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The acceptability, feasibility and possible benefits of a group-based intervention targeting intolerance of uncertainty in adolescent inpatients with anorexia nervosa

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Abstract: Despite the effectiveness of family-based interventions for adolescents with anorexia nervosa (AN), up to 30% of patients may not fully benefit. Comorbidity such as depression and anxiety, of which Intolerance of Uncertainty (IU) is established as a key predictor, may account for this reduced treatment response. This pilot study evaluates the acceptability, feasibility and possible benefits of a group-based intervention targeting IU in adolescent inpatients with AN. Ten female patients received a 12-session open-group intervention adapted from a previously developed intervention for adults which took a cognitive behavioural stance and included sessions on psychoeducation and raising awareness around IU, problem-solving in the context of uncertainty, beliefs about worry, behavioural experiments and relapse prevention. Fifty-five staff hours were required to run the group and resources were suitably adapted from adult materials. Patients rated the intervention as acceptable and there were no dropouts. Qualitative outcomes highlighted

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ABOUT THE AUTHORS

Lot Sternheim (left), studied at University College Utrecht, The Netherlands and University of Exeter, UK and was a children's councillor in Ghana and a research worker at the Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK where she completed her PhD on "Anxiety-related Processes in People with Anorexia Nervosa." Lot is now a lecturer and researcher at the University of Utrecht.

Amy Harrison (right), studied at the University of Manchester, UK and worked as an assistant psychologist before completing her PhD on "Social Emotional and Cognitive Functioning in Eating Disorders" at the Institute of Psychiatry, Psychology and Neuroscience, King's College London where she also trained as a clinical psychologist. Amy was lead clinical psychologist at a child and adolescent eating disorder (ED) in-patient service and currently works with adults with EDs and holds an academic position at University College London. Both authors are interested in better understanding maintaining factors of EDs and in developing novel and innovative treatment adjuncts to support recovery.

PUBLIC INTEREST STATEMENT

Eating disorders are a group of mental health difficulties that affect an individual's physical wellbeing through overeating or undereating, impact psychological wellbeing and social functioning. Anorexia nervosa is one example and tends to have its onset in adolescence. Family-based treatment has been demonstrated to be the leading treatment for this group but some adolescents do not benefit. This may be because they have other difficulties, such as anxiety, to which a construct called intolerance of uncertainty may contribute. Intolerance of uncertainty refers to cognitive, emotional and behavioural difficulties managing uncertain situations and events. This study reports on the development of a group intervention designed to alleviate intolerance of uncertainty in young people with anorexia nervosa delivered alongside inpatient treatment. The treatment was experienced as acceptable by the patients and showed it was possible to reduce intolerance of uncertainty in this group of patients. This suggests that future research would be helpful to further develop the group and assess its likely benefits.

patients benefited from the group and there was a trend towards IU reducing after the intervention and at 3-month follow-up, although the improvements fell short of a meaningful change in therapy cut-off. Results suggest the group was feasible to run and acceptable to patients and warrants further investigation to optimise possible clinical benefits.

Subjects: Mental Health; Eating Disorders in Children & Adolescents; Anxiety in Children & Adolescents

Keywords: intolerance of uncertainty; adolescents; inpatient treatment; anorexia nervosa; eating disorders

1. Introduction

Anorexia Nervosa (AN) is a serious and debilitating psychiatric disorder which can have significant physical complications (Schmidt et al., 2016) and for some, this eating disorder (ED) is associated with poor recovery and high relapse rates (Keel & Brown, 2010). Behaviours can include food restriction, excessive exercise, binging and purging (in binge-purge AN) and patients experience a core cognitive disturbance which is the over-evaluation of shape, weight and their control (Fairburn, 2008). Onset typically occurs during adolescence and intervening early using family-based interventions is associated with good rates of remission (approximately 70%; Couturier, Kimber, & Szatmari, 2013; Lock et al., 2010). Unfortunately, a subgroup of young people do not benefit from this treatment, possibly due to a longer duration of untreated ED (over 1 year) and higher comorbidity and the severity of their symptoms may require more intensive intervention, including hospitalisation, with the highest number of child and adolescent beds in the UK occupied by those with EDs (Eisler, Le Grange, & Asen, 2003).

