What is the optimal method of treating Anorexia and Bulimia Nervosa?

Daniel D’Souza-Eva
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**Final draft**

**Introduction**

Anorexia nervosa is a potentially life threatening mental health condition characterised by self-starvation, excessive weight loss and negative body image [1]. Although more common among females, about 10-15% of sufferers are male [2]. On average the condition first develops at around the age 16 or 17. According to the DSM-V, the diagnostic criteria for Anorexia Nervosa are:

1) Restriction of energy intake relative to requirement, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health.
2) Intense fear of gaining weight or of becoming fat, or persistent behaviour that interferes with weight gain, even though at a significantly low weight.
3) Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight [1].

There are two major types of anorexia. In the restricting type, weight loss is achieved by restricting calories. In the purging type of anorexia, weight loss is achieved by vomiting, using laxatives or using diuretics [3].

Bulimia nervosa is a serious eating disorder where individuals regularly engage in discrete periods of overeating, which are followed by attempts to compensate and to avoid weight gain [4]. Purging to avoid weight gain is commonly carried out through vomiting or using laxatives [5]. Research estimates that around 1.5% of women and 0.5% of men will have bulimia at some point in their lifetime [6]. According to the DSM-V, the diagnostic criteria for Bulimia Nervosa are:

1) Recurrent episodes of binge eating
   
   Eating, in a discrete period of time (e.g. within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.

   A sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).

2) Recurrent inappropriate compensatory behaviours (such as self-induced vomiting, misuse of laxatives, diuretics or other medications, fasting, or excessive exercise) in order to prevent weight gain

3) The binge eating and inappropriate compensatory behaviours both occur, on average, at least once a week for three months.

4) Self-evaluation is unduly influenced by body shape and weight.

5) The disturbance does not occur exclusively during episodes of anorexia nervosa [7].

   (A summarised version of the DSM-V diagnostic criteria has been included above, taken from the following source: 8)

The two main types of bulimia are the purging type and the non-purging type. The purging type accounts for the majority of cases of those suffering from this eating disorder.
Individuals will regularly engage in self-induced vomiting, abuse of laxatives, etc. after a period of binging. The non-purging type is where sufferers will use other inappropriate methods of compensating for binge episodes, such as excessive exercising or fasting. Other forms of purging are not regularly utilised [9].

How treatment is carried out
Treatments for eating disorders usually begins with a doctor performing physical and psychological exams. The physical test would be performed in order to rule out other medical causes for the eating behaviour [10], such as gastrointestinal diseases [11]. It may involve the doctor checking the height, weight and vital signs of the patient [12]. A psychological evaluation is likely to include evaluating the sufferer's thoughts, feelings and eating habits [10]. This is carried out to try and eliminate the probability of other disorders being responsible for the eating behaviour, and to assess if it is abnormal. Such disorders includes major depressive disorder, in which “severe weight loss may occur” [11]. This may include self-assessment questionnaires for the patient to complete, as well [10]. An initial test may include various other elements. Examples include thyroid function tests, X-rays to look for broken bones and use of an electrocardiogram, which can check for heart irregularities [12].

The intensity and duration of treatment depends on the ability to pay for treatment (if the individual is receiving private treatment), severity and duration of the disorder, the patient's mental health status and coexisting medical or psychological disorders. The levels of care range from inpatient, reserved for medically unstable patients; to outpatient, reserved for medically stable patients who no longer need daily medical monitoring [13]. Regardless of the determined level of care, the patient will ideally engage in regular meetings with an eating disorder specialist who will create and monitor their treatment plan. This may include meal planning, therapy and medication.

