

A prospective assessment of the impact of decompensation of cirrhosis on patient-reported outcomes in metabolic dysfunction-associated steatotic liver disease

I. O'CONNOR¹, A. MOSPAN², C. SCHOEN², A. BARRITT IV³, A. SANYAL¹ on behalf of the TARGET-NASH

Investigators

1. Stravitz-Sanyal Institute for Liver Disease and Metabolic Health at VCU School of Medicine, Richmond, VA
2. Target RWE, Durham, NC
3. UNC Liver Center, University of North Carolina, Chapel Hill, NC

INTRODUCTION

- Metabolic dysfunction associated-steatotic liver disease and steatohepatitis (MASLD and MASH respectively) are major causes of liver-related morbidity and mortality
- While clinical event rates and patient-reported outcomes (PRO) have been studied in cirrhosis with generic patient-reported outcome measures (PROMs), there is a paucity of data on the impact of decompensation of cirrhosis with a disease-specific PROM

AIM

To perform a prospective, cross-sectional analysis of MASLD-specific PRO in patients with compensated versus decompensated MASH cirrhosis in a real-world setting

METHODS

- This was a cross-sectional analysis of the NASH-CHECK PRO measure completed by a subset of patients enrolled in the real-world TARGET-NASH observational longitudinal ongoing study, which has >6,000 patients enrolled at academic and community sites in the United States with more than 6 years of median follow up
- The NASH-CHECK instrument (version 1.0)¹ was completed between 2021 and 2023; NASH-CHECK was developed and validated previously
- MASLD was defined per the TARGET-NASH definitions using available biopsy, imaging, and clinical criteria as described previously²
- Two categories of patients were compared: compensated MASH cirrhosis and decompensated MASH cirrhosis (ascites/complications from ascites, hepatic encephalopathy, variceal bleeding)
- NASH-CHECK has 6 symptom scale scores and three additional HRQL scores; each has a score of 0-10 with higher scores indicating greater impairment¹
- Scores across disease cohorts were compared using a linear regression model examining the relationship between PRO scores and compensation of cirrhosis controlling for covariates including: age, sex, race/ethnicity, presence or absence of type 2 diabetes, number of cardiometabolic risk factors (out of 5), geography, insurance, site type

Table 1. TARGET-NASH Cohort Characteristics

| - at 1 st NASH-CHECK | Compensated (n=187) | Decompensated (n=95) | MASH Cirrhosis Cohort (n=282) |
|---|---------------------|----------------------|-------------------------------|
| Age (Median) | 63.0 | 64.0 | 64.0 |
| Female, n (%) | 116 (62.0%) | 60 (63.2%) | 176 (62.4%) |
| Medicaid or uninsured | 13 (7.0%) | 5 (5.3%) | 18 (6.4%) |
| Site Type | | | |
| Academic | 151 (80.7%) | 83 (87.4%) | 234 (83.0%) |
| Community | 36 (19.3%) | 12 (12.6%) | 48 (17.0%) |
| BMI, Mean (SD) | 33.82 (7.460) | 34.65 (7.735) | 34.09 (7.544) |
| A1c, Mean (SD) | 6.76 (1.434) | 6.86 (1.639) | 6.79 (1.504) |
| AST, Mean (SD) | 37.55 (25.84) | 48.34 (75.18) | 41.25 (48.90) |
| ALT, Mean (SD) | 41.67 (54.35) | 42.80 (69.98) | 42.06 (60.09) |
| ALP, Mean (SD) | 92.61 (38.61) | 122.4 (72.05) | 102.9 (54.39) |
| Bilirubin, Mean (SD) | 0.79 (0.541) | 1.45 (1.101) | 1.02 (0.839) |
| Albumin, Mean (SD) | 4.16 (0.454) | 3.77 (0.522) | 4.03 (0.512) |
| Creatinine, Mean (SD) | 0.90 (0.280) | 1.00 (0.635) | 0.93 (0.439) |
| INR, Mean (SD) | 1.08 (0.170) | 1.29 (0.358) | 1.15 (0.273) |
| MELD 3.0, Mean (SD) | 7.76 (2.302) | 11.32 (4.138) | 9.07 (3.543) |
| Ascites, n (%) | - | 75 (78.9%) | - |
| Hepatic Encephalopathy, n (%) | - | 38 (40.0%) | - |
| Variceal bleeding, n (%) | - | 13 (13.7%) | - |
| # of decompensation event types, Mean (SD) | - | 1.33 (0.573) | - |
| Freq of decompensation event types, n (%) | | | |
| mono-decompensation | - | 69 (72.6%) | - |
| poly-decompensation | - | 26 (27.4%) | - |

Abbreviations include: BMI – Body Mass Index; A1c-Hemoglobin A1c; AST-Aspartate aminotransferase; ALT-Alanine transaminase; ALP-Alkaline phosphatase; INR-International normalized ratio; MELD-Model for End-Stage Liver Disease

