

IMPACT OF PREEXISTING MENTAL HEALTH DISORDERS & PSYCHIATRIC PHARMACOTHERAPY ON HOSPITAL LENGTH OF STAY IN IMMUNE EFFECTOR CELL THERAPY RECIPIENTS

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INTRODUCTION

- Chimeric antigen receptor T-cell therapy (CAR-T) and bispecific T-cell engagers (BiTE) have revolutionized cancer treatment, but their administration is associated with increased healthcare resource utilization.
- While toxicities such as cytokine release syndrome (CRS) and immune effector cell-associated neurotoxicity syndrome (ICANS) are well characterized, less is known about how psychiatric factors affect outcomes.
- Prior work (Gouni S. et al., Blood 2024) suggests that pre-existing mental health disorders (MHDs) may impact toxicity and hospital length of stay (LOS).

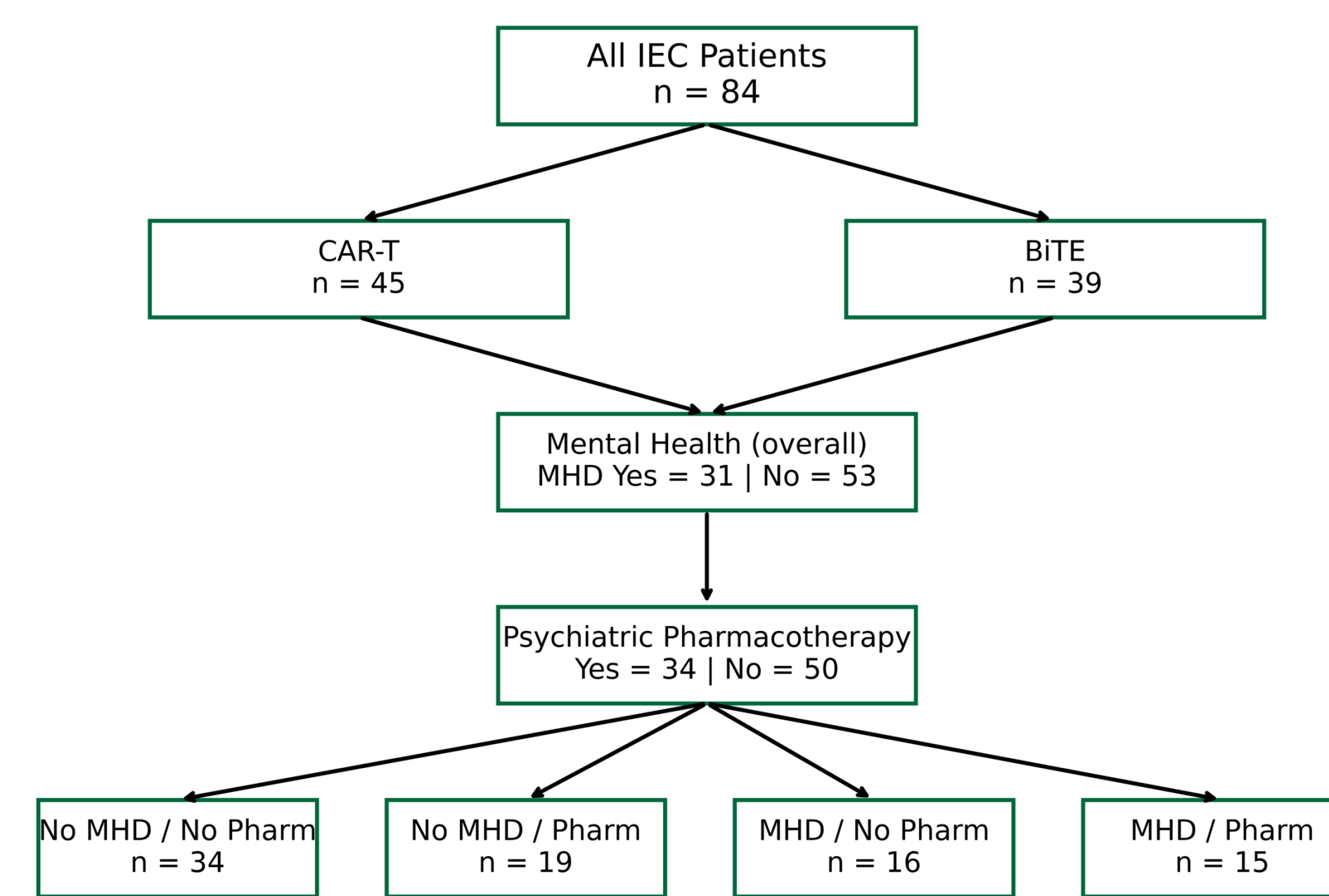
AIMS

- This study aimed to evaluate the independent and combined effects on LOS among patients receiving immune effector cell (IEC) therapies according to the following variables:
 - Cellular therapy type
 - MHD
 - Psychiatric pharmacotherapy