Relatively little is known about those individuals not benefitting from these interventions, but one possible reason behind this lack of benefit from existing treatment strategies for some patients may be high comorbidity, specifically, comorbid anxiety disorders, which have been reported to increase treatment complexity and impact negatively on the course and outcome of AN (Eisler et al., 2003; Keel & Brown, 2010). Anxiety disorders commonly present before AN onset, remain elevated after recovery, and are associated with treatment dropout (Godart, Flament, Perdereau, & Jeammet, 2002; Keel & Brown, 2010; Pallister & Waller, 2008).

Although research into the mechanisms underpinning the effects of anxiety on treatment outcomes requires further work (Kezelman, Touyz, Hunt, & Rhodes, 2015), one possible key construct of interest regarding anxiety-related psychopathology is Intolerance of Uncertainty (IU). IU is defined as a negative response to uncertain situations and events across cognitive, emotional and behavioural levels (Dugas, Gagnon, Ladouceur, & Freeston, 1998). Individuals with high IU experience uncertainty as threatening and will aim to avoid it, and it has been suggested that IU follows from a fear of the unknown (Carleton, 2016). High IU may be a transdiagnostic factor associated with a wide range of psychopathological symptoms in adults and adolescents (Boelen, Vrinssen, & van Tulder, 2010; Carleton, 2012; Mahoney & McEvoy, 2012). IU has been associated with decision-making difficulties (Carleton et al., 2016) and suboptimal daily functioning (Thibodeau, Carleton, Gómez-Pérez, & Asmundson, 2013). Possible neural correlates have been identified (i.e. the amygdala, vmPFC, DLPFC, anterior cingulate cortex and orbitofrontal cortex) (Wever, Smeets, & Sternheim, 2015). In adolescents, a recent systematic review and meta-analysis which included 31 studies of typically developing children and adolescents found that IU accounts for 39.69% of the variance in worry and 36% of the variance in anxiety (Osmanağaoğlu, Creswell, & Dodd, 2018).

An emerging data-set demonstrates elevated IU in adults with AN (e.g. Frank et al., 2012; Konstantellou, Campbell, Eisler, Simic, & Treasure, 2011; Sternheim, Konstantellou, Startup, & Schmidt, 2011; Sternheim, Startup, & Schmidt, 2011) and data from 21 studies using self-report and

experimental methods were recently summarised in a systematic review and meta-analysis which found a standardised mean difference of 1.9 for all forms of ED compared to non-ED controls (Brown et al., 2017). IU predicts symptoms of anxiety and depression in AN (Sternheim, Startup, & Schmidt, 2015), as well as broader comorbid emotional symptoms such as clinical perfectionism and interpersonal functioning (Renjan, McEvoy, Handley, & Fursland, 2016). Qualitative data also highlight strong intolerance for uncertainty, with patients describing feeling overwhelmed and paralysed when facing uncertainty and turning to AN behaviours as a means of controlling and eliminating uncertainty (Sternheim, Startup, et al., 2011). This finding corroborates Merwin et al. (2010) whose model of AN highlights patients' needs for certainty and structure.

One limitation of the current literature on IU in AN is that studies have predominantly focused on adult patient groups (e.g. Sternheim, Startup, et al., 2011) or non-clinical samples (Konstantellou & Reynolds, 2010; Sternheim, Fisher, Harrison, & Watling, 2017). However, a qualitative study conducted on an adolescent sample found that young people with AN also report a low tolerance for uncertainty, and a desire for control over food to handle uncertainty (Konstantellou, Sternheim, Hale, Simic, & Eisler, under review). A quantitative study also reports elevated IU in adolescents with AN, and found IU was positively associated with cognitive inflexibility (Tieskens, 2014), corroborating Merwin et al. (2010). These data indicate the need for further investigation of IU in young people with AN, including the exploration of innovative treatment enhancers targeting IU particularly for those who may have not have previously benefited from evidence-based treatments.

