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# Virtually delivered guided self-help for binge eating disorder and bulimia nervosa: findings from a service evaluation

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## Abstract

**Background:** Timely intervention is beneficial to the effectiveness of eating disorder (ED) treatment, but limited capacity within ED services means that these disorders are often not treated with sufficient speed. This service evaluation extends previous research into guided self-help (GSH) for adults with bulimic spectrum EDs by assessing the feasibility, acceptability, and preliminary effectiveness of virtually delivered GSH using videoconferencing.

**Method:** Patients with bulimia nervosa (BN), binge eating disorder (BED) and other specified feeding and eating disorders (OSFED) waiting for treatment in a large specialist adult ED out-patient service were offered virtually delivered GSH. The programme used an evidence-based cognitive behavioural self-help book. Individuals were supported by non-expert coaches, who delivered the eight-session programme via videoconferencing.

**Results:** One hundred and thirty patients were allocated to a GSH coach between 1 September 2020 and 30 September 2022; 106 (82%) started treatment and 78 (60%) completed treatment. Amongst completers, there were large reductions in ED behaviours and attitudinal symptoms, measured by the ED-15. The largest effect sizes for change between pre- and post-treatment were seen for binge eating episode frequency ($d = -0.89$) and concerns around eating ($d = -1.72$). Patients from minoritised ethnic groups were over-represented in the non-completer group.

**Conclusions:** Virtually delivered GSH is feasible, acceptable and effective in reducing ED symptoms amongst those with bulimic spectrum disorders. Implementing virtually delivered GSH reduced waiting times, offering a potential solution for long waiting times for ED treatment. Further research is needed to compare GSH to other brief therapies and investigate barriers for patients from culturally diverse groups.

**Keywords:** Binge eating disorder; Brief interventions; Bulimia nervosa; Cognitive behavioural therapy; Eating disorders; Guided self-help; Other specified feeding or eating disorder

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## Introduction

Bulimic spectrum eating disorders (EDs) are disabling and associated with physical and psychological comorbidities, reduced quality of life, functional impairment, and high economic and global burden (Ágh *et al.*, 2016; Santomauro *et al.*, 2021). These EDs, which include bulimia nervosa (BN), binge eating disorder (BED) and some presentations of other specified feeding or eating disorder (OSFED), are characterised by recurrent, distressing episodes of binge eating. Additionally, BN, and in some instances OSFED, is indicated by an undue influence of body shape and weight on self-evaluation and the use of maladaptive behaviours to prevent weight gain (e.g. self-induced vomiting, misuse of laxatives or other medications, fasting or excessive exercise; American Psychiatric Association, 2013).

Timely evidence-based treatment is key to improving clinical outcomes, yet under-funding of ED services in the United Kingdom (UK) means that care is often not available or is subject to long wait-times (Ayton *et al.*, 2022; Robinson *et al.*, 2020). Innovative care pathways which make use of brief, focused interventions are needed to increase timely access to effective treatments for BN and BED (Weissman *et al.*, 2020).

The National Institute for Health and Care Excellence (2017) recommends guided self-help (GSH) as the first-line treatment for bulimic spectrum disorders. GSH involves the use of written or computer-based ED psychoeducation materials, in conjunction with brief support and guidance from a professional (Perkins *et al.*, 2006). Systematic reviews have found that GSH for bulimic spectrum EDs produces a significantly greater reduction in bingeing, purging and ED psychopathology, than both wait-list and placebo controls, and that GSH can be as effective as individual therapist-delivered cognitive behaviour therapy (CBT; Hilbert *et al.*, 2020; Perkins *et al.*, 2006; Slade *et al.*, 2018; Traviss-Turner *et al.*, 2017). In addition, GSH can be effectively delivered by non-expert therapists, provided in a virtual format (telephone or online sessions) and involves fewer sessions (Thiels *et al.*, 1998; Thiels *et al.*, 2001). Therefore, it is less resource intensive than other psychological treatments and is considered a viable option for use in stepped-care models (Carter and Fairburn, 1998; Musiat and Schmidt, 2010; Ramklint *et al.*, 2012). Indeed, GSH is routinely offered for common mental health problems in the UK's Improving Access to Psychological Therapies (IAPT) services (Clark, 2011).

Whilst GSH is an established treatment for BED, BN and OSFED, the literature on virtually delivered GSH for these disorders is limited. A recent study reported that email delivered GSH for EDs was more effective than waiting list control in terms of reducing ED symptoms, although attrition rates were higher than those typically observed in face-to-face treatment (Jenkins *et al.*, 2021). Relatedly, findings from a systematic review demonstrated that GSH was associated with superior outcomes and better participation than unguided self-help, and that internet-based self-help was preferable to other modalities (Beintner *et al.*, 2014). This demonstrates that GSH is effective when delivered online; however, there is a need to evaluate outcomes when GSH is delivered using telehealth technologies (i.e. videoconferencing).

