ABSTRACT

Background Mealtimes occur six times a day on eating disorder (ED) inpatient units and are a mainstay of treatment for EDs. However, these are often distressing and anxiety provoking times for patients and staff. A product of patients’ distress is an increase in ED behaviours specific to mealtimes. The aim of this quality improvement project was to decrease the number of ED behaviours at mealtimes in the dining room through the implementation of initiatives identified through diagnostic work.

Methods The Model for Improvement was used as the systematic approach for this project. Baseline assessment included observations in the dining room, gathering of qualitative feedback from staff and patients and the development of an ED behaviours form used by patients and staff. The first change idea of a host role in the dining room was introduced, and the impact was assessed.

Results The introduction of the host role has reduced the average number of ED behaviours per patient in the dining room by 35%. Postintervention feedback demonstrated that the introduction of the host role tackled the disorganisation and chaotic feeling in the dining room which in turn has reduced distress and anxiety for patients and staff.

Conclusions This paper shows the realities of a quality improvement (QI) project on an ED inpatient unit during the COVID-19 pandemic. The results are positive for changes made; however, a large challenge, as described has been staff engagement.

PROBLEM

Eating disorders (EDs) are serious conditions that are potentially life-threatening. In severe cases, individuals with an ED may become so depressed and anxious that they need to be admitted to a specialist inpatient unit. Once admitted, these critically ill patients begin a treatment programme of weight restoration and psychological work. At Cotswold House in Oxford, a 14-bed National Health Service (NHS) ED inpatient unit with 6-day patient spaces, patients are expected to gain 1–1.5 kg/week during their inpatient admission. Mealtimes form a core part of patient treatment that occurs six times per day (three main meals and three snacks).

Historically on the unit, the dining room has been an area identified as difficult for staff and patients. The stressful nature of being in the dining room is raised repeatedly by patients in weekly clinical team meetings and staff meetings. The impact of this was high levels of distress and anxiety experienced by both staff and patients, effect on well-being and sometimes barriers to forming therapeutic relationships.

An observed effect of the levels of distress and anxiety experienced by patients was a high number of ED behaviours exhibited at mealtimes, which are maintaining factors for EDs. We wanted to understand the dining room system as a whole and to determine how we can make changes to improve mealtimes as a therapeutic intervention by reducing ED behaviours at mealtimes.

BACKGROUND

The treatment model in Oxford is a multidisciplinary, stepped care approach based on enhanced cognitive behavioural therapy.1 2

The Oxford model of Integrated Enhanced Cognitive Behavioural Therapy (ICBT-E),3 intends to adapt enhanced cognitive behavioural therapy for the NHS context, where the approach is used by all members of the multidisciplinary team, rather than being delivered in a traditional one-to-one context between a patient and a therapist. A detailed ‘formulation’ (a diagram of an individual’s ED and maintaining factors) is created between patients and the multidisciplinary team. Once an individualised formulation is created, patients and staff focus on weekly goals and the development of skills and strategies to address the relevant maintaining...
factors. Crafting their individual formulation enables patients, with the help of staff, to understand their illness and initiate a treatment plan with the aim of sustained recovery.

As part of implementing ICBT across the unit, we identified the dining room as an area where core work was needed around the implementation of the new treatment model. This links in with the patient’s formulation as common maintaining factors for patients are dietary rules, dietary restraint, malnutrition and significant low weight. Vital treatment is supporting patients in the dining room to challenge these maintaining factors.

Despite being a vital part of the treatment of EDs, there is little literature on the impact of the dining room on patient care. A review of the available literature highlighted variations between units and their mealtimes practices. The importance of staff training, forward planning and teamwork were raised. Inconsistencies at mealtimes such as staff uncertainty were found to heighten anxiety and frustrations at mealtimes, with patients reporting that mealtimes resembled battlegrounds. Bending or sticking to the rules was found to be a common dilemma for staff when providing meal support.

Patient satisfaction surveys highlight meal support therapy as one of the most helpful aspects of the treatment of inpatients with EDs. The authors describe their practical strategies for supporting patients with meal support therapy including role modelling, a consistent approach and a training manual and video for staff, which have also been shown to reduce the incidence of nasogastric feeding.

