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Restraint for nasogastric tube feeding in young people with anorexia nervosa or atypical anorexia nervosa: a retrospective audit

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Abstract

Background Medically unstable young people with anorexia nervosa or atypical anorexia nervosa, are admitted to the adolescent medical ward at the reporting institution for nutritional rehabilitation. If meals are refused a nasogastric tube may be needed. At times restraint is used to ensure the required feeds are administered. This is an ethically complex and distressing dilemma for all involved and can result in long-term trauma for young people. The aim of this project was to establish a profile of young people with anorexia nervosa or atypical anorexia nervosa who require restraint for nasogastric tube insertion and/or feeding in the acute care paediatric setting and to understand the extent of restraint events occurring.

Method We undertook a retrospective audit of inpatients admitted to the adolescent medical ward at a quaternary pediatric hospital in Melbourne, Australia, between 2021 and 2023, for the treatment of anorexia nervosa or atypical anorexia nervosa. Data points were agreed by multidisciplinary stakeholders and were collected from the institution's electronic medical record. Data were analysed using descriptive statistics.

Results Of the 217 young people admitted, 23 (11%) had documented physical restraint for nasogastric tube feeding. Mental health comorbidities, neurodivergence, and social or behavioural complexity were higher in the young people who required feeding restraint as compared to those that did not. Of note, 15 (65%) of young people who were restrained for feeds had a diagnosis of autism, or a clinical note in their medical record indicating possible autism.

Conclusions Young people in our institution admitted to the adolescent medical ward with anorexia nervosa or atypical anorexia nervosa who are restrained for feeding have a more complex clinical, social and behavioural profile than those who do not require restraint. Care and treatment tailored to the individual, sensitive to neurodivergence, encourages clinicians to consider the young person they are treating to reduce or prevent restraint and to inform a restraint approach that mitigates iatrogenic harm.

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Plain English summary

Young people who are inpatients on a medical ward when critically unwell with anorexia may require a nasogastric tube for nutrition when oral intake is inadequate. If the young person requires a nasogastric tube but refuses, they may be restrained for this urgent medical treatment. Those who are more likely to be restrained for nasogastric tube feeding might be identified through their more complex social, behavioural and clinical profiles. Importantly, there is an overrepresentation of those with a diagnosis of autism or clinical suspicion of autism, experiencing restraint for feeding via a nasogastric tube. For these young people, individualised care, sensitive to neurodivergence for an admission for medical stabilisation, may reduce the need for restraint to feed and minimise potential harm due to medical treatment.

Keywords Anorexia nervosa, Atypical anorexia nervosa, Autism, Physical restraint, Nasogastric tube, Paediatric, Restraint

Background

Consideration of the use of restraint to place a nasogastric tube (NGT) to feed young people (YP) with anorexia nervosa (AN) or atypical anorexia nervosa (AAN) who are medically unstable and refusing nutrition, is uniquely challenging. Restraint is defined as (1) physical: *the use by a person of their body to prevent or restrict another person's movement* (2) mechanical: *the use of a device to prevent or restrict a person's movement* and (3) chemical: *the giving of a drug to a person for the primary purpose of controlling the person's behaviour by restricting their freedom of movement* [1].

Arguments supporting the use of such restrictive interventions in the context of treatment for YP with AN or AAN consider that a collaborative approach in treatment may be particularly difficult, as the psychiatric illness and the associated malnutrition impairs cognition, perception, judgement [2] and thus decision-making capacity [3, 4]. Fixed false cognitions that deny the need for nutritional intake, as well as a fear of gaining weight, can result in YP refusing feeds at times of clinical urgency. The harm from malnutrition and dehydration in this population includes immediate physical risks, such as collapse from deranged electrolytes or hypoglycaemia or a sudden cardiac event [5]. Long term consequences of severe malnutrition include poor bone density resulting in pathological fractures and reduced mobility, growth restriction, delayed puberty, as well as negative impacts on schooling, social connection and emotional development [6, 7]. While important to note that there is no evidence that NGT feeding improves recovery from AN or AAN, it can be a measure that is lifesaving and reduces the risk of irreversible physical consequences [8–10] for which there is some evidence the YP will experience retrospective gratitude [11, 12].

