Getting Better Byte by Byte: A Pilot Randomised Controlled Trial of Email Therapy for Bulimia Nervosa and Binge Eating Disorder

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One hundred and ten people in an university population responded to emailed eating disorder questionnaires. Ninety-seven fulfilling criteria for eating disorders (bulimia nervosa (BN), binge eating disorder (BED), EDNOS) were randomised to therapist administered email bulimia therapy (eBT), unsupported Self directed writing (SDW) or Waiting list control (WLC). Measures were repeated at 3 months. Diagnosis, Beck depression inventory (BDI) and Bulimia investigatory test (BITE) scores were recorded. Follow-up rate was 63% and results must be interpreted cautiously. However significantly fewer participants who had received eBT or SDW fulfilled criteria for eating disorders at follow up compared to WLC. There was no significant difference between eBT and SDW in the analysis of variance (ANOVA), although in separate analyses, eBT was significantly superior to WLC ($p < 0.02$) and the difference for SDW approached significance ($p = 0.06$). BDI and BITE scores showed no significant change. For eBT participants there was a significant positive correlation between words written and improvement in BITE severity score. BN, BED and EDNOS can be treated via email. Copyright © 2007 John Wiley & Sons, Ltd and Eating Disorders Association.

Keywords: eating disorders; bulimia nervosa; binge eating; email; therapy; internet

INTRODUCTION

Electronic communication in health care has become increasingly important (BMJ, 2004). Recently, a pilot uncontrolled study demonstrated that therapy for bulimia nervosa (BN) and binge eating disorder (BED), common serious problems affecting between 1 and 2% of the adult female population in developed countries, could be successfully delivered via email (Robinson & Serfaty, 2001).

Although effective treatments for eating disorders exist (Fairburn, Norman, Welch, O’Connor, Doll, & Peveler, 1995; NICE, 2004) many people who suffer from severe eating disorders are reluctant to approach health care professionals (Hoek & van Hoek, 2003) in part because of shame about the disorder.
Therapy via email is widely available (ISMHO), but very little has been published on its efficacy. There is some evidence that email is an acceptable and helpful medium for physician–patient communication (Car & Sheikh, 2004; Mainous, Clark, & Hagen, 1994). In specific areas, email has been used in treating obesity (Tate, Jackvony, & Wing, 2003; Tate, Wing, & Winett, 2001), monitoring of epilepsy (Betts, 2004) and in managing anorexia nervosa (Yager, 2003).

Controlled studies of email therapy are rare. Email has been used in a trial of behavioural treatment for weight loss (Tate, Wing, & Winett, 2001, 2003) and in a small controlled study using therapeutic writing in post-traumatic stress disorder (Lange, van de Ven, Schrieken, & Emmelkamp, 2001) with promising results. The present study represents the first randomised controlled trial using email therapy in eating disorders.

METHODS

Study Population

The study was confined to a large (approximately 15,000 undergraduate and postgraduate students and 5000 staff) college in the University of London. An email was sent to all staff and students asking those who thought they might suffer from bulimia to write to one of the authors (P. R.). Individuals who responded to the message were sent an explanation of the project with a consent form, a general questionnaire covering demographic data, medical history, psychiatric history including previous treatment and self harm, alcohol and drug abuse and the main and subsidiary outcome measures provided below. Once the questionnaires were returned a diagnosis was made using the Questionnaire for Eating Disorders (QEDD) (Mintz, O’Halloran, & Mulholland, 1997) and providing they satisfied the following inclusion criteria, were randomised to one of the three treatment groups.

The inclusion criteria were a DSM-IV diagnosis of BN (purging or non-purging), BED or eating disorder not otherwise specified. Diagnosis was made using information from the QEDD using the DSM-IV (American Psychiatric Association, 1994) for definitions of disorders. Participants were required to have an email address from the college studied and be competent in written English. They were excluded if they had a body mass index below 17.5 kg/m², had been regular drug users within the last 3 months, had engaged in deliberate self harm in the same period, were pregnant or were currently in specialist treatment for an eating disorder. They were also excluded if they were not currently students or staff members at the college under study. Those excluded were sent an email explaining the reason for exclusion and offering to advise on obtaining conventional treatment.

