Children's Health Care

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hchc20

A multidisciplinary approach to the management of phagophobia

Andrea M. Begotka , Alan H. Silverman & Praveen Goday

To cite this article: Andrea M. Begotka , Alan H. Silverman & Praveen Goday (2021): A multidisciplinary approach to the management of phagophobia, Children's Health Care, DOI: 10.1080/02739615.2020.1870117

To link to this article: https://doi.org/10.1080/02739615.2020.1870117

Published online: 17 Feb 2021.

CHILDREN'S HEALTH CARE
https://doi.org/10.1080/02739615.2020.1870117

Taylor & Francis
Taylor & Francis Group

A multidisciplinary approach to the management of phagophobia

Andrea M. Begotka[a], Alan H. Silverman[b], and Praveen Goday[b]

[a]Division of Pediatrics, Psychiatry Department, Medical College of Wisconsin, Milwaukee, WI, USA; [b]Division of Pediatrics, Gastroenterology Department, Medical College of Wisconsin, Milwaukee, WI, USA

ABSTRACT

Choking phobia, better referred to as phagophobia, leads to significant dietary restriction or complete refusal to eat and drink, which may result in dehydration, and/or malnutrition. Current literature is limited to case reports. Therefore, the current study is a summary of the outcomes from a multidisciplinary approach including medical and behavioral intervention to treat phagophobia. Participants included eight children (4 females) with a mean age of 9.63 years, who consumed nothing to minimal intake orally. A medical workup and appropriate interventions were completed prior to behavioral treatment. Participants completed outpatient behavioral feeding treatment with one requiring intensive outpatient therapy. Three of eight participants started an anti-anxiolytic medication due to significant anxiety. There was a statistically significant increase in food consumption ($t = -4.275$, $p = .004$) and weight pre- to post-treatment ($t = -4.004$, $p = .005$). The present study is a preliminary investigation supporting the use of a brief multidisciplinary treatment for children with phagophobia so they can resume an age-appropriate diet again. Limitations of this study include a small sample size, convenience sampling, and protocol that is not yet standardized.

Introduction

Choking Phobia or "phagophobia" is characterized by a significant worry or fear of swallowing food, liquid, or pills (Chorpita, Vitali, & Barlow, 1997). Phagophobia is classified as "other" under Specific Phobia disorders under the Anxiety disorders category in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5, 2013). This fear usually occurs following a painful or traumatic event involving the mouth, such as choking on food (Sahoo, Hazari, & Padhy, 2016). Thus, swallowing is associated with pain or discomfort in the child's mind despite the absence of organic disease that would result in dysphagia, which is difficulty in swallowing, or odynophagia, which is pain with swallowing. This fear conditioning results in high levels of anxiety surrounding swallowing that leads individuals to escape and avoid eating/drinking (Scemes, Wielenska, Savoia, & Bernik, 2009). These escape

CONTACT Andrea M. Begotka abegotka@chw.org Medical College of Wisconsin-Division of Pediatrics, 8701 W Watertown Plank Rd, Wauwatosa, WI 53226.

and avoidance behaviors can lead individuals to severely restrict the volume and variety of food, limit textures of food, slow pace of eating, and decrease bite size. This may result in significant weight loss, dehydration, and/or malnutrition (Scemes et al., 2009; Shapiro, Franko, & Gagne, 1997). Ideally, an interdisciplinary evaluation in all four domains associated with feeding: medical, nutritional, feeding skill, and psychological is recommended in all children with a feeding disorder after which interdisciplinary therapy can be tailored to the individual child. (Goday et al., 2019). However, since children with phagophobia usually present with some degree of urgency, ruling out medical causes of dysphagia and/or odynophagia along with nutritional rehabilitation must be prioritized.

Feeding disorders have more commonly been studied in individuals with developmental disabilities as they have a high frequency of feeding problems (Kovacic et al., 2020). However, typically developing children with no prior feeding difficulties can have an acute feeding disorder after an aversive event. Prevalence statistics on phagophobia are unknown, but considered a relatively uncommon phobic condition (Sahoo et al., 2016). There is no specific onset age for phagophobia, and onset occurs suddenly (McNally, 1994). Phagophobia is more common in females (two-thirds of cases) and is highly comorbid with anxiety disorders (15% separation anxiety disorder, 22% obsessive conditions, 41% panic disorder) (de Lucas-taracena & Montanes-Rada, 2006).

