

## Association Of Non-Alcoholic Fatty Liver Disease And Metabolic-Associated Fatty Liver Disease With Duration Of Hospital Stay In COVID-19 Patients: A Systematic Review And Meta-Analysis



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### Introduction

- With the ongoing SARS-CoV-2 pandemic there is a need to evaluate and investigate risk factors for COVID-19. Age, dyslipidemia, obesity, cardiovascular disease, and chronic kidney disease are established risk factors that lead to worse outcomes in COVID-19 Patients
- The association between Non-Alcoholic fatty liver disease (NAFLD) and Metabolic Associated fatty liver disease (MAFLD) and COVID-19 infection is still in debate. The discrepancies in the literature may be due to confounding factors, a small study population, and heterogeneity
- We conducted a systematic review and meta-analysis to investigate the impact of NAFLD/MAFLD on the duration of hospital stay in COVID-19 patients

### Methods

- Databases: PubMed, Cochrane, Embase, Science Direct, and Web of Science
- Duration: January 2019- to August 2022
- Inclusion Criteria: Observational studies or clinical trials that studied length of hospital stay in COVID-19 patients
- Studies that assessed NAFLD/MAFLD using lab assessment (FIB-4, APRI, FIBROSIS score, HSI index, etc.), non-invasive imaging (Elastography, Liver Ultrasound, CT scan, MR elastography, Liver stiffness measurement), or liver biopsy were included
- Meta-analysis was performed using Rev Man software for hospital length of stay. Mean differences were generated to describe the overall effect size using random effect models

