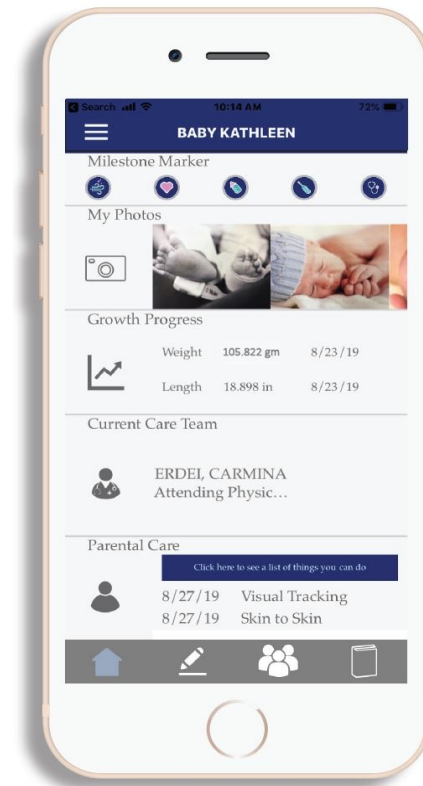


BACKGROUND

- Parents of infants in the NICU experience psychological distress which can impact infant and family outcomes
- Educational apps could be leveraged to reduce parent stress, and help families feel better prepared to take their infant home
- An interdisciplinary team created and rolled out a parent education smartphone application: "My Brigham Baby" (MBB) App in a level III NICU



METHODS

Measures: A parent survey containing self-report standardized instruments wherever possible was administered to parents approaching discharge in the GDU/stepdown unit within the last weeks prior to discharge.

Self-report Measures

- Discharge Readiness.** Ratings were provided on a 7-point Likert Scale
- Parenting Stress.** Responses were provided on the 5-point Parental Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU)
- Anxiety symptoms.** Current anxiety symptoms were assessed using the Generalized Anxiety Disorder Scale (GAD-7).
- Parenting Skills.** Parent self-efficacy was analyzed using the Parenting Sense of Competence Scale

Statistical Measures

- Descriptive statistics of the demographic and clinical characteristics of the sample were evaluated overall by Pre-/Post-App group status
- Differences by group status were assessed using χ^2 or Wilcoxon Rank Sum tests, as appropriate
- Comparison of Pre- and Post-App rollout groups did not yield statistically significant differences between in terms of parental demographics nor infant clinical characteristics (including gestational age at birth, birth weight, length of hospital stay, length of mechanical ventilation, and time to full oral feeds).

Results

Table 1. Self-Reported Responses to Standardized Questionnaires Based on Group Status

Variables	Total (N = 50)	Pre - Intervention (N = 25)	Post - Intervention (N = 25)	P- Value
GAD 7 Score Mean±SD	8.0±5.6	8.6±5.7	7.4±5.6	0.4472
PSS Score Mean±SD	74.0±10.6	73.5±9.1	74.6±12.1	0.4232
PSS Score Mean±SD	63.7±26.7	60.4±29.0	66.9±24.4	0.3985
Discharge Readiness Mean±SD	5.0±1.4	4.8±1.4	5.2±1.5	0.1705

RESULTS

Figure 1: Baseline data regarding NICU parent experience n = 25, Winter 2019-Spring 2020