A cognitive behavioural intervention for generalised anxiety disorder (GAD) targeting IU has been developed by Dugas and colleagues (2003), Dugas and Ladouceur (2000), Dugas and Robichaud (2007). A number of randomised clinical trials show this intervention successfully reduces levels of IU in both individual treatment settings and in group format (Dugas et al., 2010, 2003; Gosselin, Ladouceur, Morin, Dugas, & Baillargeon, 2006; Ladouceur et al., 2000). Moreover, a reduction in levels of IU has been associated with reductions in other psychological symptoms such as worry, social anxiety, general anxiety and depression (Bomyea et al., 2015; Boswell, Thompson-Hollands, Farchione, & Barlow, 2013; McEvoy & Mahoney, 2012). The mechanisms through which IU changes in treatment however remain relatively unknown; it has been suggested that IU may be multifaceted, comprising different dimensions that have different expressions (e.g. emotional versus cognitive) and symptoms, potentially explaining the transdiagnostic nature of IU, and its association with a wide range of psychological symptoms (Einstein, 2014).

For the current study, the group treatment protocol for adults with GAD by Dugas and Ladouceur (2000) was adapted, with the aim of conducting a pilot study to examine the acceptability, feasibility and potential benefits of a group-based intervention targeting IU in adolescents with AN in an inpatient setting. It was hypothesised that it would be feasible to adapt this established treatment protocol into a group format accessible to adolescent inpatients with AN over 12 sessions, measured using service feedback on the practicalities of delivery and homework engagement. It was predicted that this would be an acceptable intervention for patients to receive, measured using a patient feedback form, attendance, dropout rates and qualitative feedback from patients. It was also predicted that the group may demonstrate evidence of possible benefit, measured using the Intolerance of Uncertainty Scale (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994) and analysed using reliable change scores informed by Jacobson and Truax (1991), and Jacobson, Follette, and Revenstorf (1984). An exploratory hypothesis was that a possible trend towards a reduction in IU might be maintained at 3-month follow-up.

2. Method

The study employed a repeated measures design.

2.1. Group development

The 12-session open group was designed to run weekly for one hour in keeping with the current group programme on the ward. The content was adapted from the treatment protocol for adults

with GAD by Dugas and Ladouceur (2000) in collaboration with the first author, an expert on IU in AN and through service user and professional consultation. The content of the intervention draws on the cognitive behavioural therapy approach. A consultation stage involved the proposed protocol being shared with the multidisciplinary team, patient representatives, carer groups and experts in the ED field to gather feedback on its content and further support its implementation within the service. Adaptations required were focused on explaining the model in language acceptable to a younger cohort, an emphasis on helping patients to draw links between difficulties tolerating uncertainty and their AN behaviours and involving multidisciplinary team members to support homework given the severe and complex nature of the patient group. The final group protocol is provided in Table 1.

2.2. Group format

The stance of the group was psychoeducational, curious and collaborative in nature. Health care assistants whose role was to support patients nursed under continuous observation were also encouraged to participate in group activities to model engagement with the materials. The group was facilitated by the second author, a qualified Clinical Psychologist who specialises in treating adolescents with EDs and a master's level Assistant Psychologist with four years' clinical experience working under supervision in the ED field. The group was promoted to patients during the weekly community meeting and patients were supported with homework by their nursing key worker.

2.3. Setting

The clinic in which the group was developed and delivered is a specialist child and adolescent inpatient service for EDs which can admit young people aged 8–18. Patients are referred to the service from all over the United Kingdom from community treatment programmes, other specialist ED inpatient units and general paediatric settings. At the time the study was conducted, the service had 20 beds across 2 wards. Criteria for admission are an ED which is severe and complex in nature, with psychological and/or developmental comorbidity, medical complications associated with a severely A recent audit showed a median stay of 6 months. The therapeutic approach draws on a number of models, including systemic, cognitive behavioural, motivational interviewing and psychodynamic approaches which are delivered in an individualised treatment plan through weekly individual therapy, group therapies, occupational therapy, art therapy, family therapy and nursing key-working.

