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Impact of Intersecting Vulnerabilities on Functional Outcome and Health-Related Quality of Life after Traumatic Brain Injury: A Prospective Cohort Study

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Portland State University

Purpose

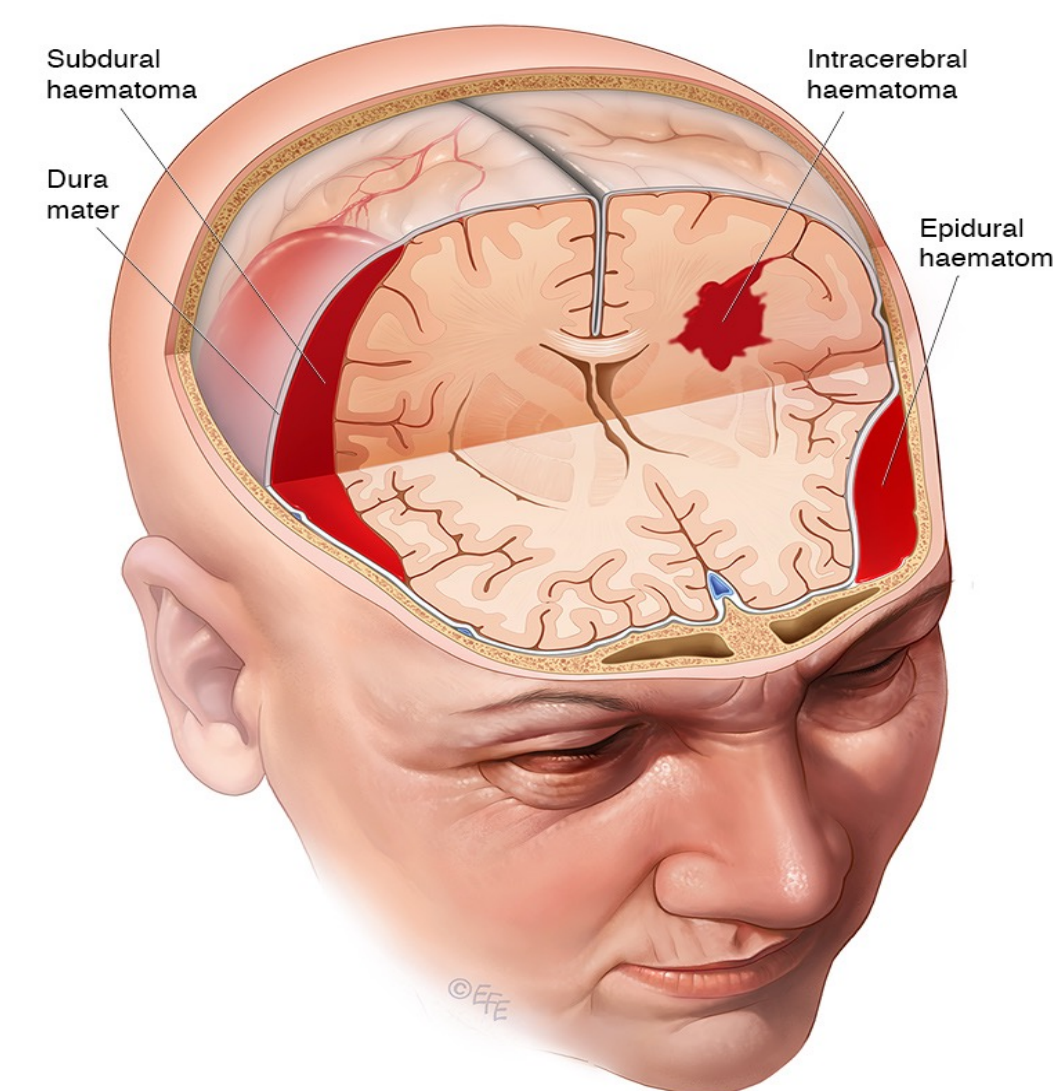
This research examines the influence of social, biological, cultural, and behavioral factors on the susceptibility to traumatic brain injury (TBI), its treatment, and outcomes. It will focus on how intersecting vulnerabilities impact recovery and incidence rates.

