SOCIAL DETERMINANTS OF HEALTH IMPACT PHYSICAL RECOVERY AFTER BLUNT INJURY

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Introduction

In the United States, SDOH have become a focus for physicians and the government alike. Recognizing the importance of SDOH on public health, the United States Department of Health and Human Services began its *Healthy People 2030* campaign in 2020, with the goal of improving the 5 aspects of SDOH in the United States.[1] The impact of SDOH on long-term health outcomes is substantial, with lower SDOH being linked to increased risks of tobacco use[2] and developing type 2 diabetes.[3] The effect of SDOH on physical recovery following acute traumatic injury is less understood, however. The purpose of this study was to compare the influence that SDOH has on physical recovery to more obvious factors, such as age, HLOS, and ISS.

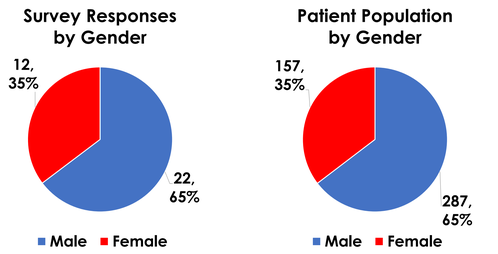
Methods

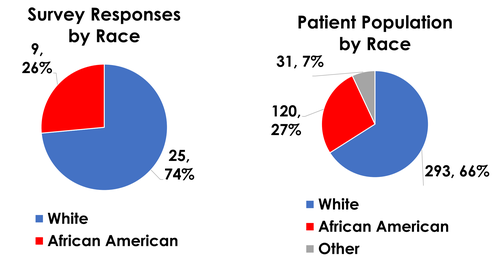
To identify patients meeting the inclusion criteria of this study, trauma registry data was reviewed at a level 1 trauma center. Patients were contacted 12-14 months post-injury. A survey was administered to each patient assessing SDOH and physical ability before and after injury. The survey administered was a compilation of existing surveys that assess SDOH and physical ability. Patients included in this study were 18 years of age or older who suffered a blunt injury excluding assault. IRB approval was obtained.

Results

A total of 444 patients were identified to meet inclusion criteria. 34 of the 444 patients gave survey responses, resulting in an 8% response rate. A comparative analysis was performed to ensure the response group was indeed representative of the total patient population in terms of gender, race, and mechanism of injury. After administration of all surveys, a single-variable regression analysis was performed to compare the impact of several variables on physical limitation scores (PLS) after injury. Higher PLS indicated worse physical ability after injury for patients, such as losing the ability to drive or walk after their injury. Variables included the social determinants of health score (SDOHS) before and after injury, SDOHS difference before and after injury, ISS, HLOS, and age. SDOHS difference had the largest impact on PLS, with a coefficient of 0.38 and R^2 value of 0.37. The coefficients for ISS, HLOS, and age were 0.1, 0.2, and 0.07, respectively. A multivariable analysis revealed SDOHS difference ($p = 0.0005$) and HLOS ($p = 0.02$) were significant with coefficients of 0.32 and 0.14, respectively. The R^2 was 0.55.

Results





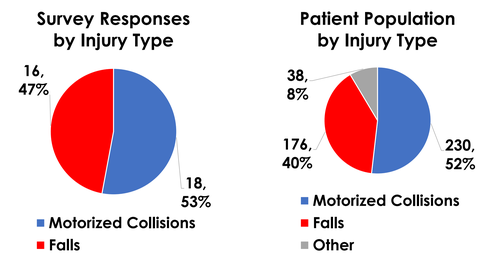
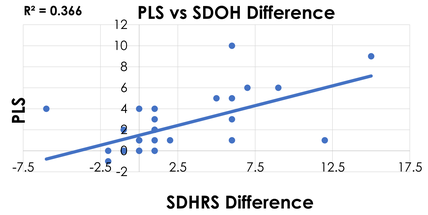
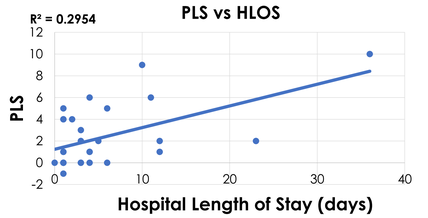


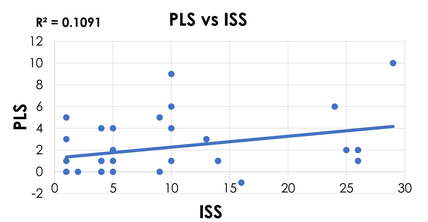
Figure 1

Survey response demographics compared to patient population by gender, race, and injury type

Results







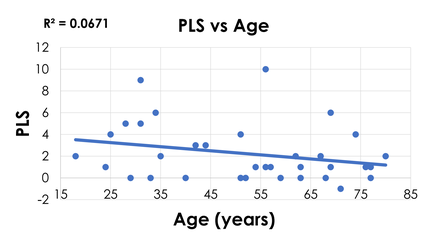


Figure 2

Lines of best fit and R^2 values for SDHRS Difference, HLoS, ISS, and age versus PLS

Results

Variable	P-value
SDHRS Diff	0.000456
HLoS	0.021307
ISS	0.682223
Age	0.303174

Regression Statistics	
R^2	0.554304
Standard Error	1.841024

Tables 1 and 2

Table 1: P-values for each SHRS Difference, HLoS, ISS, and age after multivariable regression analysis.
Table 2: R^2 value and Standard Error after multivariable regression analysis

Conclusions

Although the sample size for this study is relatively small, the results indicate that social health may play a larger role in physical recovery than more obvious factors, such as ISS or age. More work needs to be done in this area to fully understand the impact that social health has on physical recovery following traumatic injury.

References

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