

## Introduction

- Restrictive function of the lower esophageal sphincter (LES) is the hallmark of achalasia and esophagogastric junction outflow obstruction (EGJOO). These are the most functionally relevant disorders of esophageal motility.
- Manometric findings on High-resolution manometry (HRM) are interpreted using the Chicago classification (CC) which can subsequently be used to facilitate esophageal motility diagnosis.
- We aimed to determine whether the pattern and / or severity of dysphagia reported on The Brief Esophageal Dysphagia Questionnaire (BEDQ) can identify patients with obstructive physiology of the lower esophageal sphincter.

## Methods

- Data from undergoing high-resolution manometry (HRM) according to Chicago Classification (CC) version 4.0 at a tertiary care center were retrospectively analyzed per IRB approved protocol.
- Values were assigned to each answer of how often symptoms occurred on the BEDQ (rarely never=0, once or twice a month=1, 1-2 times per week=2, 3-5 times per week =3, almost daily/daily=4, several times a day=5). All patients with a BEDQ score of 4 or more were included in the cohort analysis group.
- The Brief Esophageal Dysphagia Questionnaire (BEDQ) score items were used to construct 3 unbiased latent classes based on items 1-8 from the BEDQ.
- Latent classes were compared for CC 4.0 diagnosis, functional metrics on High Resolution Manometry (HRM), and quantitative metrics.