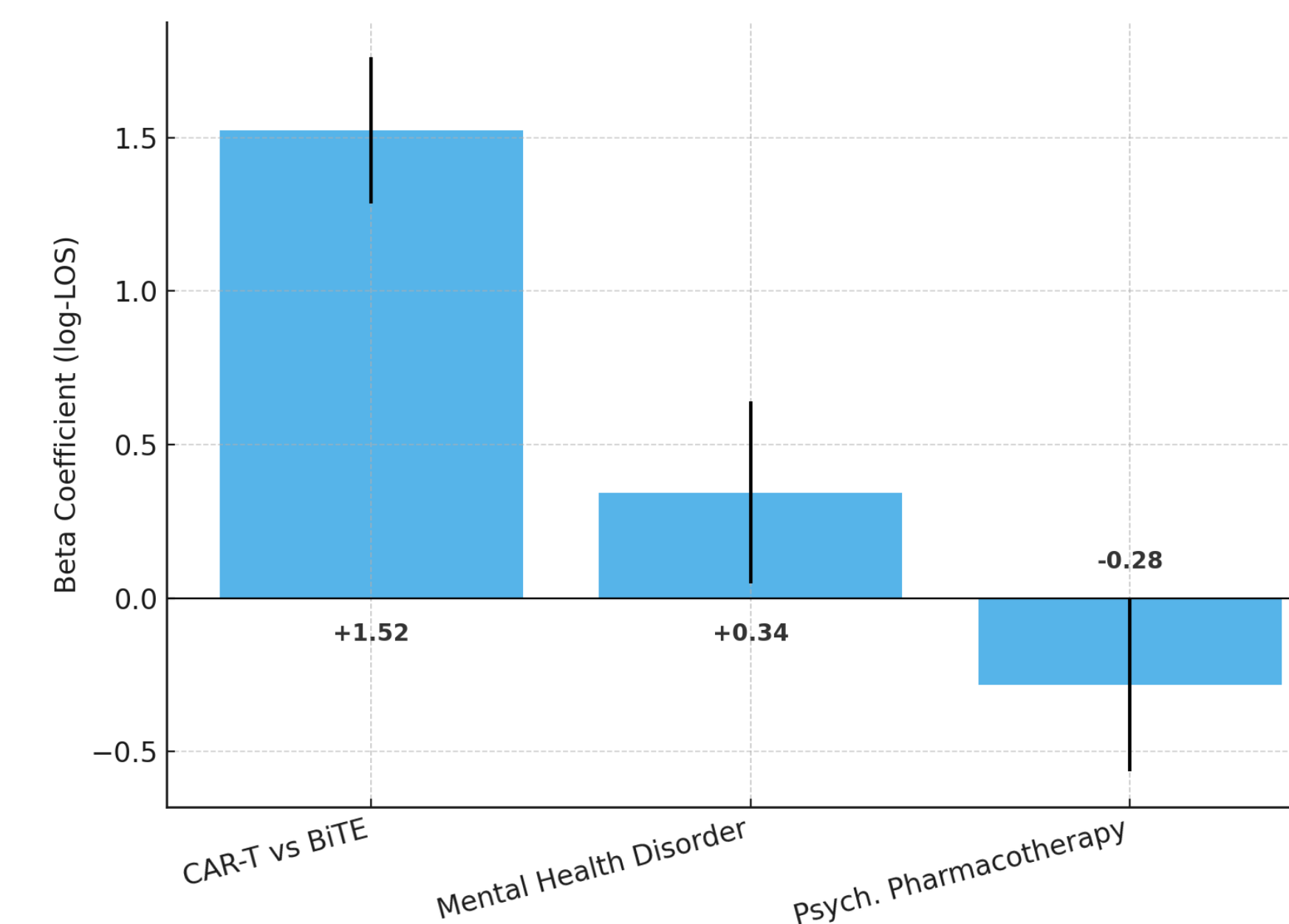
METHODS

- Single-center retrospective study of all adults (n=84) treated with IEC therapy at Dartmouth Cancer Center from 2020–2024.
- MHDs were defined as DSM-5 psychiatric diagnoses documented prior to IEC initiation. Variables were abstracted via chart review. Hospital LOS within 30 days of IEC initiation was recorded.
- Gamma regression with log link was used to examine the association between LOS and three predictors: therapy type (CAR-T vs. BiTE), presence of a pre-existing MHD, and receipt of psychiatric pharmacotherapy defined as at least 28 days prior to admission, throughout admission, and at least 28 days post admission.
- We also developed a grouped model combining MHD and pharmacotherapy status into a 4-level categorical variable to assess interactive effects.