Introduction

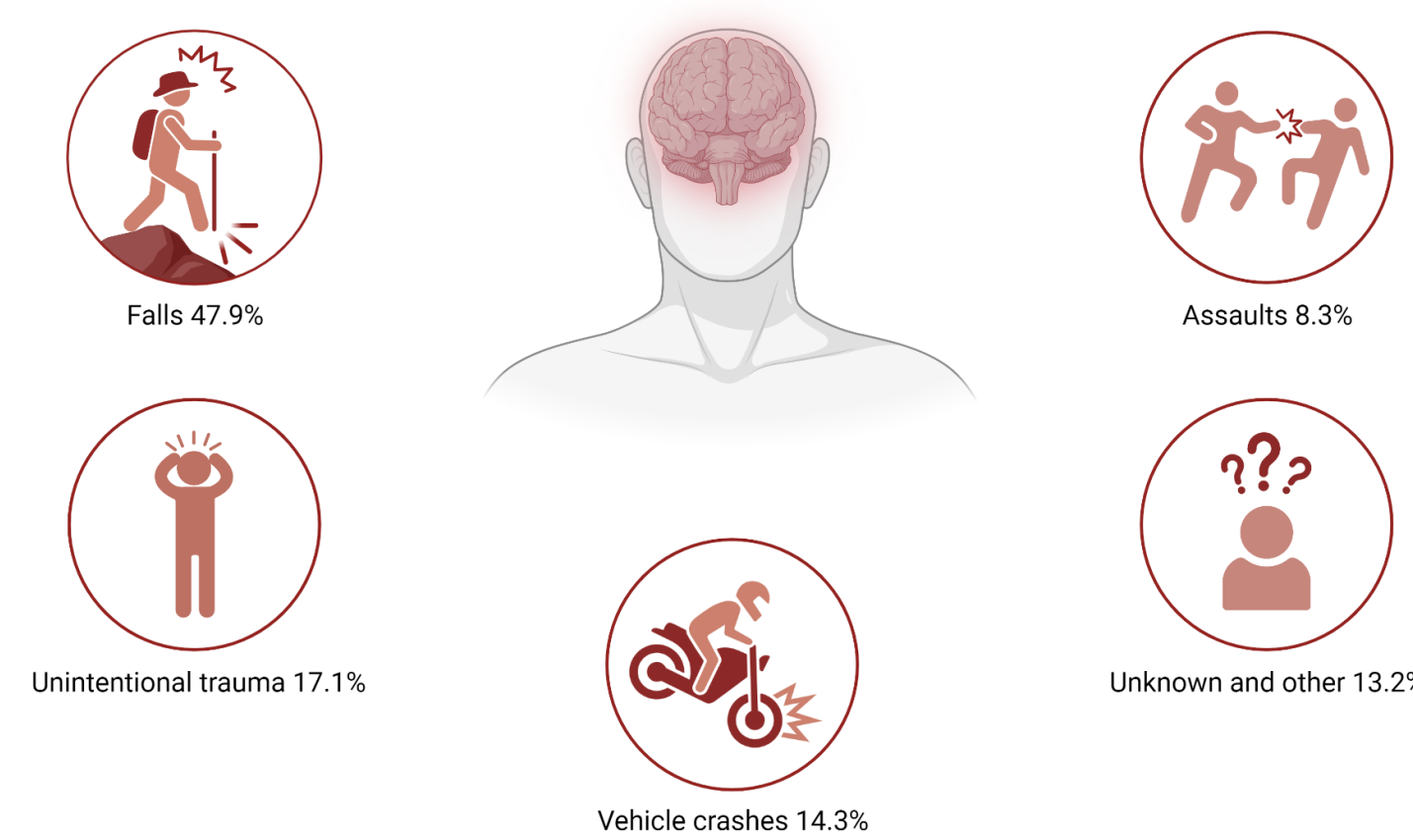
•TBIs cause over 224,000 hospitalizations and 60,000 deaths annually in the U.S., costing about \$48.3 billion.¹