Types of treatment
Psychological counselling is “generally the most important eating disorder treatment” [14]. It involves seeing a mental health counsellor on a regular basis and may last from a few months to years. The aim of this is to help the eating disordered individual exchange unhealthy habits for healthy ones, monitor their eating and moods and explore healthy ways to cope with stressful situations [14]. An example of psychological counselling is Cognitive behavioural therapy (CBT), which is “often a component of eating disorder treatment” [15]. After helping the sufferer to normalize their eating behaviour, CBT helps learn to recognize and change distorted thoughts that lead to eating disorder behaviours [14]. Family based therapy is especially useful for “parents learning how to help a teen with an eating disorder” [14], as it involves family members learning how to support the sufferer and help them achieve a healthy weight until they can do it on their own. Group cognitive therapy is often used for people who are inpatients, and aims to help people address thoughts, feelings and behaviour related to their eating disorder [14]. Nutritional education involves dietitians and other professionals involved in the patient's treatment helping to develop a plan in order to maintain healthy eating habits. This may include teaching the patient how nutrition affects their body, practising meal planning and taking steps to avoid dieting [14].
Mainstream treatments- CBT-E

CBT-E is a method of treatment for eating disorders which “uses specified strategies and a flexible series of sequenced therapeutic procedures to achieve both cognitive and behavioral changes” [16].

A UK-Italy study by Fairburn et al. found that participants suffering from anorexia who completed CBT-E had “substantial improvements in weight and eating disorder psychopathology” [17]. Out of 99 participants, over 60% gained sufficient weight to enter a healthy BMI range, and there was a mean weight gain of 7.5 kg among patients [17]. This provides supporting evidence for CBT-E being effective at treating anorexia. Additionally, there were two parallel samples used, recruited from different countries with approximately the same amount of people in each sample. Over the 100 week study, the two countries were found to have followed the same trend, with a very large increase in BMI and large reduction in EDE-Q global score from 0 to 40 weeks [17]. This increases the reliability of the treatment because it shows that CBT-E has around the same effectiveness in more than one country. The large study time increases the validity, as it allows for the longer term results of CBT-E to be assessed. The long term results of CBT-E were very positive, shown by the maximum BMI and lowest EDE-Q score being retained by the majority of participants [17]. This means that the treatment can potentially be used to decrease relapse and hospitalisation rate in patients suffering from anorexia.

Furthermore, the sample size of 99 was relatively large in comparison to other studies on eating disorders [17]. This reinforces the validity of the results and reduces the effect of anomalies impacting on the usefulness of CBT-E. However, the study lacks the ability to be generalised to patients with a BMI of below 15 or above 17.5. This means that findings from this study cannot be applied to some patients suffering from bulimia, due to some bulimic's binge-purge cycles leading them to maintain a weight in the healthy range of BMI, or to patients suffering from a severe form of anorexia. Likewise, the findings cannot be applied to people under 18, due to the study assessing anorexia nervosa in adults [17]. This decreases the usefulness of the study, since anorexia and bulimia nervosa often develop before this time. Although the author acknowledges this point, the fact that CBT-E not being compared with another treatment could have serious impacts on the validity of the study [17]. This is because TAU patients in other studies were shown to have improved in their eating disordered thinking and increased their weight. Hence, the extent to which this study shows CBT-E to be useful is questionable.

According to an Italian study by Grave et al. assessing adolescents with anorexia nervosa comparing CBT-E as a potential alternative to FBT (Maudsley family therapy), there was a relatively large proportion of patients who completed CBT-E, in which “almost two-thirds... completed the full 40 sessions of CBT-E without any additional treatment” [18]. This supports the notion that CBT-E, even with a large number of sessions, can be used as a reliable treatment for eating disorders. The mean weight gain among the 29 participants who completed treatment was 8.60 kg, reinforcing the usefulness of CBT-E as a treatment for anorexia nervosa. As well as this, participant's mean EDE-Q scores decreased by 2.03, showing that CBT-E can not only improve weight regain but also help the patient on a
deeper level; by evaluating and changing the beliefs to the extent that their eating disordered thinking has improved substantially \[18\].

