

Investigating most bothersome symptom consistency in selection over repeated self-reported migraine days: Results of the MiCOAS Study

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Background

- Most bothersome symptom (MBS) is a recommended outcome for migraine acute treatment clinical trials that aim to evaluate efficacy beyond head pain relief/freedom^{1,2}
 - Options for MBS are typically limited to nausea, vomiting, photophobia, and phonophobia
- Research suggests that these limited symptom options are insufficient and within-patient consistency of MBS across repeated migraine days is unknown³
- The current work investigates these MBS issues using daily diary data from the Migraine Clinical Outcome Assessment System (MiCOAS) observational study

Methods

- The MiCOAS longitudinal, observational study included 1,155 participants enrolled in 3 unique cohorts
- Cohorts completed baseline assessments, daily diaries, and retrospective recall assessments at fixed timepoints
- Nine unique symptoms other than head pain were selected for collection through the diary
 - Aura, dizziness or vertigo, mental slowness or fogginess, nausea, neck pain, sensitivity to light, sensitivity to sound, tiredness, and vomiting
- The current work focuses on participant reports of symptom experience and severity (none/mild/moderate/severe) and MBS selection on self-reported migraine days (“Did you have a migraine day?”) over the first month (28 days) of the daily diary collection
- Descriptive statistics were used to summarize the range of MBS endorsed within and across participants
- Generalized estimating equations (GEE) were used to estimate the probabilities of symptoms and likelihood of symptoms being selected as MBS across repeated self-reported migraine days
- Visualization techniques illustrate within-person changes in the selected MBS over time

Results

- The analysis sample consisted of 1,120 participants who reported on a median(interquartile range[IQR]) of 8(5-12) self-reported migraine days (10,297 total observations) over 28 days
- GEE analyses showed that the most frequently endorsed symptoms were tiredness (prob = .63), sensitivity to sound (prob = .54), and sensitivity to light (prob = .61); vomiting was least likely to be endorsed (prob = .06) (Table; first column)
- When symptoms were endorsed, the probability of selecting a specific symptom as the MBS increased with symptom severity
 - The highest probabilities for MBS selection, when a symptom occurred, were for severe vomiting (prob = .57), neck pain (prob = .45), and nausea (prob = .39)

Table. Probability of symptom and MBS selection by severity

	Selected as MBS (conditional on symptom severity)											
	Symptom Occurrence			Mild			Moderate			Severe		
	Prob	Low	High	Prob	Low	High	Prob	Low	High	Prob	Low	High
Aura	0.22	0.20	0.24	0.16	0.13	0.19	0.25	0.21	0.28	0.31	0.25	0.38
Dizziness or vertigo	0.36	0.34	0.38	0.18	0.16	0.21	0.26	0.24	0.29	0.34	0.30	0.39
Mental slowness or fogginess	0.44	0.42	0.46	0.12	0.10	0.15	0.17	0.15	0.19	0.27	0.23	0.31
Nausea	0.42	0.40	0.44	0.14	0.12	0.16	0.27	0.25	0.30	0.39	0.36	0.44
Neck Pain	0.46	0.44	0.48	0.20	0.18	0.24	0.32	0.29	0.34	0.45	0.41	0.49
Sensitivity to sound	0.54	0.52	0.56	0.14	0.12	0.16	0.21	0.19	0.23	0.31	0.27	0.34
Sensitivity to light	0.61	0.59	0.63	0.19	0.17	0.22	0.23	0.21	0.25	0.30	0.27	0.33
Tired	0.63	0.61	0.65	0.22	0.19	0.25	0.25	0.23	0.27	0.35	0.33	0.38
Vomiting	0.06	0.06	0.07	0.17	0.12	0.24	0.30	0.25	0.36	0.57	0.47	0.66

- Participants selected a median(IQR) of 3(2 - 4) unique symptoms as MBS over the 28-day period (Figure 1)
- Pooling over individuals and daily reports, the most frequent MBS reports were tired (16.7%), neck pain (15.1%), sensitivity to sound (14.5%), and sensitivity to light (14.0%)
- There was substantial variability in selected MBS across self-report migraine days (Figure 2)
 - Only 11.5% (n = 129) of participants endorsed the same MBS across all reported migraine days

