

Background

- Traumatic brain injury (TBI) ↑ neuropsychiatric disturbances by 3-fold.¹
 - Including: depression, anxiety, cognitive deficits, persistent post-concussive symptoms (PPCS).
- Social determinants impact incidence and outcomes of TBI.²
 - TBI prevalence highest in Native American/Alaskan Native and unhoused patients.
 - Black/Latinx and lower-income patients less likely to receive adequate follow-up care and experience worse outcomes.
 - TBI as a result of violence, especially intimate partner violence, ↑ risk of psychiatric complications.
- Management of depression after TBI remains controversial.
 - Recent studies suggest that SSRIs can treat or even prevent depression after TBI, but use of antidepressants in practice is still debated.^{3,4}

Methods

- Retrospective chart review of adult patients seen in SFGH ED for TBI (8/2019 - 2/2021)
 - Inclusion: age 18+, first-time mild TBI, 1+ follow-up in 1y following TBI
 - Exclusion: active mood disorder, currently taking therapeutic doses of antidepressants/mood stabilizers/anticonvulsants, major/degenerative neurological conditions
- Follow-up in intervals of ~3, 6, and 12 months since TBI: healthcare sites, screening for depression (PHQ, NSI, symptoms), referrals to mental healthcare, prescription of psychotropics