•Known as "the silent epidemic," TBIs are a leading cause of death and disability but remain underrecognized.²

•Disadvantaged groups face higher risks and worse outcomes, emphasizing the need for more research.³



Common Causes of Traumatic Brain Injury (TBI)



Source: Queensland Brain Institute, Levent Efe

Source: Biorender, Wendy Jiang

Objectives

•Identify key risk factors and high-risk profiles for traumatic brain injury (TBI) across demographics.

•Explore the impact of patient backgrounds on TBI treatment responses and recovery disparities.

Methods

Study Design:

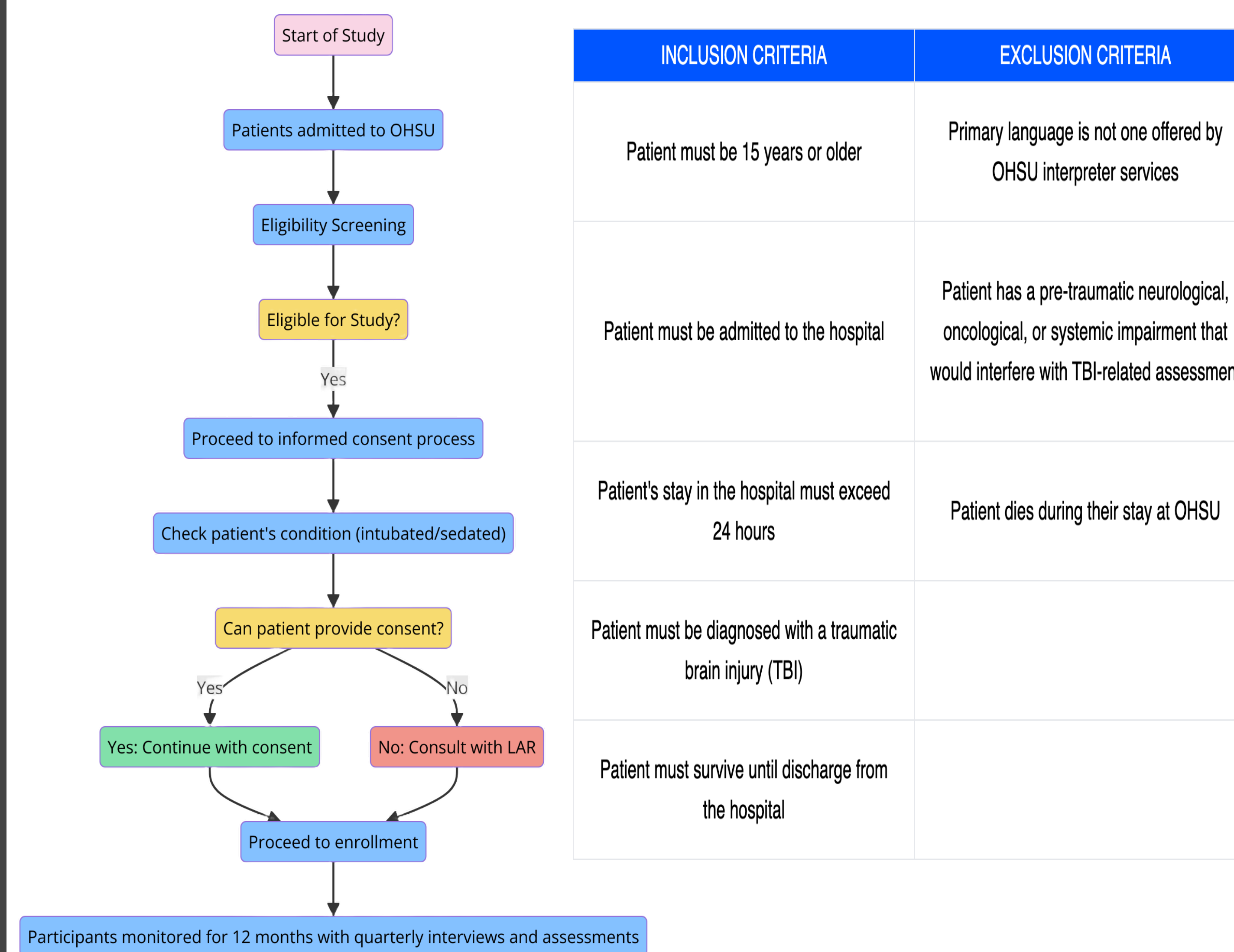
- Monitor participants for 12 months with quarterly interviews via phone or other methods.
- Evaluate impact of demographics on TBI outcomes using REDCap data.