The COVID-19 pandemic has been associated with the emergence, deterioration, and/or recurrence of ED symptoms (Castellini *et al.*, 2020; Schlegl *et al.*, 2020). As a result, ED services have seen an increasing demand since the start of the pandemic (Ayton *et al.*, 2022; Hyam *et al.*, 2022; Linardon *et al.*, 2022). Services adapted to social-distancing demands by rapidly shifting to virtually delivered assessment and treatment (Dufour *et al.*, 2022; Weissman *et al.*, 2020). At the South London and Maudsley NHS Foundation Trust (SLaM) adult out-patient ED service, the combination of a substantial rise in new referrals and temporary cancellation of assessments in the first half of 2020 increased pressure on the service when assessments resumed in July 2020, contributing to lengthy waiting times (from previously a few weeks to 1–2 years) for most patients. A virtual, individual CBT-based GSH programme for adults with bulimic spectrum disorders (i.e. BN, BED and OSFED) was rapidly implemented to relieve pressure on the service and reduce waiting times.

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This study presents a service evaluation which aims to investigate the feasibility (uptake and attendance), acceptability (treatment completion), and preliminary effectiveness of the virtual delivery of GSH using videoconferencing.

## Method

This was a service evaluation carried out by the South London and Maudsley NHS out-patient ED service which used anonymised data. Patient consent and ethical approval were not required. Patients were informed about the possibility that data relating to the new virtual GSH care pathway may be used for a service evaluation, and that it would not be possible to identify them in publications arising from that service evaluation.

### *Sample*

The GSH programme was developed for patients with BN, BED or OSFED with bulimic features. ED diagnoses were provided by clinicians after conducting one-to-one semi-structured clinical assessments with patients. Eligibility was assessed on a case-by-case basis, taking into account potential contra-indications such as severe risk of suicidal or self-harm behaviour, other severe psychological co-morbidities needing treatment in their own right, or acute physical risk (e.g. rapid weight loss, significant hypokalaemia). When the GSH programme was introduced in September 2020, eligible patients on the treatment waiting list were sent an invitation letter and offered the chance to start GSH to as a way of reducing their waiting time. Thereafter, newly assessed patients with bulimic spectrum disorders were added to the GSH waiting list, if deemed appropriate by their assessor.

In line with NICE guidelines (National Institute for Health and Care Excellence, 2017), the offer of GSH was seen as a first step in treatment, with the possibility of stepping up to additional therapy (such as 20 sessions of CBT for ED) if needed. The decision to offer additional treatment was made on a case-by-case basis and with clinical supervision.

### *The guided self-help programme*

The GSH programme centres on *Getting Better Bite by Bite* (*GBBB*) (Schmidt *et al*., 2015), an evidence-based cognitive behavioural workbook. GSH using *GBBB* was found to be more effective than wait-list, and as effective and less costly than individual CBT or family therapy (Schmidt *et al*., 2007; Thiels *et al*., 1998; Treasure *et al*., 1994; Treasure *et al*., 1996). All patients were provided with a free printed copy of the book prior to the start of treatment.

Each patient was assigned a coach. Guided by their coach, patients worked through the core chapters (chapters 1–6) of *GBBB* and additional chapters as needed. Briefly, these chapters cover key CBT-based techniques, such as goal setting, self-monitoring (e.g. food diaries, weight), problem-solving, psychoeducation, and behavioural experiments.

The vast majority of GSH sessions took place via Microsoft Teams videoconferencing software. Exceptionally, telephone appointments were offered for patients who did not have access to a computer or in the event of technical issues.

Coaches initially met with patients for a 60-minute 'session 0' during which they reviewed current difficulties (as patients had frequently been waiting for treatment for several months), built rapport, established goals, and discussed the rationale for treatment. Following this, coaches and patients met for eight one-to-one 30-minute sessions over 12 weeks (sessions 1–4 weekly and sessions 5–8 fortnightly). In general, sessions focused on reviewing the previous week, homework tasks, and goal-setting for the coming week/fortnight.

As part of treatment, patients were asked to keep a self-monitoring diary (including details of food consumed, and contextual details like thoughts and feelings around mealtimes). Patients had

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the option to use a mobile app (e.g. Brighter Bite; www.brighterbiteproject.wixsite.com/website) to assist with self-monitoring. Patients were also asked to report their weight each week, and weekly weighing would sometimes be conducted during the virtual session, with the patient weighing themselves in the virtual presence of their coach.

In the final session, the coach and patient collaboratively reviewed progress made during treatment and discussed further treatment or support options, if required.

### Coach training and supervision

Coaches were ten early career researchers (e.g. research assistants, PhD students, and post-doctoral researchers) from the King's College London ED Research Group, nine assistant psychologists, a junior psychotherapist, and a junior doctor. All coaches had some previous experience of working with patients with EDs in research and/or clinical settings but most had not received formal clinical training. When the clinic started, U.S. (consultant psychiatrist) and J.C. (senior CBT therapist) provided 4 hours of initial training. This training consisted of an overview of GSH treatment for bulimic disorders, alongside discussion and role-plays of common barriers experienced during virtual treatment delivery, such as engagement. Thereafter, coaches attended weekly supervision (a single hour-long session for all coaches facilitated by U.S. and J.C.). Weekly attendance was required and during supervision coaches were expected to discuss their caseload and raise any concerns around risk, discharge, or step-up.

Coaches who joined later were introduced to the content by reading *GBBB* and attending several weeks of group supervision before delivering GSH. Given the differing levels of experience, coaches and supervisors decided on an individual basis when coaches were ready to begin seeing patients.

