worked in specialist ED services, the results may not be generalizable to non-specialist settings. Specifically, participants who completed responses to all case vignette questions reported a significantly higher percentage of ED patients in their current case load compared to participants' who responses were not considered due to not having completed all case vignette questions. Finally, this study did not consider the views of dietitians or ED consumers or carers, which is a subject of further research, particularly in light of evidence of discrepancies between the views of these groups in regards to dietetic treatment ([5, 10]).

Conclusion

This study indicates that clinicians' decisions to involve dietitians in ED treatment are influenced by a patient's ED diagnosis, weight status, presence of medical co-morbidities and progress in treatment. It is recommended that the potential for malnutrition regardless of patient's weight status receives greater attention in ED treatment, and dietitians promote their role in addressing this as part of a patient's multi-disciplinary ED treatment. Finally, ongoing research is required to better understand when and how dietetic intervention should be included in patients' care to facilitate multi-disciplinary treatment in this population.

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Table 1: Examples of case vignettes used in survey

Eating disorder diagnosis	Example case vignette
Anorexia nervosa	Sam is a 30 year-old individual with anorexia nervosa who has completed 5 sessions of individual eating disorder treatment with you. Sam has no other medical conditions and has gained 2kg since starting treatment.
	Robin is a 30 year-old individual with anorexia nervosa who has completed 5 sessions of individual eating disorder treatment with you. Robin also has a diagnosis of Coeliac disease and has gained no weight since starting treatment.
Bulimia nervosa	Sydney is a 30 year-old individual with bulimia nervosa who has who has completed 5 sessions of individual eating disorder treatment with you. Sydney also has a diagnosis of irritable bowel syndrome (IBS) and reports ongoing restriction of foods due to fears of weight gain.
	Frankie is a 30 year-old individual with bulimia nervosa who has who has completed 5 sessions of individual eating disorder treatment with you. Frankie has no other medical conditions and has a less restrictive diet compared to the start of treatment.

Table 2: Participant characteristics (n=57)[†]

Age, mean (SD)			43.3 (12.2)
Gender, N (%)	Female		54 (94.7)
	Male		2 (3.5)
	Prefer not to say		1 (1.8)
Discipline, N (%)	General practitioner		1 (1.8)
	Psychologist		11 (19.3)
	Psychologist with area of practice endorsement (clinical psychology)		22 (38.9)
	Counsellor		1 (1.8)
	Psychiatrist		5 (8.8)
	Occupational therapist		1 (1.8)
	Social worker		5 (8.8)
	Nurse		11 (19.3)
Practice setting, N (%)	Inpatient ED service		3 (5.3)
	Inpatient service predominantly for patients other than those with EDs (e.g., emergency department)		10 (17.5)
	Day program/intensive outpatient program for EDs		7 (12.3)
	Day program/intensive outpatient program predominantly for patients other than those with an ED (e.g., drug and alcohol program)		1 (1.8)
	Outpatient service for treatment of EDs		28 (49.1)
	Outpatient service predominantly for patients other than those with an ED (e.g., diabetes clinic)		16 (28.1)
	Other	General practice	1 (1.8)
		Intake service for EDs	1 (1.8)
		Public mental health	1 (1.8)
		School psychologist	1 (1.8)
		Not specified	3 (5.3)
Years involved in clinical work with patients with an ED, mean (SD)			10.4 (8.5)
% Patient load EDs comprises, mean (SD)			48.5 (32.9)
Worked within a multi-disciplinary team including a dietitian, N (%)			52 (91.2)
% of patient load typically referred to dietitian, mean (SD)			59.9 (36.0)
Based on the current context in which you see patients with an ED, when you refer your patient to a	They are able to access a dietitian close to where they live		3.7 (1.0)
	They are able to afford to see a dietitian		3.4 (1.1)
	They have to wait a while to get an appointment with		2.9 (1.0)

dietitian, mean (SD)‡	the dietitian	
	They can access a dietitian who is experienced in working with patients with EDs	3.7 (1.1)
	They only have access to a limited number of appointments with the dietitian they are referred to	3.0 (1.3)

† ED=eating disorder; SD=standard deviation

‡ Rated on five-point Likert scale where 1=none of the time to 5=all of the time

Table 3: Clinicians' beliefs about dietitians (items rated on a five-point Likert scale where 1=strongly disagree to 5= strongly agree; n=54)[†]