Available literature on phagophobia is minimal and limited to case reports with only single case studies and varying interventions (McNally, 1994). Chorpita et al. (1997) conducted the first multiple baseline design study with a 13-year-old who had phagophobia. Treatment involved exposures to feared foods moving from easiest to hardest foods, and repeated practice eating these foods in timed trials. Additionally, participants' food intake and level of anxiety were monitored throughout the intervention. After 14 sessions, anxiety was minimal based on Subjective Units of Distress (SUDs) ratings, observer-rated anxiety, and child and parent reports on anxiety and depression measures. Food consumption was higher than her pre-treatment consumption except for two foods which were at half the amount as pre-treatment. Scemes et al. (2009) also conducted a case study with a multiple-assessment baseline design to expand a 36-year-old female's diet and eliminate fear with eating in seven sessions. This study used psychoeducation, functional analysis, and graduated exposure to foods that this individual feared. After seven sessions, anxiety with eating was eliminated, and appropriate eating replaced avoidance of food.

Overall, the majority of intervention studies for the treatment of phagophobia employ behavioral therapy with a small sample size and varying types of intervention. Baijens, Koetsenruijter, and Pilz (2013) conducted a review of the literature for phagophobia and only found 12 studies in the literature.

Eight of these studies were single case studies with one to three participants. Four studies had larger sample sizes, but two of those were evaluating participants with globus hystericus (or a lump-in-the-throat sensation when swallowing), which differs from phagophobia with regard to both symptoms and treatment. A study by Shapiro et al. (1997) evaluated 10 adult participants (ages 19–41) assessing medical etiology for their phagophobia, finding no physiological reason for the disordered eating. In that study, only three of ten participants completed treatment to address their phagophobia. For those receiving treatment, psychoeducation, cognitive therapy, hypnosis, monitoring physical and emotional symptoms, and relaxation training were employed.

Combined behavioral and medication studies have been reported in a few research studies. McNally (1986) conducted a case study with a 30-year-old male with phagophobia using graduated in vivo exposure to foods as well as shaping to decrease chewing time. Food exposures were only conducted on four foods for this individual. Treatment was completed in six therapy sessions over 9 weeks resulting in decreased anxiety within and between sessions based on self-report. However, a variety of diet and anthropometric data were not targeted or evaluated. In 2001, de Lucas-taracena and Ibarra (2001) conducted a literature review including 29 reported cases of choking phobia. In 2006, de Lucas-Taracena & Montanes-Rada reported another 12 new cases of choking phobia. Both studies found that cognitive-behavioral treatments are proven efficacious along with anti-panic medications (lorazepam, imipramine, alprazolam, fluoxetine, paroxetine). Banerjee, Bhandari, and Rosenberg (2005) similarly treated three children between 7 and 12 years old who presented with choking phobia with a low-dose SSRIs (paroxetine, sertraline). These participants did not respond to initial behavioral interventions, but all had rapid and persistent improvement in symptoms after these medications were added to their treatment. However, medications have not been a consistent or frequent component of treatment for individuals with phagophobia, and thus, generalizability is questionable.

A further consideration is that individuals are often misdiagnosed with other conditions such as anorexia (Bailly, 2003) and/or have medical conditions that may play a role in the individual's fear of swallowing. Barofsky and Fontaine (1998) evaluated 21 adults with psychogenic dysphagia to determine if they qualified for an eating disorder diagnosis. Psychogenic dysphagia is similar to phagophobia with difficulty swallowing but no known physiological reason to explain this. The most common reason for psychogenic dysphagia is fear of swallowing, the same reason for phagophobia. Results from the Eating Disorders Inventory-2 and the Symptom Checklist-90 were used to compare this sample to adults with an eating disorder and an adult control group. The psychogenic dysphagia group did not qualify for an eating disorder diagnosis based on their lower scores, but had significantly higher distress levels, specifically anxiety. This

study indicates that this condition is separate from an eating disorder and results in greater levels of anxiety maintaining the feeding difficulties. Therefore, psychogenic dysphagia could be further studied and treated under the same principles as treatment for phagophobia.

Another area to evaluate and rule out are medical conditions. Lucendo et al. (2014) modified and validated a quality of life measure for adults with eosinophilic esophagitis (EoE) and found anxiety about choking was the greatest concern from adults with EoE. The fear of choking led these individuals to modify their eating behaviors and diet. This finding promotes interdisciplinary evaluation and treatment to assess, rule out, and treat any medical conditions contributing to negative feeding behaviors to then best treat the mental and behavioral health symptoms. For example, Torralbas-Ortega, (2012) treated four children between 8 and 12 years old with a combined intervention by nursing and psychology through partial hospitalization. This involved assessment, psychoeducation, family support, graded food exposures (imaginal and in vivo), relaxation, social and tangible reinforcers, and repeated practice at home. Patients had decreased anxiety with eating, increased acceptance of a variety of foods, and gained weight back to their baseline. This study includes nursing care in a day treatment program in addition to psychological services, but has a small sample size, no comprehensive medical workup, and exclusion of participants with feeding tubes.