2.4. Participants

The study employed opportunity sampling with the group offered to patients of all genders with all forms of ED (N = 20) admitted to the service described above. Patients were eligible for participation if they were able to comprehend English. Although the service accepts male patients, at the time the group was offered, all patients in the service were female and due to the physical complications associated with the restricting form of AN which can necessitate hospitalisation, all patients on the ward at the time the study was conducted had a diagnosis of AN. Diagnosis is confirmed by the Consultant Psychiatrist on admission through a clinical interview. Patients were informed about the group in a weekly community meeting and via posters around the ward. Attendance of therapy groups in the service is voluntary, although encouraged and supported by the treating team and to help patients utilise social support in their recovery.

2.5. Measures

2.5.1. Demographic and clinical information

Age in years was recorded; weight for height percentages were calculated using a standard metric accounting for age and current height and weight in keeping with the Junior Marsipan document from the Royal College of Psychiatrists (2012). The 36-item self-report measure, the Eating Disorder Examination-Questionnaire (EDE-Q) (Fairburn & Beglin, 1994) assesses eating attitudes/behaviour over the past 28 days using a 7-point Likert scale. The Cronbach's alpha for this sample was 0.89. The State-Trait Anxiety Inventory (STAI; Spielberger, 1983) assesses state and trait anxiety across 40 items (20 items for both the state and trait subscales) using a 4-point Likert scale. The Cronbach's

Table 1. Group content and protocol

Session number	Session content
Session 1	Introducing IU—psychoeducation around IU; exploring the pros and cons of certainty and uncertainty. Completion of outcome measures
	Homework: Identify a situation when you experienced uncertainty and note down your response (thoughts, feelings, behaviours)
Session 2	Linking IU to EDs—brainstorm around the role of IU in causing and maintaining EDs
	Homework: Identify a situation in the week when you found yourself using ED behaviours to manage uncertainty
Session 3	Awareness training—experiment designed to increase awareness that worry is used to manage uncertainty. The group was told that an unknown visitor might join the group at some point. They then engaged in worry to manage their worries around this. Group discussion around how useful this strategy was given patients had little control over the event. Brainstorm around other strategies to manage worry when events are outside of your control
	Homework: Note down three events that caused worry that may or may not be within your control
Session 4	Awareness training—review of ideas generated through homework. Situations were written down and divided into two categories—situations that could be solved through problem-solving and those beyond our control. Brainstorm around problem solving strategies for events that can be problem solved
	Homework: Look out for one uncertain situation in the week and use one strategy for managing it outside of ED behaviours and worry
Session 5	Re-evaluation of beliefs about worry—thought challenging around worry being a useful coping strategy, generation of alternative coping strategies when faced with uncertain situations. Development of a coping card of strategies to use in situations that could be managed using problem-solving and situations beyond our control
	Homework: Try out the coping card during the week
Session 6	Focusing on the bigger picture—using cognitive styles to step back from situations and improve problem-solving
	Homework: Practice switching to the bigger picture during one difficult situation this week
Session 7	Exposure—focus on a worrying situation that occurred this week and use the strategy of "fast forwarding the DVD", involving going beyond the situation and reflecting on what you might think and feel about it in several years' time
	Homework: Practice this technique in a key work session
Session 8	Review of strategies—brainstorming barriers, discussing experiences. Generating new ideas
	Homework: Feedback one way your support network could help you in your family therapy session this week
Session 9	Coping with change during recovery—visit from a past service user with questions and answered focused on how to cope with change
Session 10	Awareness training revisited—the group were told that the group might be held in a different room next week. Discussion around how to manage the uncertainty experienced around this change
Session 11	Relapse prevention—developing a written plan of how to manage uncertainty; discussion of how tolerating uncertainty might assist in recovering from an ED
Session 12	Summing up—development of individual mind map depicting new learning achieved from the group. Completion of outcome measures and feedback

Note: IU = Intolerance of uncertainty.