## Results

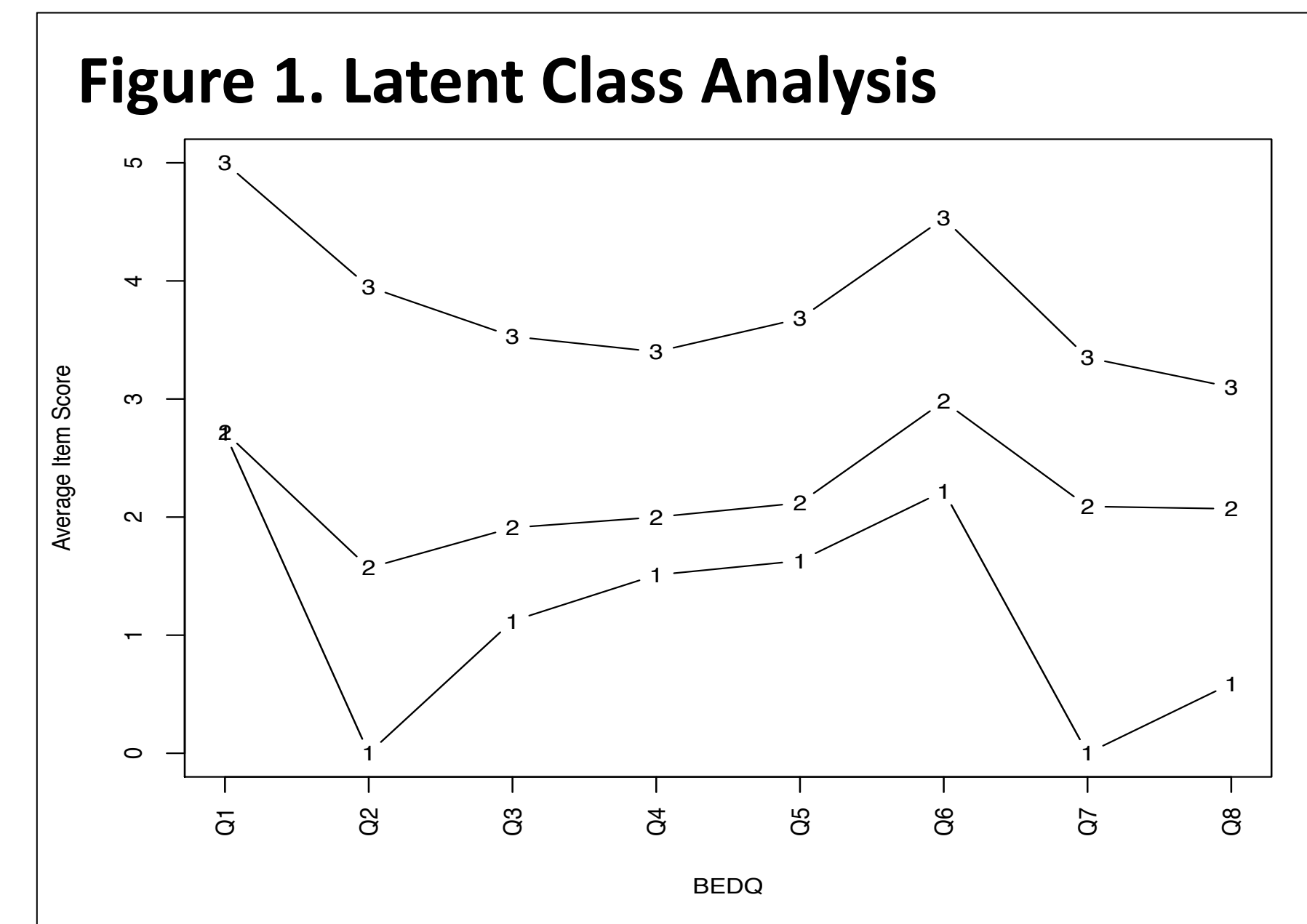
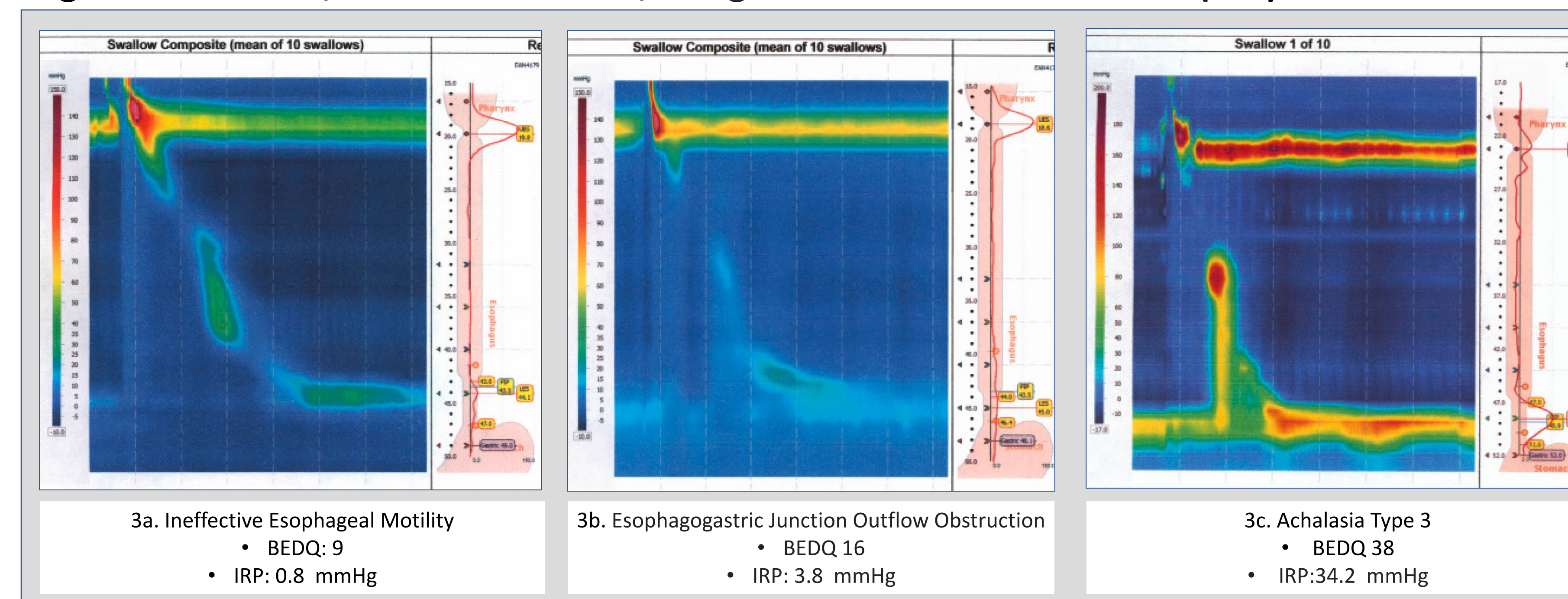


Table 1. CC, HRM, and quantitative analysis by latent class.

