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Letter to the editor

Anxiolytic effect of warmth in anorexia nervosa

Introduction

It is long known that patients with anorexia nervosa are anxious, physically hyperactive, and hypothermic but also, unfortunately, that pharmacological interventions that may be helpful in patients with other disorders are not effective in patients with anorexia (1). Because of their hypothermia, William Gull supplied external heat as part of his treatment of patients with anorexia in 1874 already, and interestingly, warmth has been found to decrease hyperactivity, preventing weight loss and even reversing some neuroendocrine effects of food deprivation in experimental rats (1). Considering the lack of efficacy of psychopharmacological intervention and because it is easy to use, we should like to encourage our colleagues to use warmth in treating patients with anorexia by reporting that warmth exerts an anxiolytic effect within minutes in the patients.

Methods

Eighteen anorexic women, who were 16.5 (13–32) (median; range) years of age, had been ill for 3 (1–13) years, had a body mass index = 14.3 (12.6–16.2) kg/m², and had recently been admitted to our clinic, were recruited by their case manager, who informed them about the study. The patients had lunch during half an hour at noon together with about 20 other patients. Immediately after lunch, they rested individually for half an hour on a bed in a room (6 m²), where the temperature was 32°C or 21°C, or together with the other patients in a common room (70 m²), where the temperature was 21°C. The patients filled in the Spielberger State-Trait Anxiety Inventory, State Anxiety Scale (2), 1.5 h before and immediately before resting and immediately after resting and 1 h later. The conditions were presented in random order and were separated by 2 days. The study was approved by the Central Ethical Review Board of Stockholm.

Results

There was a significant effect of condition ($F(2,34) = 20.484$, $P < 0.01$) and time ($F(3,51) = 43.648$, $P < 0.01$) and a significant interaction between condition and time ($F(6,102) = 26.526$, $P < 0.01$). Figure 1 shows that anxiety was reduced after resting individually in a room at 32°C at both times of measurement, that the effect was attenuated over time after resting in a room at 21°C, and that resting together with the other patients in the common room at 21°C had no effect.

Discussion

Although restriction of physical activity and escape from social interactions may have contributed to the anxiolytic effect reported here, the finding that the effect increased when the temperature was increased suggests that warmth has a specific anxiolytic effect in anorexia nervosa. In our clinical practice, the warm rooms used in this experimental study are used in the beginning of treatment of severely ill in-patients, and warming

blankets are used subsequently. Patients also experience subjective advantages of the warmth (1), and they are encouraged to use warming blankets as much as possible. The anxiolytic effect occurs within minutes and has no adverse side-effects. By contrast, psychopharmacological intervention, which takes weeks to be effective in other groups and increases anxiety in the short term (3), is not effective in patients with anorexia nervosa (1).

It has been suggested that warmth decreases anxiety by engaging the serotonin neurons in the dorsal raphe nucleus in the brain stem, which project to limbic forebrain regions (4). Interestingly, chewing, the most obvious aspect of eating behaviour, affects anxiety via the same mechanism (5). Normalizing eating behaviour is the major intervention in our treatment, and as the patients learn to eat normally, anxiety decreases (5). However, considering that widely distributed network in the brain is involved in thermoregulation (6), further speculation on the relationship between the brain, body temperature, and anxiety is gratuitous.

While warmth has been part of our treatment of patients with anorexia nervosa, and also other eating disorders, as we

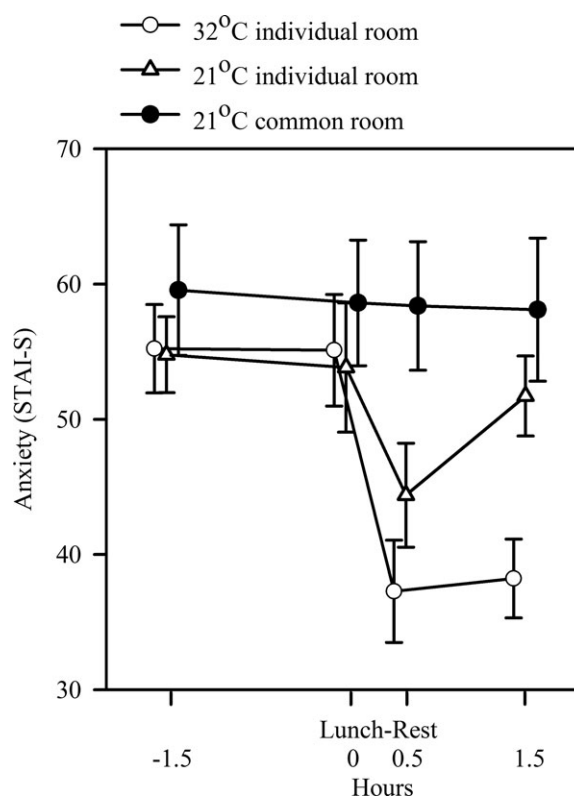


Fig. 1. Anxiolytic Effect of Warmth in Anorexia Nervosa. Eighteen patients with anorexia rested for 30 min after lunch individually at different temperatures or with other patients (common room) and estimated their anxiety at the times indicated. Data are means, and vertical bars denote 95% CI.

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first demonstrated its effect in a randomized controlled trial (7), another study found no effect of warmth, supplied via a heating vest, on weight gain in a randomized controlled trial on patients with anorexia (8). Considering that the patients in that study had been ill for 13.6 years on average, that they had a relatively high average body mass index of 17.7, and that the warmth was supplied for 3 h/day over three weeks only, the failure to affect their body weight may not be surprising. Interestingly, however, the patients in that study experienced subjective benefits of the warming, including ‘calming’, that is an effect similar to the anxiolytic effect reported here.

Although Gull was right in that ‘supply of external heat’ may be useful in treating patients with anorexia by, for example, reducing anxiety and possibly also physical activity, it remains to be determined whether this simple intervention can affect other measures of outcome as well.

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