Among treatment completers, after 60 weeks all 29 participants complied to a follow-up assessment \[18\]. This shows that the study was performed well and patients felt like they had made an improvement. Additionally, this may suggest that the short terms of CBT-E led to no participants falling being (re)hospitalised due to low BMI. It was found that “weight gain continued with the mean weight increasing by 2.22kg” and the BMI rose from the end of treatment to follow up \[18\]. Additionally, a total of 44.8% of treatment completers reached 95% of the expected weight for their age and sex \[18\]. All of this information shows the long-term effectiveness of CBT-E in the treatment of anorexia nervosa. There are very few studies showing the effects of therapies in adolescents. This study doing so increases the its applicability greatly, because eating disorders usually start when the sufferer is below 18.

However, there was a very low size of people who complete treatment, even among eating disorder studies \[18\]. This decreases the validity of the study because anomalies or participant variables could have influenced the results. Another potential issue could be a few participants requiring additional treatment within the 60 weeks; three had received further treatment, and four participants had been given one to five CBT-E “booster sessions” \[18\]. This may decrease the reliability of the study because participants received different amounts of treatment, but they were assessed together; potentially raising the mean BMI. Due to this lack of control, it is difficult to generalise findings found in this study to the real world. Therefore, this study lacks mundane realism. Since an eating disorder can develop at almost any age, the results of this study cannot be applied to evaluating CBT-E in participants above the age of 18. This means that the findings of CBT-E cannot be generalised to a large group of sufferers.

In conclusion, CBT-E seems to be very effective in the treatment of eating disorders. This is shown by the mean weight gain and reduction in EPE-Q score in Fairburn's study. Even though CBT-E was not compared to another study, it has been compared to FBT in the study by Grave et al and found to be more effective. Overall, these studies provide the description that CBT-E is a very useful treatment for anorexia and bulimia nervosa.

Mainstream treatments-CBT
“CBT is a type of talking treatment that focuses on how your thoughts, beliefs and attitudes affect your feelings and behaviour, and teaches you coping skills for dealing with different problems.” 19.

The efficacy of CBT on the treatment of bulimia nervosa when compared to treatments such as behavioural therapy (BT) have been very positive; not only did CBT and BT reduce bulimic behaviours compared to the control, but “comparisons showed significant differences favoring CBT for long-term effects in reducing behavioral and psychological symptoms (Thackwray et al., 1993)” \[20\]. This may suggest that CBT has a longer lasting effect on bulimia than BT, making it arguably more effective. Furthermore, positive changes on binge-purge behaviour post-treatment were observed in all 3 groups: the control, BT and CBT groups. However, “these positive changes seen with the control condition deteriorated
at follow-up” [20]. This provides more evidence that CBT (and BT) are longer lasting and more effective than the assumed TAU. In addition to this, Thackwray found that “CBT was the only group that differed significantly from control at follow-up”, providing more evidence that CBT is more effective than BT and far more effective than TAU [20].

CBT has been observed to be provide “more rapid results” than interpersonal psychotherapy (IPT) in the treatment of bulimia nervosa, according to a study by Wilson et al., 2002 [20]. However, there were no differences in improvements of shape or weight concerns and the ratios of recovered patients who remained recovered at follow-up were similar for both CBT and IPT [20]. This means that CBT is no more effective than IPT, since patients reach roughly the same level of recovery. On the other hand, CBT being quicker than IPT could be applied to improving patients suffering from a severe form of bulimia nervosa because the quicker response would result in less internal damage and a higher recovery rate [20]. Alternatively, if CBT is used rather than IPT in the disorder's early stages, the person could have a higher chance of making a full recovery. The investigators concluded that the “rapid action of CBT to reduce dietary restraint” must be more effective than other therapies because this is perceived to be the most important concern in treating bulimia [20].

In conclusion, CBT has been shown to be more effective overall in the treatment of eating disorders when compared to BT and IPT. The study investigating CBT appears to have been carried out in a far more controlled way than either of the studies involving CBT-E, since both of these had very severe validity issues. These included a low sample size in Grave et al's study, and the lack of a comparison treatment in Fairburn's study. Therefore, despite the difficulty with indirectly comparing them and according to only the studies investigated, CBT appears to be more effective in the treatment of anorexia and bulimia nervosa than CBT-E. This is surprising because CBT-E is meant to be a more advanced version of CBT, specialised to treat eating disorders.