However, even with the benefits of giving nutrition in mind, the decision to restrain is ethically fraught, as there are also significant harms in imposing restrictive interventions. This includes loss of dignity and autonomy, a sense of violation and breach of bodily integrity,

ongoing long-term psychological trauma and loss of trust in parents and healthcare providers, with ongoing consequences for engagement in healthcare [10, 11, 13, 14]. The potential for harm is magnified by the fact that restraint for feeding in AN or AAN may not be an isolated occurrence, but a repeated event.

Internationally published data regarding the extent of restraint and characteristics of YP with AN or AAN undergoing restraint for feeding is sparse, however, literature on the topic is growing. A nationwide study in Denmark examining involuntary treatment events in all healthcare settings for YP and adults with AN, across 14 years from 2000, found that restraint for tube feeding was the most common involuntary intervention, with 212 (6%) experiencing restraint, totalling 15,584 episodes of involuntary tube feeding [15]. A small study from a specialised eating disorder centre for adolescents in Norway reported that 8 (21%) of YP admitted to their service had experienced meal related physical restraint for a total of 109 episodes [16]. Lastly, two studies of YP with eating disorders were conducted in the U.K. The first in 2018 at an independent specialist eating disorder unit, reported 9 (15%) of YP received 244 total feeds under restraint, with the events of restraint higher in those with psychiatric comorbidities [17]. The other more recent study consisted of three audit cycles over four years detailing admissions to a specialist child and adolescent mental health unit which found 19 (41%) experienced restraint for feeding [18]. The reason for the higher percentage in this last study is not clear. Of note none of these audits were conducted in a paediatric medical ward.

Our audit took place on an adolescent medical ward in a quaternary paediatric hospital in metropolitan Melbourne, Australia. A previous audit found between 2017 and 2020, 255 adolescents were admitted for management of eating disorders at the reporting institution, with a significant increase in admissions during the first year of the COVID-19 pandemic ($n=56$ in 2019 to $n=96$ in 2020); this phenomenon has also been reported at other eating disorders services worldwide [19]. The COVID-19 pandemic environment persisted throughout most of

the current audit period (2021–2023) and interpretation of the results should take into consideration this context and acuity of inpatients at this time.

Young people admitted to an adolescent medical ward with AN or AAN are medically unstable (as defined by clinical indicators such as reportable bradycardia, hypotension or abnormal electrolytes). While psychiatric and allied health support are provided during the inpatient stay, the primary goal of admission is achieving medical stability, not weight restoration or intensive psychotherapy. Inpatient care is guided by a clinical protocol, with six dietician-prescribed, supervised, meals per day. Mealtime support varies depending on the individual; typically, meals are eaten as a group with the support of allocated nurses. Occasionally, when required, 1:1 support is provided. If the meals offered initially are refused, an oral supplement drink is offered. However, if the supplement drink is unable to be consumed orally, it is given as an intermittent bolus via a NGT. If the NGT is not accepted by the YP, and the YP is not yet medically stable then restraint to enable NGT placement and delivery of nutrition is considered.

The decision to restrain is not taken lightly, with legal and ethical considerations central in the process of weighing harms and benefits. All restrictive interventions during the audit period were undertaken either with parental consent or with the YP placed under a legal mandate. In Australia, restrictive practices are governed through state and territory legislation which in Melbourne Australia, is the 2022 Victorian Mental Health and Wellbeing Act [1], (referred thereupon as The Act). The Act (S3.7) states that “*mental health and wellbeing services are to be provided to a person living with mental illness or psychological distress with the least possible restriction of their rights, dignity and autonomy with the aim of promoting their recovery*”. In addition to this, a Royal Commission into Victoria’s Mental Health System [20] made clear and definitive recommendations regarding the use of restraint and seclusion, specifically that practices of restraint and seclusion should be eliminated by 2031. To work towards this goal, accurate data on the use of restraint in all contexts is required, including the use in children and YP with AN/AAN in medical wards which has not been described before in the Australian context.