Guidance on managing mealtimes for patients and staff is limited. The Royal College of Psychiatry standards for adult inpatient units state that wards need a written policy for how patients are therapeutically supported at mealtimes. However, no further specific guidance on standards for mealtimes is given.

**SETTING**

Cotswold House in Oxford was originally part of an asylum and is a listed building resulting in some environmental challenges. There is a whole group programme approach on the unit with standard meal plans used, adjusted according to whether patients meet the weekly weight gain expectation.

There are two dining rooms on the unit. The main dining room is a small room with four tables, a refrigerator and a regeneration oven. The other dining room upstairs seats five patients further on in their treatment and aiming for recovery. All patients start their treatment in the main dining room; therefore, this dining room receives the most severely ill patients. Patients are transferred from the main dining room to upstairs if they meet the criteria such as meeting weekly weight expectations, being a body mass index (BMI) of above 15 and being on the recovery programme rather than for a crisis admission.

Support for patients in the dining room is generally delivered by the nursing staff. This support includes food preparation, monitoring food intake and supporting and supervising patients in a positive and relaxed atmosphere. Each table in the main dining room has a member of the nursing team allocated to the patients on that table for that meal or snack. One of those staff members also supports the serving of the meal or snack, which can mean that during this time, their table is unsupported.

We focused our project on the patients in the main dining room as this was where staff and patients reported the most distress and greater number of ED behaviours.

Patient demographics taken from an annual review of 2019 show that of the 44 patients admitted throughout the year, typically had a diagnosis of anorexia nervosa (37/44). All patients admitted in 2019 were women and ranged from 19 years to 68 years old (mean age 33 years). The average length of stay across 2019 was 73 days, BMI on admission averaged 14.55 (10.7–20.8) and increased to 17.81 (13.0–22.0) at discharge. Most patients were admitted informally, with a small number being detained under the mental health act (9/44).

**Impact of COVID-19**

During the pandemic, new patients admitted are now asked to self-isolate for 7 days in our only en-suite room before two negative COVID-19 results. We reduced the number of patients in the upstairs dining room to four to help maintain social distancing, and staff eating with patients ceased.

We intended to include both the inpatients and day patients in the project, which would have included a maximum total of 15 patients within the main dining room. Due to the pandemic, the ward was closed to day patients. To ensure social distancing and manage the risk of coronavirus the number of useable bedrooms on the ward was reduced to 80% capacity from 14 to 11.

Therefore, the maximum number of patients in the dining room before the pandemic was 15. Since March 2020, the maximum number of patients in the main dining room is seven, on average throughout this period there have been six patients in the main dining room at each mealt ime.

**METHOD**

**Diagnostic work**

In 2019, to understand the problem in the dining room, we collected qualitative feedback around experiences in the dining room.

The patient experience of the dining room was generally negative in nature and the main factor that contributed to distress was a chaotic, disorganised and tense atmosphere.

The staff feedback was mixed, and highlighted not enough staff, too many disruptions and too chaotic resulting in increased levels of staff and patient distress. All staff showed a good understanding of why mealt ime
support was essential and identified that more staff in the dining room and better communication/support of expectations of staff in the dining room would be helpful. Staff highlighted it is particularly helpful to have time to support distressed patients who are exhibiting mealtime ED behaviours such as eating tiny mouthfuls.

The dietetic team conducted an observation of the dining room. Over 5 days, each hot meal (5) and morning and afternoon snacks (10) were observed. We found that there were generally four staff present in the dining room, the ratio of qualified to unqualified staff supporting patients was variable (0–3 qualified nurses, 1–3 healthcare assistants and 0–2 trainees). Staff eating meals with patients also varied (1–4). The average length of a lunchtime meal was 53 min. The biggest discovery was interruptions during mealtimes. Interruptions were defined as staff or patients leaving the dining room for any reason during mealtimes. Thirty-eight different types of interruptions were observed, with over 150 interruptions in total across the 5 days. These findings reflected the chaotic and disorganised nature reported as reasons for distress by staff and patients.

The project was introduced to the patients and staff by a series of fortnightly meetings with hands-on input from the quality improvement (QI) team. We recognised that one of the main ways of enabling and sustaining change is by staff and patient engagement, and this was a vital role for the project team. Participants included registered nurses, nursing assistants, dietitians, dietetic assistant, OT assistants, medics, psychologists and patients.