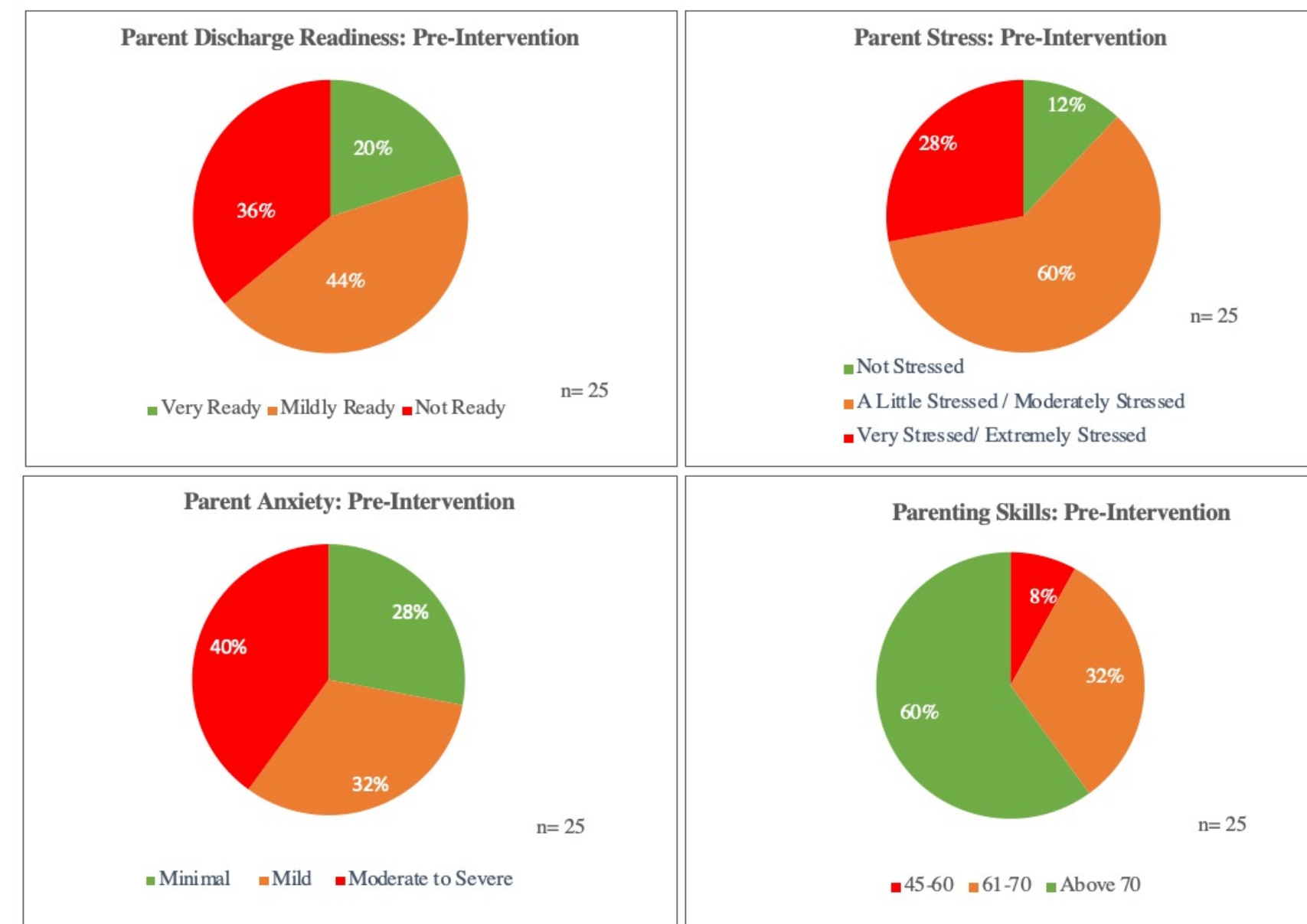
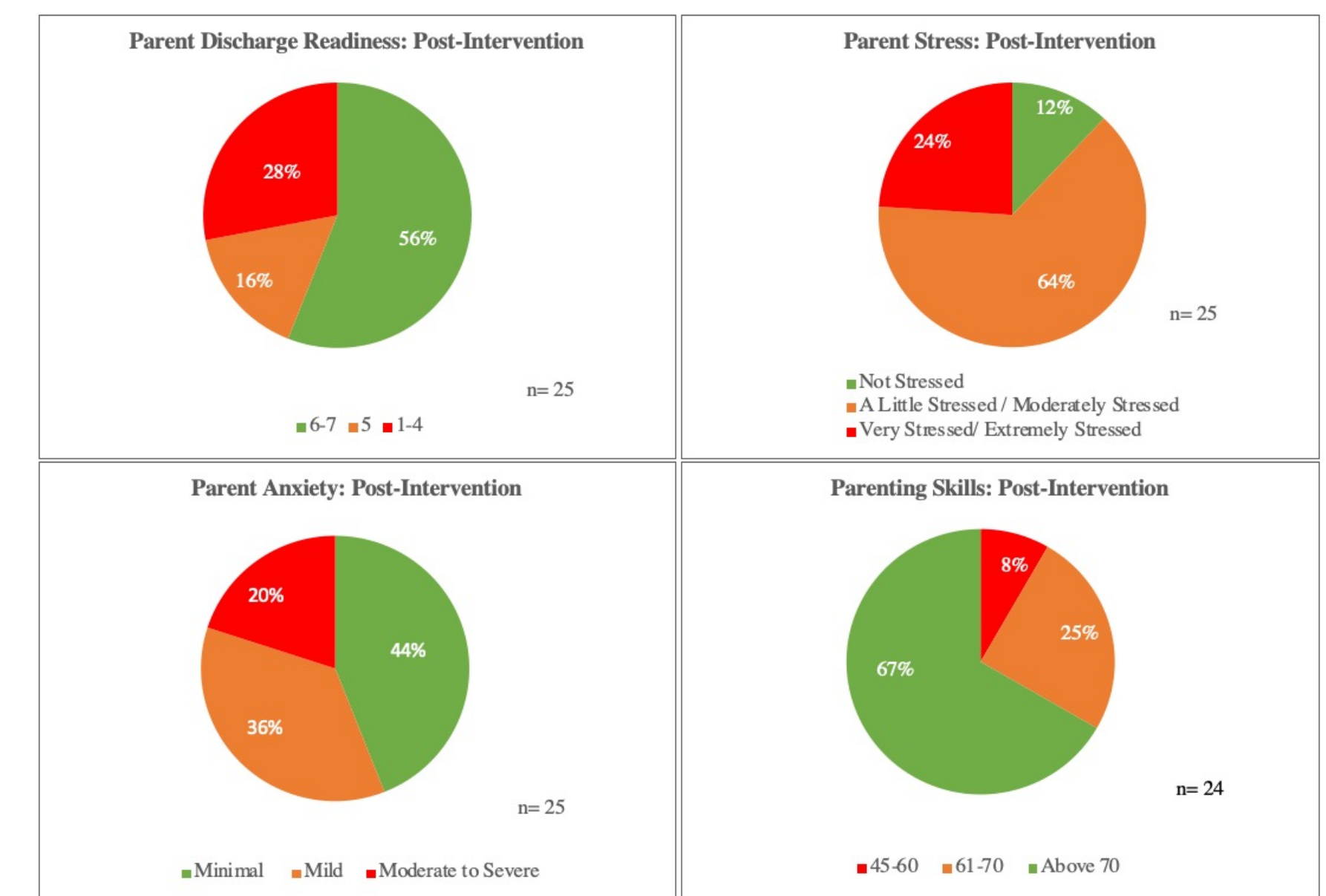