Methods

The aim of this project was to (1) understand the extent to which restraint is used for administering nutrition in YP with AN or AAN and (2) compare the characteristics of YP with AN or AAN who experience restraint for feeding compared to those who do not. The data collected was intended to inform adaptations to clinical care, with the objective of reducing and eliminating restraint

practices. This retrospective audit was conducted at a quaternary paediatric hospital in Melbourne, Australia, and was approved through the institution’s quality assurance pathway (VIC104256).

All YP admitted for treatment of AN or AAN on the adolescent medical ward, between January 1, 2021, to December 31, 2023, were included in this audit, which was conducted using the organization’s electronic medical record system, Epic. Both exported reports and a manual review of the clinical notes was completed. Data were collected in February 2024.

Multidisciplinary stakeholders, including paediatricians, psychologists and nurses working directly with this patient cohort, agreed on the data points collected, which were:

- (a) AN or AAN diagnosis.
- (b) sex registered at birth.
- (c) age at admission.
- (d) length of admission.
- (e) select social and behavioural medical record flags (referred hereon as alerts, which can be added to the patient history by clinical staff, determined by clinical discretion, to indicate any of: behavioural risk, aggression risk, history of absconding, child protection involvement, vulnerable child, family violence).
- (f) psychotropic medication prescribed during the admission.
- (g) documented mental health comorbidities, histories of and diagnosis (anxiety, depression, suicidal ideation, self-harm, obsessive compulsive disorder, personality disorders, avoidant/restrictive food intake disorder).
- (h) neurodivergence (autism, suspected autism, attention deficit hyperactivity disorder).
- (i) nasogastric tube insertions and
- (j) number of restraints conducted specifically for nasogastric tube feeding. Other reasons for restraint, such as medication administration or prevention of absconding, were not recorded as part of this audit.

Assessment and diagnosis of autism when a YP is physically and mentally unwell with AN or AAN can be very challenging and formal diagnosis is therefore deferred until physical stability is achieved. Until this time, clinicians may make a note in the patients’ medical records to indicate likely neurodivergence, without making a formal diagnosis. In addition to a documented diagnosis of autism, patient records were manually searched for clinician notes regarding “suspected autism” or “autistic traits”, thus we chose to record this as a neurodivergence category under suspected autism in recognition of this delay in diagnosis, and recent evidence that autistic traits,

while exacerbated in AN, are stable over time and therefore likely to represent true neurodivergence [21].

To ensure accuracy of data collection, an associate investigator on the project independently reviewed 5% of the patient files to cross-check consistency of data entry.

This audit was undertaken for the purpose of gathering clinically relevant data of the patient cohort at the reporting institution thus data were analysed using descriptive statistics with categorical variables summarised as numbers and percentages. Continuous variables were reported as mean and standard deviation for normally distributed data, otherwise median and interquartile range.

Results

The total number of YP meeting inclusion criteria, ($N=217$), and the proportion of YP who had feeding with or without restraint is shown in Fig. 1.

Across the three audited years, the 217 YP had a combined total of 470 admissions on the adolescent medical ward for the treatment of AN/AAN. This equated to a total of 7,266 admission days across all admissions. Repeat admissions occurred for 36% of these YP, ranging from two to thirteen admissions for those with no feeding restraint and two to twenty-two admissions for those who experienced feeding restraint.

The longest single admission for a YP who experienced feeding restraint was 212 days. Age at admission ranged from 8 to 19 years with the median age of 15 (IQR 13, 16). Of the 217 YP, 137 (63%) had a diagnosis of AN, 78 (36%) with diagnosis and history of AN and AAN and 2 (1%) with a sole diagnosis of AAN during the audit period.

For the 23 YP with feeding restraints, a total of 712 feeding restraint episodes were documented. The number of restraint episodes per 1,000 bed days was 322.7 for those with feeding restraint. 48% of these YP ($n=11$) had

one feeding restraint episode, 30% ($n=7$) had between 2 and 30 restraint episodes and 22% ($n=5$) YP experienced over 30 restraint episodes. A couple of these YP experienced over 150 feeds by restraint, occurring over a prolonged period within the audit timeframe.