Ethical Aspects

Approval was obtained from the Local Research Ethics Committee (LREC), the University governing body and the University medical services. Concerns were raised by the LREC that people were being treated without being seen by a health professional and that some individuals might feign illness and be accepted for the study or that some with significant psychological difficulties might become worse during treatment, and be less accessible than those being seen face to face. However, participants were told that therapy was not anonymous, that security could potentially be breached by a determined individual and that if a therapist was very worried about a participant’s health, the Student Health Service might be informed.

Comparison Clinic Sample

In order to compare participants treated in this study with a clinic sample, 33 consecutive new patients matched with study participants for age, sex and diagnosis, seen at the Russell Unit outpatient department were compared with the study group in terms of age, length of history and questionnaires scores.

Randomisation

After acceptance into the study, participants were randomised by one of the authors (P. R.) using a computer generated random numbers table, to one of three groups:

1. Email bulimia therapy (eBT)
2. Self directed writing (SDW)
3. Waiting list control (WLC)

Participants were then sent an email informing them of the randomisation result, describing the intervention being offered and asking for a confirmation of willingness to proceed.

Interventions

eBT

Participants were assigned an email therapist who was a member of the Specialist Eating Disorders Team. eBT was provided by 11 therapists, including
nurses, psychologists, psychiatrists, a family therapist and one nurse manager. If no word was heard from a participant, email reminders were sent approximately weekly until it was judged that the participant indicated she/he had decided to withdraw. On-line supervision required the emailing of all correspondence to the supervisor who then annotated it and returned it to the therapist. E-therapists received on-line supervision from one of the two authors. They were not allowed to discuss cases face to face with supervisors. Therapy was for 3 months and an average of two emails per week were expected. The frequency was derived from the pilot study (Robinson & Serfaty, 2001) in which one or two emails per week (and no more) was commonly observed. The duration of treatment reflected the fact that outpatient treatment for BN and BED commonly consists of 16–20 sessions. Several techniques were used in treatment, reflecting individuals’ practice in the clinic. The model of therapy varied between therapists to some extent, but all treatments included: (i) Eliciting a history. (ii) Asking the participant to keep a dietary and feelings diary. (iii) Identifying and modifying negative automatic thoughts and other cognitive styles common in eating disorders. (iv) Encouraging regular meals with adequate carbohydrate. (v) Examining relationships and aspects of the participant’s behaviour which might exacerbate the eating disorder. (vi) Managing the ending. Supervisors ensured that these six elements were present in every therapy. The two supervisor/therapists (M. S. and P. R.) had many years experience as specialists in eating disorders psychiatry with abundant clinical experience and supervision in cognitive behavioural treatment of BN, BED and EDNOS and one (M. S.) is formally trained in CBT.

SDW

This intervention was designed to examine the therapeutic effects of writing with minimal therapist intervention. Participants were sent an email and asked to spend some time at least twice a week, writing about their difficulties and to send it to one of the authors (P. R.). Participants were told that they would not receive any specific advice related to their eating, although they were encouraged to write a substantial amount about their difficulties (Pennebaker, 2003).

Waiting list control

These participants were placed on a waiting list. After 3 months they were reassessed and offered either eBT or SDW by random allocation. They were not followed up at the end of their therapy. Their emails during therapy were, however, monitored for risk.

Follow-up Measures

At 3 months (i.e. at the end of therapy), all participants were sent all questionnaires that had been provided at entry. They were also asked to provide feedback on therapy they had received. Those that failed to reply were sent two further emails, the last one explaining the importance of completing the questionnaires.