### Measures and assessment

This service evaluation was an observational study using routinely collected outcome data. Sociodemographic and clinical characteristics were collected from medical records (e.g. age, ethnicity), GP referral forms, or self-reported by patients during assessments. Waiting times were calculated as the difference in weeks between the initial assessment date with the ED service and the pre-treatment 'session 0' review. Treatment uptake was assessed as the proportion of patients allocated to a GSH coach who (1) attended 'session 0' and (2) started GSH. Attendance was measured as the number of GSH treatment sessions attended. Data on rescheduled, cancelled or missed appointments were not collected. Completion rates were calculated as the proportion of patients allocated to a GSH coach who completed the full programme. 'Completers' were defined as patients who had worked through the core chapters of the manual (chapters 1–6) and attended at least six sessions. The remaining patients were classified as 'non-completers' and included those who had either (1) not started treatment, (2) started treatment but not attended at least six sessions, or (3) had started and attended at least six sessions but had not read the core chapters of the manual.

ED symptom severity was assessed using the ED-15 (Tatham *et al.*, 2015), a brief self-report questionnaire assessing ED behaviours and cognitions. The ED-15 was completed by patients either as an online questionnaire or verbally during the session with the coach at the start of treatment (session 0 or 1), mid-treatment (session 4), and post-treatment (following session 8). This measure was selected for practical reasons: it was a routinely collected outcome measure, readily available to the service, and was low burden for patients and coaches. The ED-15 gives an overall score for ED severity, as well as subscales for eating concern and weight and shape concern. All items are scored on 6-point Likert scales, and overall/subscale scores are calculated by taking the mean for the respective items. Data on weight and the frequency of ED behaviours in the

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previous week (e.g. episodes of binge eating, purging, laxative use, or intense exercise to control weight) were also collected at each session.

### Data analysis

Patients allocated to a coach between 1 September 2020 and 30 September 2022 were included in these analyses. The data utilised in this study matched Wolpert and Rutter's (2018) definition of flawed, uncertain, proximate and sparse (FUPS) data. Following their guidance, we only conducted simple and transparent analyses.

Descriptive statistics were used to assess treatment uptake, attendance and completion rates (feasibility and acceptability) in the full sample (i.e. all patients allocated a coach). Descriptive statistics were also calculated for sample demographics and pre-treatment clinical characteristics (full sample and for completers versus non-completers). We then compared completers and non-completers to determine whether the completion of GSH (and therefore intervention acceptability) varied according to patient characteristics. Differences were assessed using chi-squared tests for categorical variables, and a *t*-test or Mann–Whitney test for normally and non-normally distributed continuous variables, respectively. Due to small sample sizes, some categorical variables were collapsed into binary variables for the purpose of these analyses, including ethnicity (white *vs* minoritised), medication (yes/no), and co-morbidity (yes/no).

To evaluate GSH effectiveness, we first examined change in ED behaviour frequencies and symptom severity among patients who completed treatment and had data available at both pre- and post-treatment time points. The mean and standard deviation of pre- and post-treatment ED–15 scores, change scores, and Cohen's $d_z$ within-subject effect sizes (Dankel and Loenneke, 2021; Lakens, 2013) were calculated. Cohen's $d_z$ is interpreted as follows: $d \leq 0.2$ are small, $d \leq 0.5$ are moderate and $d \leq 0.8$ are large. Differences between pre- and post-treatment scores were analysed using paired *t*-tests or Wilcoxon tests for normally and non-normally distributed variables, respectively. We then assessed abstinence rates (i.e. the percentage of patients who abstained from ED behaviours) for the full sample and for completers only. Completers with missing data at pre- or post-treatment were excluded. In line with past research, non-completers were assumed not to be abstinent (Hay *et al.*, 2009).

All analyses were conducted in R version 4.0.2 (R Core Team, 2020).

### Missing data

Medical records rarely specified the *absence* of co-morbidities or medications, therefore missing data on these variables was recorded as zero ('not listed'). Weight collected at session 6 or 7 was included as post-treatment weight if it had not been measured in session 8. The frequency of binge eating or compensatory behaviours was added from clinical notes where available, even in the absence of the ED-15. ED-15 symptom scores were calculated for patients with none or one missing value. Following the review of clinical notes, patients who still had missing data on an ED-15 behaviour or symptom score at either pre- or post-treatment were excluded from the pre- to post-treatment analyses for that variable.

## Results

### Sample characteristics

By end of September 2022, 172 patients had been offered therapy through the GSH programme, and 130 patients had been allocated to a coach. Patient characteristics (full sample; completers versus non-completers) are displayed in Table 1.