All restraints documented for feeding were physical restraint. Mechanical restraint is also used at this institution in line with The Act, however, was not used for the insertion of the NGT or feed in the admissions reviewed.

Young people restrained for NGT feeding had a greater number of mental health comorbidities compared with those who were not restrained for feeding. Of note, 15 of the 23 YP who experienced feeding restraint (65%) also had a diagnosis of autism or clinical notes indicating suspected autism (see Table 1). The five YP who had 30 or more feeding restraints all had either a diagnosis of autism ($n=3$) or a clinical note indicating suspected autism ($n=2$).

Of the YP who experienced restraint, 83% ($n=19$) had at least one social or behavioural alert in their medical record (see Fig. 2). To note, these alerts are not linked to an admission but remain in a patient's file until archived. Alerts are clinician-determined with no specific criteria and clinicians can archive the alert when no longer applicable. While those who were restrained were more likely to have alerts than those who were not restrained, a greater number of alerts did not reflect a higher number of restraints. The YP with the highest number of restraints had only one alert (behavioural risk), and the YP with the highest number of alerts (five) had eleven restraints for NGT feeding. The five YP with 30 or more restraints had at least one alert each.

As another indicator of complexity, 100% of YP with feeding restraint had at least one psychotropic medication prescribed on at least one occasion during their admission(s), compared to 62% of YP without feeding

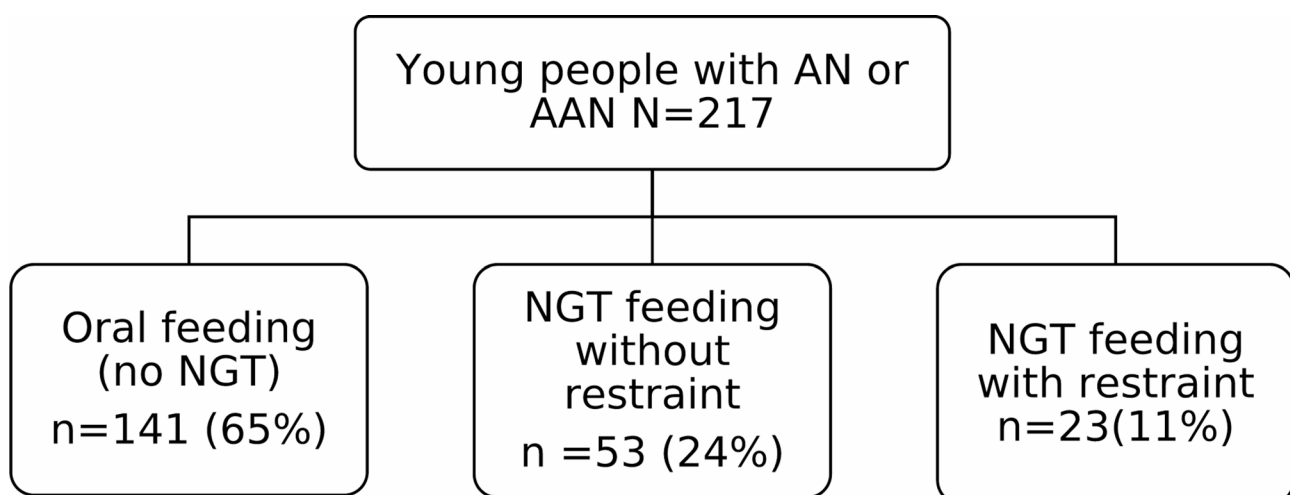


Fig. 1 Total sample broken down by feeding type and restraint

Table 1 Characteristics of YP with AN or AAN with feeding restraint compared to those without feeding restraint