Outcome Measures: 1. Quantitative

Main outcome measure

Diagnosis of eating disorder on the questionnaire for eating disorders (QEDD) (Mintz et al., 1997). This allows a diagnosis of a variety of eating disorders under the DSM-IV (American Psychiatric Association, 1994); ratings were performed by one of the authors (P. R.). In order to assess the inter-rater reliability of the QEDD in this study, 84 randomly selected questionnaires were rated in addition by a second rater experienced in assessing patients with eating disorders and blind to treatment condition.

Subsidiary outcome measures

Beck Depression Inventory (BDI) (Beck, Ward, & Mendelson, 1961) and Bulimia Investigatory Test Edinburgh (BITE) (Henderson & Freeman, 1987). This 33 item scale provides a rating of symptoms of BN and BED and has a symptom and severity subscale.

Desired weight. Participant’s estimate of ideal weight (converted to BMI).

Other measures

Linguistic inquiry and word count (LIWC). Files of text sent by participants were cleared of items not written by the participant, including therapist messages, and analysed using the LIWC software (Pennebaker & Francis, 1996). This program automatically counts the frequency of different types of word in a document, with no opportunity for observer bias. In this study, it was anticipated that words with psychological significance would be increased in participants who improved more in treatment. Prior to analysis it was decided to compare words under the LIWC heading ‘Psychological Processes’ (subheadings: Positive, negative emotions, feelings, optimism, energy, anxiety,
fear, sadness, depression), in order to test this hypothesis.

**Word count.** The degree of participation was measured using the number of words written by the participant.

**Outcome Measures: 2. Participant Feedback on Therapy**

In the questionnaire provided at follow-up, participants were asked the following:

- Comments about the treatment:
  - Please make any comments below about the helpfulness or otherwise of the e-therapy.

- In what ways do you feel you have made progress (or otherwise) in your problems?

- What sort of therapy would you consider for your eating disorder in the future, on-line or face to face?

**Null Hypotheses**

1. There is no difference in eating disorder diagnosis between those who have received eBT or SDW compared to the WLCs.
2. There is no difference in eating disorder diagnosis between those who have received active therapy (eBT) and those receiving therapeutic writing (SDW).

**Statistics**

**Power**

Data from a pilot study of 23 participants (Robinson & Serfaty, 2001) indicated that 12 out of 16 participants improved with eBT (i.e. 75%). Assuming a 5% spontaneous remission rate, at 80% and 90% power at the 5% significance level, 22–30 participants would be required in each group in order to detect a significant difference between an intervention and a control group. As the present study used three groups, the total predicted study population was 66–90.

**Analysis**

Outcome measures from the two therapy groups (eBT or SDW) were compared against WLC controls and eBT was also compared against SDW. Both completers and intention to treat (ITT) analysis were undertaken, but as this gave the same results, for convenience only the ITT analysis is presented. In the ITT analysis results obtained at baseline were carried forward and used in the ANOVA. All statistics were calculated using SPSS version 12 (SPSS, 2004). Normally distributed and skewed/categorical data were analysed using parametric and non-parametric methods, respectively. One-way analysis of variance and unpaired t-tests were used for baseline comparisons. Eating disorder diagnosis was analysed using Fisher’s exact test and the chi-squared test where appropriate. Subsidiary outcomes were analysed using general linear models and multivariate analysis of variance. Associations were assessed using Pearson’s correlation coefficient. The LIWC were compared for SDW and eBT using unpaired t-tests. Correlations with measures of clinical change (i.e. change in BMI, desired BMI, BDI, BITE severity and symptoms) were also calculated using Pearson’s r. In view of the number of tests, alpha was set at p < 0.01 for these analyses. Inter-rater reliability was assessed using Cohen’s kappa.

**RESULTS**

A summary of participant flow is given in Figure 1.