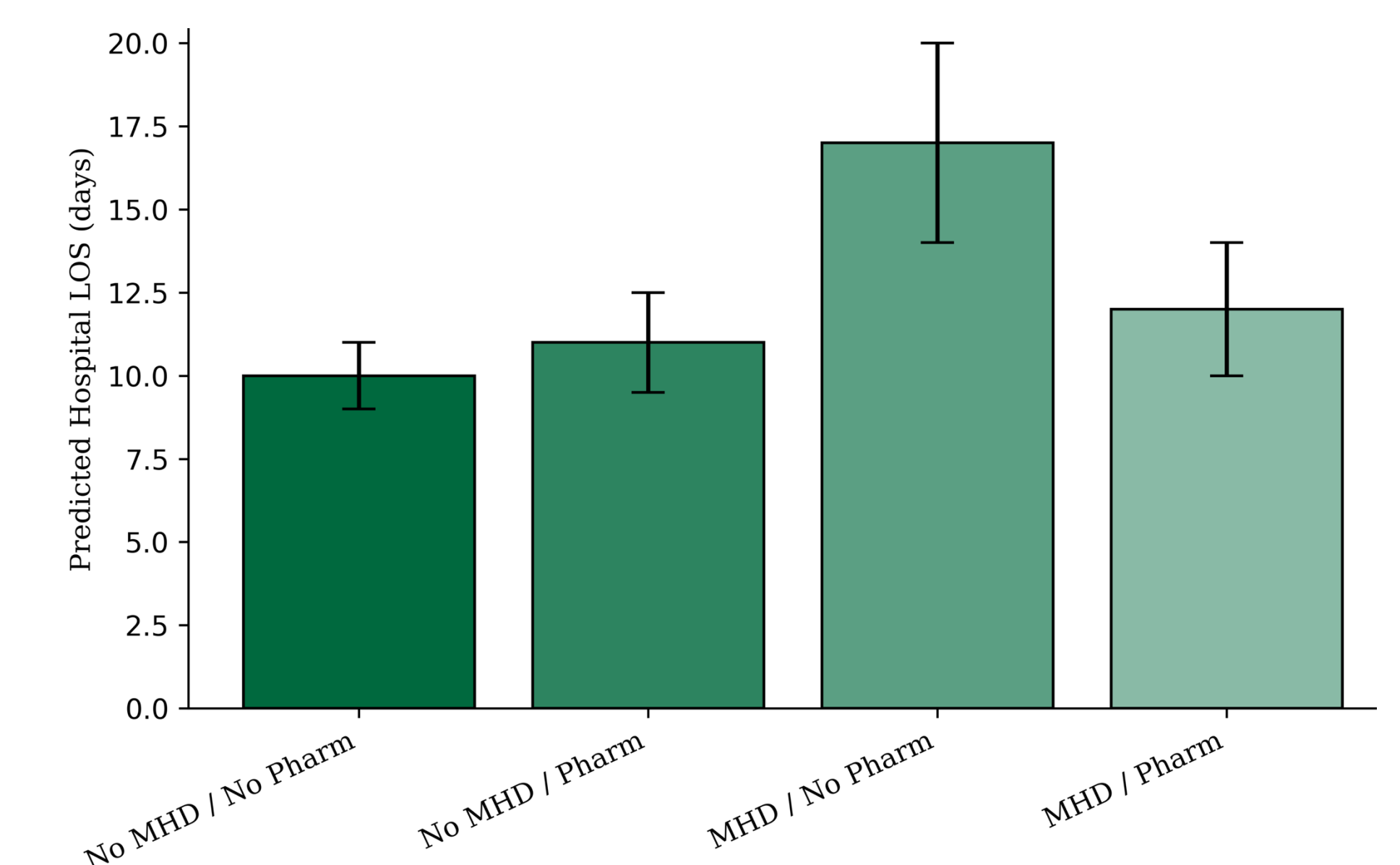
RESULTS



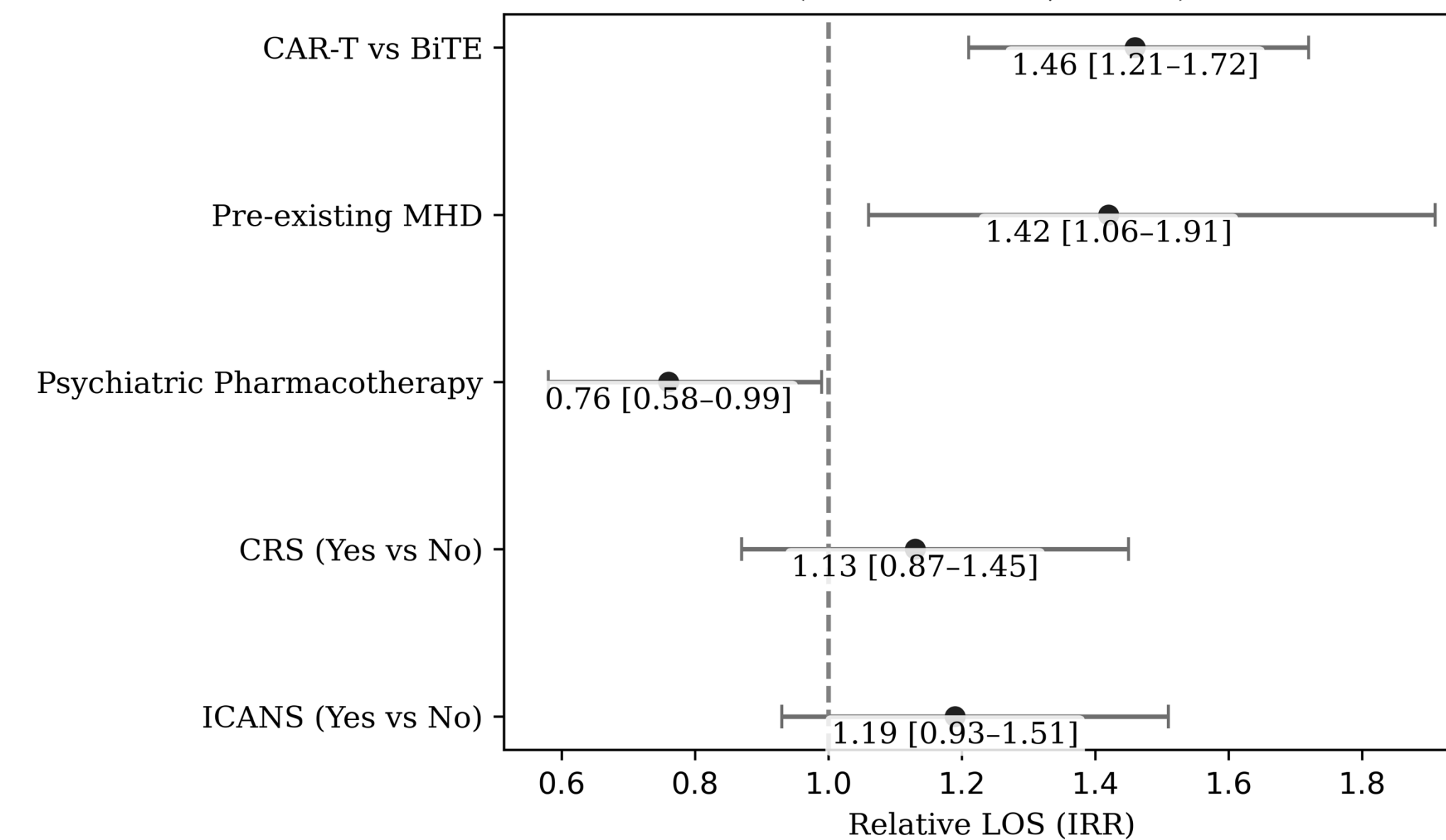
POTENTIAL PROTECTIVE EFFECT OF PHARMACOTHERAPY



PREDICTED LENGTH OF STAY (LOS) BY GROUP



Adjusted Predictors of Hospital Length of Stay (Gamma Model, n = 82)



The **main effects regression** model (n=84) shows independent associations of therapy type, MHD, and psychiatric pharmacotherapy with LOS.

CAR-T therapy was associated with significantly longer LOS compared to BiTE ($p < .001$). Patients with a pre-existing mental health disorder also had significantly longer LOS ($p = .024$). Interestingly, **psychiatric pharmacotherapy was associated with a significantly shorter LOS** ($p = .049$), suggesting a **potential protective role for pharmacologic mental health treatment**.

The **grouped linear regression** model (n=84) shows the **combined effect of MHD and psychiatric pharmacotherapy** on log-transformed predicted LOS, across both CAR-T and BiTE therapy recipients (n = 84).

Results showed that CAR-T therapy was associated with significantly longer predicted LOS relative to BiTE ($p < .001$). Among mental health groups, **individuals with MHD and no pharmacotherapy had significantly longer LOS** compared to the reference group ($p = .019$).

CONCLUSIONS

- Pre-existing mental health disorders were associated with prolonged LOS among patients receiving CAR-T and BiTE.
- Patients receiving psychiatric pharmacotherapy had a LOS comparable to those without psychiatric comorbidity, suggesting a potential protective effect.
- These findings underscore the importance of psychiatric assessment and management in patients receiving IEC therapy.
- Future studies are needed to determine whether proactive mental health interventions can reduce hospitalization burden, minimize treatment-related complications, and optimize overall care delivery.

SOURCES

- Gouni S, Lionel A, Feng L, Gaulin C, Reddy T, Gonugunta A, et al. Impact of Pre-Existing Mental Health Disorders (MHD) on CAR T-Cell Therapy Outcomes in Patients with Large B-Cell Lymphoma. Blood. 2024;144(Supplement 1):4508.

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