	NGT feeding without restraint n = 194	NGT feeding with restraint n = 23
Female, n (%)	178 (92)	20 (87)
Total hospital length of stay, median days (IQR)	17 (10, 31)	50 (21,157.5)
Number of admissions, median number (IQR)	1 (1,2)	3 (2,7)
<i>Select mental health and neurodivergence histories, diagnosis and clinical notes, n (%)</i>		
Anxiety Dx	113 (58)	16 (70)
Self-harm Hx	47 (24)	13 (57)
Suicidal ideation Hx	49 (25)	12 (52)
Depression Dx	75 (39)	11 (48)
Suspected autism clinical note	35 (18)	9 (39)
Autism spectrum disorder Dx	25 (13)	6 (26)
Obsessive compulsive disorder Dx	20 (10)	4 (17)
Personality disorder Dx	13 (7)	4 (17)
Avoidant restrictive food intake disorder Hx	18 (9)	3 (13)
Attention-deficit/hyperactivity disorder Dx	9 (5)	2 (9)

restraint. The breakdown of psychotropic medications prescribed is detailed in Table 2. Of note, only one of these medications, droperidol, can be presumed to be used as a sedative or form of chemical restraint at the

Table 2 Number of participants prescribed with select psychotropic medications

Category	Medication	NGT feeding without restraint n = 194	NGT feeding with restraint n = 23
Selective serotonin reuptake inhibitors, n (%)	Fluoxetine, Sertraline, Escitalopram, Fluvoxamine	72 (37)	13 (57)
Benzodiazepines, n (%)	Diazepam, Lorazepam	39 (20)	18 (78)
Atypical antipsychotic, n (%)	Olanzapine	74 (38)	20 (87)
Antidopaminergic, n (%)	Droperidol	0 (0)	5 (22)

reporting institution. The use of selective serotonin reuptake inhibitors is an indication of mental health comorbidities, such as anxiety or depression and the benzodiazepines were likely administered for distress tolerance rather than restraint.

Discussion

Just over one in ten YP with AN/AAN in this audit were restrained for feeding. Whilst this is within the range of other published audits internationally [15–18] all efforts should be made to reduce this number further. This is even more important when considering that a small