The majority of patients identified as female (84%) and white (71%), and the most frequent diagnosis was BED (52%). Most patients were clinically obese (BMI > 30; 59%) and presented

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**Table 1.** Pre-treatment patient demographics and clinical characteristics for the full sample and for completers *vs* non-completers

| Variable | Full sample | Completers | Non-completers |
|---|---|---|---|
| Age (years) | $n = 130$ | $n = 78$ | $n = 52$ |
| | 34.03 ± 11.24 | 34.08 ± 11.54 | 33.96 ± 10.89 |
| Gender | $n = 130$ | $n = 78$ | $n = 52$ |
| Female | 83.8% (109) | 84.6% (66) | 82.7% (43) |
| Male | 15.4% (20) | 14.1% (11) | 17.3% (9) |
| Other | 0.8% (1) | 1.3% (1) | 0.0% (0) |
| Ethnicity | $n = 113$ | $n = 73$* | $n = 40$* |
| White | 70.8% (80) | 78.1% (57) | 57.5% (22) |
| Black or Black British | 14.2% (16) | 11% (8) | 20.0% (8) |
| Asian or Asian British | 5.3% (6) | 5.5% (4) | 5.0% (2) |
| Mixed or multiple ethnic groups | 6.2% (7) | 2.7% (2) | 12.5% (5) |
| Other ethnic group | 3.5% (4) | 2.7% (2) | 5.0% (2) |
| Diagnosis | $n = 130$ | $n = 78$ | $n = 52$ |
| Bulimia nervosa | 39.2% (51) | 35.9% (28) | 44.2% (23) |
| Binge eating disorder | 51.5% (67) | 55.1% (43) | 46.2% (24) |
| Other specified feeding and eating disorder | 9.2% (12) | 9.0% (7) | 9.6% (5) |
| BMI | $n = 104$ | $n = 75$ | $n = 29$ |
| | 33.58 ± 10.35 | 34.09 ± 9.94 | 32.23 ± 11.41 |
| BMI categories | $n = 104$ | $n = 75$ | $n = 29$ |
| Underweight ($<=18.5$ kg/m$^2$) | 1.0% (1) | — | 3.4% (1) |
| Normal weight (18.5–24.9 kg/m$^2$) | 24.0% (25) | 25.3% (19) | 20.7% (6) |
| Overweight (25–29.9 kg/m$^2$) | 15.4% (16) | 10.7% (8) | 27.6% (8) |
| Obese ($>=30$ kg/m$^2$) | 59.6% (62) | 64.0% (48) | 48.3% (14) |
| Previous specialist ED treatment | $n = 84$ | $n = 56$ | $n = 28$ |
| Yes | 21.4% (18) | 19.6% (11) | 25.0% (7) |
| No | 78.6% (66) | 80.4% (45) | 75.0% (21) |
| Co-morbidities | $n = 129$ | $n = 78$ | $n = 51$ |
| None listed | 39.5% (51) | 37.2% (29) | 43.1% (22) |
| Depression | 38% (49) | 35.9% (28) | 41.2% (21) |
| Anxiety | 18.6% (24) | 23.1% (18) | 11.8% (6) |
| Other mental health disorder | 10.1% (13) | 7.7% (6) | 13.7% (7) |
| Neurodevelopmental disorder | 4.7% (6) | 2.6% (2) | 7.8% (4) |
| Type 2 diabetes | 8.6% (11) | 10.3% (8) | 6.0% (3) |
| Other physical health condition | 10.9% (14) | 7.7% (6) | 16% (8) |
| Prescribed medication | $n = 129$ | $n = 78$ | $n = 51$ |
| None listed | 67.4% (87) | 62.8% (49) | 74.5% (38) |
| Anti-depressants | 24.2% (31) | 26.9% (21) | 20% (10) |
| Other psychotropic medication | 6.2% (8) | 6.4% (5) | 6.0% (3) |
| Other medication for physical health | 12.5% (16) | 19.2% (15) | 2.0% (1) |
| Time on waitlist (weeks) | $n = 110$ | $n = 76$* | $n = 34$* |
| | 28.76 ± 19.12 | 26.93 ± 19.84 | 32.86 ± 16.98 |
| Binge eating | $n = 99$ | $n = 72$ | $n = 27$ |
| | 3.3 ± 2.67 | 3.39 ± 2.54 | 3.06 ± 3.03 |
| Vomiting | $n = 99$ | $n = 74$ | $n = 25$ |
| | 0.81 ± 1.94 | 0.73 ± 1.87 | 1.04 ± 2.15 |
| Laxative use | $n = 95$ | $n = 71$ | $n = 24$ |
| | 0.2 ± 0.96 | 0.17 ± 0.93 | 0.29 ± 1.08 |
| Restriction | $n = 84$ | $n = 65$ | $n = 19$ |
| | 1.95 ± 2.49 | 2.03 ± 2.45 | 1.68 ± 2.67 |
| Exercise | $n = 87$ | $n = 66$ | $n = 21$ |
| | 0.78 ± 1.71 | 0.76 ± 1.61 | 0.86 ± 2.03 |
| Weight and shape concern | $n = 66$ | $n = 55$ | $n = 11$ |
| | 4.12 ± 1.39 | 4.09 ± 1.37 | 4.27 ± 1.53 |
| Eating concern | $n = 66$ | $n = 55$ | $n = 11$ |
| | 3.83 ± 1.06 | 3.83 ± 0.98 | 3.82 ± 1.45 |
| Overall attitudinal | $n = 65$ | $n = 55$ | $n = 10$ |
| | 4.04 ± 0.94 | 3.99 ± 0.95 | 4.31 ± 0.87 |

This table describes the demographic and clinical characteristics (% and *n* or mean ± *SD*) prior to treatment for the full sample and for completers versus non-completers. The full sample ($n = 130$) included completers, non-completers, and patients still in treatment. Non-completers included patients who had either not started or had not completed treatment (excluding those still in treatment). Descriptive statistics were calculated for patients with available data for each characteristic, indicated in each row by '$n =$'. Chi-squared tests, *t*-tests, and Mann–Whitney tests were used to compare statistical differences between completers and non-completers; the results of these statistical tests are displayed in Table S1 of the Supplementary material. *$p < 0.05$. *SD*, standard deviation; BMI, body mass index; kg, kilograms; m, metres; *n*, number of patients with available data; ED, eating disorder.

