

Age Disparities in Functional Outcome Following TBI

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INTRODUCTION

Older age is associated with poorer functional outcome following traumatic brain injury (TBI)¹.

However, there is a lack of research examining specific areas of functional outcome that are affected by age ^{2,3,4,5,6}.

The Functional Independence Measure (FIM)⁷ tends to be administered to all patients regardless of age and typically only the total FIM score is used for assessment purposes.

The current study focused on the influence of age on FIM scores, and more specifically examined how increased age in the elderly affects FIM subscale scores.

STUDY AIMS

- 1) To examine differences in FIM scores between the elderly and young adult TBI patients.
- 2) To examine if FIM scores change significantly with older age.

METHODS

Subjects:

Hershey Medical Center Database: 1,615 individuals with moderate to severe TBI.

Two age subgroups:

- Young adults (18 to 30 years old)
- Elderly (65 to 97 years old)

The Elderly group was further split into two subgroups:

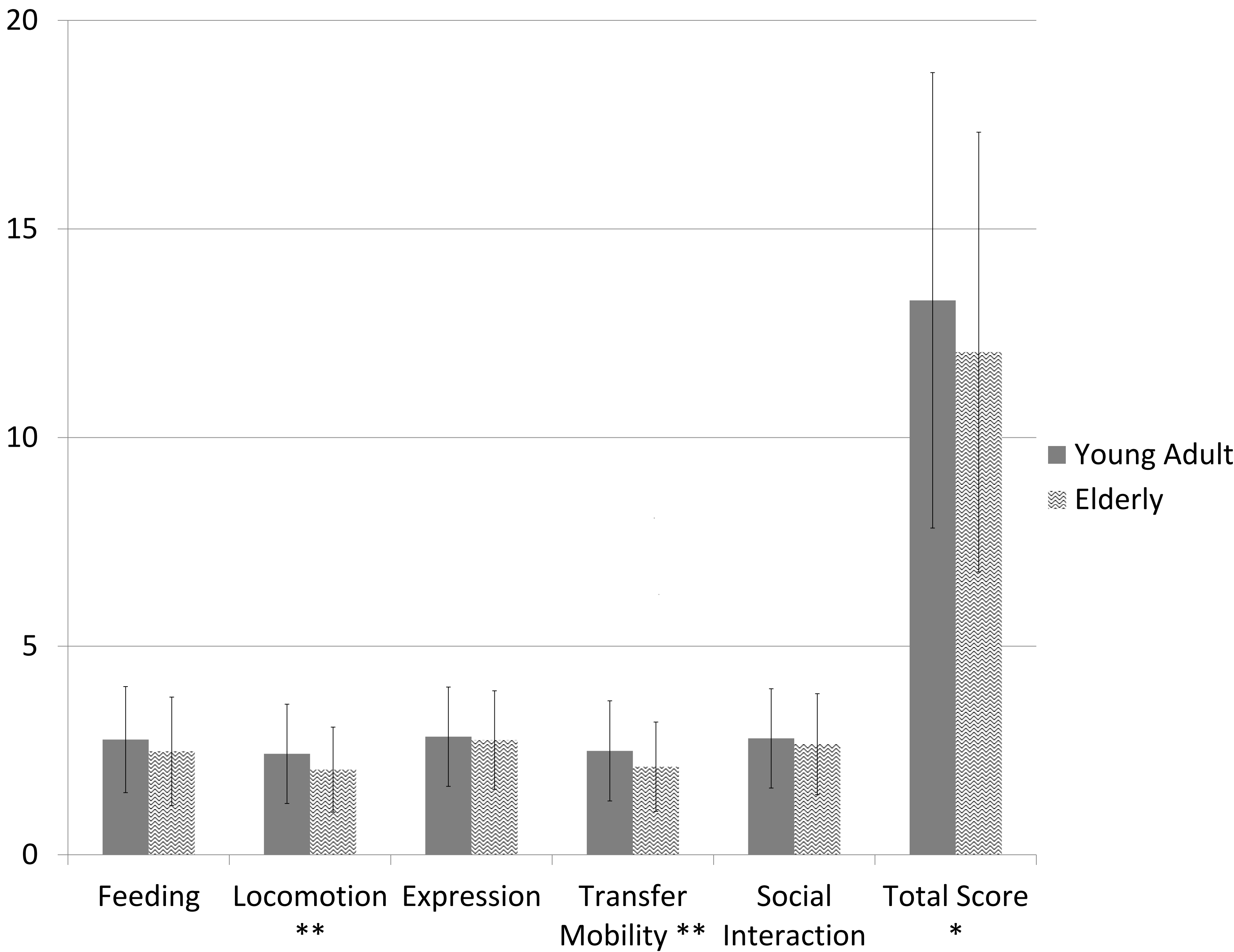
- Young elderly (65-78 years old)
- Older elderly (79-97 years old)

Statistical analyses (descriptive statistics and MANOVAs) were conducted using SPSS Statistical Software, Version 19.

Table 1. Descriptives for Elderly and Young Adults

	Young Adult	Elderly
N	647	568
Mean Age (SD)	22.92 (3.64)	76.09 (12.26)
Gender	Male: 75%, Female: 25%	Male: 61%, Female: 39%
Race	White: 89%, Black: 6%, Asian: 1%, Unknown: 4%	White: 94%, Black: 2%, Asian: 1%, Unknown: 3%
Mean GCS (SD)	4.72 (2.58)	5.25 (3.00)
Fatality Rate	27%	43%

Figure 1. FIM Subscale Scores by Age



Note: Graph above includes mean FIM score for each age group and standard deviation

Table 2: MANOVA Analysis Between Young Adult and Elderly Age Groups

Age Groups	FIM-Feeding <i>F</i> -Value	FIM- Locomotion <i>F</i> -Value	FIM- Expression <i>F</i> -Value	FIM-Transfer Mobility <i>F</i> -Value	FIM-Social Interaction <i>F</i> -Value	FIM- Total <i>F</i> -Value
Young Adults vs. Elderly	3.05	12.30**	0.05	13.98**	0.89	4.17*
Young vs. Old Elderly	2.30	.01	.90	.90	1.91	1.23

Note: Wilks' Lambda = .971. * $p < .05$. ** $p < .01$.

RESULTS

Descriptive statistics are shown in Table 1.

Between-group differences, demonstrated by MANOVA analysis, are depicted in Figure 1 and shown in Table 2.

The elderly sample differed significantly from the young adult sample on FIM total scores, and also on the subscales of Locomotion and Transfer Mobility.

No significant differences were found in FIM total and subscale scores when examining Young Elderly and Older Elderly age subgroups.

CONCLUSIONS

The results demonstrate that there are significant differences in functional outcome between elderly and young adult TBI patients. More specifically, these differences were in physical domains (i.e., locomotion and transfer mobility).

These differences may be influenced by pre-existing or more severe post-injury physical limitations in the elderly.

Thus, separate norms for the FIM may need to be developed, given possible age-related baseline functional differences.

In addition, given the subscale differences found in the current study, providers should continue to use FIM total and also subscale scores to gain more information about treatment and outcome.

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