|  | LC 1 (n=51)      | LC 2 (n=56)   | LC 3 (n=40)   | P value      |
|--|------------------|---------------|---------------|--------------|
| Age [mean (SD)]                              | [60.9 (16.2)]    | [59.1(15.71)] | [52(17.26)]   | 0.029        |
| % female [number (%)]                        | [33(64.7%)]      | [39(69.7%)]   | [26(65.0%)]   | 0.835        |
| BEDQ score [mean (SD)]                       | [9.8 (4.9)]      | [17.4 (7.3)]  | [30.4 (7.4)]  | <b>0.000</b> |
| CC diagnosis [number (%)]                    |                  |               |               |              |
| Normal                                       | [22(43.1%)]      | [24 (42.9%)]  | [18 (45.0%)]  | 0.975        |
| EGJOO  | [9(17.6%)]       | [21 (37.50%)] | [5 (12.5%)]   | <b>0.008</b> |
| Ineffective esophageal motility              | [6(11.8%)]       | [1 (1.8%)]    | [4 (10.0%)]   | 0.132        |
| Type 1 Achalasia                             | [4(7.8%)]        | [2 (3.6%)]    | [3 (7.5%)]    | 0.626        |
| Type 2 Achalasia                             | [4(7.8%)]        | [1 (1.8%)]    | [5 (12.5%)]   | 0.129        |
| Type 3 Achalasia                             | [1(2.0%)]        | [2 (3.6%)]    | [2 (5.0%)]    | 0.782        |
| Combined EGJOO / Achalasia Type 1,2,3        | [18 (35.3%)]     | [26 (46.4%)]  | [15 (37.5%)]  | 0.465        |
| Absent contractility                         | [2 (3.9%)]       | [3 (5.4%)]    | [1 (2.5%)]    | 0.782        |
| Distal Esophageal Spasm                      | [1(2.0%)]        | [2 (3.6%)]    | [2 (5.0%)]    | 0.733        |
| Hypercontractile esophagus                   | [2 (3.9%)]       | [0 (0.0%)]    | [0 (0.0%)]    | 0.156        |
| LES metrics [mean (SD)]                      |                  |               |               |              |
| BLESP  | [34.0 (39.1)]    | [37.2(22.3)]  | [35.8(16.1)]  | 0.838        |
| Supine IRP                                   | [13.5 (7.3)]     | [18.4 (10.2)] | [20.2(12.1)]  | <b>0.004</b> |
| Upright IRP                                  | [11.6 (7.3)]     | [13.5(9.0)]   | [14.5(12.8)]  | 0.346        |
| DCI  | [1458.7(2158.8)] | [2138 (3138)] | [1166 (1254)] | 0.124        |
| DL   | [7.3(2.2)]       | [6.7 (1.9)]   | [6.8(1.3)]    | 0.210        |
| Functional markers of impaired bolus transit |                  |               |               |              |
| % with PEP or CP ≥20% [number (%)]           | [(11 (21.6%)]    | [21 (37.5%)]  | [11 (27.5%)]  | 0.186        |
| % with IBT ≥20%                              | [23(45.1%)]      | [24(42.9%)]   | [18(45.0%)]   | 0.967        |

Figure 3a-c. HRM, Total BEDQ Score, Integrated Relaxation Pressure (IRP)



## Results

- Data from 147 patients (age range 21 – 92, 66.7 % female) was included (Table 1). Latent class (LC) analysis based on items 1-8 from the BEDQ showed 3 classes which were predominantly discriminated based on overall BEDQ score (Figure 1).
- Overall, 43.5% had normal HRM diagnosis based on CC 4.0, and 40.1% had a diagnosis of EGJOO or achalasia.
- Chi-square analysis showed no differences in the proportions of patients with normal motility between latent classes
- The proportion of patients with EGJOO was higher in LC 2.
- Supine integrated relaxation pressure (IRP) was higher in LC 2 and 3 groups. LC 2 had a trend towards a higher distal contractile integral (DCI) which may be the reason for the different symptom profile.

## Conclusion

- A higher severity of dysphagia correlates with a greater degree of obstructive physiology of the LES.
- Notably, a high percentage of patients with more severe dysphagia have normal manometry, which likely underscores the importance of esophageal hypervigilance and visceral anxiety.
- There may be utility in reserving HRM for patients with more severe dysphagia.