**Response to Emailed Invitation**

Each time the invitation was emailed to the 20,000 students and staff at the university, between 20 and 50 replies were obtained. The study was continued until the number of participants exceeded the number predicted from the power analysis. Because recruitment was relatively slow, the invitation needed to be sent five times over 4 years, beginning in 2000. One hundred and fifty-nine replies were received in total of which five were not eligible for the study. They were either students elsewhere or not suffering from eating disorders.

One hundred and fifty-four assessment questionnaires were sent. Of these, 110 questionnaires were returned.

**Returned Questionnaires**

Only three respondents proved not to fulfil criteria for an eating disorder after examination of the questionnaires. Seven respondents were excluded because of a BMI < 17.5 kg/m², one respondent was pregnant and two declined treatment. Of the remaining 97 participants, 36 fulfilled criteria for BN, purging subtype, 15 for BN, non-purging subtype, 26 for BED. Twenty participants received diagnoses of eating disorder not otherwise specified. Of the EDNOS participants, nine reported
bingeing and vomiting (<twice weekly), 10, binge-
ing only (<twice weekly) and one vomiting only.
Only 21 out of the 97 participants (20.4%) had ever
had any treatment for an eating disorder. None was
currently receiving specialist eating disorders
treatment. There were four males in the study
group (4.1%). Assuming a constant staff group, new
students joining the university at a rate of 5000 per
year and equal sex ratio, we surveyed an estimated
total of 40 000 individuals with 20 000 women.
Assuming a 1% prevalence of BN gives an estimated
number of 200 cases, suggesting that the 41
participants with BN identified in the study
represented 20.5% of the likely sufferers in the
university.

**Comparison Clinic Sample**
The clinic group were significantly older, heavier,
had a longer history and had higher scores on
ratings of depression and severity of bulimia.
Demographic, clinical and questionnaire data for
both the study and the clinic samples are presented
in Table 1.

**Allocation to Treatment Groups**
Thirty-six participants were randomised to eBT, 34
to SDW and 27 to WLC. This distribution is not
significantly different from chance (chi-squared =
1.38, df = 2, p > 0.05.) One-way analysis of variance
(ANOVA) revealed no statistically significant
difference between the three groups in age, BMI,
desired BMI, length of history or questionnaire
scores, nor in a chi-squared test any difference in
current or previous treatment received (p > 0.05).

There was no excess representation of a particular
diagnostic group (BED, EDNOS, BN) in any of the
three treatment groups (chi-squared = 1.22, df = 4,
p > 0.8).

Seventeen eBT participants were treated by one of
the two co-authors and other therapists treated
between one and three participants each. Email was
generally reliable, whether via the individual's

Figure 1. Flow chart of recruitment for study of email treatment for eating disorders
university address or a personal address which was usually web-based.

Between group comparisons were made for demographic, main and subsidiary outcome measures taken at baseline for dropouts and completers. There were no differences in any of these measures.

There was no significant difference between eBT and SDW participants in their stated intentions about treatment.

Follow-up Assessments

Sixty three per cent (61/97) of participants completed follow-up questionnaires, although some required several reminders. As shown in Figure 1, the number of completers was 19/34, 22/34 and 20/27, respectively, for eBT, SDW and WLC groups. The distribution of completers was not significantly different between treatment groups. Completers were compared with non-completers and did not differ in respect of variables listed in Table 1.

Diagnosis of Eating Disorders (Table 2)

Of 84 questionnaires assessed, diagnostic agreement was noted in 71 (84.5%). Cohen’s kappa was 0.76, with 95% CI of 0.64 to 0.8, indicating satisfactory inter-rater agreement.