RESULTS

- 282 adult participants with a completed NASH-CHECK PROM and MASH cirrhosis, representing ~45% of the TARGET-NASH cohort with cirrhosis, were studied
- Median age was 64, 62.4% female, 85.1% Non-Hispanic White, 3.9% Non-Hispanic Black, 1.8% Non-Hispanic Asian, 5.3% Hispanic/Latino, 77.3% BMI ≥ 25, 82.3% type 2 diabetes, 95.0% blood pressure ≥ 130/85 (or specific antihypertensive drug treatment), 74.5% plasma triglycerides ≥ 1.70 mmol/L (or lipid lowering treatment), 78.4% plasma HDL-cholesterol ≤ 1.0 mmol/L if male or ≤ 1.3 mmol/L if female (or lipid lower treatment)
- Significant differences (adjusted) between compensated and decompensated MASH cirrhosis were noted for cognitive symptoms (p=0.030), activity limitations (p=0.004) and social impact (p=0.004)
- Mean NASH-CHECK scores for those with decompensated cirrhosis were higher than compensated cirrhosis for all domains

Figure 1. All NASH-CHECK Scores

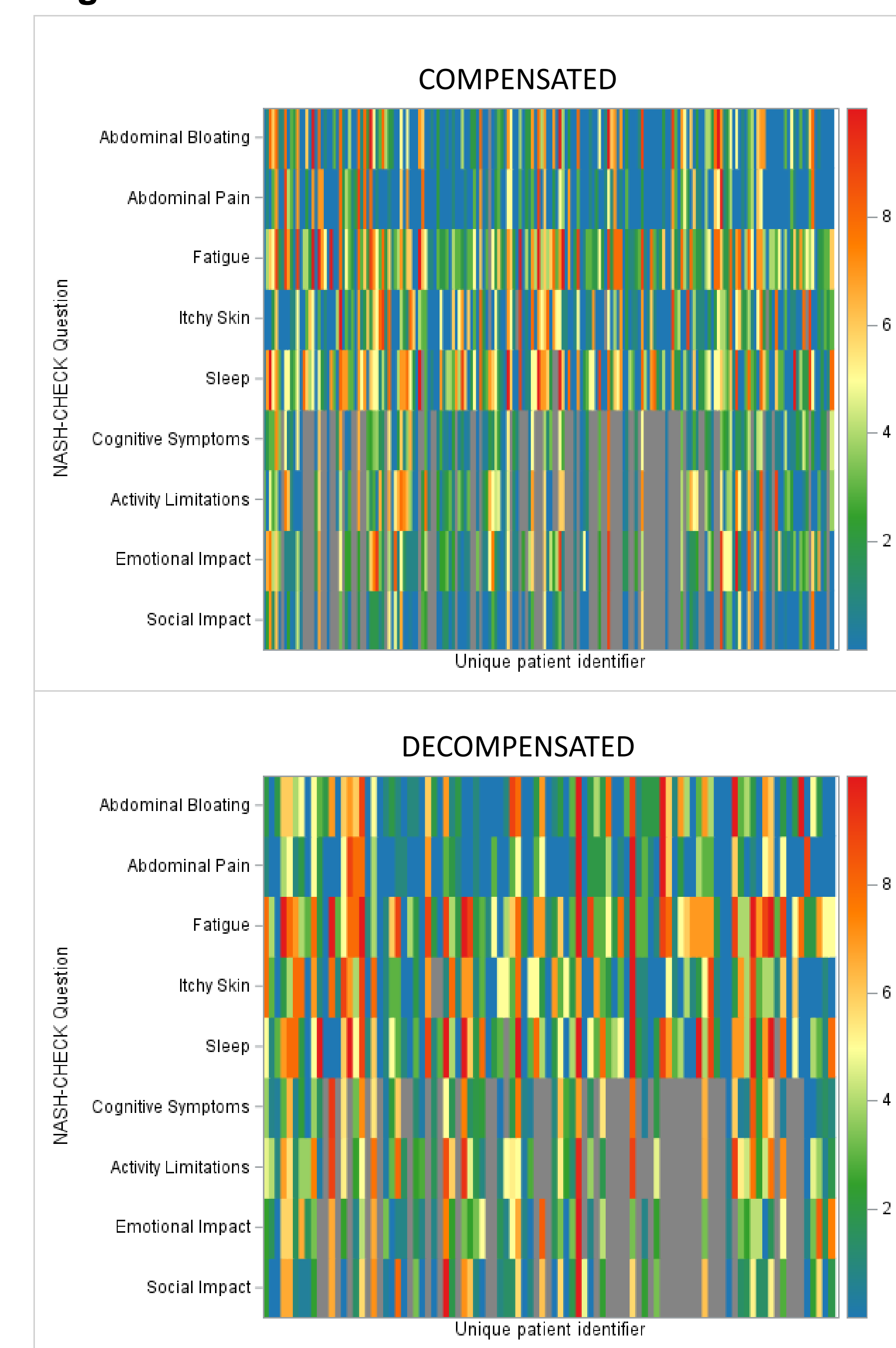
