People with learning disabilities may display anxiety-driven behaviours that disrupt mealtimes. A study suggests that calming music may reduce agitation.

Effect of music on mealtime disruptions

In this article...

- The issue of disruptive mealtime behaviour of people with learning disabilities
- How a study investigated whether calming music could lessen disruptive behaviour
- Key findings and recommendations

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Abstract

Background
People with learning disabilities can disrupt mealtimes with non-cooperative, aggressive and self-injurious behaviours that challenge other people to tolerate and manage them. These behaviours appear to arise because the proximity of other people, and the heightened activity and noise of a dining room, causes anxiety and agitation.

Aim
To examine how delivering calming background music via headphones affected anxiety-driven behaviours that disrupted mealtimes.

Method
A sample of 30 adults with mild, moderate or severe learning disabilities were videotaped during mealtimes on two consecutive days. On the first day, half the group ate without any calming music while the other half sat opposite them wearing earphones and listening to calming music. On the second day, the non-music and music groups swapped around.

Results
Of the participants who tolerated the earphones, only three showed disruptive behaviour; all three had been sitting at the table waiting for their food. With so few examples, meaningful inferential analysis was not possible. However, there were signs that calming music had a positive effect on disruptive mealtime behaviours. It eliminated physical harm, complaining and verbal repetition in one person, and stopped another from shouting/swearing. It also reduced the incidence of shouting/swearing, restlessness and vocalising.

Conclusion
Calming music and reduced waiting at tables for food may reduce disruptive behaviours.

There are more underweight people in the learning disabled population than in the general population because disruptive mealtime behaviours (such as non-cooperation, throwing food, physical aggression, verbal aggression and self-injury) displayed by some of them increase their energy needs and reduce their intake of food (Lea, 1999; Wood, 1994).

While the origins of these disruptive behaviours are largely unknown (Hove, 2007), Courtright et al (1990) identified three sources of stress associated with the disruption often caused by psychiatric patients at mealtimes. These are as likely to apply to people with learning disabilities:

- Transferring from low-demand routine to moderate-demand mealtime activity;
- Changing from free living spaces to a more structured dining room;
- Moving from a background of music or television in the living area to cafeteria noise.

Literature review
The interventions used to address disruptive mealtime behaviours of people with learning disabilities have generally tackled behavioural causes. They have...
taken a constructual approach that either displaced these disruptive behaviours by reinforcing appropriate mealtimes through headphones affected the anxiety-driven behaviours that disrupted mealtimes of people with learning disabilities. The aim of this study was to examine how delivering calming background music through headphones affected the anxiety-driven behaviours that disrupted mealtimes of people with learning disabilities.

Method
A convenience sample of 30 adults (29–67 years) with mild (n=15), moderate (n=10) or severe learning disabilities (n=5) was recruited. Most were male (27; 90%), none had a reported hearing loss and, although around 10% occasionally needed their food cut up for them, all ate without further assistance. Comprehensive ethical guidelines protected all participants during recruitment and data collection.

Design
Participants were videotaped on two consecutive days by a camera placed in full view on a tripod. They were eating lunch at home (n=10) or while attending day care (n=20). An MP3 player with earbud headphones was used, and the music and non-music conditions were introduced together to control for the confounding variables (such as different menus and degrees of disturbance) of separate music and non-music conditions.

Two, three and, on one occasion, four participants were monitored as they sat together at one table. On the first day, half the table (or, when three were monitored, a single participant) were randomly allocated to the music group and the remainder to the non-music group. The non-music group completed their meal without being exposed to music, and the music group sat alongside or across from them and listened to the calming music through headphones. The next day, the group membership at the table was reversed.

We selected calming instrumental arrangements of five popular songs: Yesterday, performed by James Last and his orchestra; No Matter What, performed by Julian Lloyd Webber; I Have a Dream, performed by the Royal Philharmonic Orchestra; The Long and Winding Road, performed by Göran Söllscher; and Blue Eyes from the Greatest Orchestral Pop Collection.

Recording disruptive behaviour
It was never the intention to add a new stressor to the mealtimes. Anyone who refused to use the equipment by removing the MP3 player from around their neck, pulling the headphones out or pushing the player and headphones away was not considered for either the music or non-music intervention. When they were recruited in tandem with another person, their partner was also withdrawn.