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with a co-morbid mental disorder (60%), most commonly depression (38%). Approximately one-quarter of the patients also had a co-morbid physical condition (20%), most commonly type 2 diabetes (9%). The average waiting time from assessment to virtual GSH was 28.8 weeks. However, this was highly variable, with waiting times ranging from 2.6 to 82.9 weeks and one outlier waiting 168.3 weeks after being stepped up from group therapy.

### Feasibility and acceptability: treatment uptake, attendance and completion

Figure 1 displays the number of patients at each stage of treatment. There were 130 patients allocated to a GSH coach, of which 113 (87%) attended the pre-treatment review (session 0) and 106 (82%) started GSH treatment. The average attendance for the full sample was between five and 6 sessions (mean = 5.67, *SD* = 3.21). Non-completers attended approximately two sessions on average (mean = 2.25, *SD* = 2.44), whereas the majority of completers attended all eight sessions (mean = 7.95, *SD* = 0.42). Only five completers attended just six or seven sessions. A review of these patients' medical records found that three were discharged early due to abstinence from ED symptoms, in mutual agreement with the coach and supervisor, and two had their number of sessions deducted for poor attendance. In terms of retention, the majority of patients allocated to a GSH coach went on to complete treatment ($n = 78$; 60%) and were subsequently discharged from the service ($n = 70$; 54%). In total, across all stages of treatment, 11 (9%) of the 130 patients allocated to a GSH coach were stepped up to higher intensity care. One patient (viewed here as a 'non-completer' of GSH) mutually agreed with their coach to end GSH after the fourth session because their symptoms had remitted.

Demographics and pre-treatment clinical characteristics for completers and non-completers are shown in Table 1. There was a significantly higher proportion of patients from minoritised ethnic backgrounds in the non-completer group (44%) than the completer group (22%; $p < 0.05$). Completer and non-completer groups did not significantly differ on other demographic characteristics, clinical features, or history of past ED. Time spent on the waiting list was significantly greater for non-completers (33.1 weeks) than completers (26.9 weeks; $p < 0.05$). Full results from between-group analyses are reported in Table S1 in the Supplementary material.

### Change in ED symptoms

Table 2 displays the change in number of binge eating episodes, compensatory behaviours, and ED-15 symptom scores from pre- to post-treatment. Only 43 (55%) of patients who completed GSH had completed the ED-15 at both time points. Patients who had not completed the ED-15 but had medical record data available on the frequency of binge eating or compensatory behaviours at pre- and post-treatment were included in the analyses for those items; the sample size for each comparison is displayed in Table 2. Results demonstrated that the average frequency of ED behaviours reduced from pre- to post-treatment. The largest reduction was observed for binge eating episodes, which reduced by approximately two episodes per week from pre- to post-treatment (change score = −2.13; $d = -0.89$). Similarly, findings for the symptom scores showed an overall decrease in concerns about weight, shape, and eating following treatment. The largest effect size was observed for eating concerns, which reduced from pre- to post-treatment by approximately two points on the ED-15 scale (change score = −1.92; $d = -1.72$). The reductions between pre- and post-treatment for behaviour frequency and ED symptoms were significant for all items except laxative use. The full results of the statistical tests are displayed in Supplementary Table 2.

Abstinence rates for the full sample and for completers at pre- and post-treatment are displayed in Table 3. Findings indicated that 18% of the full sample and 30% of completers achieved abstinence from all symptoms following GSH. Abstinence rates were lowest for binge eating episodes, with approximately 27% of the full sample and 44% of completers abstaining from binge