Figure 2: Post-Intervention data regarding NICU parent experience n = 25, Fall/Winter 2020, Spring 2021



KEY FINDINGS

- Pre-App rollout:** 36% of parents were not prepared for discharge, 28% reported feeling very high stress symptoms, 40% reported experiencing high symptoms of anxiety, and 8% felt confident in their parenting skills. (Figure 1).
- Post-App rollout:** The proportion of mothers in the favourable category of symptoms increased post intervention. 28% of parents did not feel very prepared for discharge, 24% reported high stress symptoms, 20% experienced moderate to severe anxiety, and 8% were not confident in their parenting skills (Figure 2).
- We note a statistically significant difference in discharge readiness scores between groups (p = 0.0204)
- Of note,** Post-Intervention study data was completed during the COVID-19 Pandemic which is known to exacerbate perinatal stress and anxiety. We did not observe an increase in high rates of stress and anxiety during COVID-19 period in our cohort

STRENGTHS

- Pilot App was successfully rolled out and integrated in standard operations in a Level III NICU
- Content was developed by clinical team, curated collection of materials included
- Pilot outlines processes through which a technology-based application was leveraged to improve discharge readiness and parent experience in a Level III NICU

LIMITATIONS

- Small pilot study with exploratory analyses
- Unable to account for data usage or parent involvement throughout
- MBB App is solely accessible on iOS devices

CONCLUSION

- Use of a smartphone application shows promise in improving discharge readiness and enhancing parental experiences in the NICU during the challenging pandemic period

Disclosure: The authors have no financial relationships relevant to this article to disclose.
Funding Source: Brigham and Women's Hospital Internal Funds (BCRISP Award).

Many thanks to the participating families for their willingness to share their experiences with us, and to the NICU staff and collaborating developers' efforts.