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alpha for this sample was 0.87. The Beck Depression Inventory (BDI; Beck, Steer, Ball, & Ranieri, 1996) is a 21-item self-report inventory measures the severity of depression using a 4-point Likert scale. The Cronbach's alpha for this sample was 0.93.

2.6. Feasibility

Qualitative feedback was gathered from group facilitators, patients and the multidisciplinary team regarding the group's practical implementation and the ease of adapting Dugas and Ladouceur's interventions (Dugas et al., 2003; Dugas & Ladouceur, 2000) to an adolescent and clinical inpatient context. This included an assessment of the staff time required to run the group, the ability of participants to engage with homework and the materials needed to run the group.

2.7. Acceptability

2.7.1. Patient satisfaction questionnaire

A 0–10 Likert scale was used to assess group acceptability across three items: satisfaction with the group, likelihood of recommending the group to a friend and desire to attend the group again in future. Higher ratings indicated greater acceptability. Patients were also provided with an open-ended question on this measure to evoke qualitative feedback of their experiences of the treatment and suggestions for improvements. Attendance was recorded via registers taken at each session and this allowed for the rate of dropout to be recorded.

2.8. Assessment of possible benefit

The 27-item Intolerance of Uncertainty Scale (IUS; Freeston et al., 1994) assesses cognitive, emotional and behavioural aspects of IU on a 5-point Likert scale. Higher scores relate to greater IU. A sample item is as follows: "Uncertainty makes me uneasy, anxious, or stressed". A clinical cut-off of >44 indicates the presence of clinical levels of IU. The Cronbach's alpha for this sample was 0.92 and the measure has shown excellent internal consistency, good test–retest reliability over a five-week period (Buhr & Dugas, 2002).

2.9. Procedure

After advertising the group via the weekly community meeting and through posters displayed around the ward, patients were encouraged to join the group. At the first session, patients completed the clinical measures and the IUS. At the end of treatment, patients repeated the IUS and completed the patient satisfaction questionnaire. The IUS was re-administered 3 months after the group had ended. Written consent was collected from parents and written assent was obtained from patients. Patients were informed that attendance of the group was voluntary and they had the right to withdraw at any time without any consequence on their treatment. The data were collected as part of an audit of service provision, with ethical approval obtained from the local National Health Service Research Ethics Committee (Ref. 401.22/15) and via the service's clinical and research governance group, part of their quality and safety committee.

2.10. Data analyses

As this was a pilot, data presented are descriptive in nature and inferential statistics (in this case, the paired t-test) should be interpreted with caution. However, to fully explore the third hypothesis regarding the possible benefit of the group, based on guidance by Jacobson and Truax (1991), who reviewed means of measuring meaningful change during therapy, informed by Jacobson, Follette, and Revenstorf (1984), a cut-off for meaningful change was then calculated by subtracting the standard deviation of a well-functioning group on the IU outcome measure from their group mean and then dividing this score by 2. The data used to calculate the cut-off in this study were taken from the healthy adolescent sample (n = 528) reported in Laugesen, Dugas, and Bukowski (2003) and this meant the cut-off for meaningful change in therapy for self-reported IU was 22.45

Given that this is a pilot study designed to inform future research involving larger samples and controlled designs, readers are encouraged to interpret the outcome data collected with caution and quantitative outcomes are provided in Table 2 to permit comparisons with future replications. The analysis plan was informed by a previous pilot study exploring a positive psychology group in adolescent inpatients with AN (Harrison, Al-Khairulla, & Kikoler, 2015). SPSS Version 22 was used to facilitate data entry and calculation of frequencies and percentages.

3. Results

The final sample consisted of 10 female patients (out of 20 admitted to the ward at the time) who opted to join the group, reflecting a 50% uptake rate. Adopting a transdiagnostic perspective (Fairburn, 2008), patients with any form of ED were eligible to take part and this resulted in the sample including those with restricting and binge-purge forms of AN. Data for the demographic, clinical and IU outcome measures are provided in Table 2.