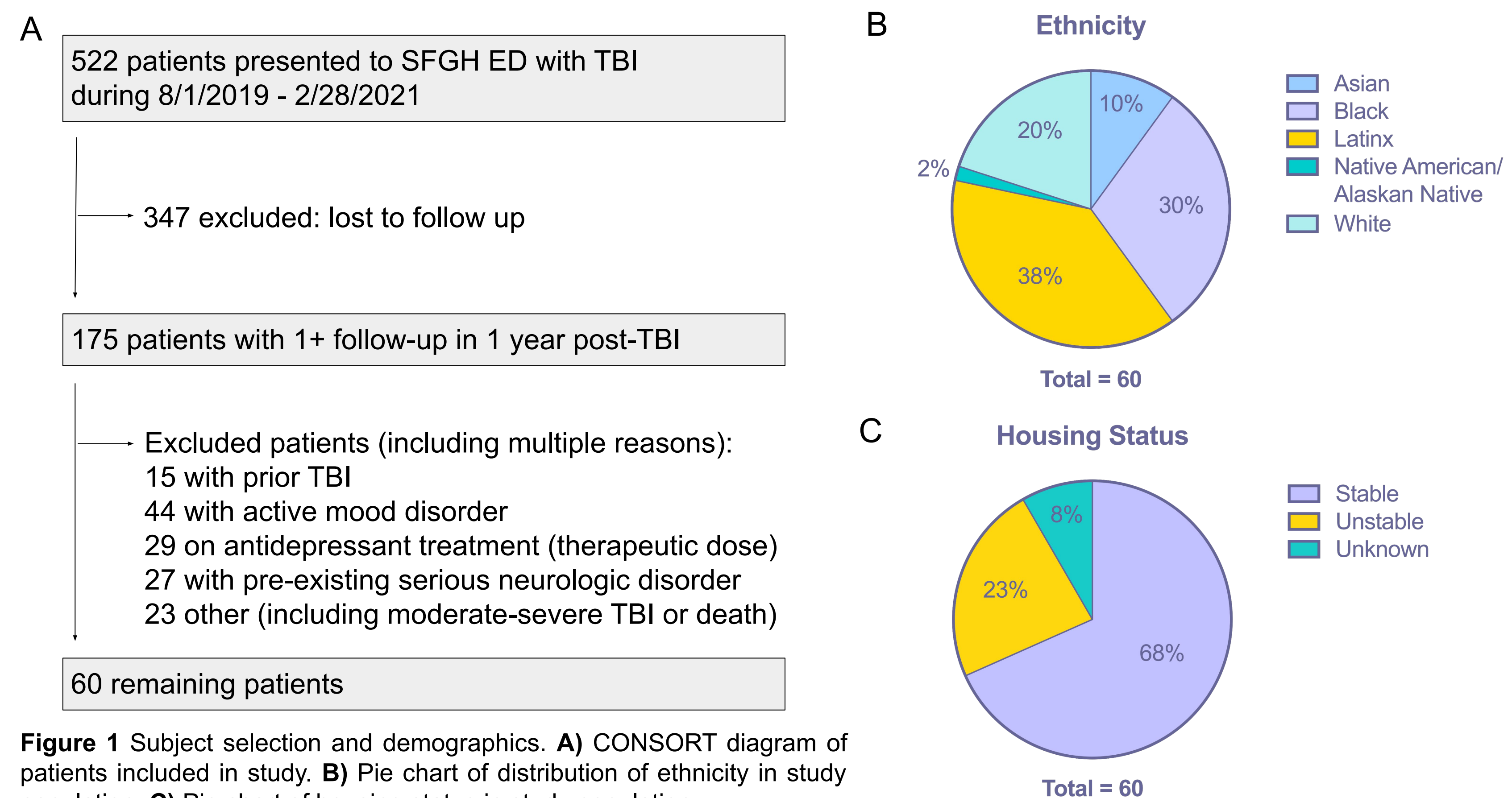


Figure 1 Subject selection and demographics. **A)** CONSORT diagram of patients included in study. **B)** Pie chart of distribution of ethnicity in study population. **C)** Pie chart of housing status in study population.

Patients seek primary > specialty care, regardless of housing status

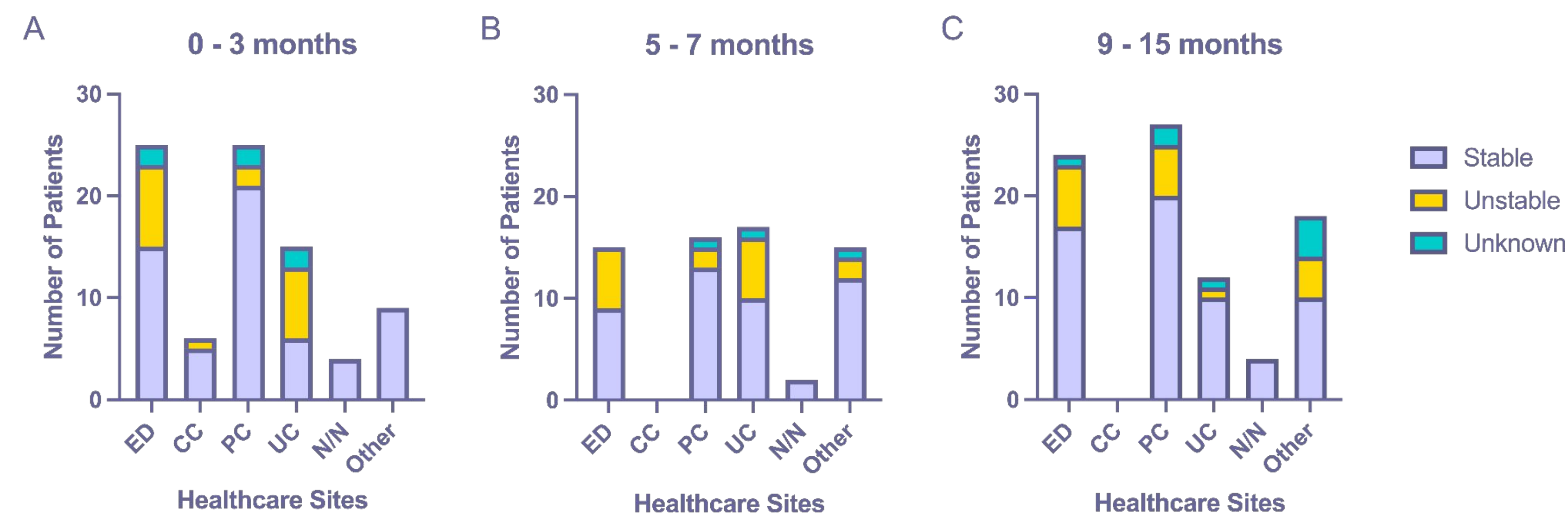


Figure 2 Follow-up sites in first year following TBI. Bar charts depict the number of patients seen at each healthcare site listed for a follow-up visit in **A)** 0-3 months; **B)** 5-7 months; **C)** 9-15 months following the index TBI, and include visits to multiple clinics by subjects. **Regardless of housing status, patients sought care from ED, PC, UC more than specialty care. Patients with unstable housing had 3.2 times higher odds of visiting UC vs. PC compared to patients with stable housing (p=0.01).** Key: ED: Emergency Department; CC: Concussion Clinic; PC: Primary Care; UC: Urgent Care; N/N: Neurology/Neurosurgery.