Mainstream treatments- ACT
There are a wide range of alternative treatments which may be used in the treatment of eating disorders. These include acupuncture, meditation and acceptance and commitment therapy (ACT). Acceptance and commitment therapy uses “acceptance and mindful strategies ... with commitment and behaviour-change strategies, to increase psychological flexibility” 21. One study by Uppsala university researching the long-term effects of acceptance and commitment therapy for adults with anorexia found “no significant difference in outcome between the TAU (group who were treated as usual) and the ACT treatment regarding recovery and relapse” [22]. This would suggest that ACT was just as useful as normal treatment which eating disordered patients may experience, and that the additional psychotherapy didn't cause a significant impact on their recovery. However, this study has a low validity because ACT did not impede the patients' recovery, there were only 43 participants in this trial and all participants were above 18 years [22]. Hence, the results cannot be applied to generalising this research to people younger than 18 or to a larger sample size.
On the other hand, a study by Juarascio which compared ACT and TAU for both anorexia and bulimia found that “participants in the ACT condition experienced slightly greater improvements in eating pathology when compared with participants in the TAU condition” [23]. Although this difference was slight, a small number of ACT group sessions resulted in participants of this group showing “a consistent pattern of reduced eating pathology by post-treatment over... TAU” [23]. This is especially important because TAU resulted in “considerable improvement” on its own, further increasing the effectiveness of ACT [23]. However, the author noted that there was limited research support available at the residential treatment facility, for example patients were often “discharged before members of the research team were available to complete a posttreatment assessment” [23]. This means that participants could have not been successfully evaluated and, when coupled with the small sample size, further decreases the validity of the study [23]. Despite this, however, the study had a “relatively large sample size for eating disorder research” [23].

Overall, ACT has shown to have a small benefit to treating anorexia and bulimia nervosa but as stated by Juarascio, “the lack of systematic research has limited its use” [23]. This means that ACT has not been used to its full potential in a study. Evidence for this is shown by some patients being discharged before full assessment of their progress has been carried out [23]. However, one fundamental strength of ACT is the use of “both self-report and measures and consistency... [which] allows greater confidence in the validity” [23]. Further research will need to be carried out in order to assess whether ACT can be used to help eating disordered patients improve their condition, using larger sample sizes and using more accurate controls of the experiments.

When compared to other treatments for eating disorders, ACT appears to be far inferior to CBT or CBT-E. This is because there was only a slight improvement in the ACT condition when compared to the TAU condition, as opposed to a very large improvement when the cognitive behavioural therapies were evaluated against other treatments, or investigated. This means that CBT still appears to be the dominant form of treatment for anorexia and bulimia nervosa.

**Mainstream treatments- Medication**

According to the NHS, “Medication alone isn’t usually effective in treating anorexia” and is often used in conjunction with treatment for psychological problems, such as depression 24. There are “relatively few controlled... studies” in comparison to bulimia nervosa, and the “pharmacological treatment of AN” has been disappointing [25]. In a meta analysis of various studies investigating the effects of drugs on the treatment of anorexia, Mitchell et al. found that there was generally no significant result among three types of pharmacological treatments [25]. Tricyclic antidepressants were examined solely for their ability “to stimulate weight gain”, with the majority of patients being inpatients [25]. Despite clompiramine appearing to “increase hunger and calorie consumption” early in treatment, it didn't lead to weight gain in the long term [25].

Amitriptyline, another TCA, “did not produce significant improvement in weight regain or depressive symptoms” [25]. It is important to note that this drug failed to improve on
depressive symptoms. This is because the improvement of depressive symptoms is the main
target of TCAs, perhaps casting doubt on whether it is beneficial to patients at all. However,
side effects such as hypotension and drowsiness were significantly reduced \[25\]. This could
suggest that perhaps the drug is worth taking, even if it results in only a small improvement.
The author of the paper noted that the trials ranged from one to two months, and this may
have been an insufficient amount of time to “fully realise any antidepressant potential from
these drugs” \[25\]. Therefore although TCAs don't appear to be useful in the treatment of
anorexia nervosa, further research needs to be carried out in order to full assess their
usefulness.