The present study adds to the existing literature by reviewing children's outcomes from a combined medical, nutritional, and behavioral approach for children with phagophobia. This is a preliminary study based on chart review to provide data that can aid in the development of a protocolized treatment intervention for this population including a medical workup, dietary recommendations, and an exposure shaping protocol. Prior to reviewing the data, it was hypothesized that children completing treatment for phagophobia would improve their body mass, volumes of food consumed, and a variety of food from each food group pre- to post-treatment.

Methods

The present study was a retrospective chart review of patient's electronic health medical records. IRB approval was obtained prior to reviewing patients' charts. Charts that were reviewed for this study were children diagnosed with phagophobia who had previously been treated for this condition at a Midwestern tertiary care, pediatric outpatient feeding clinic (see Table 1).

Table 1. Participant demographics.

Pt	Gender	Age	Weight	Weight	Tx length	Medical	Meds	Psych	NG/G-Tube
			Pre-tx (kg)	Post-tx (kg)	Months	Workup	Added	Co-morbidities	Feeding
					(# sessions)				
1	F	5y 1 m	16.23	17.64	2(15)	EGD, x-ray, brain MRI	None	None	9.5 wks
2	F	7y 2 m	27.05	29.06	1(3)	EGD	None	None	None
3	M	16 y 3 m	59.82	63.53	5(31)	EGD abnormal, Mild inflammation	PPI & Fluticasone	Motor tics	5.5 wks
4	F	7y 7 m	23.95	24.25	1(5)	Esophagram	None	None	None
5	F	11y 9 m	57.82	58.52	1(4)	EGD	SSRI	OCD	None
6	M	13y 8 m	40.49	43.29	2(8)	EGD, upper GI Esophagram	SSRI	Anxiety	None
7	M	6 y 0 m	19.54	20.14	1(6)	EGD, upper GI Barium study	SSRI	None	4 wks
8	M	12y 0 m	37.18	40.49	2(6)	Upper GI, VSS Neck x-ray, naso-Pharyngoscopy	PPI	None	None

Key: EGD – esophagogastroduodenoscopy, MR – magnetic resonance imaging; PPI – proton pump inhibitor; SSRI – selective serotonin reuptake inhibitor; VSS – video swallow study.

Participants

Eight children with phagophobia and their caregiver(s) were referred for behavioral treatment after a medical evaluation. Inclusionary criteria was the diagnosis of phagophobia, which is the avoidance of swallowing foods, liquids, or pills usually based on a fear of choking without any medical or physical explanation for the symptoms. There were no exclusionary criteria as all participants who were diagnosed with phagophobia and completed an intake with a behavioral psychologist were included. The electronic medical records for all eight participants who qualified for this study were reviewed, and relevant data were extracted from the record and included in this study. See Table 1 for participants' descriptive data. Participants and their families reported the triggering events that lead to participants' phagophobia included choking on food (50%), a viral illness (37.5%), or viral illness plus a choking episode (12.5%). Four out of eight participants (50%) were female. Seven participants were White, one participant was African American. Average age of participants was 9.63 years (SD = 4.0).

Consumption of a variety of foods across and within food groups is recommended both in the US and internationally because it is likely to ensure adequate intake of essential nutrients and optimal health (U.S. Department of Agriculture, 1992; WHO/FAO, 1996). Hence, we defined a restrictive diet as the inability to consume one or more food groups. All participants met the criteria for a restrictive diet pre-treatment. Three of eight participants (37.5%) were consuming solid food pre-treatment.

Procedure

Two researchers independently reviewed electronic medical records of all pediatric patients that were diagnosed with choking phobia and referred to a feeding psychologist for treatment. Data examined from participants' medical records were selected based on hypotheses and critical variables related to treatment for this population. These variables included gender, age, race, precipitating aversive event, length of treatment, treatment mode (outpatient, intensive outpatient, inpatient), presence of feeding tube, medication intervention, psychological co-morbidities, food acceptance, and growth.

Paired samples t-tests were conducted to evaluate changes in food intake, foods accepted by both texture and food group, and weight pre- to post-treatment. Independent samples t-test tests were conducted to compare the length of treatment for participants with feeding tubes and those without a tube. Statistical tests were conducted using IBM SPSS software, version 24 (2016).

Assessment

All participants completed a medical evaluation during an inpatient hospitalization or during an outpatient gastroenterology visit to evaluate and manage or rule out any possible medical causes including Eosinophilic Esophagitis, gastritis, esophagitis, swallowing problems, aspiration, malformations of the esophagus, stomach ulcers. Participants were then referred to a pediatric psychologist in the feeding and swallowing center for a psychological evaluation which included questions regarding each patient's history and current status related to medical/physical, feeding, mental health, and social relationships. Patients and their families were asked about past and current mental health conditions, but no formal screening for mental health disorders was completed as that is not the standard for a feeding disorder assessment in the clinic. Behavioral feeding therapy was completed with all participants on an outpatient basis. One participant completed intensive outpatient therapy that was comprised of three treatment sessions each day for 5 days. Nutrition was managed in concert with a registered dietitian in participants that required enteral nutrition and as needed for all oral patients.

