

# Analysing and enhancing the MD Anderson dysphagia inventory (MDADI)

Dr Kate Toft, Highly Specialist Speech & Language Therapist, NHS Lothian / University of Stirling

Dr Cath Best, Lecturer (Statistician), NMAHP Research Unit, University of Stirling

Professor Jayne Donaldson, Dean of Health Sciences and Sport, University of Stirling

## Background

- Dysphagia, or difficulty swallowing, is a highly prevalent symptom of head and neck cancer (HNC) and has a marked impact on patients' quality of life (QoL)
- Measurement of dysphagia-related QoL through patient reported outcome measures (PROMs) is a key part of HNC clinical and research practice
- Currently the only tool that caters to this need is the MD Anderson Dysphagia Inventory (MDADI) (Chen et al., 2001)

## Methods

- This study followed a pragmatic, mixed methods approach to evaluate the MDADI

### Qualitative

- Narrative data from a convenience sample of 31 UK Speech & Language Therapists (SLTs) were gathered via an online survey, focusing on content validity and clinical utility of the MDADI
- Data were analysed using a reflexive thematic analysis approach

### Quantitative

- MDADI data collected between 2016-2021 from 302 patients with HNC treated in NHS Lothian, at pre-treatment and 6 months post-treatment, were analysed using Item Response Theory mathematical models
- Structural validity, internal consistency and the presence of Differential Item Functioning (DIF), i.e. bias, in specific tool items were analysed

## Results

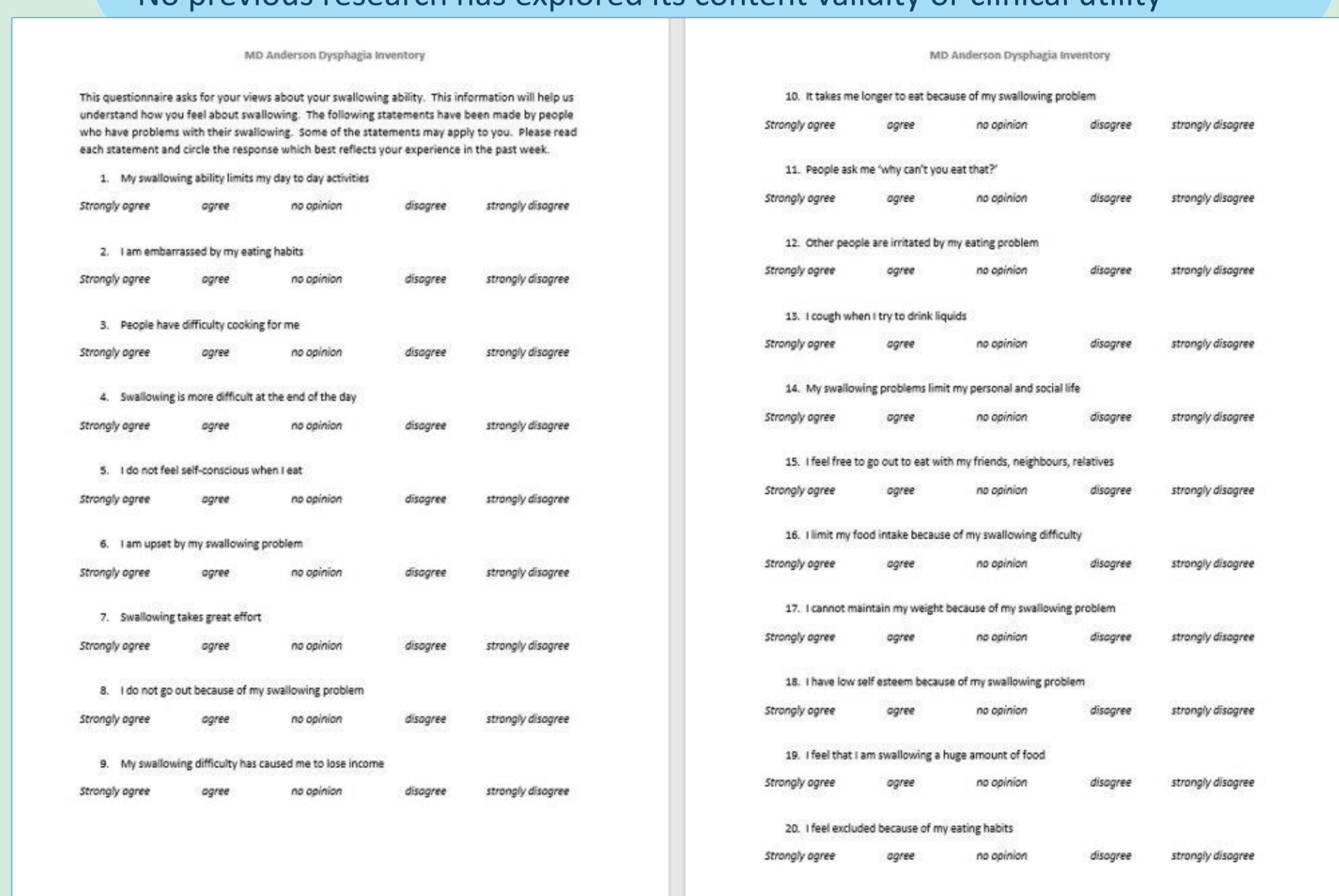
- Content validity of the tool was highlighted as a major concern by clinicians:

Issues with content validity	Characteristics
Potential item bias	Patient subgroups were identified who might respond differently to specific MDADI items
The bigger picture of eating and drinking	There is a lack of focus in the MDADI about whether it is assessing swallowing, eating and drinking, other issues, or everything!
"not user-friendly"	The MDADI is perceived to be negative, emotive and non-patient-centered
Excluded groups	Patient subgroups are excluded by MDADI item wording or content, for example patients who are Nil By Mouth

- The clinical utility of the MDADI was also found to be problematic:
  - Length, literacy level, layout and response format of the tool were felt to negatively impact on its ease of use for both patients and clinicians
- Quantitative analysis showed:
  - Structural validity and internal consistency to be acceptable but that the MDADI has a ceiling effect when used at a pre-treatment point
  - DIF, i.e. bias, in several items for the variables of
    - age
    - sex
    - socioeconomic status

## The MDADI

- A PROM that assesses dysphagia-related QoL in HNC – *the only tool of its kind*
- Written questionnaire format, 20 items with Likert scale responses
- 2 sides of A4, 'college-level' literacy (Zraick et al 2012)
- Minimal information available about patient contribution to development
- Widely used in HNC research and clinical practice
- No previous research has explored its content validity or clinical utility



## Implications for practice

- Although a tool specific to assessing dysphagia related QoL has great relevance for clinical practice, this study suggests there is a pressing need for either amendment of the MDADI, or development of a new tool that could take its place
- The issues identified with the MDADI mean that the information the tool produces may be invalid and unreliable
- The Southeast Scotland SLT Cancer Network will review its routine use of the MDADI in light of these results

HNC related dysphagia has a significant and lasting impact on service users.

We need outcomes tools that are not only psychometrically robust, but also practicably usable with strong relevance to patients and clinicians.

Tools should produce meaningful data that can be used to drive and improve care at an individual patient level.

It is hoped that this study can form the first step towards improving the validity and clinical utility of the MDADI.

## References