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Does English proficiency impact on health outcomes for inpatients undergoing stroke rehabilitation?

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Table 1: Participant Demographics for the High English Proficiency group and the Low English Proficiency group:

		High English Proficiency (n=80)		Low English Proficiency (n=80)		P value
Age: Mean (SD)		73.9 (9.5)	%	74.9 (9.5)	%	0.90
Gender:	Male	51	63.8	51	63.8	1.00
	Female	29	36.2	29	36.2	
Rehab Site:	Site 1	32	40.0	27	33.8	0.28
	Site 2	48	60.0	51	63.7	
	Site 1 and 2	0	0	2	2.5	
Type of stroke:	Infarct	60	75.0	59	73.8	0.51
	Haemorrhage	13	16.2	17	21.2	
	Other*	7	8.8	4	5.0	
Previous History of Stroke:		21	26.25	20	25.0	0.86
Previous Living Arrangements	Home Alone	24	30.0	13	16.3	0.09
	Home Others	54	67.5	66	82.5	
	Other	2	2.5	1	1.2	
Previous Independence with personal activities of daily living.	Independent	68	85.0	68	85.0	0.59
	Required Assistance	11	13.8	12	15.0	
	Unknown	1	1.2	0	0	
Premorbid Mobility	Indep > 50m nil aid	57	71.3	64	80.0	0.35
	Indep < 50m nil aid	2	2.5	0	0	
	Indep > 50 with aid	13	16.2	11	13.8	
	Indep < 50m with aid	5	6.2	5	6.2	
	Required Assistance	2	2.5	0	0	
	Unknown	1	1.3	0	0	
Premorbid						
Cognition/Communication	Unaffected	64	80.0	64	80.0	1.00
	Affected	15	18.8	15	18.8	
	Unknown	1	1.2	1	1.2	
Number of comorbidities (excluding stroke): Mean (SD)		5.9 (2.6) ⁺		5.0 (2.4)		0.02 ⁺

* Group comprised people with haemorrhagic transformation of stroke and people whose type of stroke was unknown due to scan results not confirming diagnosis or cause of symptoms. + This result remained significant when outlier was excluded from High English Proficiency group.

Table 2: Country of Origin and preferred language of Low English Proficient Patients (n=80) and Interpreter source.

Country	Preferred Language	N (%)	Source of interpreter
Italy	Italian	18 (23)	In-house
Greece	Greek	11 (14)	In-house
Macedonia	Macedonian	8 (10)	In-house
Turkey	Turkish	8 (10)	In-house
Croatia	Croatian	7 (9)	External
Iraq	Assyrian	6 (8)	In-house
Lebanon	Arabic	3 (4)	In-house
Germany	German	2 (3)	External
Vietnam	Vietnamese	2 (3)	In-house
Tonga	Tongan	1 (0.01)	External
Fiji	Hindi	1 (0.01)	External
Poland	Polish	1 (0.01)	External
Serbia	Serbian	1 (0.01)	External
Bosnia-Herzegovena	Bosnian	1 (0.01)	External
Cyprus	Greek	1 (0.01)	In-house
Eritrea	Arabic	1 (0.01)	In-house
Mauritius	French	1 (0.01)	External
Sri Lanka	Sinhalese	1 (0.01)	External
Netherlands	Dutch	1 (0.01)	External
Slovenia	Slovene	1 (0.01)	External
Malta	Maltese	1 (0.01)	External
Egypt	Arabic	1 (0.01)	In-house
Laos	Lao	1 (0.01)	External
India	Hindi	1 (0.01)	External

Table 3: Comparison of Functional Independence Measure scores and Length of stay between high (HEP) and low English proficiency (LEP) groups:

	Group	N	Mean	SD	P value
Admission FIM Motor Total	HEP	80	47.7	19.8	0.22
	LEP	80	44.0	17.9	
Admission FIM Total	HEP	77	74.7	22.6	0.16
	LEP	74	69.2	24.9	
Discharge FIM Motor Total	HEP	80	69.9	22.6	0.68
	LEP	80	71.3	20.2	
Discharge FIM total	HEP	77	97.8	28.7	0.68
	LEP	72	99.6	25.4	
Change in FIM scores	HEP	77	23.1	20.0	0.04
	LEP	72	29.5	17.0	
Change in FIM Motor scores	HEP	80	22.2	16.6	0.05
	LEP	80	27.3	15.7	
FIM Total Efficiency	HEP	77	0.25	5.39	0.16
	LEP	72	1.17	1.14	
FIM Motor Efficiency	HEP	80	0.60	2.78	0.14
	LEP	80	1.09	1.09	
Length of stay (days)	HEP	78	32.1	23.7	0.28
	LEP	79	36.4	25.5	

Table 4: Average number of therapy and interpreter encounters throughout length of stay.

	English proficiency		
	High	Low	P Value
Number of therapy encounters - Mean (SD)	71.4 (67.5)	79.1 (65.6)	0.47
Number of interpreter encounters with allied health staff - Mean (SD)		10.6 (14.9)	
% therapy encounters with interpreter		13.4%	

Table 5: Quartile comparison of interpreter usage (percentage of total therapy time that an interpreter was present) in relation to Functional Independence Measure and length of stay for the low English proficiency group.

	Quartile* of interpreter usage	N**	Mean	SD	<i>p</i>
Admission Functional Independence Measure Total	1 (low)	20	66.4	24.6	0.83
	2	16	72.7	28.2	
	3	18	71.8	25.5	
	4 (high)	20	67.1	22.9	
Admission Functional Independence Measure Motor Total	1 (low)	20	40.0	17.1	0.64
	2	20	46.6	18.5	
	3	19	46.2	19.2	
	4 (high)	21	43.5	17.6	
Discharge Functional Independence Measure Motor Total	1 (low)	20	65.8	25.5	0.33
	2	20	76.7	17.8	
	3	19	68.7	19.4	
	4 (high)	21	73.7	17.1	
Discharge Functional Independence Measure Total	1 (low)	20	93.0	33.3	0.22
	2	15	110.5	10.6	
	3	18	96.3	25.1	
	4 (high)	19	101.2	23.3	
Difference in Functional Independence Measure Total scores	1 (low)	20	26.7	18.9	0.23
	2	15	32.9	17.6	
	3	18	24.5	16.3	
	4 (high)	19	34.5	14.2	
Differences in Functional Independence Measure Motor scores	1 (low)	20	25.8	18.4	0.35
	2	20	30.2	16.3	
	3	19	22.5	13.1	
	4 (high)	21	30.2	14.3	
Functional Independence Measure Total Efficiency	1 (low)	20	0.8	0.5	0.01
	2	15	1.1	0.8	
	3	18	0.9	0.6	
	4 (high)	19	1.9	1.8	
Functional Independence Measure Motor Efficiency	1 (low)	20	0.7	0.5	0.04
	2	20	1.2	0.8	
	3	19	0.8	0.6	
	4 (high)	21	1.6	1.7	
Length of stay (days)	1 (low)	20	41.4	30.2	0.67
	2	20	35.9	29.0	
	3	19	40.8	29.5	
	4 (high)	21	32.1	19.4	

*Quartile 1 = 0 - 0.6%, Quartile 2 = 0.6 – 11.4%, Quartile 3 = 11.4 – 22%, Quartile 4 = 22 – 85%

** Variations in number of people per quartile are due to the exclusion of outliers and, when FIM Total scores were unavailable, Barthel data only able to be converted to a Functional Independence Measure Motor score.