The meta-analysis by Mitchell et al. found that SSRI antidepressants such as fluoxetine
resulted in no difference in time to relapse in anorexia nervosa between fluoxetine and the
placebo \[25\]. Additionally, there was no difference between the drug and placebo on
depressive symptoms \[25\]. Since one trial is said to have “thoroughly investigated the
efficacy of fluoxetine for relapse prevention in AN”, it can be said that fluoxetine is
ineffective in the treatment of anorexia nervosa \[25\]. As well as this, both inpatients and
outpatients were studied \[25\]. The results indicate that fluoxetine is ineffective for both
inpatients and outpatients, which decreases its usefulness in treatment even further \[25\]. The
long duration of one year for one of the studies supports the validity of the results, as it
investigated the long term effects \[25\]. However, the results were only found in “one
controlled brief inpatient study and in two outpatient treatment studies of one year” \[25\]. Due
to the relatively low sample size of each study (33/39/49) and with each study using
different procedures, more research is needed to fully assess the potential of fluoxetine \[25\].
This could be performed using a much larger study of around 100 participants who are
either inpatients or outpatients, examining fluoxetine as a drug.

Medications for eating disorders include antidepressants, which may decrease the binge-
eating or purging behaviours associated with bulimia \[26\]. These can help relieve some
symptoms of eating disorders, such as depression or anxiety \[5\]. Antipsychotics were found in
the meta-analysis to have failed to improved weight significantly \[25\]. Some of these drugs
resulted in “significant side effects in some patients”, such as type 2 diabetes \[25\]. This
decreases the practicality of second generation antipsychotics massively, because they have
been shown to potentially harm the patient far more than improve their condition. On the
other hand relatively small sample sizes were used in the assessment, which could mean that
antipsychotics are not being assessed to their full potential \[25\]. The duration which the
patients were on antipsychotics was relatively short as well, so studies are needed to assess
their use in the longer term \[25\].

The use of drug therapy in bulimia nervosa was also investigated in the meta-analysis,
involving 29 double-blind, placebo controlled trials being reviewed \[25\]. One study
investigating the effect of fluoxetine following “poor response of psychotherapy” published
in the American Journal of Psychiatry demonstrated that fluoxetine is “of benefit even to
patients... who have not responded satisfactorily to state-of-the-art psychological
treatment” \[27\]. When compared to the placebo, there was a very high decrease in the number
of binges and purges in the past month following completion of the treatment. The placebo
resulted in a moderate increase in number of binges and purges in the past month, providing an extremely large amount of support for fluoxetine as an effective treatment for bulimia nervosa [27]. However, the short duration of 8 weeks means that it is “unknown whether the benefits have persisted” [27]. This could suggest that fluoxetine is only effective for a short duration which would decrease its usefulness, since most people suffer from the disorder for a longer period of time than 8 weeks [27].

Another potential disadvantage of fluoxetine as a treatment is the high attrition rate of the study due various reasons, such as side effects or because “they found pharmacological treatment an unacceptable alternative” [27]. As well as this, the small sample size used makes it “impossible for (the researchers) to identify any potential predictions of pharmacological responsiveness” [27]. Due to this, the results of fluoxetine found from this study could be completely invalid.

The comparison of medication to any form of counselling is difficult, since the two treatments are administered in extremely different ways. For example, medication such as SSRIs will attempt to alter the balance of the neurotransmitter serotonin in the brain. This can be administered with very little time commitment, but may have unpleasant side effects. Contrary to this, CBT and CBT-E will attempt to change the way a person thinks, and may assign homework for the patient to help them recover. Although they require a much larger time commitment, the therapies are far less likely to lead to unwanted effects being experienced by the sufferer. Despite this, the cognitive behavioural therapies seem to be more effective than medication due to the larger amount of people it can positively affect. For example medication is considered to be a trial and error process of finding the right type and dosage for each patient. In anorexia and bulimia nervosa, since they have such a high mortality rate and the condition of sufferers can deteriorate rapidly, there is very little time to try to find the optimal medication. On the other hand, CBT and CBT-E are usually helpful in a much shorter time and can help the patient feel that they are making more progress than medications can.