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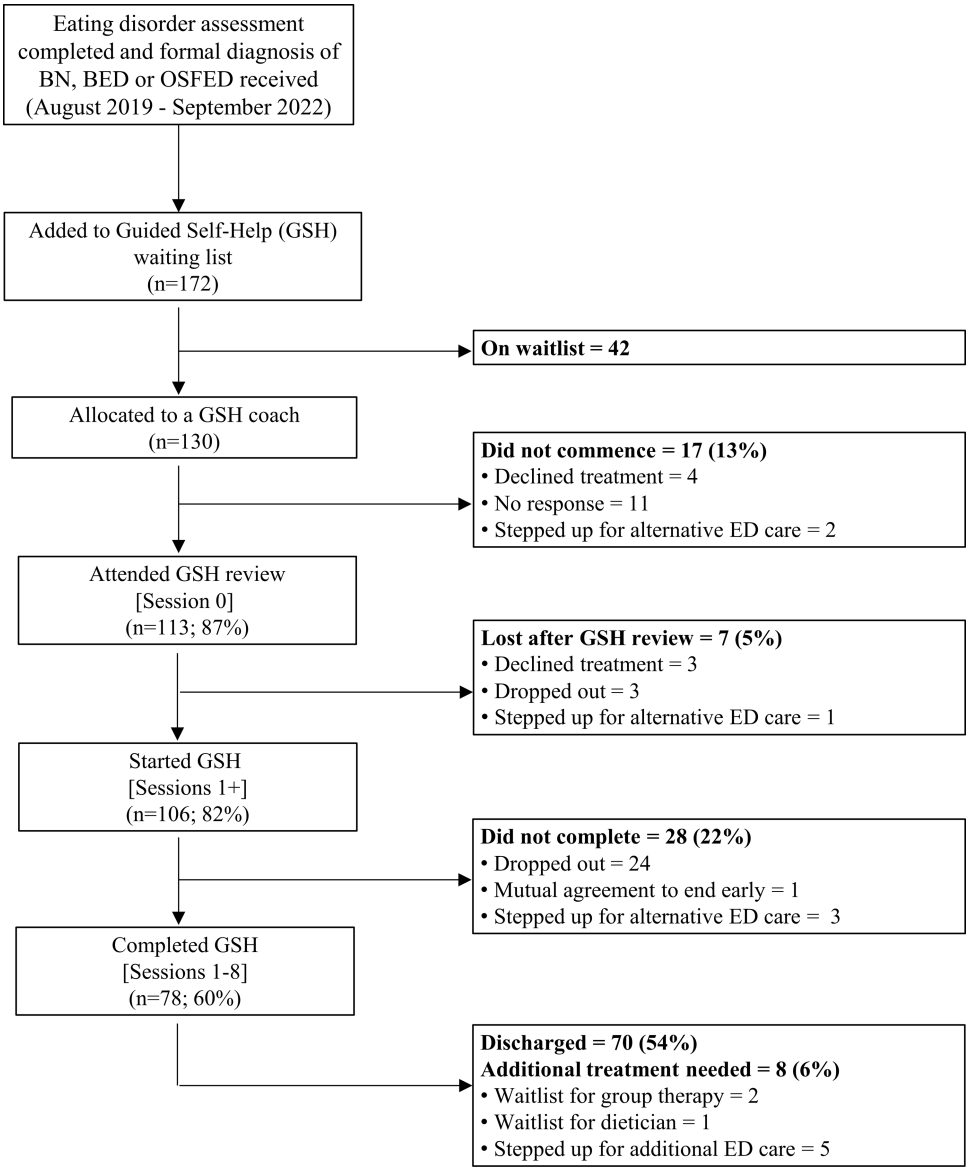


**Figure 1.** Summary of patients at each stage of treatment.

eating after treatment. The largest increase in abstinence rates for completers was for restricting, with 80% of patients abstinent at post-treatment compared with 43% at pre-treatment.

### *Post-hoc analyses*

To gain further insight into the factors that may impact the feasibility, acceptability and intervention effectiveness, we conducted three *post-hoc* investigations. First, to better understand reasons for declining GSH or dropping out of treatment, we conducted a summative content analysis (Hsieh and Shannon, 2005) of the medical records for all patients ($n = 34$) who declined or dropped out of GSH after being allocated to a coach. Second, as higher rates

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**Table 2.** Frequency of binge eating episodes and compensatory behaviours and ED-15 symptom scores at pre-treatment and post-treatment with change score and associated effect size

| | *n* | Pre-treatment mean ± *SD* | Post-treatment mean ± SD | Change score mean ± SD | Effect size |
|---|---|---|---|---|---|
| Binge eating | 71 | 3.41 ± 2.56 | 1.28 ± 1.8 | −2.13 ± 2.4 | −0.89*** |
| Vomiting | 72 | 0.75 ± 1.89 | 0.35 ± 1.54 | −0.4 ± 1.74 | −0.23* |
| Laxative use | 64 | 0.17 ± 0.97 | 0.03 ± 0.25 | −0.14 ± 0.83 | −0.17 |
| Restriction | 56 | 2.11 ± 2.44 | 0.47 ± 1.23 | −1.63 ± 2.27 | −0.72*** |
| Exercise | 55 | 0.84 ± 1.73 | 0.18 ± 0.77 | −0.65 ± 1.93 | −0.72* |
| Weight and shape concern | 43 | 4.08 ± 1.36 | 2.25 ± 1.44 | −1.83 ± 1.45 | −1.26*** |
| Eating concern | 43 | 3.93 ± 0.98 | 2.01 ± 0.95 | −1.92 ± 1.12 | −1.72*** |
| Overall attitudinal | 43 | 4.02 ± 0.98 | 2.15 ± 1.14 | −1.87 ± 1.18 | −1.59*** |

This table displays the change in ED behaviours and cognitions (measured by the ED-15) from pre- to post-treatment for patients with data available for each item at pre-treatment and post-treatment. The sample size for each comparison is included in the first column. In the absence of a completed ED-15 questionnaire, the frequencies of eating disorder behaviours were added from medical record notes where available. Change score calculation: post-treatment minus pre-treatment. A change score prefixed with a minus sign indicates a reduction in ED-15 score/behaviour frequency from pre-treatment to post-treatment. Effect sizes were calculated using Cohen's $d_z$. Differences between pre- and post-treatment scores were analysed using paired *t*-tests or Wilcoxon tests. Full results of these tests are displayed in Table S2 of the Supplementary material. Frequencies of binge eating and vomiting were reported as the number of *times* this occurred in the previous week. Laxative use, restriction and exercise were reported as the number of *days* this occurred in previous week. *$p < 0.05$, ***$p < 0.001$. *n*, number of patients with available data; *SD*, standard deviation.

