

Background

- The Migraine Clinical Outcome Assessment System (MiCOAS) project aims to establish a core set of outcomes for use in migraine clinical trials
- In previous MiCOAS qualitative interviews, individuals with migraine identified the ability to function socially is an important impact of migraine along with several other domains (Mangrum, 2024)
- Consistent with MiCOAS findings, existing scientific research consistently shows the social burden of migraine (e.g., Agosti, 2018; Solomon & Price, 1997)
 - Impacts various social areas including family and leisure activities (Buse et al., 2016; MacGregor et al., 2004)
- The current work presents findings from the psychometric evaluation of the MiCOAS 7- and 14-day recall-based measures for social functioning (SF)

Methods

- After completing extensive MiCOAS qualitative work and literature reviews, 7 candidate SF items were drafted
 - SF item response options ranged from either 1=Never to 5=Always or 1=Not difficult at all to 5=Unable to do
- A large, 3 cohort, observational study collected data on the draft MiCOAS measures and other relevant headache- and migraine-specific measures (Table 1)
 - Participants met the study migraine case definition

Table 1. Diary lengths and recall periods for cohorts

	Daily Diary	Retrospective Recall MiCOAS
Cohort 1 (n = 169)	56 days	14-day
Cohort 2 (n = 375)	28 days	14-day
Cohort 3 (n = 611)	28 days	7-day

- Descriptive, polychoric correlation, categorical confirmatory factor analysis, item response theory (IRT), and reliability analyses were completed

Results

- The N = 1155 participants from the full analysis sample were predominantly female (81.4%), white (77.6%) and of middle age (mean = 38.9 years)
- Item-level descriptives showed no issues with missingness or floor/ceiling effects and polychoric correlations among the SF items were moderate-to-strong (Table 2)

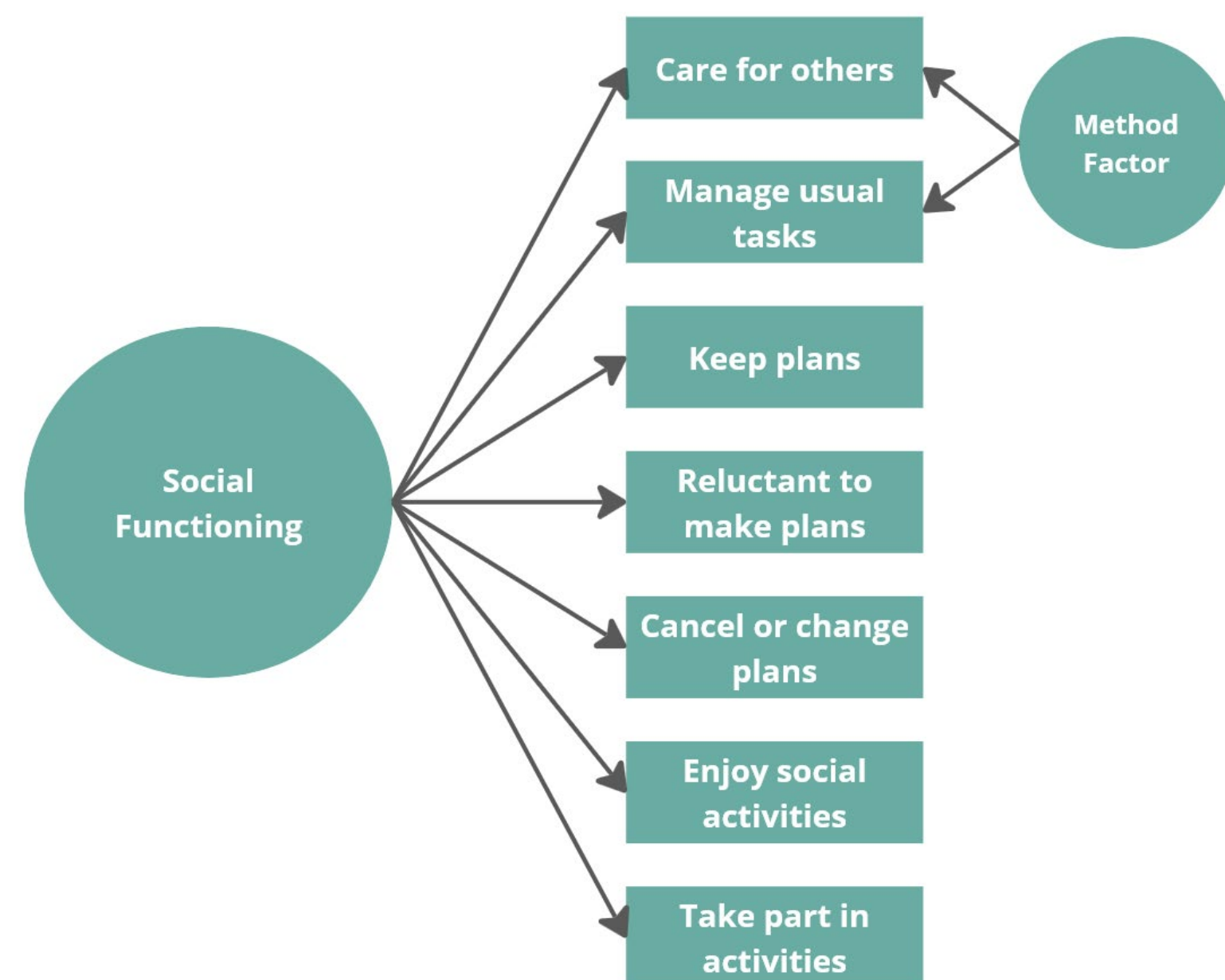
Table 2. Polychoric correlations among SF items