At the outset, all participants fulfilled diagnostic criteria for an eating disorder. At follow-up whereas 13 of the intervention group had lost their diagnosis (8 eBT and 5 SDW participants), all of the control group continued to fulfil criteria for an eating disorder at follow-up. This change is significantly different from chance in the ITT analysis when the three groups are compared ($\chi^2 = 6.64, \text{df} = 2, p < 0.05$). eBT was significantly superior to WLC (Fisher’s Exact Test $\phi = -0.33, \text{df} = 1, p < 0.02$). SDW approached significance when compared to WLC (Fisher’s Exact Test $\phi = -0.27, \text{df} = 1, p = 0.06$). There was no difference between SDW and eBT (Fisher’s Exact Test $\phi = 0.1, \text{df} = 1, p = 0.54$). Sub-analysis revealed no difference in treatment response between diagnostic groups (EDNOS (including BED) vs. BN).

Changes in Questionnaire Scores

Beck depression inventory and BITE scores

There was no significant change in either BDI or BITE scores over time for the whole group (Table 3). There was no significant effect of either SDW or eBT compared to WLC and no significant difference between eBT and SDW.

LIWC Analyses

LIWC analysis was performed on 22 SDW and 13 eBT subjects who wrote at least 100 words and who completed the outcome measures
Differences between SDW and eBT
Perhaps surprisingly, words categorised as indicating cognitive mechanisms (e.g. cause, know, ought) and causes (e.g. because, effect, hence) were over-represented in SDW compared to eBT scripts (cognitive mechanisms: 8.16 vs. 6.57%, \( t = 2.93,\) df = 36, \( p = 0.006,\) causes: 1.28 vs. 0.87%, \( t = 2.97,\) df = 36, \( p = 0.005\)).

Table 3. Questionnaire results (ITT analyses) for eBT, SDW and WLC

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Baseline (Mean 95% CI)</th>
<th>Follow-up (Mean 95% CI)</th>
<th>Analysis (general linear model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BITE severity</td>
<td>eBT</td>
<td>36 7.56 (6.3–8.8)</td>
<td>6.64 (5.15–8.13)</td>
<td>( F(2,96) = 2.5, p = 0.088 )</td>
</tr>
<tr>
<td></td>
<td>SDW</td>
<td>34 8.51 (6.9–9.9)</td>
<td>6.91 (5.33–8.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WLC</td>
<td>27 9.58 (8.05–11.06)</td>
<td>9.37 (8.0–10.74)</td>
<td></td>
</tr>
<tr>
<td>BITE symptom</td>
<td>eBT</td>
<td>36 23.31 (22.3–24.4)</td>
<td>21.5 (19.9–23.1)</td>
<td>( F(2,96) = 2.03, p = 0.14 )</td>
</tr>
<tr>
<td></td>
<td>SDW</td>
<td>34 24.1 (22.6–25.7)</td>
<td>21.7 (19.3–24.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WLC</td>
<td>27 24.4 (23.17–25.72)</td>
<td>24.19 (22.9–25.5)</td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>eBT</td>
<td>36 21.2 (18.1–24.4)</td>
<td>18.5 (14.4–22.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SDW</td>
<td>34 19.6 (15.6–23.5)</td>
<td>18.3 (14.1–22.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WLC</td>
<td>27 22.6 (17.76–27.42)</td>
<td>23.3 (17.9–28.6)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Word count in the two therapeutic approaches

<table>
<thead>
<tr>
<th>Statistic</th>
<th>EBT</th>
<th>SDW</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (participants writing at all)</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>Mean word count</td>
<td>3694</td>
<td>3958</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3832</td>
<td>5716</td>
</tr>
<tr>
<td>Median</td>
<td>2026</td>
<td>2056</td>
</tr>
<tr>
<td>Maximum</td>
<td>13724</td>
<td>26552</td>
</tr>
</tbody>
</table>

Correlations between changes in outcome measures and word frequencies
Change in desired BMI correlated positively with two categories: positive emotion \( r = 0.44, p < 0.01 \) and positive feelings \( r = 0.42, p < 0.01 \). No other outcome measure correlated significantly with LIWC categories.

Word Count

eBT
Some of the participants failed to respond after the first contact from the therapist, some participated actively, writing over 13,000 words (see Table 4).