Clinical intervention

Behavioral feeding therapy for these participants included weekly to every-other-week clinic visits with one or more caregivers present and actively involved in sessions. Behavioral interventions included exposure therapy, shaping, and relaxation strategies. Thought challenging was also used as needed for children 7 years and older. Exposure therapy consisted of developing a food hierarchy for each participant ranking foods from easiest (1) to hardest (10). An individualized hierarchy was developed for each participant to identify foods to work on in treatment based on the participant's diet at the start of treatment, pre-treatment, and how difficult different foods and food textures were. Families were instructed to bring in foods that were lowest on the food hierarchy (one to three) to each session. Each participant then worked on gradually tasting and eating the foods family chose for each session. Participants were given a guide of gradual exposure steps to work through with each food. Shaping steps for foods included touching, licking, holding food on tongue, touch food to teeth, then swallowing bites with increasing bolus size (rice, pea, 2 pea, 1/8 spoon, ¼ spoon, ½ spoon, full spoon). Participants were allowed to choose what step to start and end on but had to complete at least three trials with each food before moving to the next food in that session. In a session when participants exhibited anxiety, resistance, or noncompliance, the psychologist educated them, modeled, and practiced diaphragmatic breathing with them to decrease anxiety and improve success with exposure therapy. The registered dietitian helped to assess and consult on recommendations for food variety and oral intake as needed to help children achieve age-appropriate nutrition and growth.

Participants 7 years and older were educated on thought challenging in session if they reported fear with new foods or eating. This consisted of the psychologist discussing "false alarms" occurring for participants which were thoughts they had that made them feel eating is dangerous for them when they actually can swallow without any difficulties. Participants were further educated on the results of any medical workup they had prior to behavioral treatment that ruled out a physiological reason they could not eat. The psychologists worked on participants taking very small bites of each food first do they could feel safe and realize they are able to swallow without pain or difficulty. Participants and their caregiver(s) were instructed to repeat the same foods and exposure therapy in the home that the participant was successful with in session for repeated exposure and decrease anxiety when eating the same foods at home.

Results

Medical status

See Table 1 for detailed information regarding participants' medical status pre-intervention. A medical workup was conducted on all participants by a physician prior to the start of behavioral therapy. Six of eight children underwent an upper endoscopy while two of eight participants underwent an esophagogram. Other investigations that were completed included a brain MRI, nasopharyngoscopy, and videofluoroscopic swallow study. Three of eight participants were prescribed proton pump inhibitors after the medical workup. None of the children had eosinophilic esophagitis. Three of eight participants were started on anti-anxiolytic medication (selective serotonin reuptake inhibitor) by their treating physician to address anxiety during behavioral interventions (25–50 mg Sertraline, 10 mg Fluoxetine). Medications were added for one participant prior to behavioral treatment, and the other two participants started medication after the third and fourth behavioral treatment sessions.

Oral intake

The average length of behavioral treatment was 9.75 sessions (SD = 9.3), which took an average of 1.84 months (SD = 1.36). No additional treatment was needed after discharge from behavior therapy. There was a statistically significant improvement in weight pre- to- post-treatment (35.3 vs 37.1 kg; $t = -4.00$, $p = .00$).

Four of eight participants consumed minimal oral nutrition (<10% of their estimate need) requiring dependence on a nasogastric tube (NG-tube) at the start of behavioral treatment. The average length of time to wean from NG-tube dependence was 6.33 weeks. There were no differences in treatment

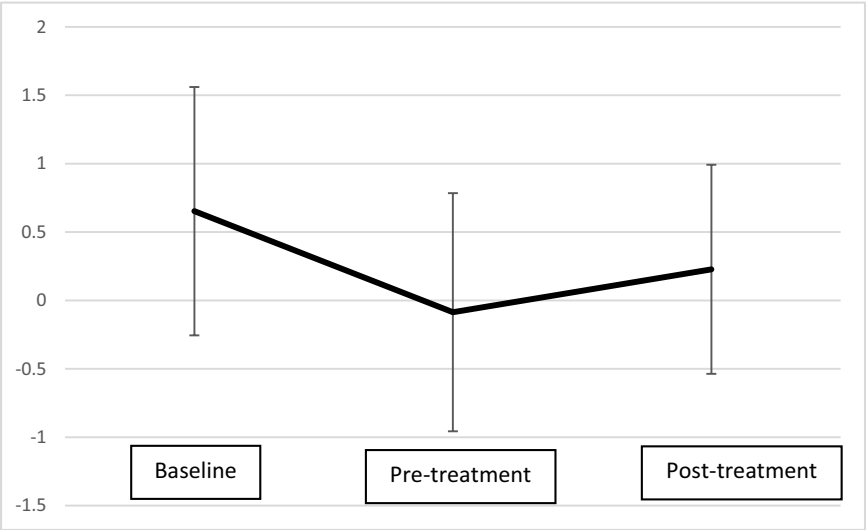

Figure 1. Change in weight z-score pre- to post-treatment.

duration across groups. The family of one participant who was tube-dependent terminated treatment early to continue the treatment plan at home after the NG-tube was removed. This child achieved intake of liquids and smooth foods prior to transitioning home. There was a statistically significant improvement in weight pre- to post-treatment for all children (t= −4.00, p = .00). See Figure 1.