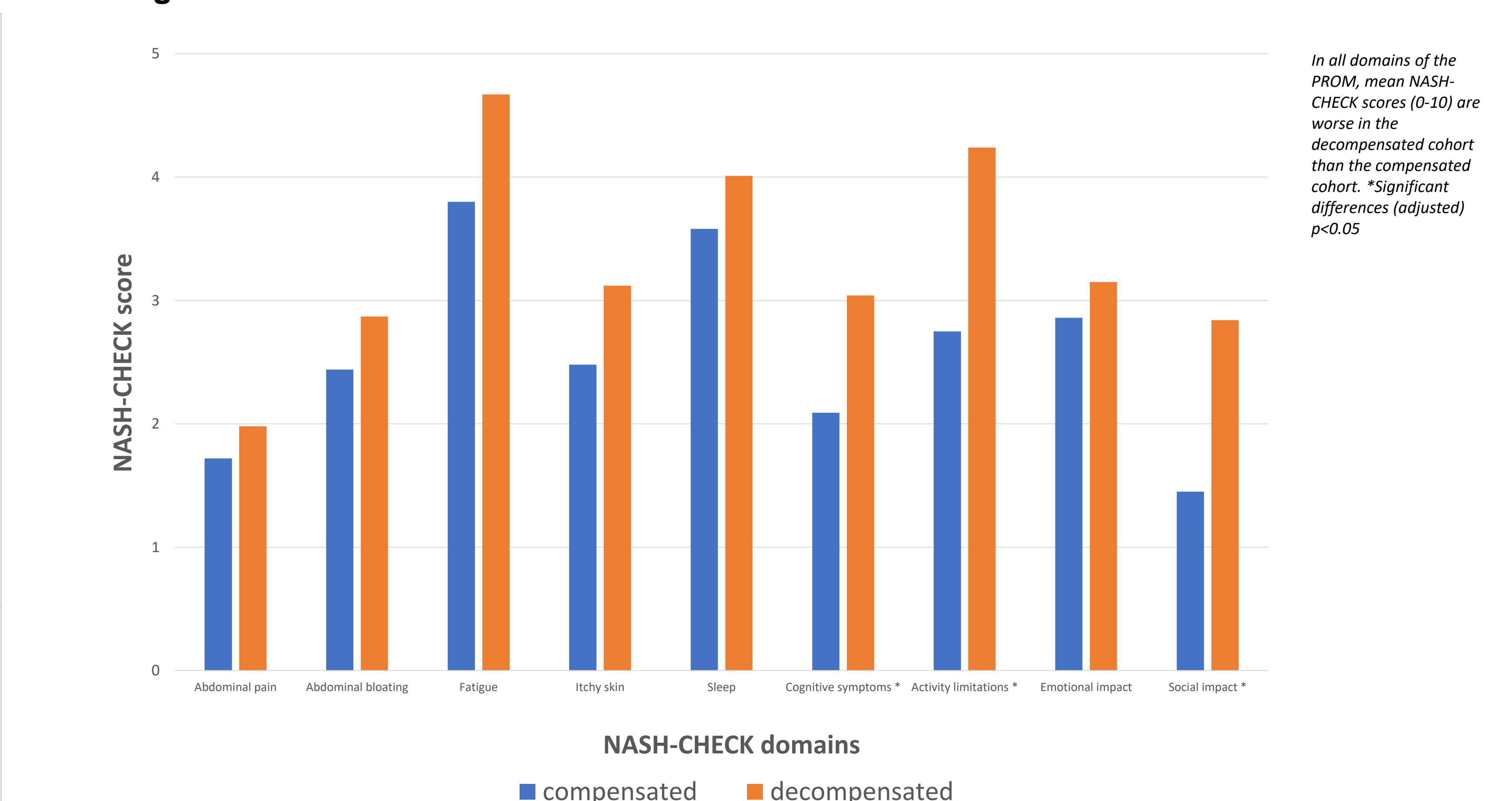


Figure 2. Mean NASH-CHECK Scores



Heat map depicting NASH-CHECK PROM scores (0-10) of all domains for all participants in study worse (warmer colors) overall in decompensated cohort compared to compensated cohort.

CONCLUSIONS

- In a real-world clinical setting, the MASLD-specific PRO measure NASH-CHECK showed worse scores for decompensated cirrhosis than for compensated cirrhosis across all domains
- Further investigations into the mechanisms of PROM score worsening with decompensation (sub-stratifying to types of decompensating events and if they align as would be expected with PROM domains, e.g., ascites with abdominal symptoms, hepatic encephalopathy with cognitive symptoms); approaches to ameliorate these impacts should be considered

REFERENCES

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CONTACT INFORMATION

ian.oconnor@vcuhealth.org
arun.sanyal@vcuhealth.org