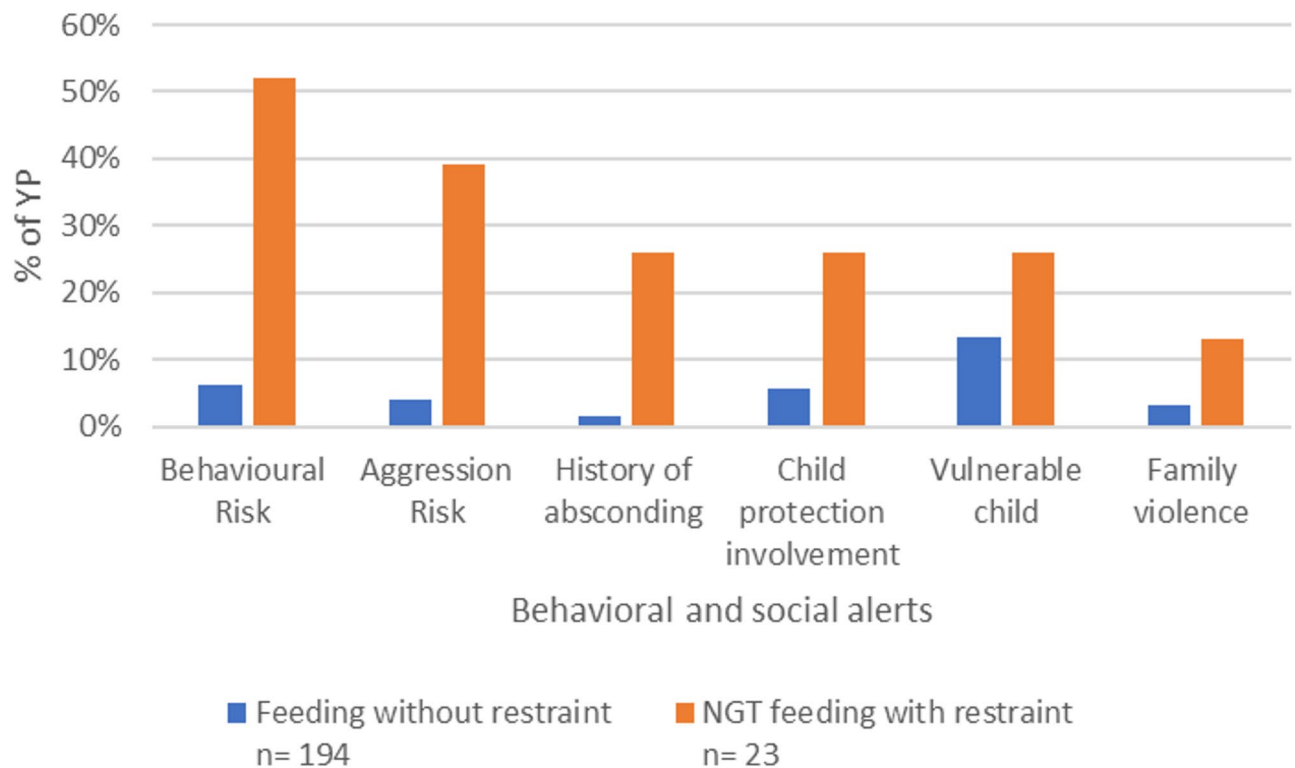


Fig. 2 Percentage of YP with social and behavioural alerts in the electronic medical record

number of these YP, restraint occurred numerous times during a long period of hospitalisation. This illustrates the unique circumstances of using restraint to give nutrition for the treatment of eating disorders, where it is often a foreseeable, and a planned intervention that occurs at every mealtime, in a cohort that are significantly compromised physically.

The reduction and eventual elimination of the use of feeding restraint in YP with AN/AAN requires a comprehensive understanding of the characteristics of the YP in this group and the restraint that currently happens in this context. It is an ethical imperative that we understand these specifics to recognise iatrogenic harm, even if it is determined that the harm is caused while aiming to act in a YP's clinical best interests. Furthermore, each time restraint is considered there should be ethically informed careful consideration of possible alternatives, with an emphasis on always striving to promote autonomy and work towards avoiding restrictive interventions [22].

One approach to reducing feeding restraint in the treatment of AN/AAN is outlined in recent guidelines in the UK [23] which have incorporated work by Fuller et al. [24] who have established that feeds up to 1000mL can be delivered safely as a bolus to YP with eating disorders in hospital. This allows for fewer feeds of larger volumes to be given, which reduces the frequency and amount of feeding restraint while giving adequate nutrition. This approach however does not factor in the physical and psychological distress of the YP in response to these large feed volumes, which in our experience can be significant and negate the benefit of fewer restraint episodes.

We propose that more research is needed to find alternative treatment approaches for YP with AN/AAN currently requiring restraint to feed and, where restrictive practices are unavoidable, to approach this in a way that minimises new trauma and avoids re-traumatisation. A harm reduction approach accepts less than optimal clinical care in favour of respecting an individual's autonomy and prioritising an individual's interests above physical health [13]. In this situation refusal to eat would be monitored and supported, with acceptance of minimal intake, continued outpatient treatment and participation in the community unless there is life-threatening medical compromise. This approach is common for adults with long-standing eating disorders [25, 26] and while a harm reduction approach focusing on quality of life rather than cure in AN/AAN may be ethically justified also in YP [13], it has limited applicability in the cohort of YP in this audit who, by definition, are admitted due to severe medical instability. Current clinical and ethical opinion in Australia would not support a minor with AN/AAN to die from complications of malnutrition rather than give nutrition even if it is against their will [27]. Certainly, the harm we impose over and above the distress inherent in

experiencing an eating disorder, by requiring restrictive practices to deliver nutrition should not be accepted as the primary factor that tips the clinical decision in favour of allowing starvation. Instead, we need to do better to not get to that decision point at all.