Item content	1	2	3	4	5	6	7
1. Care for others	1.00	0.73	0.60	0.44	0.64	0.63	0.62
2. Manage usual tasks	0.77	1.00	0.59	0.57	0.55	0.62	0.59
3. Keep plans	0.65	0.73	1.00	0.67	0.72	0.68	0.70
4. Reluctant to make plans	0.58	0.56	0.68	1.00	0.57	0.62	0.64
5. Cancel or change plans	0.61	0.59	0.77	0.62	1.00	0.67	0.65
6. Enjoy social activities	0.70	0.68	0.71	0.68	0.70	1.00	0.82
7. Take part in activities	0.68	0.68	0.75	0.68	0.68	0.81	1.00

Notes: Bottom diagonal 7-day recall polychoric correlations. Top diagonal (shaded) 14-day recall polychoric correlations.

- The hypothesized IRT model showed good model fit after accounting for local dependence between “Care for others” and “Manage usual tasks” items (Figure 1; Table 3; TLI = 0.92-0.95, RMSEA = 0.05)

Figure 1. Factor structure for SF 7- and 14-day recall measures



- Both factor analyses showed similarly strong factor loadings across 7- and 14-day recall measures (Table 3)

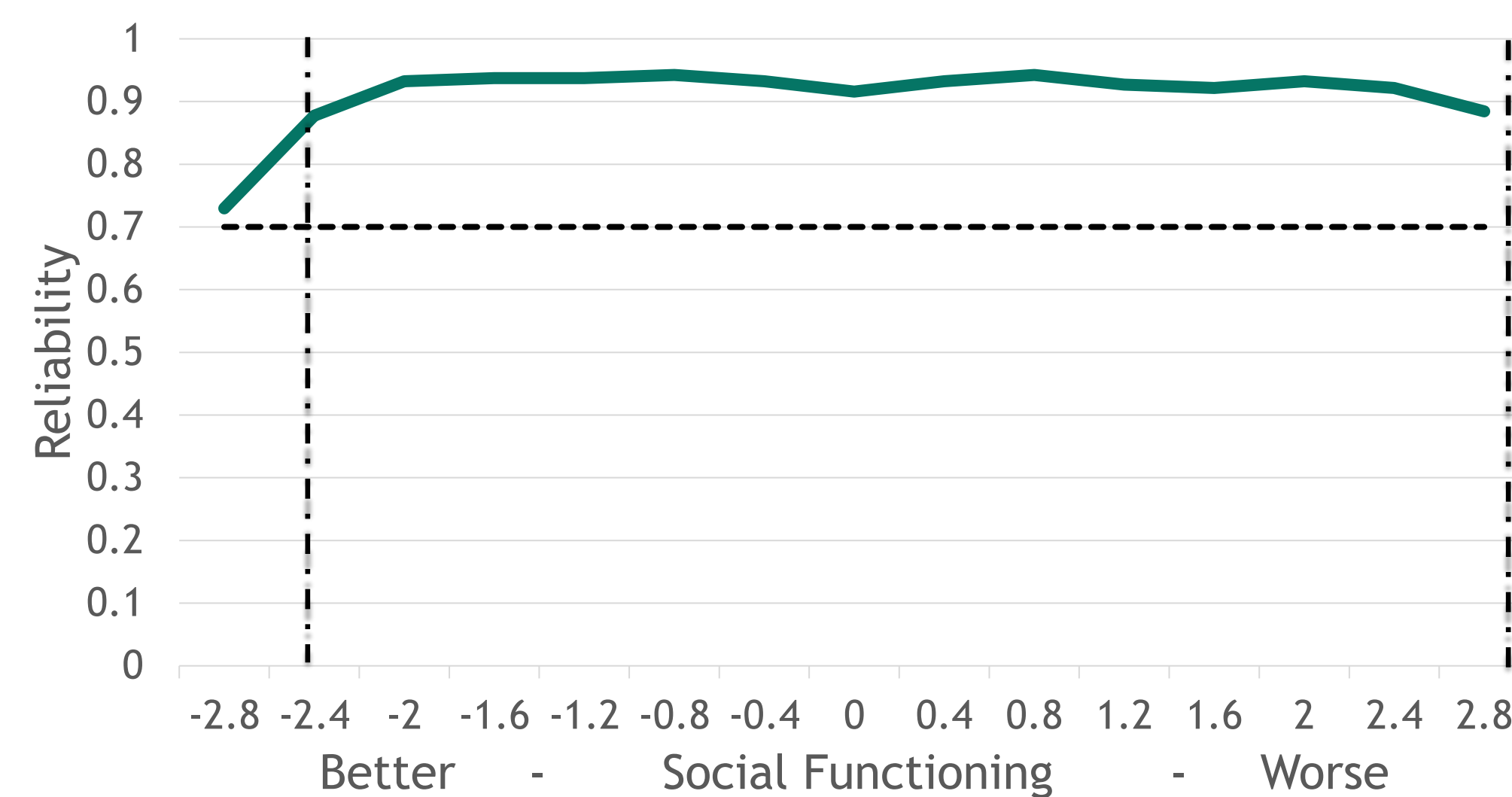
Table 3. Standardized factor analysis loading estimates

Item content	7-day loading	14-day loading
Care for others	0.78	0.74
Manage usual tasks	0.79	0.73
Keep plans	0.88	0.85
Reluctant to make plans	0.79	0.76
Cancel or change plans	0.83	0.82
Enjoy social activities	0.89	0.89
Take part in activities	0.90	0.89
Model Fit	TLI	0.92
	RMSEA	0.05

Note: A second nuisance factor accounting for local dependence between “Care for others” and “Manage usual tasks” is not presented here.

- IRT-based reliability was acceptable over a large range of SF (Figure 2; 7-day)
- No meaningful differential item functioning was detected across 7- vs. 14-day recalls and episodic vs. chronic migraine

Figure 2. IRT-based reliability for 7-day SF measures



- Internal consistency was found to be high across both the 7- and 14-day recall SF measures (coefficient alpha ≥ 0.9)

Summary

- ☐ MiCOAS 7- and 14-day recall-based measures assessing SF in migraine were developed and showed strong psychometric properties

Conclusions

- ✓ The SF measures displayed adequate model fit and SF items exhibited moderate-to-strong interitem correlations and factor loadings
- ✓ Internal consistency was excellent, and reliability was high across a broad range of SF
- ✓ Measurement properties were similar for 7- vs. 14-day recall periods and EM vs. CM
- ✓ Future work is underway to collect evidence of validity for the MiCOAS SF measures

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