Alternative treatments- Acupuncture

Acupuncture has been used in a study in which patients with anorexia and bulimia nervosa were compared to a group receiving TAU, and found positive results [28]. There was a lowered mean score among the 5 participants receiving acupuncture and treatment as usual for every measure in the EDI-3, such as large reductions in drive for thinness, low self-esteem and eating disorder risk composite [28]. The extent of this decrease was greater in the acupuncture and TAU group, rather than the group of 4 participants who only received TAU [28]. Along with significant improvements in patient's quality of life in the acupuncture group, this study may provide convincing evidence that acupuncture is a beneficial treatment for both anorexia and bulimia. The experimental method used was repeated measures, in which order effects were controlled using counterbalancing [28]. This decreases the participant variables in the experiment which increases its validity.

However, the sample size is far too low in this study to suggest that acupuncture can be used in the treatment of anorexia or bulimia nervosa [28]. The 9 participants who took part in the
study and completed the treatment could lead to a very high influence of anomalies, decreasing the validity of the study immensely. Additionally, one participant dropped out of the study from the acupuncture group because they were “feeling overwhelmed with all treatments”, showing the intensity of acupuncture required to achieve the results. A larger sample of people will probably have resulted in a higher percentage attrition rate, making acupuncture even less useful as a treatment. This is backed up by one potential participant not living close enough to the treatment facility in order to receive 13 sessions of acupuncture in 10 weeks. If this was used to treat anorexia or bulimia, patients may need to relocate temporarily due to the high frequency of treatment, showing it lacks generalisability to the treatment of eating disorders.

**Alternative treatments- Light therapy**

Alternative treatments, such as light therapy were examined in the meta-study. It was found that positive effects of symptom improvements were found in participants who suffered from bulimia nervosa. Additionally, the level of effectiveness varied between using bright white lights against dim red lights. Braun and colleagues found superior benefit for the bright light conditions. This increases the potential of the treatment, because it could mean that the optimal light range has not yet been found. The study was relatively well controlled, using a repeated measure design with counterbalancing used to control for order effects. This increases its validity and therefore the effectiveness of light therapy. However, it is important to note that Braun found that “complete cessation of binge eating was uncommon”. This minimises the ability to use light therapy as a sole method of treating bulimia nervosa, because there could be a risk of a high relapse rate if binge eating cycles fail to cease completely. Additionally the experiment duration was 2 weeks, which is insufficient to fully examine the full effects of light therapy. There was also no follow-up study carried out, so the long term effects cannot be determined from this study.

Out of the alternative treatments of eating disorders, light therapy appears to be a more effective method than acupuncture. This is shown by the study being controlled to a much greater extent, increasing its validity. Additionally, the study investigating its effectiveness had a much greater sample size when compared to the study evaluating acupuncture. Although light therapy needs to be investigated more regarding its long term effects and currently appears to be far less useful than CBT, if given enough funding and research, the treatment could be used to treat patients who are resistant to cognitive behavioural therapy.

**Ideal treatment method**

Regarding the initial treatment of a patient with eating disorders, a multidisciplinary team should be involved including “the primary care physician, nutritionist, and a mental health professional”. All of these people should communicate and share ideas and feedback on the patient's progress on a regular basis. Immediate treatment should be aimed at the recovery of normal eating patterns and individual or family psychotherapy as soon as the patient is able to participate. However, this is not currently being done. A recent report commissioned by the NHS highlights a “lack of collaboration” among healthcare providers regarding the treatment of eating disorders for young people. Nicholls et al., 2011 found that the majority of
sufferers under 13 requiring an admission to hospital due to eating disorders are admitted to paediatric wards. These are inadequately equipped to manage children and young people with an eating disorder.