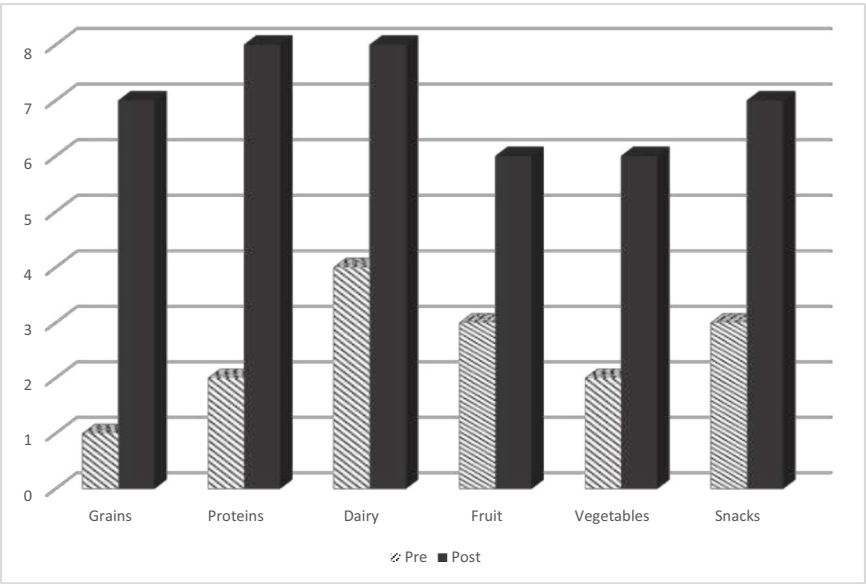

Figure 2. Number of participants consuming foods in each food group pre- and post-treatment.

Table 2. Paired samples t-test of food acceptance across food groups and textures pre- to post-treatment.

	Pre	Post	*t*	p
Food Group:				
Grains	0.125 (0.35)	5.63 (3.81)	−4.20	0.00
Proteins	0.375 (0.74)	7 (6.46)	−3.01	0.02
Dairy	1.38 (1.51)	5.5 (3.82)	−2.83	0.025
Fruits	0.38 (0.52)	4.38 (4.48)	−2.57	0.38
Vegetables	0.25 (0.46)	4.38 (4.07)	−2.91	0.02
Snacks	0.63 (0.92)	5.88 (3.52)	−4.41	0.00
Texture:				
Smooth	2.38 (2.20)	5.75 (3.20)	−3.51	0.01
Mashed	0.00 (0.00)	0.63 (0.74)	−2.38	0.05
Lumpy	0.00 (0.00)	0.25 (0.46)	−1.53	0.17
Easily Dissolvable	0.25 (0.46)	2.88 (3.09)	−2.54	0.04
Solid	0.63 (1.06)	23.00 (17.78)	−3.58	0.01

The mean number of foods participants consumed orally pre-treatment was 2.63 (SD = 2.62). There was a statistically significant increase in the number of foods consumed for all participants pre- to post-treatment with a mean number of foods consumed post-treatment of 31.88 (SD = 19.33) (t= −4.28, p = .004). Seven of eight participants (87.5%) were consuming solid food post-treatment. Figure 2 shows the number of participants consuming foods in each food group pre- and post-treatment. There were statistically significant changes in acceptance of food in each food group for all participants (see Table 2). Figure 3 shows the average number of foods consumed from each food-texture category pre- to post-treatment. There was a statistically significant difference in the number of foods in each texture category except lumpy texture foods (see Figure 3).