SDW
The number of words written varied in this group, with a proportion writing nothing after the first invitation. Many, however, wrote enthusiastically, one correspondent writing over 26,000 words.

Feedback and Expressed Intentions of Participants at the End of Therapy

At the 3 months follow-up point all participants who had engaged in either eBT or SDW were asked for their intentions as to future treatment and for feedback on the therapies. Feedback was provided by 25 of the 36 eBT participants and 18 of the 34 SDW participants, a total response rate of 61.4%. Twenty-three out of 43 participants (53.5%) who had received either eBT or SDW and who replied to the question indicated that they would be willing to have face to face treatment. Twenty-three (not the same 23) also indicated that they would accept on-line therapy in the future. Thirty-six out of 43 (83.7%) indicated that they would be willing to have one or other of the therapies, and nine (21%) that they would accept both. Of the 43 participants who had received either eBT or SDW, 36 (83.7%) had never before been treated for their eating disorder. Of these 30 (83.3%) agreed they would accept either on-line or face to face therapy.
For eBT, the therapy was regarded as helping regain control. It was thought helpful that the therapist ‘had no idea what I looked like’ and was not ‘sitting opposite me staring till I said something’. On the negative side, some regarded the gap between their emails and the response as a disadvantage, and one claimed not to have received emails at times from the therapist. Overall about 60% of the comments about eBT were positive.

Fifty per cent of SDW participants made positive comments about the therapy. These were mostly related to having revealed a ‘shameful secret’. Participants had, since beginning therapy, sought counselling and shared their problem for the first time with relatives. Critical comments were all, predictably, to do with lack of feedback, for example ‘I need more monitoring and telling off’.

Of the 97 participants in the study 6 (6.2%) were referred to the Russell Unit Eating Disorders service in the 4 years following the study. There was no significant difference in referral rate between the three treatment groups. One additional person who was rejected from the study because of anorexia nervosa has also been referred. We did not collect information on possible referrals elsewhere in the public or private sectors.

Risk Management

There was little that arose in therapy that appeared to require major intervention, such as informing the University Health Service. Several participants disclosed regular vomiting and were advised to see their doctors to have serum potassium measured. One participant’s depression score increased substantially after eBT. She was contacted by email and advised to seek medical help. She replied with thanks for the advice, but indicated that she was too busy with exams at the time. The risk was not judged sufficient to take any further action. One waiting list participant informed us that she had been admitted to hospital following an overdose and did not wish to pursue treatment on-line. Her initial Beck score was 20, which is in the moderately depressed range.

DISCUSSION

This is the first RCT of psychotherapy for eating disorders delivered via email. A fifth of all people at the college who were likely to have BN were recruited. It was possible to provide therapy via email to a group who were previously unidentified and untreated. Numbers recruited conformed to the power analysis, although the default rate at follow-up (37%) while similar to other studies (Hay, Bacaltchuk, & Stefano, 2004) reduced the eventual power of the study. There was no significant difference on any initial demographic or clinical measure between completers and non-completers at follow-up. The results demonstrated that therapy (either eBT or SDW) significantly reduced the number of participants fulfilling DSM-IV eating disorder criteria, compared to WLCs. Comparing each therapy with controls and each other suggested that eBT was significantly better than control, SDW was better than control at a borderline non-significant level and the two therapies were not different from each other. Differential dropout is unlikely to explain these findings, but rather that SDW has a less potent effect and that the sample is too small and therefore of inadequate power to detect a difference between SDW and the WLC and SDW and eBT.

The study was performed in a specialised and respected NHS service (Robinson, 2006) and the aim was to apply methods successfully used in the clinic to treatment provided entirely via email. The study recruited a sample of university students and staff, the majority of whom had never had any treatment for their eating problems. The approach thus provides a model for reaching the large number of people in the community who suffer from eating disorders but who do not present for treatment.