In these meetings we used the Model for Improvement to structure the project and remain systematic and methodical in our approach.

Aim
Discussions took place with the ICBTE Working Party and among the wider team to identify the purpose of the project and identify an aim that was measurable and meaningful.

We hypothesised that if there is a reduction in factors that cause distress in the main dining room, this should impact on and lower ED behaviours for patients. This hypothesis was informed by knowledge that anxiety experienced by patients has been suggested as having a key role on ED behaviours specific to mealtimes and the high number of ED behaviours observed in the dining room. It was acknowledged that due to the nature of ED illnesses it would be unrealistic to expect the project to eliminate ED behaviours at mealtimes.

The aim of the project was:
To reduce eating disordered behaviours at mealtimes in Cotswold House by 50% by 1 March 2021.

Outcome measurement strategy
Once the aim was agreed, and we knew the outcome measure of the project, how we would measure ED behaviours was discussed with the core groups of staff and patients. Together staff and patients developed a checklist of the most common ED behaviours around and during mealtimes (online supplemental appendix 1).

When developing the checklist both staff and patients wanted to include all possible ED behaviours and to have the ‘perfect’ measure, this was an interesting observation as perfectionism in Anorexia has been reported in the literature. The form was piloted, and changes were made during the pilot to increase reliability.

We wanted to measure the most distressing mealtimes identified as lunchtime meals by patients. We consid- ered if there were any significant differences to mealtimes depending on the day of the week but through staff and patient discussion it was decided there was not.

Weekly baseline data collection began on 28 February 2020. National lockdown and an operational response to the pandemic delayed the introduction of the first change for 11 weeks. On reflection, this served as a useful delay as it allowed us to collect ten baseline measures to see the current number of ED behaviours at mealtimes over a longer period. We initially agreed that both staff and patients would fill in the same form separately.

One of the challenges we faced was that wider team meetings were often repeated three times to try and include all the nursing staff to ensure communication and engagement around the project, particularly the introduction of the measurement forms and the changes.

Forms were handed out and collected by the Dietetic Assistant after each Friday lunchtime to staff and patients during rest period. The staff member allocated to each table filled in the forms for their two or three patients. The completed forms were collected, and information transferred onto an excel spreadsheet.

Driver diagram
To display the understanding of the problem and the ideas for change that had come out of previous meetings and the literature, a driver diagram was collated (online supplemental appendix 2). This was presented to core groups of staff and patients for feedback, then edited until all groups were agreed that this was representative. The core patient group created a project board on the ward displaying the driver diagram and project information so that it was visible for patients, staff and visitors.

The main themes and therefore primary drivers that came out of the diagnostic work that contributed to increased ED behaviours in the dining room were; leadership and culture, consistent staff approaches, food provision and organisation, which are consistent with previous literature.

The driver diagram was used to identify which interven- tion to try first at staff meetings and community meetings with patients. Staff training was initially discussed and remains an important area for the future, however it was felt that something more practical was needed first. The areas that resonated from the diagnostic work were the disorganisation and interruptions observed in the dining room and there were discussions as to how this could be addressed. The change idea decided on was to have a
dedicated staff member in the dining room to act in a floating role (known as the host role).

For the core project team, it made sense to take forward this change idea as there was already staff and patient buy in and engagement. The change idea of the host role would address many of the secondary drivers and primary drivers as it aimed to address the chaotic and disorganised nature of mealtimes causing distress and increased ED behaviours, therefore it should have a greater impact on achieving our aim than some of the other identified interventions.

### Intervention

#### Plan

The planning was a labour-intensive phase for the core project team, there were many iterations of designing the purpose and description of the host role with staff and patients (online supplemental appendix 3). We identified several tasks that needed completing before we could test the host role in practice. Including: development of the job role, ensuring communication with the whole nursing team, training of the nursing staff, setting and communicating a start date and scheduling meetings to review progress.

**Do**

The main purpose of the host role is to ensure that meal-time preparation is completed and to have an additional person to act as a spare pair of hands in the dining room, allowing other staff to focus on supporting their allocated patients and minimise mealtime interruptions. The host role is allocated by the nurse coordinator at the beginning of each nursing shift for each meal and snack, both qualified and non-qualified nursing staff are allocated this role.

