



Background

541,672 active component service members were diagnosed with a mental health disorder between 2019-2023

16% of all presentations for treatment at an MTF were due to behavioral health concerns in 2022

9% of all ambulatory military health network appointments were related to concerns of depression

Transcranial magnetic stimulation (TMS) is a non-invasive, non-medication based, FDA-approved treatment for treatment resistant major depressive disorder, obsessive-compulsive disorder, and tobacco use disorder, showing promise in treating additional conditions including post-traumatic stress disorder, generalized anxiety disorder, and addiction.

TMS uses electromagnetic induction to create pulses that penetrate the scalp on targeted localized areas and induce electrical currents in the brain to modulate neural activity. For depression, TMS is primarily targeted to the left dorsolateral prefrontal cortex.

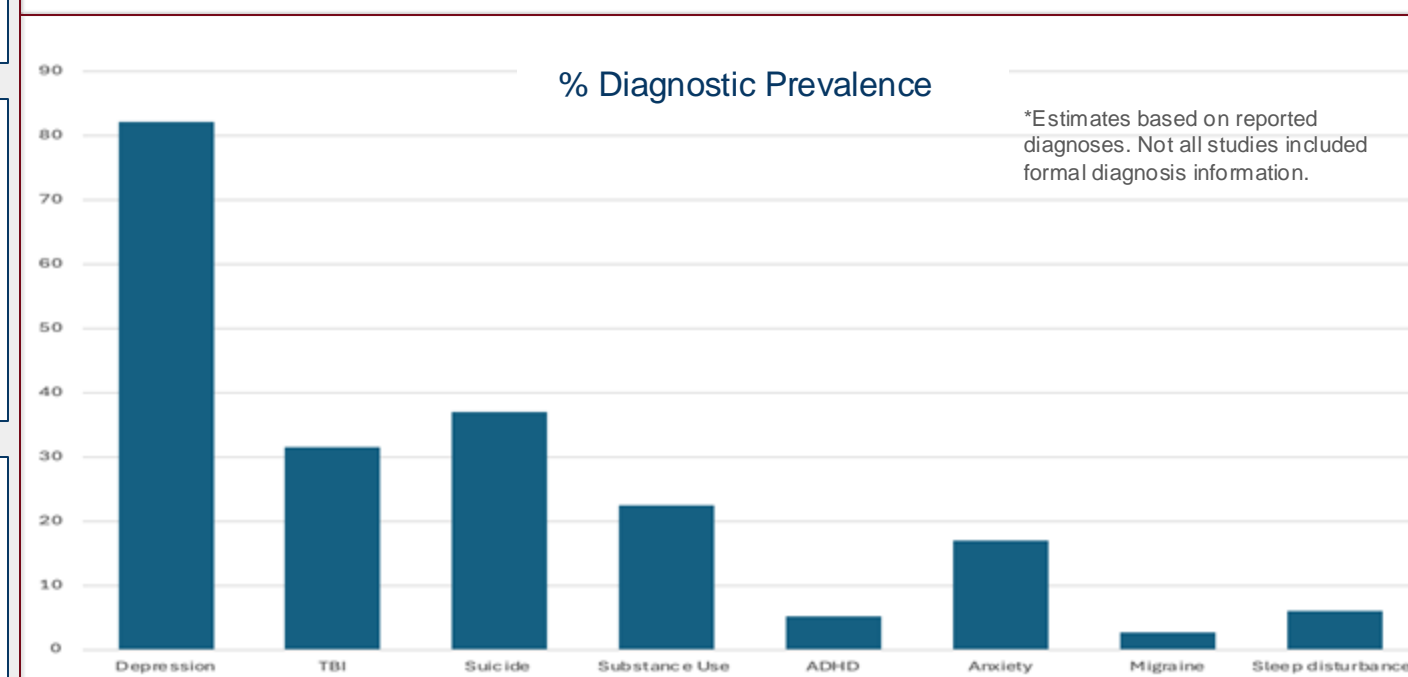
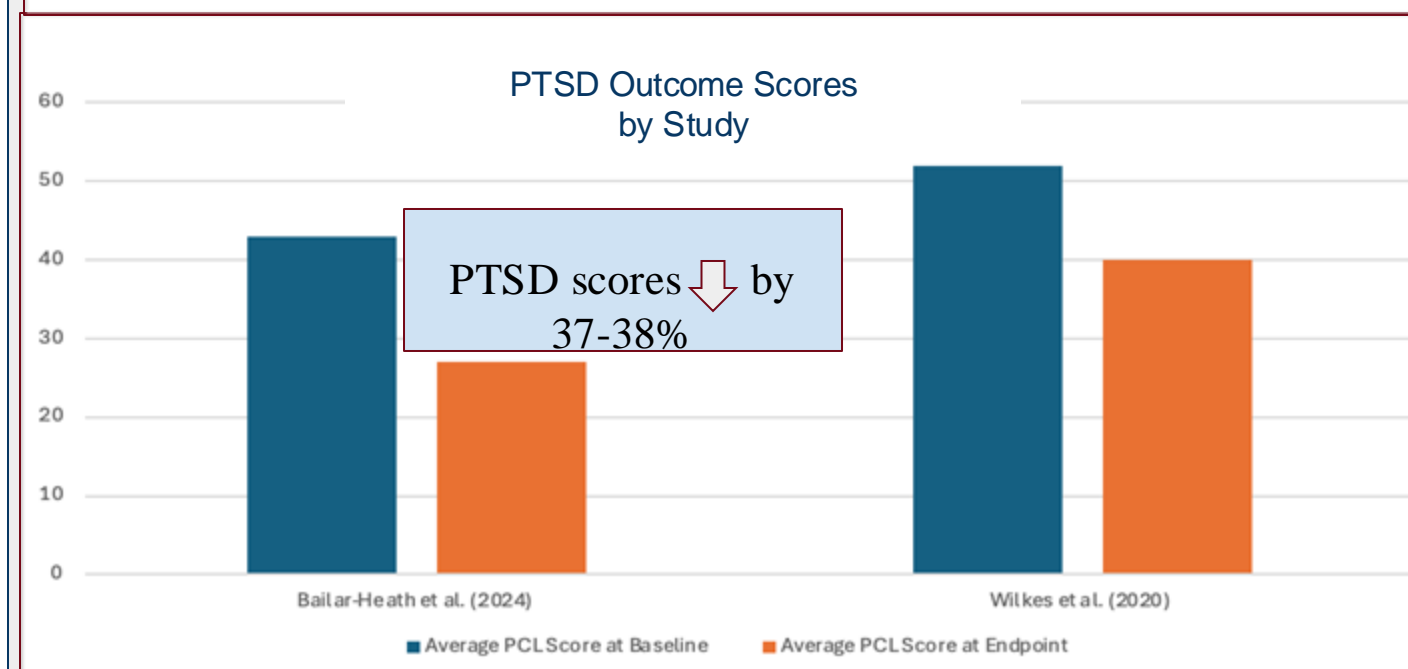
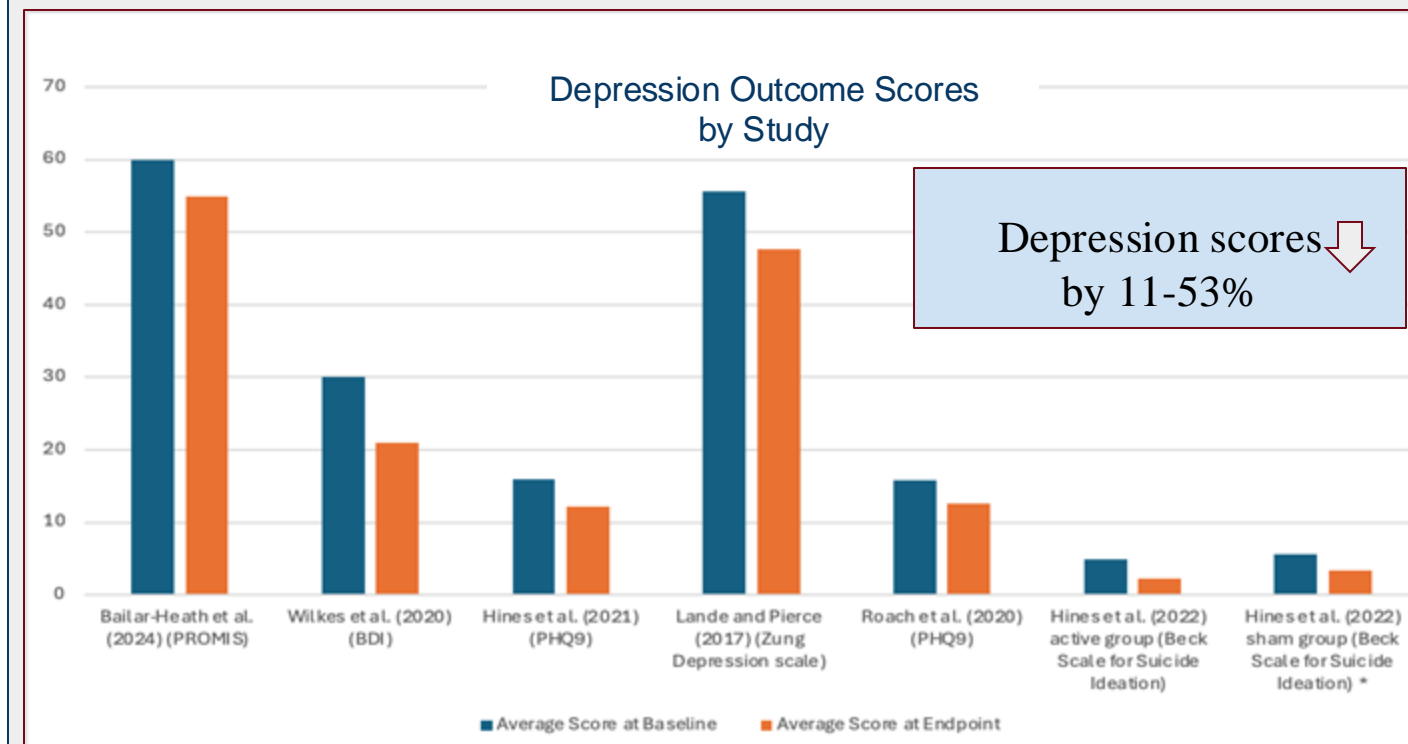
TMS could be utilized readily in the MHS to improve service members' outcomes