**Table 3.** Abstinence rates for ED behaviours for the full sample and for completers

| | | Abstinence rates | |
|---|---|---|---|
| ED behaviour | *n* | Pre-treatment % (*n*) | Post-treatment % (*n*) |
| **Any behavior** | | | |
| Full sample | 120 | 5.0% (6) | 17.5% (21) |
| Completers only | 66 | 6.1% (4) | 30.3% (20) |
| **Binge eating** | | | |
| Full sample | 126 | 14.3% (18) | 27.0% (34) |
| Completers only | 71 | 16.9% (12) | 43.7% (31) |
| **Vomiting** | | | |
| Full sample | 126 | 61.1% (77) | 53.2% (67) |
| Completers only | 72 | 79.2% (57) | 88.9% (64) |
| **Laxative use** | | | |
| Full sample | 117 | 76.9% (90) | 56.4% (66) |
| Completers only | 64 | 96.9% (62) | 98.4% (63) |
| **Restricting** | | | |
| Full sample | 108 | 40.0% (41) | 43.5% (47) |
| Completers only | 56 | 42.9% (24) | 80.4% (45) |
| **Exercise** | | | |
| Full sample | 109 | 61.5% (67) | 49.5% (54) |
| Completers only | 55 | 76.4% (42) | 92.7% (51) |

This table displays the abstinence rates at pre- and post-treatment (i.e. the number of patients who did not engage with the behaviour divided by the sample size). All non-completers were presumed to not be abstinent at post-treatment, except one patient who mutually agreed with their coach to be discharged early due to an abstinence of symptoms. Abstinence rates for completers were only calculated for patients with data available at both time points. ED, eating disorder; *n*, number of patients with available data.

for non-completion for patients from minoritised ethnic groups could indicate poorer GSH acceptability in this population, we assessed differences between white and minoritised ethnic groups for demographic and pre-treatment clinical characteristics. Third, we assessed whether GSH effectiveness may vary between diagnoses, as this could potentially inform treatment allocation. These analyses are described in full in the Supplementary material.

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## Discussion

The COVID-19 pandemic provided a unique opportunity to roll out a new virtual out-patient treatment pathway at pace, enabling us to gather useful real-world data with implications for services elsewhere. Findings indicate that virtually delivered GSH for bulimic spectrum EDs is feasible to deliver and can be swiftly implemented: Virtually delivered GSH was offered to 130 patients with a bulimic spectrum ED (i.e. BN, BED or OSFED) as a first step treatment option between September 2020 and September 2022. Rates for treatment uptake (82%) and drop-out (21%) indicated good intervention acceptability. Indeed, our drop-out rate was low when considering rates reported in previous trials of GSH (Beintner *et al.*, 2014) and ED out-patient psychotherapy (Fassino *et al.*, 2009; Linardon *et al.*, 2018). Moreover, only four patients cited difficulties or dissatisfaction with GSH as their main reason for declining or dropping out of GSH. Although we did not directly assess adverse effects, only one of these patients reported a negative impact of treatment (i.e. worsening of symptoms).

Our findings regarding clinical effectiveness were also promising. This service evaluation indicated that virtually delivered GSH effectively reduced ED behaviours and cognitions between pre- and post-treatment, particularly binge eating episodes and concerns around eating, and most patients were discharged after completing treatment (66% of those who started treatment). Only eight patients who started GSH were stepped up for additional or alternative ED treatment. This provides further support for virtually delivered GSH as a viable treatment in and of itself and a practical first-line option in a stepped-care model.

At the service level, the introduction of virtually delivered GSH helped improve patient throughput and reduce waiting times. Although cost-effectiveness was not formally assessed, we believe the intervention to be low-cost: it is delivered primarily by non-experts without extensive training and for a limited number of sessions. Prior to the introduction of this pathway, patients were facing wait times of 1–2 years for individual therapy. At the time of these analyses, the average wait time was 5 months from assessment to commencing GSH. Waiting to begin GSH treatment has been found to be associated with poorer outcomes and increased drop-out (Sánchez-Ortiz *et al.*, 2011), and our service evaluation found that non-completers had significantly greater wait times than completers. We anticipate that outcomes and completion rates could improve if waiting times were further reduced.

Despite the treatment being delivered virtually within the context of the pandemic, the reductions in ED symptoms were comparable, and in some cases larger, than the results from systematic reviews of pre-pandemic studies where GSH was often delivered in-person (Perkins *et al.*, 2006; Traviss-Turner *et al.*, 2017). These improvements in patient outcomes were also observed in the context of a high rate of psychiatric co-morbidity in the sample, most commonly depression. This suggests that virtually delivered GSH can also be effective for patients with more complex presentations.