The start date for the introduction of the host role in the main dining room was agreed and began on 15 May 2020.

#### Study

As well as the outcome measure of observed ED behaviours we wanted to ensure that we could identify any unintended consequences. It was suggested that introducing an additional role could increase staff burden and impact on other nursing duties.

Informal check ins between the core project team and the nursing team happened after the first day of testing out the host role and then at nurses’ meetings and community meetings with patients as part of the study phase. The purpose was to gather real time feedback in order to tweak or change the host role process or the role itself. However, we were very surprised at how easily this was accepted as a part of the nursing routine, happening reliably. There were no tweaks or changes made as the feedback was all positive, resulting in only one plan, do, study, act (PDSA) cycle overall for this change idea.

Making changes during mealtimes could decrease ED behaviours within the dining room but have a negative impact on those before or after meals or affect the nature of behaviours during mealtimes. The ED behaviour measurement sheet already included before and after mealtime behaviours which enabled us to examine if this was an unintended consequence. Looking at the frequency of each ED behaviour over time allowed us to determine if the nature of ED behaviours was being influenced by changes made at mealtimes.

**Act**

The host role continued for 4 months before we looked at the quantitative measurements. This was longer than intended for several reasons including the focus on ensuring the project kept going through the pandemic and loss of QI team support due to redeployment. The qualitative feedback received from patients and staff at check ins was positive, had this feedback been negative it may have prompted examination of the quantitative measures sooner.

We are currently in the process of working towards the second intervention idea, again the focus on the pandemic challenges has delayed this. However, it has allowed for results to be seen over a longer period enabling us to be confident that the change is responsible for the improvement and is sustainable over the time.

### Results

The number of ED behaviours staff observed each meal-time was totalled and divided by the number of forms collected, giving the average number of ED behaviours observed per patient. To account for the varying number of patients in the dining room, and any forms not completed. The results to date are displayed in figure 1 and show a 35% reduction in observed ED behaviours, a good start towards the aim of the project of 50% reduction. Additionally, there seems to be much less variation in the number of ED behaviours observed, seen by the data points closely falling around the median line. This could be because the dining room feels less chaotic and more predictable as a result of the host role which has addressed ED behaviours triggered by anxiety and distress from environmental disturbances.

![Figure 1](http://bmjopenquality.bmj.com/) Average number of eating disorder (ED) behaviours per patient observed by staff in the dining room each week.
Examination of the individual ED behaviours showed that there was no difference in the prebehaviours and postbehaviours (eg, delaying coming to the dining room, compensatory behaviours post meal) before and after the change. Also, there was a small and likely insignificant decrease but more importantly no increase in the use of meal replacements such as Ensures or nasogastric (NG) feeding as an unintended consequence.

Despite an exhaustive list of ED behaviours, we saw the same ED behaviours repeatedly before and after the change. Some behaviours were never observed and later removed from the form after the quantitative data analysis in September 2020. The most frequently observed behaviours were: unusual eating behaviours during meal-times, for example, tearing up food, being detached at mealtimes/not talking or making conversation and becoming anxious about unexpected changes to meal service.

We also looked at the reliability of the measurement process, figure 2. Shows that there was minimal missing data and that the measurement process became more reliable as time went on.

Reduced distress and anxiety was reflected in formal qualitative data collected in October 2020 from patients and staff which was overwhelmingly positive. Patients feedback themed around feeling more supported by staff and the dining room feeling more organised. Staff feedback themed around mealtimes feeling smoother and feeling better able to support patients, with staff questioning ‘why haven’t we done this before?’.

Both staff and patients acknowledge that mealtimes in the dining room are still a difficult experience but much calmer. Staff did not report feelings of additional burden at either formal or informal feedback opportunities.

A positive consequence of the project is that mealtimes are now shorter in duration. A week of themed meal-times was repeated in October 2020 and showed that the average length of mealtimes across a week has reduced from 53 min to 43 min.

LESSONS AND LIMITATIONS

Initial data analysis shows that the host role reduced the average number of EDs observed per patient by staff by 35% and reduced the week-to-week variation. However, the data show the beginning of a reduction of observed ED behaviours prior to the change. Factors which could have influenced this include, wider knowledge of the project by staff and patients, the effect of the pandemic, a reduced number of patients in the dining room, a change in patient group or a combination. The advantage of having multiple measurements over time is that we can see that an improvement has been sustained and will continue to monitor this. The measurement strategy, though initially a shock that we would be collecting data for so long, has been shown to be reliable and sustainable (figure 2) demonstrating that it is possible to measure frequently even in a busy inpatient environment.