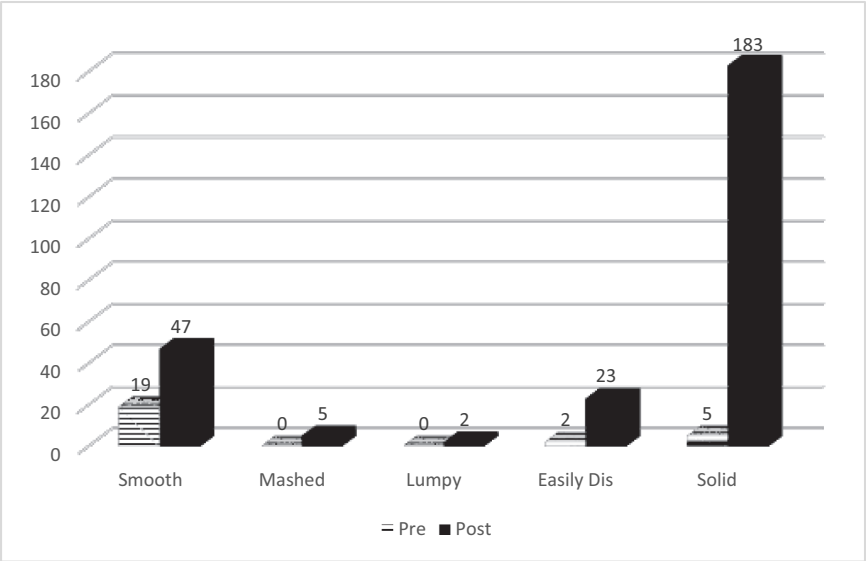

Figure 3. Average number of foods consumed in each food-texture category pre- to post-treatment. *"Easily Dis" refers to easily dissolvable solid food.

Discussion

The present study reviewed the outcomes of an interdisciplinary approach to treating children with phagophobia including a physician, registered dietitian, nurse, and psychologist across both inpatient and outpatient care. With this combined approach, participants showed improvement in weight gain after all participants had significantly lost weight from avoidance and restriction of food/drink due to their condition. There was a significant increase in the number of foods and oral volume for all participants. This improvement in intake allowed for, four of the eight participants who were 100% dependent on supplemental tube feedings before the intervention to wean off in less than 2 months. There is minimal research that has treated or reported on weaning off of supplemental tube feedings in this population, especially with children. Lastly, all participants had a significant increase in the number of foods consumed in all food-texture categories except for lumpy foods. This is the first study to examine changes in food-texture acceptance for this population.

The present study has a small sample size, but larger than any previous studies with this population and investigates more variables and outcomes to provide a better understanding of this population and the treatment options for them. There is only one other study that used a medical-behavioral-combined approach, but that study had fewer participants, no participants with feeding tubes, and did not report a medical workup prior to beginning treatment (Torralbas-Ortega et al., 2012).

Our study supports the notion that individuals with phagophobia may benefit from an interdisciplinary approach to their care. While it is ideal that these children have contemporaneous evaluation and treatment by all the disciplines, given their usual urgent presentation their medical conditions may be treated or addressed prior to (or along with) the psychological component of the condition. For example, medical testing found mild inflammation in two of eight participants and started medication to address this condition prior to starting behavioral. Additionally, just under half of the participants (3 of 8) were not making substantial progress with behavior therapy until their physician prescribed an anti-anxiety medication (selective serotonin reuptake inhibitors). There seemed to be a positive effect when anxiolytics were added for these participants, but the treatment was brief and evaluating the use of medications was not the focus of this study. Anxiolytics have been found to be beneficial with other anxiety and panic disorders, but further research specific to phagophobia is needed. If participants only received behavior therapy without a medical provider and dietitian collaborating these individuals likely would not have made the substantial progress with their feeding in as short of a time. While previous studies have been ambivalent about the need for a medical workup, a medical evaluation prior to beginning behavioral interventions allows for a physician to rule out

any medical concerns or issues and decide if further medical testing is required based on the patient's clinical history and an exam. The support of a dietitian is essential at diagnosis when nutritional rehabilitation is commenced as well to provide guidance when expanding a child's diet to ensure they are getting proper nutrition and growing appropriately, which a psychologist is not qualified to do on his/her own. A feeding skill specialist (speech-language pathologist or occupational therapist) is not usually needed in the evaluation of these children particularly in otherwise neurotypical children as these children were consuming a typical diet prior to the advent of phagophobia. However, in children with developmental delays and conditions associated with neurological regression, the inciting event may precipitate worsening of an already existing or incipient feeding disorder and these children will benefit from a feeding skill evaluation and potentially management of the condition.

The relatively new diagnosis of eosinophilic esophagitis, which has become increasingly prevalent should be considered in all children and adults with a choking event. Given that eosinophilic esophagitis frequently presents with food impaction, it should be ruled out whenever a patient presents with a previous choking history (Hiremath, Vaezi, Gupta, Acra, & Dellon, 2018). Further research is needed to determine which patients would most benefit from more invasive medical procedures. While none of the patients in this study and others had eosinophilic esophagitis, it is likely that when eosinophilic esophagitis is found, referral to a psychologist can be beneficial following management of the EoE if the patient is still showing signs of anxiety, feeding refusal, pain, or other behavioral health issues.