Outcome measurement:

- Assess disability and recovery using the GOS-E and health quality with the EQ-5D-5L questionnaire during follow-ups.
- Conduct four one-hour assessments per participant over the year.

Analysis:

- Utilize descriptive statistics and tests like Student's t-test or Mann-Whitney U to compare groups.
- Apply univariate and multivariate regression to analyze the data.



INCLUSION CRITERIA	EXCLUSION CRITERIA
Patient must be 15 years or older	Primary language is not one offered by OHSU interpreter services
Patient must be admitted to the hospital	Patient has a pre-traumatic neurological, oncological, or systemic impairment that would interfere with TBI-related assessment
Patient's stay in the hospital must exceed 24 hours	Patient dies during their stay at OHSU
Patient must be diagnosed with a traumatic brain injury (TBI)	
Patient must survive until discharge from the hospital	

Assessment

Glasgow Outcome Scale				
5	4	3	2	1
Good recovery	Moderate disability	Severe disability	COMA	Death
Resumption of normal life	Patient independent in daily life.	Patient dependent for daily support	Neurovegetative state; patient unresponsive for weeks or months	

Visual representation of the Glasgow Outcome Scale

Source: Openmed, Dr BMM

GOS	GOSE	Interpretation
1 = Dead	1 = Dead	Dead
2 = Vegetative state	2 = Vegetative state	Absence of awareness of self and environment
3 = Severe disability	3 = Lower severe disability	Needs full assistance in ADL
	4 = Upper severe disability	Needs partial assistance in ADL
4 = Moderate disability	5 = Lower moderate disability	Independent, but cannot resume work/school or all previous social activities
	6 = Upper moderate disability	Some disability exists, but can partly resume work or previous activities
5 = Good recovery	7 = Lower good recovery	Minor physical or mental deficits that affects daily life
	8 = Upper good recovery	Full recovery or minor symptoms that do not affect daily life

ADL = activities of daily living.

Glasgow outcome scale extended ascertainment sheet

Source: Research Gate, Alexander Olsen

Preliminary findings

- Race/ethnicity and insurance significantly influence outcomes and access to care in TBI.⁴
- Noticeable disparities in TBI treatment and rehabilitation due to racial and socioeconomic factors.⁴
- Higher community income and education levels correlated with faster access to therapy for TBI patients in Colorado.⁵

Expected Results

- Expected variations in recovery outcomes post-TBI linked to differences in race, socioeconomic status, and insurance coverage.
- Anticipated correlation between socioeconomic factors and access to rehabilitation services, impacting recovery trajectories.
- Projected differences in long-term quality of life outcomes across demographic groups, assessed using the EQ-5D-5L.

Conclusion

This planned study will look at the effects of insurance, socioeconomic level, race, and ethnicity on the occurrence and recovery of traumatic brain injuries. According to preliminary results, these socioeconomic variables are the cause of notable discrepancies. Anticipated findings may result in more focused interventions, improving treatment accessibility and TBI recovery rates.

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