By examining the ED behaviours individually as well as counting them, we have been able to identify behaviours that are frequently displayed by multiple patients, this will feed into the ongoing project work at understanding the problem and influence future changes.

The first change has received positive feedback from staff and patients. Although there was only one PDSA cycle overall, the planning stage had many iterations and we think that the thinking and time spent on this phase was invaluable and the reason why the host role was so easily accepted, combined with the existing staff buy in in this idea from the engagement work.

A real strength of the project is that it has learnt itself to a lot of patient involvement and the patients have been enthusiastic in embedding change. The core working groups for patients worked well and this is an approach we would use again and shows how patients can be involved in steering change in their care.

What we had not taken into account, was that we would be running a QI project during the COVID-19 epidemic. We decided as a team, 2 weeks into the initial lockdown, to continue with the project to give the team and patients something positive to focus on. Although at times it has been difficult, it has continued going, highlighting the positive impact of the project during unsettling times.

The main challenge identified at the outset of the project and which continues is staff engagement. As is often the case within healthcare systems, initially there was scepticism and resistance to change from the wider team. Additionally, effects of the pandemic posed further barriers to change; increased staff and patient anxiety, staff shielding at home, involvement of staff remotely, increased use of agency staff and many changes to care provision and routines to comply with organisational infection control policies, including staff no longer eating with patients.

Core working groups, while an ideal way of working and disseminating information to the wider team were not sustainable for staff. This is due to the shiftwork nature of the nursing team. This has been a barrier to involving the nursing team and supporting them to take on more of a leading role. The need for a nursing lead to help galvanise and sustain project engagement, ownership and communication has been identified.

In conjunction to this, during the pandemic the loss of QI team involvement really impacted on the engagement and motivation of nursing staff. This and the lack
of project lead nurse has impacted the project and meant that the main bulk of work has fallen to the dietitian and dietician assistant, affecting embedding the project.

The risk of project burn-out has been raised in recent project meetings as the ongoing responsibility of project work and communicating the project across staff groups is held by one individual (dietitian), within an already stretched and short-staffed service (gaps in nursing team roles tend to be filled by agency nurses, however vacancies in the wider team remained unfilled through the project).

Starting a project has been the easy bit. Having the support to create and sustain staff engagement and provide direction in embedding change has been the hard part. It highlights the need for involvement and buy in of multidisciplinary leadership as an ongoing presence throughout the project. Since this has been recognised, going forward this should enable a nursing project lead to be established. Tailored quality improvement training for the whole team has been organised to support staff engagement and motivation within the project and build quality improvement capability within the team.

What this paper has not examined is if having an extra member of staff in the dining room is cost effective. What we have shown is that by introducing the host role and reducing disruptions in the dining room staff are spending on average 10 min less in there per meal. At three meals per day 7 days a week that is 210 min of nursing time per staff member in the dining room offset to 43 min per meal for one staff member fulfilling the host role. As the project continues, cost-effectiveness is an area that will be examined for the current intervention and future changes.

CONCLUSION

The range of methods used to understand the problems in the dining room yielded a wide range of issues that informed the project work. Feedback from staff and patients indicates that we have improved experience and reduced anxiety and distress as measured by the aim of multidisciplinary leadership as an ongoing presence throughout the project. We are hopeful that by introducing future change ideas we will achieve our aim of 50%.

The problems this project addresses are likely to be similar to those found in other inpatient ED units. The change idea of a host role in the dining room and the measurement strategy are actions that could be replicated in other units.

The challenge of continued staff motivation and engagement in QI projects has been present within this project. However, while this and the risk of burn-out need to be addressed within our team, the project continues and changes have been made by a staff group who were sought for engagement but not continually represented at decision making meetings without a backlash of feedback regarding being ‘done to’ or extra burden. The changes are proving to be successful and making meaningful change to patients and staff. The fact that this took place despite unprecedented challenges and effects of an international pandemic demonstrates the dedication and commitment to improvement of the team, including the fantastic and enduring communication skills of the project lead.

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