Choking phobia was first referred to as phagophobia by Shapiro and colleagues in 1997 to encompass the fear of swallowing regardless of individuals actually experiencing or witnessing a choking episode. More recently, Sahoo, Hazri & Padhy in 2016 took a similar approach with using the term "swallowing phobia." However, much of the literature that is available still refers to this condition as choking phobia. This condition is different from organic dysphagia that has a physiological reason for difficulties swallowing and is different from a general feeding or eating disorder because it is driven by anxiety to swallow following an aversive or traumatic life experience (oral or unrelated to an oral experience). In the current study, 50% of participants developed fear of swallowing after a choking incident. However, fear of swallowing was the result of a viral illness for 37.5% of participants and a viral illness plus a choking event for 12.5% of participants. Similarly, past studies have reported on cases with a variety of precipitating factors that have led to phagophobia other than choking on food including gagging on a staple (Chatoor, Conley, & Dickson, 1988) gagging on medication (Lukach & Bruce, 1988), a tickling sensation in the throat (McNally, 1986), viral illness (de Lucas-taracena & Ibarra, 2001), family turmoil (Landy, 1988; Ost, 1992), a traumatic social event (Kaplan & Evans, 1978), and a mental health

condition such as depression (Brown, Schwartz, Summergrad, & Jenike, 1986; Kaplan, 1987) and/or panic disorder (Brown et al., 1986). These studies show that fear of swallowing is a result of an aversive precipitous event, not just a choking episode. Therefore, we propose that instead of referring to this condition as "choking phobia" clinicians should classify this condition, "phagophobia." This should be the standard term as previously proposed by Shapiro and colleagues in 1997 to include all individuals that fear swallowing liquid, food, and/or pills. This would provide a consistent term and definition as well as support the development of evidence-based assessment and treatment methods.

Limitations

The present study involves a review of a multidisciplinary intervention for children with phagophobia and/or seek medical treatment, lack of assessment of participants' anxiety, and reliance on convenience sampling which limits generalizability of results. The sample in this study represents the typical heterogeneous nature of individuals with phagophobia in terms of demographics, etiology, presentation, and feeding symptoms, resulting in different treatment approaches for each individual.

Implications for clinical practice

The present study involves a multidisciplinary review of children with phagophobia, which has not previously been done. This review involved medical, nutritional, and psychological assessment and intervention to ensure that all areas of the child were successfully treated. Psychological intervention for children with phagophobia was shown to improve nutritional status and dietary diversity including the number of foods across food categories and textures that is typically restricted following an aversive oral experience. The findings from this preliminary chart review provide evidence to support successful treatment for phagophobia in children, but this needs to be further investigated using primary component analyses. More rigorous testing of the relative additive contribution of various techniques used with this population may help to create a protocolized intervention that will successfully treat this condition.

Acknowledgments

Thank you to all staff members at Children's Wisconsin and who referred, treated, and/or assisted with any portion of patient care to help make this study be possible.

Disclosure statement

One of the authors serves as a consultant for Nutricia, Inc. and serves on a Data and Safety Monitoring Board for Shire Pharmaceuticals.

The research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Baijens, L. W. J., Koetsenruijter, K., & Pilz, W. (2013). Diagnosis and treatment of phagophobia: A review. *Dysphagia*, *28*(2), 260–270. doi:10.1007/s00455-013-9454-0

Bailly, D., de Chouley de Lenclave, M. B., Dhaussy, S., Baert, F., & Turck, D. (2003). La phobie de déglutition chez l'enfant : Un diagnostic différentiel de l'anorexie mentale. *Archives de Pediatrie: Organe Officiel de la Societe Francaise de Pediatrie*, *10*(4), 337–339. doi:10.1016/S0929-693X(03)00332-4

Banerjee, S. P., Bhandari, R. P., & Rosenberg, D. R. (2005). Use of low-dose selective serontonin reuptake inhibitors for severe, refractory choking phobia in children. *Developmental and Behavioral Pediatrics*, *26*(2), 123–127. doi:10.1097/00004703-200504000-00008

Barofsky, I. and Fontaine, K. (1998). Do Psychogenic Dysphagia Patients Have an Eating Disorder? Dysphagia, 13(1), 24–27 doi:10.1007/PL00009545

Brown, S. R., Schwartz, J. M., Summergrad, P., & Jenike, M. A. (1986). Globus hystericus syndrome responsive to antidepressants. *American Journal of Psychiatry*, *144*, 390–391.

Chatoor, I., Conley, C., & Dickson, L. (1988). Food refusal after an incident of choking: A post-traumatic eating disorder. *Journal of American Academy Child Adolescent Psychiatry*, *27*(1), 105–110. doi:10.1097/00004583-198801000-00016

Chorpita, B. F., Vitali, A. E., & Barlow, D. H. (1997). Behavioral treatment of choking phobia in an adolescent: An experimental analysis. *Journal of Behavior Therapy and Experimental Psychiatry*, *28*(4), 307–315. doi:10.1016/S0005-7916(97)00027-X

de Lucas-taracena, M. T., & Ibarra, I. (2001). Swallowing phobia: A case report. *Actas espanolas De Psiquiatria*, *29*(6), 411–413.

de Lucas-taracena, M. T., & Montanes-Rada, F. (2006). Swallowing phobia: Symptoms, diagnosis and treatment. *Actas espanolas de Psiquiatria*, *34*(5), 309–316.