Assessing the multi-disciplinary approach

The multi-disciplinary approach has had few studies which are descriptive on the roles of the multi-disciplinary team. However, one study investigated this approach to treatment via videoconferencing in Scotland for patients suffering from anorexia, bulimia nervosa, EDNOS and binge eating disorder. The report described how the majority of patients were offered 12 to 20 sessions of CBT and, when necessary, 6 to 8 nutritional education sessions. Although the main target of this study was to investigate whether video conferencing is effective for the treatment of anorexia and bulimia nervosa, it can also be used to investigate the effectiveness of a multi-disciplinary team. This is because the nutritional educators and CBT therapists probably conversed on patient's progress, so the effectiveness of how they interacted can be assessed. Progress was mainly monitored and measured using daily food diaries, the Bulimic Investigatory Test (BIT; used in patient suffering from bulimia) and using a 4-point Likert scale.

Even such a small scale multi-disciplinary approach has shown to be successful, with the report citing that “reduced frequency of binge eating” in sufferers of bulimia and binge eating disorder had been observed. It was found that, out of twelve patients (or fifteen if including the patient suffering from binge-eating disorder), eight were symptom free following the completion of treatment. These show the effectiveness of a multi-disciplinary team in the treatment of anorexia and bulimia nervosa. Furthermore, patients were also more knowledgeable about nutrition, shown by the mean improvement in nutritional knowledge “from 56% to 91%”. Except for the patient with anorexia nervosa experienced a “more structured and regular eating pattern”, highlighting how effective even a small-scale multi-disciplinary approach is in the treatment of bulimia nervosa. This shows that both the CBT and nutritional educational therapy was effective in the treatment of multiple eating disorders.

On the other hand the investigation is severely lacking in population validity, with only one patient with anorexia nervosa, five with bulimia nervosa, six with EDNOS and three with binge-eating disorder. This brings up a very serious generalisability issue. Additionally, there was the problem with what the report was investigating; if videoconferencing could be used to improve symptoms. This is problematic because a multi-disciplinary approach was not being directly assessed. A Likert scale being used to assess quality of the treatment, which increases the risk of the results being inaccurate. For example the 'please you' effect could be affecting the results of participants, leading them to answer in a way which is not true. Finally, the patient with anorexia nervosa appeared to benefit to a lesser extent from the treatment. This suggests that a multi-disciplinary approach may not be able to be used to effectively treat anorexia.

In conclusion, the multi-disciplinary approach has been shown to be a beneficial method of treating eating disorders, shown by the high percentage of nutritional knowledge. However,
the very poor sample size and lack of a wider scale multi-disciplinary approach being used suggests that this investigation may not be harnessing its full potential. This means that the benefits of a multi-disciplinary approach could be far greater if used correctly, such as if it was applied to the in-patient treatment of anorexia and bulimia nervosa, and face to face interaction with the patients, as opposed to videoconferencing.

**Conclusion**

In conclusion, there appears to be no sole method of treating anorexia and bulimia. This was most likely due to the long term effects of treatments rarely being investigated. However, drug therapy appears to be a promising treatment for both disorders, shown by the early effects of clompiramine appearing to “increase hunger and calorie consumption”. This study only ran for 1-2 months, and the reduced side effects compared to other drugs mean it can be argued that similar drugs may be effective in the treatment of eating disorders. Surprisingly, despite being alternative treatments, light therapy and acupuncture seemed to be effective. But a far larger sample size would have to be used for both treatments to assess if the positive effects were genuine and replicable, or anomalies. CBT-E appears to be the optimal treatment for anorexia and bulimia, shown by the positive results over a long period of time. However, the study assessed used a worrying lack of control and a poor sample size. Because of the far greater validity of the study, CBT appears to be the optimal treatment for anorexia and bulimia nervosa. However, other treatments show promise and all of the ones investigated could be developed and used as an alternative if CBT fails to improve a sufferer's condition.

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