Most patients are not screened for depression following TBI

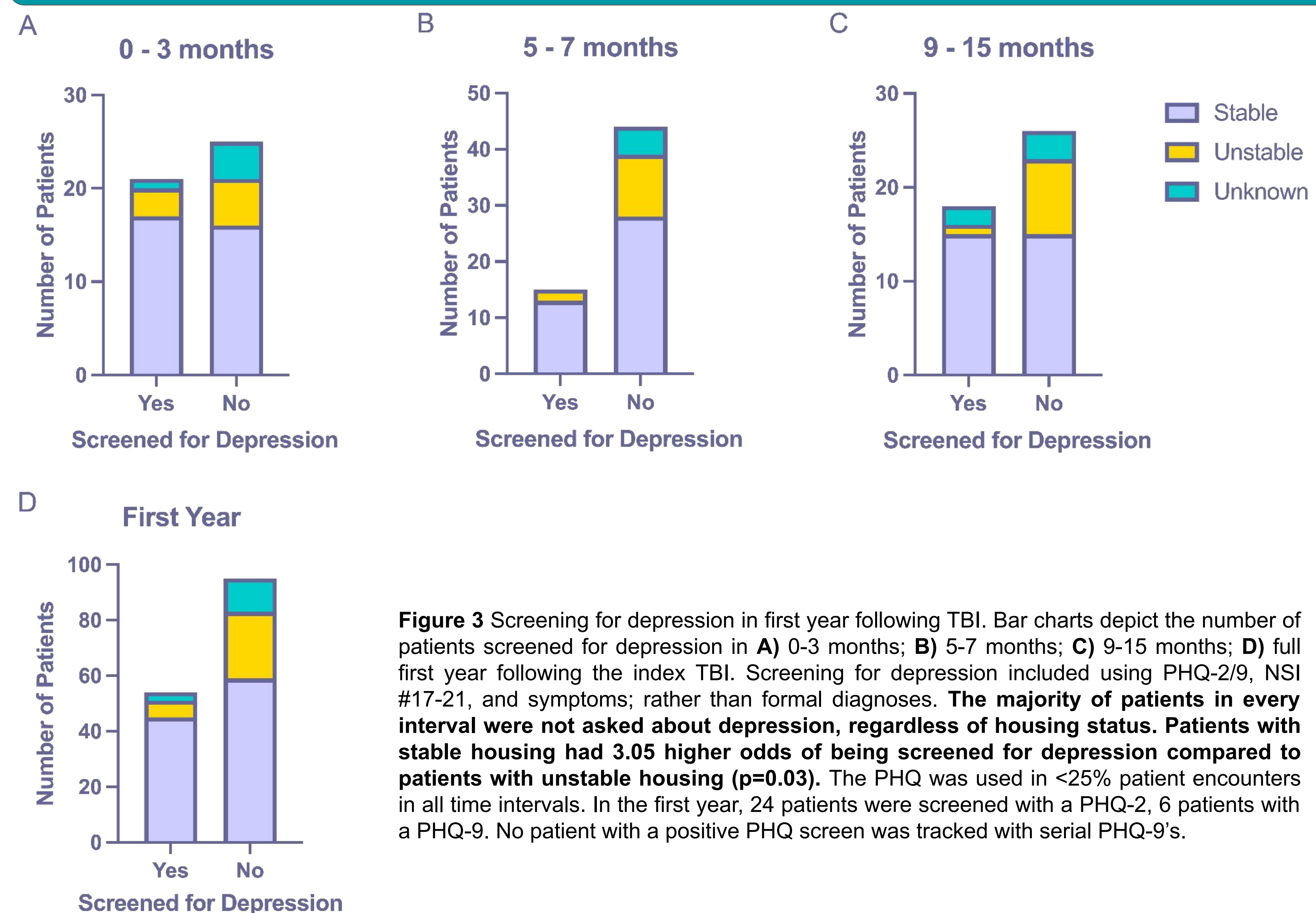


Figure 3 Screening for depression in first year following TBI. Bar charts depict the number of patients screened for depression in **A)** 0-3 months; **B)** 5-7 months; **C)** 9-15 months; **D)** full first year following the index TBI. Screening for depression included using PHQ-2/9, NSI #17-21, and symptoms; rather than formal diagnoses. **The majority of patients in every interval were not asked about depression, regardless of housing status. Patients with stable housing had 3.05 higher odds of being screened for depression compared to patients with unstable housing (p=0.03).** The PHQ was used in <25% patient encounters in all time intervals. In the first year, 24 patients were screened with a PHQ-2, 6 patients with a PHQ-9. No patient with a positive PHQ screen was tracked with serial PHQ-9's.

Treatment with SSRIs is inconsistent and unrelated to screening

Patient	0 - 3 months		5 - 7 months		9 - 15 months	
	Screening	Outcome	Screening	Outcome	Screening	Outcome
1	PHQ-9: 21	✓ MH referral ✗ medications ✗ therapy	✗		✗	
2	PHQ-9: 12	✗ MH referral ✗ medications ✗ therapy	✗		PHQ-2: 0	✗ MH referral ✗ medications ✗ therapy
3	PHQ-9: 10	✓ MH referral ✗ medications ✓ CBT	✗		✗	
4	PHQ-2: 2 No PHQ-9	✓ MH referral ✗ medications ✓ therapy	✗		✗	
5	PHQ-9: 9	✓ MH referral ✗ medications ✗ therapy	✗		✗	
6	✗	✓ MH referral ✓ SSRI ✓ therapy	✗	✗ MH referral ✓ SSRI ✓ therapy	✗	
7	✗	✗ MH referral ✓ SSRI ✗ therapy	✗		PHQ-2: 0	✗ MH referral ✗ medications ✗ therapy
8	✗	✗ MH referral ✓ SSRI ✗ therapy	✗	✓ MH referral ✓ SSRI ✗ therapy	✗	
9	✗	✗ MH referral ✗ medications ✓ therapy	✗	✗ MH referral ✓ SSRI ✓ therapy	✗	
