

An innovative liquid thickener improves palatability and overall user satisfaction of thickened fluids for people with swallowing problems.

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INTRODUCTION

- Thickened fluids have poor acceptance and compliance rates with people with oropharyngeal dysphagia (OD)
- Commonly cited reasons for noncompliance include poor texture, flavour, overall user experience
- Carers' beliefs that modified fluids are unpalatable and challenges/inconvenience associated with preparation also contribute to non-compliance
- Our study compared palatability and user experience of **Precise Thick~N INSTANT** (PTI) an innovative liquid xanthan gum (XG) thickener, to powdered XG thickeners in a cohort of 24 OD patients

METHODS

Study design

Prospective multi-centre single arm interventional feasibility clinical study

Methods

- Phase 1 – Baseline (days 1-7):** Current mode of care (powdered thickener). Relevant medical history, current medications recorded.
- Phase 2 – Transition (days 8-12):** 5-day wash-out period to clear GI tract and ensure any GI issues in the study period related to PTI. Data recorded to note any unexpected difficulty transitioning between thickeners but excluded from final analysis.
- Phase 3 – PTI (days 13-26):** All liquids of remaining participants thickened with PTI.
- Phase 4 – End of study, return to baseline:** Participants could choose to return to usual mode of care baseline (powdered XG-based thickener) or remain on PTI.

Main outcome (palatability)

- Recorded on 6-item survey (adapted from Flint et al.¹)
- Administered at Day 7 (usual mode of care period) and Day 26 (PTI period).
- End-anchored 10-point Likert scale
- Included visual analogue scales (VAS) designed to measure visual appeal, smell, taste, aftertaste, and overall pleasantness of a food product.

Secondary outcomes

- Ease of use, GI tolerance, compliance; recorded at same timepoints as primary outcome

RESULTS

Palatability (main outcome)

Overall and individual palatability perceptions significantly higher ($p<0.001$) for PTI-thickened beverages (mean **8.04**) than for XG powder (mean **4.17**) (Figure 1; Table 1).