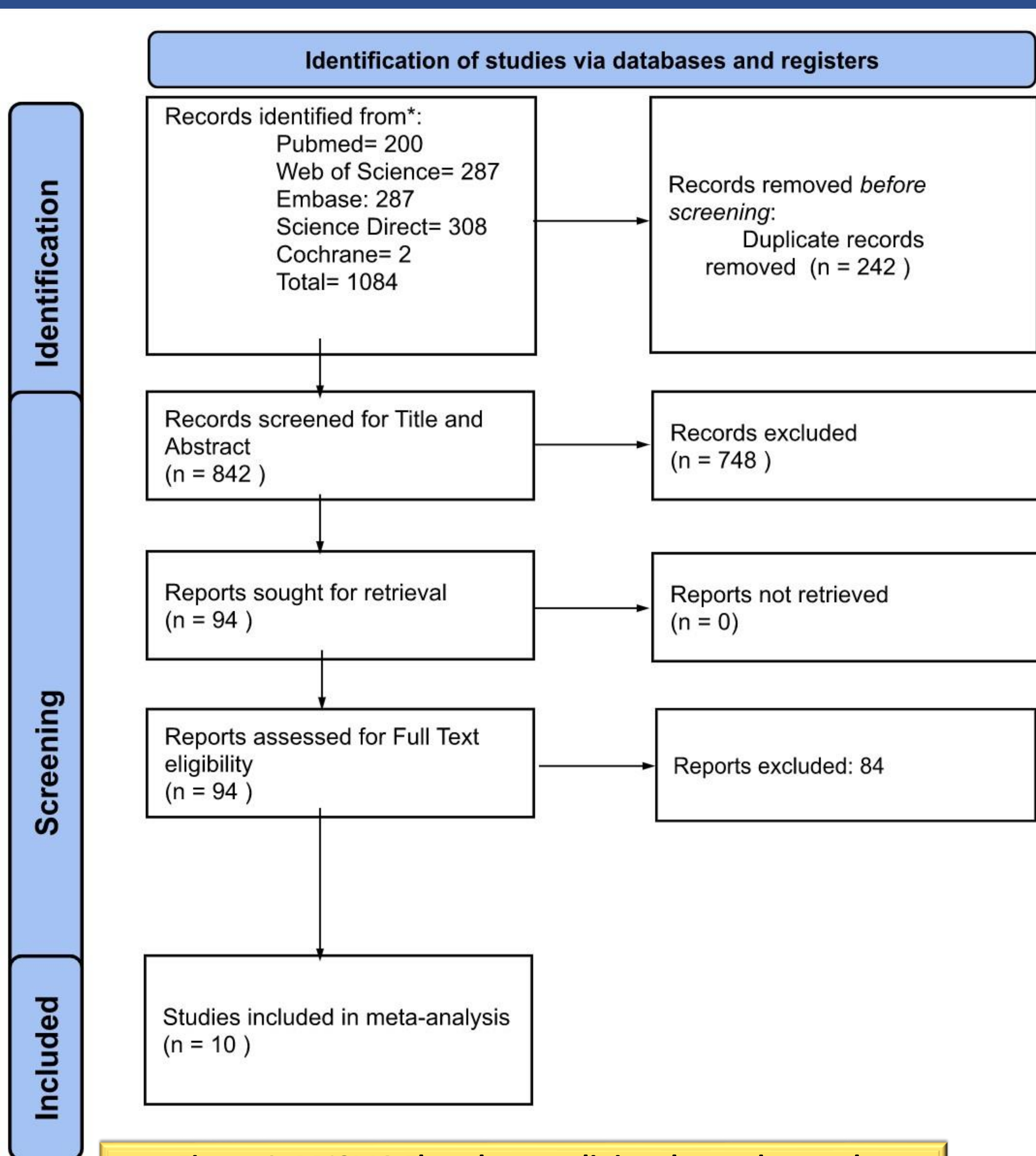


Figure 1: PRISMA Flowchart outlining the study search

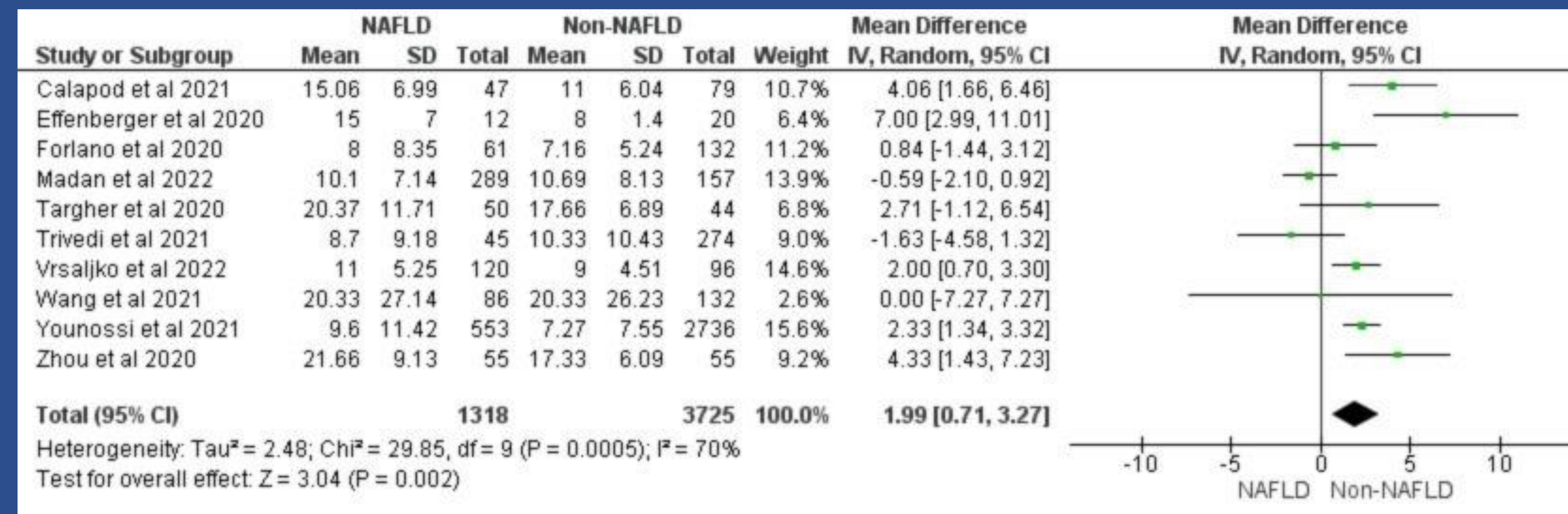


Figure 2: Forest Plot and meta-analysis of Hospital length of stay in COVID-19 with Fatty Liver disease

### Results

- Total studies included: 10
- Total of 5043 patients from ten studies were included in the qualitative analysis. Total of 1318 patients in the NAFLD group and 3725 patients in the Non-NAFLD group
- The mean difference in the hospital length of stay was 1.99 between the NAFLD and NON-NAFLD groups and a 95% Confidence interval (95%CI) of 0.71- 3.27
- This denotes an average ~2 days additional hospital stay among NAFLD/MAFLD patients with COVID-19

### Conclusion

- Our meta-analysis suggests that NAFLD patients remain in the hospital for a longer period than NON-NAFLD patients
- Fatty Liver disease is a risk factor that leads to increased severity of COVID-19 infection and utilization of healthcare resources



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