Therefore, to work towards elimination of restraint in this group of medically unstable young people with AN/AAN we are left with the daunting task of reassessing treatment pathways for eating disorders altogether, especially where there is clinical or social complexity. The aim here would be to approach eating disorders treatment in a more nuanced way which is a better fit for the individual, so that the situation where restraint is the only option to preserve life does not eventuate. Any approach which consists of a single inflexible inpatient treatment protocol for YP with eating disorders, lacks sensitivity to the level of social and clinical complexity described in this audit. The characteristics of YP presented here support a more nuanced, flexible approach which is not only trauma informed, but neuro-affirming, given the high percentage of YP with autism or suspected autism who required restraint.

The high prevalence of autism in eating disorder patients is well documented, at an estimated 23% [28], and higher rates of restrictive practices for neurodivergent individuals in the context of behavioural concerns has also been reported [29]; however, this audit is the first published study reporting higher rates of restraint for nasogastric feeding in the context of AN/AAN treatment for those YP with a diagnosis or clinical suspicion of autism. It is acknowledged that autistic individuals hospitalised with eating disorders find inpatient treatment less helpful than those without and often have a prolonged path to recovery [30–32]. This has been attributed to cognitive inflexibility, sensory differences and/or communication styles that are not catered for in standard eating disorder programs [33]. Despite a body of literature discussing potential treatment needs for people with AN/AAN and autism, there is only one eating disorder treatment program for people with autism and autistic traits reported. The Pathway for Eating disorders and Autism developed from Clinical Experience (PEACE) program was developed for adults at the South London and Maudsley NHS Foundation Trust National Eating Disorders Service in the UK [34]. Service changes to cater for those with eating disorders and autism include system level adaptation (such as autism training for clinicians, low sensory environment) and treatment level adaptations (such as individual rather than group sessions, changes to the length and pace of sessions) as well as weekly “huddles” to assess and ensure communication of individualised needs. Early evaluation shows this program reduced the mean length of stay for people with autism from 19 to 16 weeks, with associated cost

savings [33]. Qualitative data found clinicians working in the PEACE program report clinical and service benefits, but also practical challenges, including communication difficulties and maintaining boundaries [35]. While the PEACE program has not been robustly evaluated for long term outcomes, nor demonstrated transferability to an acute care setting and is not primarily designed for children and adolescents, lessons can be learned from this program. The novel finding in the current audit highlighting the percentage of YP in the group with feeding restraint with autism or suspected autism, increases the urgency for further research to develop and evaluate similar eating disorder treatment pathways sensitive to neurodivergence.

Any proposed shift to more individualized care for YP with AN/AAN in the inpatient setting will have inherent benefits as well as challenges. Firstly, care that is protocolised and delivered predictably allows consistent care in the inpatient environment; an environment where staff work in shifts or are on rotation. For admitted YP, both autistic and not, predictability can reduce anxiety and distress [36]. Protocols can also standardise care and improve patient safety. An individualised, more flexible approach to care requires more resources to maintain patient safety. This includes higher nursing staff to patient ratios, increased mental health support on medical wards, and changes to a hospital's physical environment to reduce sensory overload. These are costly changes and would require substantial commitment from health departments and hospital leaders.

Additionally, for some YP with AN/AAN, inherent in the illness itself is an opposition to recovery [37]. As a result, models of care will often require some degree of misalignment in treatment approach between a clinician and the YP. Finding a model of individualised care which does not require restrictive interventions, whilst treating an illness at times opposed to recovery, within the confines of the public health service is the challenge that needs addressing using a co-designed approach with lived experience advisors and clinical experts [14].

Given the mental health comorbidities which often occur in an individual with AN [38], it is not surprising that a proportion of YP in both groups (no feeding restraint and feeding restraint) were prescribed selective serotonin reuptake inhibitors which are used typically for ongoing management of depression and/or anxiety. In addition, across all groups, a proportion were prescribed rapid-acting psychotropic medication which is used typically for acute distress and agitation (olanzapine, lorazepam and diazepam). Notably, the prevalence of all psychotropic medications recorded in this audit was higher in the group of YP requiring restraint. While the use of chemical restraint was not explicitly captured in this audit due to the universal difficulty in determining