10	✗	✓ MH referral ✗ medications ✗ therapy	✗		PHQ-9: 16	✓ MH referral ✗ medications ✗ therapy

Table 1 Association between PHQ screening and SSRI treatment: a case series of 10 patients in first year following TBI who screened positive on PHQ and/or were prescribed SSRIs. **There was no association between PHQ score and SSRI prescription.** No patients who screened positive on the PHQ were prescribed SSRIs/antidepressants; only 1 of these 5 patients were screened again in the year. Patients on SSRIs were never screened with a PHQ, and 2 of these 4 patients did not have any formal diagnosis documented. Key: PHQ: Patient Health Questionnaire; MH: Mental Health; CBT: Cognitive-Behavioral Therapy; ✗: none; ✓: prescribed.

Conclusions

- Most patients follow-up with primary/urgent care, emphasizing the importance of PCPs in assessing for depression after TBI.
- Despite the increased risk of depression following TBI, most patients are not screened. Patients with unstable housing are at even higher risk and less likely to be screened.
- No standardized protocol for screening for depression after TBI and treating with SSRIs yet exists, resulting in inconsistency and dissociation of management.

References

1. Izzy S, et al. Concussion and Risk of Chronic Medical and Behavioral Health Comorbidities. Neurotrauma. 2021;38:1834–41.
2. Traumatic Brain Injury & Concussion [Internet]. Center for Disease Control and Prevention. <https://www.cdc.gov/traumaticbraininjury/data/index.html>
3. Albrecht JS, et al. Treatment of Depression after Traumatic Brain Injury Reduces Risk of Neuropsychiatric Outcomes. J Neurotrauma. 2020;37:2542–8.
4. Jorge RE, et al. Sertraline for Preventing Mood Disorders Following Traumatic Brain Injury: A Randomized Clinical Trial. JAMA Psychiatry. 2016;73:1041–7.