Figure 1. Number of symptoms selected as MBS

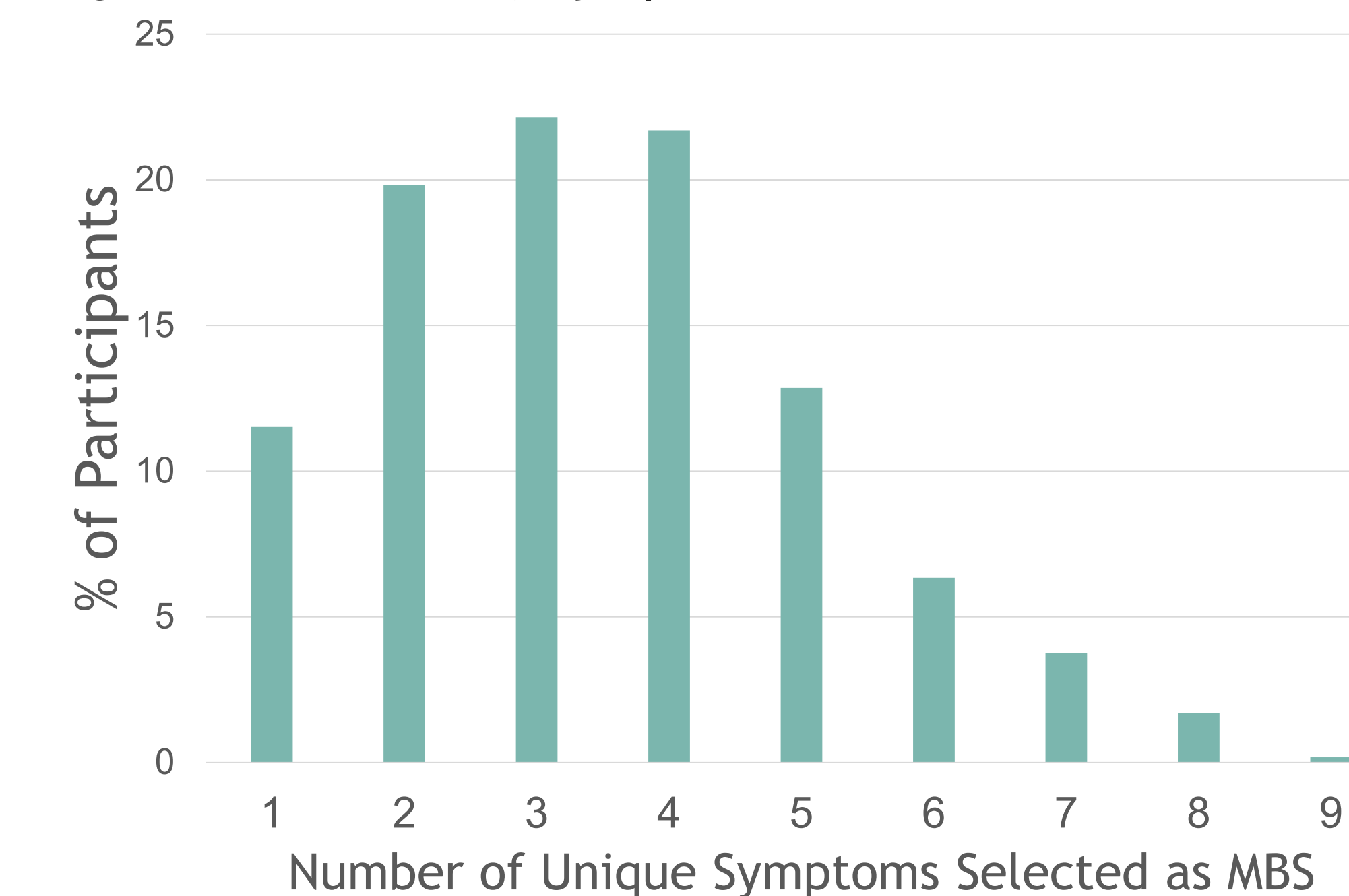
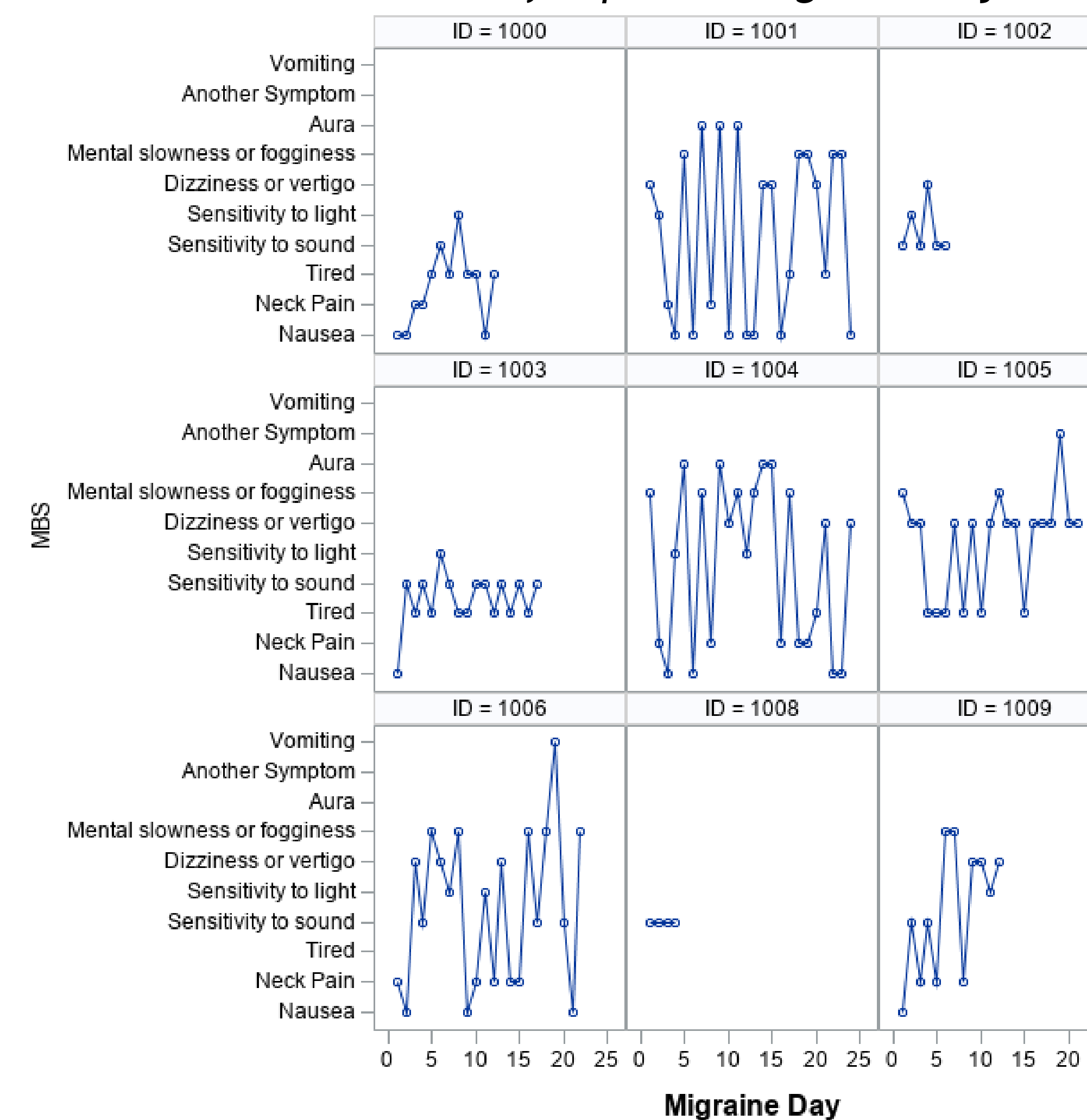


Figure 2. Nine individual participants’ changes in endorsed MBS across self-reported migraine days



Summary

- ❑ Individuals with migraine identify a range of symptoms as “most bothersome” and these symptoms vary both between- and within-person

Conclusions

- ✓ Standard MBS definitions fail to account for the breadth of symptoms and the variable nature of MBS
- ✓ Classic associated symptoms represent a subset of symptoms that matter to patients
- ✓ Other symptoms like feeling tired were endorsed frequently
- ✓ MBS often changes across migraine days
- ✓ MBS selection depends on symptom severity

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