Methods

A PubMed and Google Scholar search with the terms “TMS, rTMS, and Active-Duty Service Members” yielded 8 potential publications, and 6 were included for analysis.

Limitations

Largely self report, small sample, lack of follow up, lack of controls



Results

4 retrospective chart reviews, 1 randomized controlled trial, and 1 pilot non-sham-controlled study

5 publications included antidepressant usage: 5-88% of participants utilized across studies

2 publications included anxiolytic/other psychotropic usage: 25-90% utilized across studies

All utilized standard 10Hz rTMS, 1 accelerated 10Hz protocol

3 at Eisenhower Army Medical Center, 1 at Tripler Army Medical Center, 1 at Walter Reed National Military Medical Center, and 1 at an unidentified military outpatient clinic

241 males, 89 females

Limited side effects, tolerable and consistent with typical side effect profile (headache, insomnia, localized scalp pain, fatigue)

1 instance of hypomania, terminated early

Discussion

+ outcomes from TMS treatment for depression, suicidal ideation, and PTSD

Improvements even without formal diagnosis (Bailar-Heath et al., 2024)

Efficacy for treating the most prevalent disorders in ADSMs, limited side effect profile, adaptability for acceleration, and potential lack of duty limitations

Future projects should perform an environmental scan of the utilization of TMS across military treatment facilities through a system wide analysis using MHS data