However, we also found evidence to suggest that virtually delivered GSH may not meet the needs of certain patient groups. Patients from minoritised ethnic groups declined or dropped out of treatment at a higher rate than white patients, citing a wide range of reasons: from conflicting work commitments to previous poor experiences of care in the NHS. This suggests that patients from minoritised ethnic groups may not view virtually delivered GSH to be as acceptable as white patients, or that these patients may find it more difficult to prioritise GSH treatment (e.g. due to sociodemographic factors). It is possible that patients from diverse cultural and ethnic backgrounds present with different primary ED symptoms, that they face different challenges during recovery, or that adaptations to GSH are needed to increase cultural relevance and improve participation (Shea *et al.*, 2012). Indeed, lack of diversity among our coaches may have contributed to poor uptake, with most being young (20–30 years), slim, white females. Overweight or obesity may also be a barrier to engagement with GSH, as it is a requirement of treatment that the patient prioritise regular eating, and not weight loss. Hence, it may not be a suitable option for patients

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whose primary goal is to lose weight. Consistent with previous research (e.g. Lydecker and Grilo, 2016), rates for overweight or obesity were higher in patients from minoritised ethnic groups compared with white patients, and it is noteworthy that half of the patients who did not complete GSH and identified as Black or Black British reported that their desire to lose weight was a primary reason for their decision to drop out.

### Limitations

This study was conducted as a service evaluation utilising real-world clinical data collected during treatment delivery. Despite being a strength in terms of translatability, this context also resulted in flawed, uncertain, proximate and sparse (FUPS) data (Wolpert and Rutter, 2018) with: high missingness (flawed), a single measure of ED symptoms (uncertain), no comparison group and no follow-up (proximate), and a small, non-representative sample (sparse). Missing data are a common issue in routine clinical settings (Marino *et al*., 2021) and virtual treatment delivery made it more difficult to collect data on weight, particularly for patients who were reluctant to weigh themselves. Only one clinical outcome measure was collected (ED-15) and outcome data collection was sporadic; only about half of patients who completed GSH had full ED-15 data at both pre- and post-treatment. This reduced statistical power and led to our decision to evaluate intervention effectiveness in the 'completers', rather than the full sample (i.e. intention-to-treat). This inflates risk of bias, as those who do not respond well to treatment may be more likely to drop out prematurely. Similarly, as we lack data on those patients who did not respond to the opt-in letter or declined GSH, it is possible that self-selection biased the results for our analyses of treatment acceptability and effectiveness. Follow-up data were also not collected, so we cannot comment on the longer-term impact of virtually delivered GSH.

We also lack data on mode-of-delivery (videoconference or telephone) or session length. Anecdotally, coaches reported sessions frequently taking somewhat longer than the recommended 30 minutes. Longer sessions may be related to the complexity of the patient (e.g. co-morbidity) or indicate that coaches need additional training and support. Data on session length and mode-of-delivery will be needed to evaluate the extent to which dose influences outcome and to determine scalability. Similarly, data on how coach-related factors influence outcome are needed to inform personnel selection and guide training.

### Future directions

Our findings demonstrate that virtually delivered GSH is feasible and that it may have favourable outcomes for patients with bulimic-spectrum disorders, particularly those with BED. Future studies that extend these findings and address the limitations to the current study are encouraged. In particular, there is a need to formally evaluate patient views on the acceptability of virtually delivered GSH and to examine whether adaptations to the intervention may improve engagement and outcomes. This is particularly important for patients from minoritised ethnic and under-represented groups, who we observed to be more likely to decline or drop out of virtually delivered GSH. Qualitative research would provide useful insight into these issues and help identify barriers to accessing or completing treatment. Additionally, there is a need to examine whether acceptability and outcomes may be improved when person-centred culturally appropriate adaptations are made to the evidence-based protocol, such as increasing the languages the manual is available in, the use of diverse case stories, or acknowledging the differing social and emotional meanings of food in diverse cultures (Shea *et al*., 2012). Co–design of these adaptations with patients may help to improve the acceptability of GSH both to individuals with EDs and the professional community, which is critical to an intervention's implementation and scalability (Wilson and Zandberg, 2012).

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Studies that follow patients beyond the end of treatment are also needed to explore the longer-term effectiveness of virtually delivered GSH. These would also enable an exploration of predictors of treatment outcome, which could aid patient selection and inform decisions about additional treatment. Recommendations for clinical care would also benefit from randomised controlled trials comparing virtually delivered GSH to other brief interventions for patients with bulimic spectrum disorders, such as CBT-Ten (CBT-T; Waller *et al.*, 2019). A trial comparing CBT-T and CBTm (i.e. eight GSH sessions plus two motivational sessions) found that both interventions were similarly effective, although GSH appeared to be more effective for patients with lower motivation (Wade *et al.*, 2021). Further research might also explore how virtual GSH compares with longer treatment protocols (e.g. 16–20 sessions).

Finally, cost-effectiveness research, which compares virtually delivered GSH with treatment as usual or to other 'low intensity' interventions, is needed to determine whether virtually delivered GSH is more cost-effective than alternative approaches. Such studies will be critical for informing decisions about resource allocation within stretched ED services.

## Conclusion

This service evaluation indicates that virtually delivered GSH is feasible, acceptable, and effective in reducing binges and other ED symptoms amongst those with bulimic disorders. Implementing this virtual GSH pathway contributed to a substantial reduction in treatment waiting times, which have been negatively impacted in the wake of the COVID-19 pandemic. The findings are a promising indication that a brief, focused treatment delivered virtually and by non-expert staff can be helpful both to patients with bulimic spectrum disorders and to ED services.

**Supplementary material.** The supplementary material for this article can be found at https://doi.org/10.1017/S1352465823000607

**Data availability statement.** The data that support the findings of this study are not available due to restrictions on access to NHS clinical data.

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