In addition to these strengths the study also has weaknesses. As mentioned, final numbers were lower than ideal, and for this reason the study has been described as a pilot. The diagnostic assessment used (the QEDD) was less comprehensive than other diagnostic tools such as the Eating Disorders Examination (EDE-Q) (Fairburn & Beglin, 1994). A more detailed assessment, which, although more reliable would also be more lengthy, might have led to a higher rate of non-compliance with assessment and for this reason the less demanding instrument was selected. Therapy, although rooted in CBT and supervised, was not independently verified. Some potential participants received the invitation and chose not to access the study. It is possible that the email message was seen as an unwanted intrusion of ‘spam’ and medical students attached to the Russell Unit who had received the email confirmed this. Alternative ways of advertising the project, such as via student websites, might have been more acceptable. Some subjects commented on the potential for breaches of security using email as the medium of therapy. A website with secure areas...
for participant and therapist writing might have improved confidence in security and hence compliance.

We compared our study population with a matched group of clinic attenders. Although BITE symptom scores were similar, the clinic population were slightly older, heavier, had a longer history and higher rating scores on ratings of depression and severity of bulimia than our study sample. This has face validity for two reasons. First our target population was recruited from a university population (and is therefore likely to be younger) and secondly, the finding suggests that the study population was seeking treatment via email at an earlier stage than those being referred to the clinic.

Overall, severity scores on the BITE were reduced but non-significantly. The BDI and BITE have many questions with cognitive and behavioural components. Because of the cognitive behavioural elements used in eBT scores a change in BDI and BITE scores may be expected, but one was not observed. The most likely explanation for this is that the sample size was too small to detect significant cognitive behavioural changes. Another possibility is that eBT was not standardised, but reflected individual therapists’ different practice, in the same way as therapy provided in the clinic varies. It may be that the therapy was not sufficiently ‘cognitive behavioural’. It would be useful to standardise and manualise eBT, to provide more uniformity, and a future study should sample emails to check treatment adherence by therapists.

Although the SDW treatment was originally designed as a control intervention the trend towards an effect may be explained by the value of therapeutic writing in which people improve because they are able to ventilate their feelings. A therapeutic effect of SDW is, therefore, not surprising. Pennebaker et al. (Pennebaker & Francis, 1996; Pennebaker, Kiecolt-Glaser, & Glaser, 1988) have in many studies shown substantial health gains from non-directed therapeutic writing and Smyth, Stone, Hurewitz, and Kaell (1999), demonstrated that, in asthma and rheumatoid arthritis, symptoms were improved in a therapeutic writing group. In the eating disorders field Schmidt, Bone, Hems, Lessem, and Treasure (2002), have used structured writing as a method of treatment in anorexia nervosa and, particularly relevant to the present study, Wright and Chung (2001) have reviewed the application of on-line therapeutic writing in counselling and therapy, including the use of ‘chatrooms’ to facilitate discussion. In the present study, results suggest a model in which SDW is used as an initial intervention, followed by more intensive eBT in participants who do not benefit.

This study is one of the first controlled studies of internet therapy and there are general lessons that can be derived so as to guide future research. The therapy was popular with therapists and participants. It was recognised as a way of obtaining expert treatment without face to face consultation. The majority of participants were positive about the experience of email therapy and wished to have more treatment. The internet is eminently suitable for development of web and email based interventions, with and without therapist support. Such techniques could be used to provide treatment for conditions in which attending a clinic is difficult, either because of remote location, psychological problems, as in agoraphobia, physical disabilities that impair mobility or fear of facing the hurdles presented by the general practitioner and the outpatients clinic. It is very likely, therefore, that the internet will provide an increasingly popular medium for the assessment and treatment of diverse health problems. The present study demonstrates that recruitment of a population with serious eating disorders, who generally do not seek medical help, is possible via email. Moreover, the evidence of efficacy presented is a clear encouragement to the use of the internet in future studies of treatment for these disorders.

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