Please indicate the degree to which you agree with the statements below regarding involvement of a dietitian as part of a patient's treatment for an eating disorder		Mean	SD
Positive beliefs	Dietitians can make an important contribution to a patient's treatment for an eating disorder	4.5	0.7
	I feel relieved if my patient is also working with a dietitian	3.9	1.0
	If my patient is seeing a dietitian, it means the dietitian will weigh them and I don't have to	2.0	1.1
	If my patient is seeing a dietitian, it means I don't need to talk to the patient about their food and eating because the dietitian is responsible for this	1.6	0.8
Negative beliefs	I won't refer my patients to a dietitian unless I have worked with them previously and am confident in their ability	3.1	1.3
	Dietitians will be likely to talk to my patients about weight loss or dieting	2.5	1.3
	The treatment provided by different dietitians is inconsistent, so I don't risk referring my patients to them	2.5	1.1
	Dietitians tend to make patients uncomfortable/distressed	2.2	1.1
	Most patients will refuse to see a dietitian even if it is recommended by a member of their treating team	2.2	0.8
	Involvement of a dietitian risks disrupting the therapeutic relationship between the patient and their therapist	2.0	1.1
	Seeing a dietitian is likely to make my patient more obsessive about food	1.9	0.9
	The work done by a dietitian can be done by any clinician experienced in treating eating disorders	1.9	0.9

	Dietitians do not understand the role of clinicians of other disciplines (e.g., GP, psychologist, psychiatrist) in the treatment of eating disorders	1.8	1.0
	Dietitians tend to have disordered eating themselves	1.7	0.9
	Working with a dietitian makes me feel anxious	1.6	0.9
	Working with a dietitian makes me feel frustrated	1.6	0.9
	Seeing a dietitian will make my patient's eating disorder worse	1.4	0.6
	Asking a patient to discuss their diet with a dietitian is too much to ask of someone with an eating disorder	1.3	0.6

† GP=general practitioner, SD=standard deviation

Table 4: Clinicians' likelihood of involving dietitians during treatment for patients with anorexia nervosa and bulimia nervosa with and without a medical co-morbidity and differing degrees of progress in treatment (n=57)[†]

Diagnosis	Dietetic involvement	Medical co-morbidity				No medical co-morbidities				Friedman's ANOVA	
		No weight gain		Gained weight		No weight gain		Gained weight		$\mathcal{X}^2$	P value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Anorexia nervosa	Refer to dietitian	87.4	20.3	83.4	25.2	76.5 [a]	28.7	60.2 [a,b,c]	37.9	51.7	<0.001
	Consult with dietitian for guidance	78.6	31.0	75.9 [a]	33.2	65.4 [a,b]	35.2	53.6 [b,c]	40.1	49.1	<0.001
	Would not refer to or consult with a dietitian	8.7	14.3	9.6 [a]	17.6	19.6 [a]	26.6	29.0 [a,b,c]	35.2	26.9	<0.001
Diagnosis	Dietetic involvement	Medical co-morbidity				No medical co-morbidities				Friedman's ANOVA	
		No change in dietary restriction		Reduced dietary restriction		No change in dietary restriction		Reduced dietary restriction		$\mathcal{X}^2$	P value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Bulimia nervosa	Refer to dietitian	83.8	21.3	76.5	26.6	65.2 [d,e]	36.1	57.5 [d,e,f]	34.6	56.1	<0.001
	Consult with dietitian for guidance	72.2	33.9	69.6	36.1	54.1[d,e]	40.8	48.8 [d,e]	36.3	39.6	<0.001
	Would not refer to or consult with a dietitian	12.0	19.3	16.4	22.0	28.9 [d,e]	33.5	31.7 [d,e]	34.2	32.1	<0.001

[†] SD=standard deviation

[a] statistically different from medical co-morbidity and no weight gain

[b] statistically different from medical co-morbidity and gained weight

[c] statistically different from no medical co-morbidity and no weight gain

[d] statistically different from medical co-morbidity and no change in dietary restriction

[e] statistically different from medical co-morbidity and reduced dietary restriction

[f] statistically different from no medical co-morbidity and no change in dietary restriction