3.1. Acceptability

Patients provided a mean rating of 7.03 (SD = 1.06 minimum = 6; maximum = 9) across the three acceptability questions. The ratings were similar across the three questions, with no significant differences observed between them. The mean number of sessions attended was 11.3 (SD = 1.06) and no patients dropped out. The group was the second most highly rated on the ward during the year in which it was run, with a positive psychology group scoring higher (8/10; Harrison et al., 2015).

Two patients provided qualitative feedback which related to the relevance of the group: "you totally get what my life is like—I HATE CHANGE!!!You have helped me to start to accept that I can manage change, even though I don't like it" and the idea that it was difficult to complete the exposure and experiments, but was worth the effort: "I really struggled with some of the experiments. It helped to be with the other girls because we were in it together. I learnt some new coping techniques to deal with my worries". No further information was provided regarding how to further improve the group.

3.2. Feasibility

The group required two facilitators which, including actual sessions, preparation, supervision, note writing, feeding back to the multidisciplinary team and collection and input of outcomes, 55 h of staff time were required. This was perceived as feasible in discussions held by the service, considering that 10 patients' attendance equated to 5.5 h of staff time per patient for the entire intervention.

Table 2. Group member demographics and clinical and intolerance of uncertainty outcome measures

Gender	Female *n* = 10 (100%)		
Age	14.6 (SD = 1.43; minimum = 13; maximum = 17)		
Diagnosis	*n* = 8 (80%) restricting AN; n = 2 (20%) binge purge AN		
Number of sessions attended (maximum = 12)	11.3 (SD = 1.06), 60% attended all 12 sessions		
	Drop out *n* = 0 (0%)		
Weight for height percentage	79.4 (SD = 4.24)		
EDE-Q Global	3.12 (SD = 0.48)		
Depression (BDI)	20.5 (SD = 3.78)		
State anxiety (percentile)	85.5 (SD = 8.45)		
Trait anxiety (percentile)	82 (SD = 11.25)		
	Pre-treatment	After treatment	3 months FU
IUS	94.8 (SD = 4.18)	76.6 (SD = 5.7)$_{a}$	71.4 (SD = 11.76)$_{b, c}$

Notes: BDI = Beck Depression Inventory; EDE-Q = Eating Disorders Examination Questionnaire; IUS = Intolerance of Uncertainty Scale (all patients completed the IUS at all time-points).

Paired *t*-test outcomes: a = post treatment score is significantly different to pre-treatment score; $p = \leq 0.01$; b = 3-month follow-up score does not differ from post-treatment score; $p > 0.01$; c = 3-month follow-up score is significantly different to pre-treatment score; $p = \leq 0.01$.

The facilitators noted that the group's nature and intensity (i.e. the cognitive behavioural model) may require a qualified therapist for adequate delivery. Beyond pen and paper materials, no further resources were purchased. Liaison with the wider treating team was observed to be key to successful implementation in terms of completion of homework and supporting the ideas discussed in the group. Group members completed homework on average 73% of the times it was set.

3.3. Potential benefits

Patients reported IUS scores which were above the suggested cut-off of 44 at the start of treatment. Compared to IUS scores found in a cross-sectional study of adolescent outpatients with AN in a previous study, (M = 81.86, SD = 14.75; Tieskens, 2014), IUS scores for the inpatients in this study before the intervention were slighter higher. As highlighted in Table 2, there was a trend towards a reduction in IU scores after, compared to before treatment, with this reduction largely maintained at follow-up. Unfortunately scores after treatment were closer to, but did not fall below the suggested clinical cut-off of 44. The meaningful change in therapy cut-off was not reached for any of the patients.