Goday, P. S., Huh, S. Y., Silverman, A. H., Lukens, C. T., Dodrill, P., Cohen, S. S., … Phalen, J. A. (2019). Pediatric feeding disorder: Consensus definition and conceptual framework. *Journal of Pediatric Gastroenterology and Nutrition*, *68*(1), 124–129. doi:10.1097/MPG.0000000000002188

Hiremath, G., Vaezi, M. F., Gupta, S. K., Acra, S., & Dellon, E. S. (2018). Management of esophageal food impaction varies among gastroenterologists and affects identification of eosinophilic esophagitis. *Digestive Diseases and Sciences*, *63*(6), 1428–1437. doi:10.1007/s10620-018-4972-0

IBM Corp. *Released IBM SPSS Statistics for Windows, Version 24.0*. Armonk, NY: Author.2016.

Kaplan, P. R. (1987). More on the globus hystericus syndrome. *American Journal of Psychiatry*, *144*(4), 528–529. doi:10.1176/ajp.144.4.528-a

Kaplan, P. R., & Evans, I. M. (1978). A case of functional dysphagia treated on the model of fear. *Journal of Behavioral Therapy & Experimental Psychiatry*, *9*(1), 71–72. doi:10.1016/0005-7916(78)90092-7

Kovacic, K., Rein, L. E., Kommareddy, S., Bhagavatula, P., Szabo, A., & Goday, P. S. (2020). Pediatric feeding disorder: A nationwide prevalence study. *Journal of Pediatrics*, *47*, 1–6.

Landy, G. (1988). Fear of choking and food refusal. *Journal of American Academy Child Adolescent Psychiatry*, *27*(4), 514–515. doi:10.1097/00004583-198807000-00026

Lucendo, A. J., Sanchez-Cazalilla, M., Molina-Infante, J., Perez-Martinez, I., Tenias, J. M., Barrio, J., … Arias, A. (2014). Transcultural adaptation and validation of the "Adult Eosinophilic Esophagitis Quality of Life Questionnaire" into Spanish. *Revista Espanol de Enfermedades Digestivas*, *106*(6), 386–394.

Lukach, B., & Bruce, B. K. (1988). Behavioral treatment of an oral liquid medication phobia in a liver transplant candidate. In *Presented at the meeting of the Association for Advancement of Behavior Therapy*. New York, NY.

McNally, R. J. (1986). Behavioral treatment of a choking phobia. *Journal of Behavior Therapy and Experimental Psychiatry*, *17*(3), 185–188. doi:10.1016/0005-7916(86)90025-X

McNally, R. J. (1994). Choking phobia: A review of the literature. *Comprehensive Psychiatry*, *35* (1), 83–89. doi:10.1016/0010-440X(94)90174-0

Ost, L. G. (1992). Cognitive therapy in a case of choking phobia. *Behavioral Psychotherapy*, *20* (1), 79–84. doi:10.1017/S0141347300016360

Sahoo, S., Hazari, N., & Padhy, S. K. (2016). Choking phobia: An uncommon phobic disorder, treated with behavior therapy: A case report and Review of the literature. *Shanghai archives of Psychiatry*, *28*(6), 349–352. doi:10.11919/j..1002-0829.216055

Scemes, S., Wielenska, R. C., Savoia, M. G., & Bernik, M. (2009). Choking phobia: Full remission following behavior therapy. *Revista Brasileira De Psiquiatria*, *31*(3), 257–260. doi:10.1590/S1516-44462009005000002

Shapiro, J., Franko, D. L., & Gagne, A. (1997). Phagophobia: A form of psychogenic dysphagia. a new entity. *Annals of Otology Rhinology & Laryngology*, *106*(4), 286–290. doi:10.1177/000348949710600404

Torralbas-Ortega, J., Valls-Ibanez, M. V., Arias-Nunez, E., & Naranjo-Diaz, M. C. (2012). Choking phobia: Care plan in children and adolescents. *Enfermeria Clinica*, *22*(4), 224–230. doi:10.1016/j.enfcli.2012.02.003

U.S. Department of Agriculture Human Nutrition Information Service. (1992). *Food Guide Pyramid: A guide to daily food choices*. Washington D.C., USA.

World Health Organization/Food and Agriculture Organization of the United Nations. (1996). *Preparation and use of food-based dietary guidelines*. Geneva, Nicosia, Cyprus: Nutrition Programme, World Health Organization.