the intent of the prescriber and lack of reliable reporting [39]. As we did not correlate medication administration with time of restraint, we can only infer that this reflects recognition of greater distress and dysregulation in this group. Of interest is the use of droperidol, which was prescribed for 22% ($n=5$) of the YP in the group requiring feeding restraint, but not at all in those without feeding restraint. Droperidol is only used as a chemical sedative in this population at the reporting institution, therefore it can be reliably interpreted as chemical restraint [1]. What is not clear is if chemical restraint was used instead of, or as an adjunct to, physical restraint. There is important further research needed to look at decision-making about the type of restraint, the ethical acceptability of chemical versus physical restraint and the benefits and harms of each in the context of providing nutrition to someone with an eating disorder.

Limitations

This retrospective audit has some necessary limitations in its scope, as a single-site paediatric hospital in a large metropolitan city in Australia. Due to the variability of legal and ethical guidelines on restraint internationally, as well as variations in treatment of eating disorders and options available, the applicability of the information from this audit to other institutions may vary.

Data collected was only related to actual episodes of restraint. There may have been other incidences of NGT insertion or feeding which may have been accepted by the YP as the alternative presented was physical restraint. This type of interaction may be perceived as a threat or coercion, thus falling under restrictive practices although no restraint took place [22, 40]. There were also limitations in extracting report data from the hospital's electronic medical record; key data points such as restraint episodes were documented in various ways, therefore requiring manual review of individual patient notes. Specifically, clinical notes of suspicion of autism were searched in clinician notes using keywords. As a formal assessment for a diagnosis of autism is not appropriate in the context of acute treatment for a significant eating disorder, any YP who did not have a diagnosis of autism on admission with AN/AAN would not be diagnosed during an admission even if there was a very high degree of autism symptomology. Other data points such as behavioural or social alerts are attached to and archived in the clinical record by clinicians and not specifically linked to an admission. These limits were considered within the interpretation of the data.

As discussed, the focus of the audit was on physical restraint as there were no instances of mechanical restraint for nasogastric feeding during the audit period; and there is no reliable way to determine if chemical restraint using psychotropic medication was used for

treatment of symptoms or sedation. We acknowledge that exploration of the use of chemical restraint in the treatment of AN/AAN is vitally important and requires further attention. Changes to the institution's documentation for chemical restraint have already been enacted, allowing this analysis in future audits.

This audit does not provide insight into the role that nasogastric feeding with restraint may play in the evolution of chronic AN, where patterns of resistant responses to enforced feeding may develop into entrenched behaviors with pathological effects on personality development. This is an area which would also benefit from exploration.

Another area which needs to be further explored is the experience of restraint and the ongoing impacts, on YP, their carers, and their health professionals.

Conclusions

A small but not insignificant number of children and YP admitted for treatment of AN/AAN in medical crisis are physically restrained for feeding. For some of these YP, restraint may be repeated with every meal for weeks to months. An understanding of the complex social, behavioural, and clinical profiles of those that are more likely to experience restraint in this context allows healthcare providers to incorporate this knowledge in treatment pathways, so that the approach to all YP with AN/AAN is trauma-informed, individualised and sensitive to neurodivergence. This is fundamental knowledge to enable a future in which there is minimal, if any, restraint used in healthcare.

Abbreviations

AN	Anorexia nervosa
AAN	Atypical anorexia nervosa
NGT	Nasogastric tube
YP	Young people

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Author contributions

Conceptualisation and methodology by MH, JO, JD, CR; Data collection by MH, JO, JD, SR, Data Analysis by MH, JO, SK; Visualisation by: MH, JO, JD, SR, SK, AC, CR; Writing, reviewing and editing of the manuscript by MH, JO, JD, SR, SK, AC, CR.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This study was approved by The Royal Children's Hospital Research and Ethics Committee's quality assurance pathway, number VIC104256. This HREC is organised and operates in line with the - National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007), and all subsequent updates; Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95); Health Privacy Principles described in the Health Records Act 2001 (Vic) and Section 95 A of the Privacy Act 1988, and subsequent guidelines.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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