A meeting with nursing staff before the investigation began enabled us to distinguish each participant’s anxiety-provoked disruptive mealtimes and draw up an inventory of 13 such behaviours. The primary author reviewed the videos and

| TABLE 1. INCIDENCE AND DURATION (SECONDS) OF BEHAVIOURS DISPLAYED |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Behaviour                   | Participant 12 (male)       | Participant 19 (male)       | Participant 21 (male)       |
|                             | Non-music                  | Music                       | Non-music                  | Music                       |
| Physical harm               | 0                          | 0                           | 0                          | 0                           |
| Grabbing food               | 0                          | 0                           | 0                          | 0                           |
| Shouting/swearing           | 8 (19s)                    | 2 (3s)                      | 7 (14s)                    | 0                           |
| Stripping                   | 0                          | 0                           | 0                          | 0                           |
| Restlessness                | 0                          | 0                           | 1 (8s)                     | 5 (33s)                     |
| Refusing food               | 0                          | 0                           | 0                          | 0                           |
| Handle mealtime objects inappropriately (for example throw food, cutlery or crockery, overturn furniture, bang implements) | 0 | 0 | 0 | 0 |
| Self-injury                 | 0                          | 0                           | 0                          | 0                           |
| Anxiety-provoked mannerisms | 0                          | 0                           | 0                          | 0                           |
| Complaining                 | 0                          | 0                           | 0                          | 6 (19s)                     |
| Requesting attention        | 0                          | 1 (15s)                     | 1 (15s)                    | 0                           |
| Vocalising                  | 0                          | 9 (15s)                     | 1 (2s)                     | 12 (17s)                    |
| Verbal repetition           | 0                          | 0                           | 1 (4s)                     | 2 (26)                      |
| Totals                      | 8 (19s)                    | 2 (3s)                      | 18 (52s)                   | 8 (31s)                     |
recorded the incidence and duration of these behaviours. A colleague viewed 60% (n=12) of the mealtimes and inter-observer reliability was 94%. A small number of very distinct behaviours had occurred, and the opportunity to review footage clearly contributed to a high level of agreement.

Results
All five participants with severe learning disabilities pushed the MP3 player aside or removed the headphones, while all those with mild and moderate levels of learning disabilities tolerated the device. Participant 25, a young woman with moderate intellectual disability, was withdrawn from the investigation because the participant was paired with had removed the headphones, leaving 24 participants.

Three men displayed disruptive behaviour at mealtimes (participants 12, 19, and 21); this is 10% of the 30 people recruited and 12.5% of the 24 participants. Table 1 shows the 13 monitored behaviours and the duration of each type for each of the three disruptive participants, during both music and non-music intervention.

The investigation detected few examples of disruptive mealtime behaviour so it was not possible to carry out any meaningful inferential analysis. However, Table 1 does show that calming music affected disruptive mealtime behaviours:

- It eliminated physical harm (participant 21), shouting/swearing (participant 19), complaining and verbal repetition (participant 21);
- It reduced the incidence of shouting/swearing (participant 12), restlessness (participant 21) and vocalising (participants 19 and 21);
- It also appeared to reduce the intensity of behaviour, as the average duration of restless behaviour (participant 21) decreased from 9.83 to 4.5 seconds.

Although the incidence of disruptive behaviour decreased for each participant, the duration of behaviour did increase in one case (participant 19).

Discussion
The rate of disruptive mealtime behaviour in this sample was 12.5%, compared with 18% reported by Reid et al (1978), and with much higher prevalence rates of 27%, 37% and 45% discovered by Matson et al (1991), Reid and Ballinger (1995) and Dudley et al (1999) respectively. A look at the lunchtime behaviour of the three disruptive participants offers a reason for the lower incidence in our study.

The participants had a variety of lunchtime routines. Some queued for meals and others were served by carers. Some entered the dining room only when their meal was ready and others were brought along by carers then sat at the table to wait for their food to arrive.

Participants 12, 19 and 21 all fell into the last category during both the music and the non-music interventions. Unlike their peers who were also waiting (participants 10, 11, 20 and 22), they did not remain calm. Denney (1997) believed that mealtime agitation was often exacerbated by hunger, and, as participants 12, 19 and 21 waited, their agitation may have been driven by hunger and expressed in disruptive behaviour.

People with learning disabilities often deal with anxiety in a maladaptive manner because they are not constrained by the fear of social embarrassment (Lindsay and Olley, 1998).

It is possible that the rate of disruptive behaviour was higher in the other investigations because more participants were sitting waiting for their food. It is not possible to make a definitive judgement about this, but the possibility should be of interest to service providers, nursing staff and carers. They may find that organising mealtimes to eliminate waiting reduces disruptive behaviour. In addition, anyone who considers carrying out a similar type of investigation could learn from our experience and identify participants with demonstrable mealtime agitation behaviours.

This investigation used headphones to introduce the music and non-music conditions together and to control for confounding variables. Five participants, all with severe learning disabilities, refused to use the equipment. From talking to carers, it became clear the degree of disability was not the primary reason for refusal; other factors (choice of music, using headphones) had prompted this response. This response reminds us that everyone is unique and there is no substitute for matching musical experiences to individuals and their needs. Nursing staff need to consider not only the music they play but also how they play that music, as headphones may not be suitable for everyone.

Conclusion
Although 30 people were recruited to this investigation the low prevalence of disruptive mealtime behaviour means that the advice offered here is based on the response of just three people. Nevertheless, we believe that, because each of these participants responded positively to the intervention, practitioners could begin managing disruptive behaviours by looking at the organisation of mealtimes and by introducing calming background music and monitoring its impact.

References