4. Discussion

This pilot study aimed to evaluate the feasibility, acceptability and potential benefits of a group-based intervention targeting IU in adolescents with AN in an inpatient setting. Feedback from patients and team members as well as assessment by the facilitators suggest that this group is feasible to implement within an adolescent inpatient setting. Low costs and simple practicalities further contribute to the group's feasibility, with 55 h of staff used to deliver the 12 sessions, comparable to 30 h used to deliver a 5-session group intervention on the same ward (Harrison et al., 2015). Patients also perceived the group as acceptable, and this was reflected by the absence of dropouts during the intervention and high satisfaction ratings. It is difficult to know how to further improve the group based on patient feedback which was positively valanced and didn't include ideas for further improvement. It might be that the rating wasn't closer to the maximum possible score because of the ego-syntonic nature of AN (Treasure & Schmidt, 2013) which can affect the ability to accept treatment. However, the group was perhaps perceived as relevant to patients as the take-up rate of 50% was higher than a previous group which ran on the same ward (42%) reported in Harrison et al. (2015). Findings also provide initial evidence that the intervention may offer possible benefits to patients, with a statistically significant reduction in IU after treatment which remained at follow-up and although the reductions did not meet the reliable change cut-off, the data suggest that this novel group may warrant further research and development. It may be that the measure wasn't sensitive to change or that a greater dose of treatment was needed to demonstrate reliable change.

Findings suggest that an existing intervention successful in targeting IU in people with anxious and depressive symptomatologies (Boswell et al., 2013; Dugas & Ladouceur, 2000) is appropriate for patients with AN, and may reduce levels of IU in this particular clinical group. Targeting IU through an adjunct to existing AN interventions may be a much needed new avenue to enhance treatment strategies for those young people with more severe and complex presentations whose illness may require a different approach. Although there was a reduction in IU, after treatment it remained above the cut-off of 44 for the IUS and it may be that a greater dose of treatment, or follow-up in individual work might be needed to see increased benefits.

The current study is a pilot study and findings should be interpreted within that context only (Leon, Davis, & Kraemer, 2011). The study only included females and therefore it is not possible to understand how the treatment might benefit male patients. However, interesting, in their review, Osmanağaoğlu et al. (2018) did not find that gender moderated the link between IU and anxiety of worry. Whilst the acceptability and feasibility results are promising, any potential benefits should be interpreted with caution, but indicate that further studies should investigate whether this group-based intervention does reduce levels of IU, whether there are associated changes in ED pathology, and whether there is an effect on other comorbid psychopathologies inherent to AN (e.g. depression and anxiety). Clearly a larger sample would be required to follow this up further in future.

The group was part of an inpatient programme, and provided as a treatment adjunct as part of the overall treatment plan including other psychological and occupational treatment elements. Therefore, one cannot rule out the possibility that possible improvements in IU were related to other components of the treatment programme. Randomised, controlled designs would be needed to follow this up. It might also be that the social, group context helped to reduce uncertainty, and that this contributed to the mechanism of change. Future work might therefore wish to compare group and individual delivery modes. The group members ranged in age from 14 to 17 and considering the developmental changes that occur during adolescence and into early adulthood (Blakemore & Choudhury, 2006), larger studies are needed to explore the relative impacts of the treatment at differing stages of development. Additionally, the group was limited to an inpatient setting, including severely ill patients with high levels of comorbid anxiety and depression, and generalisability may be low. In addition to this, it would be interesting to understand more about the treatment's applicability to those with BN, as all patients in this study had a form of AN. Moreover, participation in the group was voluntary, but there is no information available for why 50% of patients decided not to take part in the group, which may also reduce generalisability. Other limitations include the use of self-report measures instead of structured or semi-structured interviews to assess comorbidity and neglecting to collect data on the later uses of IU coping strategies at follow-up. These factors may hinder the conclusions that might be drawn about the longer term impact of the intervention. Of note, seeing that there are no (published) studies investigating IU-related interventions in adolescent, or even in adults with AN and it is hoped that other research groups may develop this rather promising pilot work further.

In conclusion, this was the first study to develop and deliver an IU group to adolescents with severe and complex AN and the service found this feasible to implement and patients found the group acceptable and experienced some possible benefit in terms of reductions in IU. The authors encourage other groups to trial the group in their settings to further develop the evidence base for its benefits and it is hoped that this would lead to future studies which would employ a randomised design to further evaluate the possible benefits of this treatment in a range of clinical settings.

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The authors declare no competing interest.

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