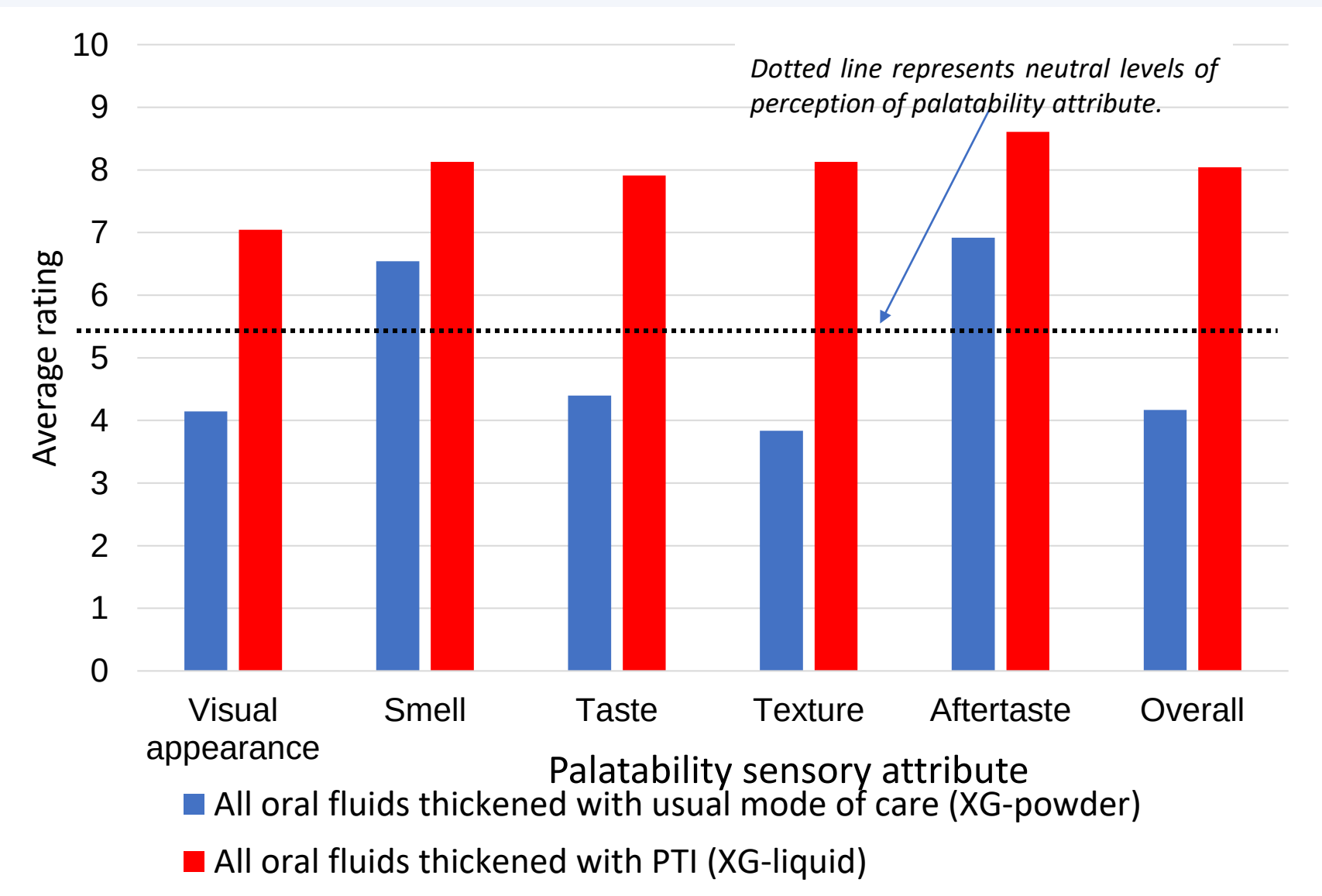


Figure 1: Summary of palatability attribute ratings: usual mode of care and PTI intervention

Palatability characteristic	VAS difference in means ¹	Significant improvement under PTI?
Visual appearance	2.72	✓ ($p<0.001$)
Smell	1.70	✓ ($p=0.007$)
Taste	3.54	✓ ($p<0.001$)
Texture	4.35	✓ ($p<0.001$)
Aftertaste	1.83	✓ ($p=0.002$)
Overall perception	3.83	✓ ($p<0.001$)

¹VAS score under PTI – score under usual mode of care

Table 1: Significance test parameters for palatability attribute ratings: usual mode of care and PTI intervention

Secondary outcomes: ease of use

- Substantive improvements on ease of use under PTI compared with usual mode of care
- Median responses in table 2 below based on 5-point Likert-style items: higher scores represent higher levels of agreement or higher mixing/waiting times

Item	Usual mode of care	PTI	Better outcome under PTI?
Satisfied with ease of use of thickener overall	3	5	✓
Using thickener difficult	2.5	1	✓
Able to thicken drinks quickly using thickener	2.5	5	✓
Learnt to use thickener very quickly	4	5	✓
Very comfortable and confident using thickener	4	5	✓
Beverages thrown away due to poor mixing or wrong consistency when using thickener	2	1	✓
Average mixing time to produce a beverage that wasn't lumpy; all thickener dispersed	2	1	✓
Average waiting time for beverage to meet right consistency (correct IDDSI level)	2	1	✓

Table 2: Median responses on Ease of Use outcome: usual mode of care and PTI intervention

Secondary outcomes: compliance

- Average daily thickened fluid intake greater for beverages thickened with PTI (1.35L; SD 0.41L) than for usual mode of care (1.21L; SD 0.45L) (Figure 2)
- Trend consistent across both genders
- Average intake **6.6% higher** in male patients; **14.6% higher** in female patients; **11.3% higher** overall

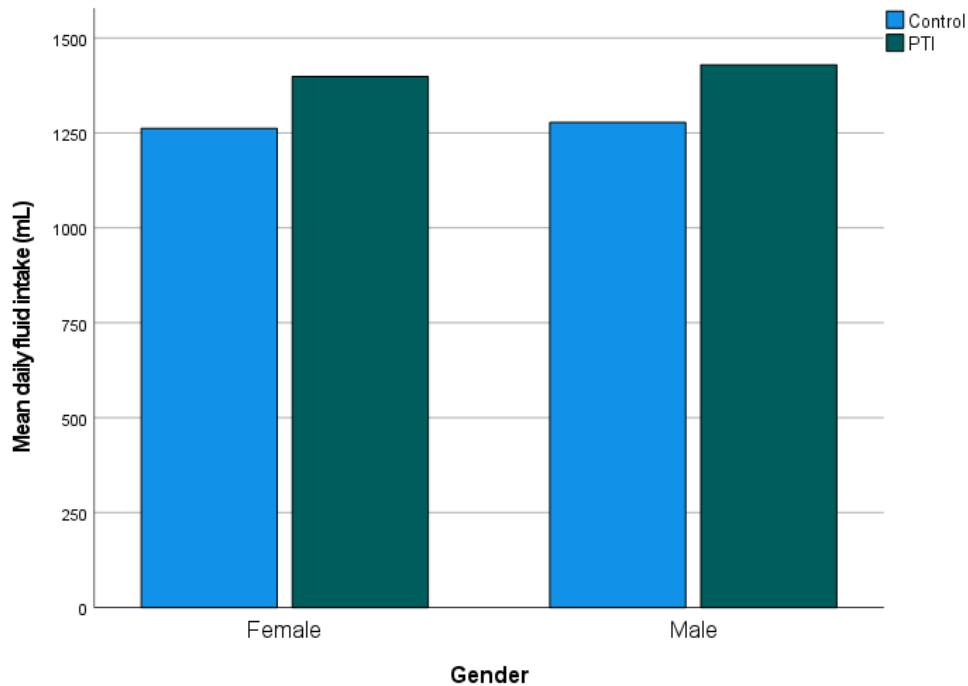


Figure 2: Average daily thickened fluid intake by gender: usual mode of care and PTI intervention

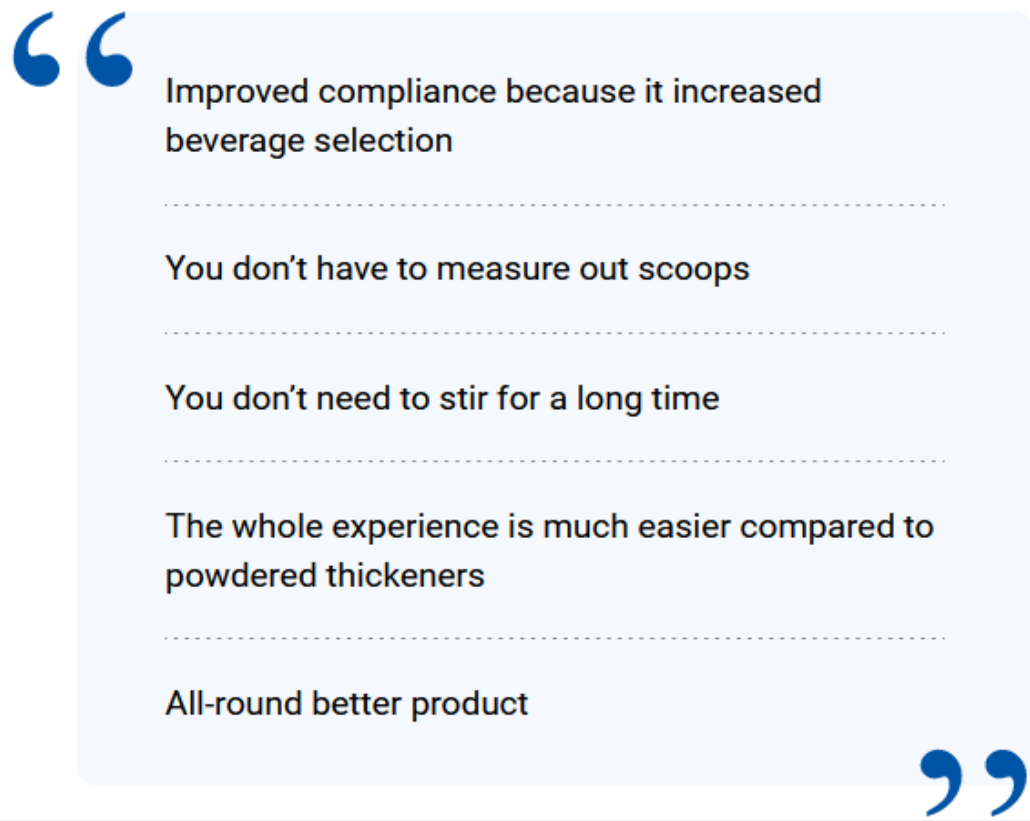
Secondary outcomes: GI tolerance

Frequency and severity of daily symptoms lower under PTI than usual care for all symptoms (Table 3).

Treatment	Outcome	Symptom				
		Bloating	Abdominal rumbling	Flatulence	Abdominal pain	Nausea
Standard care	Number of patients reporting symptom	7 (29.2%)	10 (41.7%)	11 (45.8%)	5 (20.8%)	2 (8.3%)
	Mean episodes per patient per day	0.118	0.125	0.359	0.0870	0.0438
	Mean severity (SD)	0.20 (0.51)	0.16 (0.35)	0.55 (0.83)	0.13 (0.31)	0.08 (0.37)
PTI	Number of patients reporting symptom	5 (20.8%)	8 (33.3%)	10 (41.6%)	5 (20.8%)	1 (4.2%)
	Mean episodes per patient per day	0.0633	0.0698	0.263	0.0399	0.00333
	Mean severity (SD)	0.15 (0.57)	0.076 (0.14)	0.55 (0.96)	0.084 (0.21)	0.003 (0.002)

Table 3: Frequency and severity of GI symptoms: usual mode of care and PTI intervention

PATIENT/CARER FEEDBACK



CONCLUSIONS

- PTI-thickened beverages are more palatable, and strongly preferred over XG powders.
- PTI regime leads to higher reported scores for palatability and substantive improvements in all patient and/or caregiver satisfaction/ease metrics
- Supports a conclusion that the innovative liquid thickener substantively improves both caregiver and patient experience with thickened fluids.
- Unsurprisingly, 90% of participants who completed this trial protocol and still required thickened fluids elected to remain on the PTI intervention post-trial.



RESEARCH SPONSOR

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