



Silent Echoes of the Day: Dream content analysis in Amyotrophic Lateral Sclerosis

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BACKGROUND

Amyotrophic Lateral Sclerosis (ALS) is a progressive neurodegenerative disorder characterized by the degeneration of upper and lower motor neurons, leading to muscle atrophy, weakness, and respiratory failure. Numerous studies evaluated the impact of diseases on dream content, and the dream content analysis may be considered an interesting tool in the study of the internalization of the consequences of significant life changes. The study of ALS patients' dream content has been mostly neglected in the literature. This study investigated the dream content in a population affected by ALS.

Characters	Self-Concept Percents
Male/Female Percent	Self-Negativity Percent
Family/Friend Percent	Bodily Misfortunes Percent
Friends Percent	Negative Emotions Percent
Family Percent	Dreamer-Involved Success Percent
Dead and Imaginary Percent	Torso/Anatomy Percent
Animal Percent	
Social Interaction Percents	Dreams with at Least One:
Aggression/Friendliness Percent	Aggression
Befriender Percent	Friendliness
Aggressor Percent	Sexuality
Physical Aggression Percent	Misfortune
	Good Fortune
Settings	Success
Indoor Setting Percent	Failure
Familiar Setting Percent	Striving

Table 1 - Categories on DreamSAT

METHODS

We evaluated all consecutive outpatients referred to our ALS Centre using a weekly diary of dreams. Dream contents were coded according to the Hall and Van de Castle coding system.

	Male norms (%)	Female norms (%)	Effect size	p
Characters				
Male/female percent	67	48	+39 .000**	
Family/friend percent	45	58	-26 .000**	
Friends percent	31	37	-12 .000**	
Family percent	12	19	-21 .000**	
Animal percent	6	4	+08 .037*	
Social interaction percents				
Aggression/friendliness percent	59	51	+15 .014*	
Befriender percent	50	47	+06 .517	
Aggressor percent	40	33	+14 .129	
Victimization percent	60	67	-14 .129	
Physical aggression percent	50	34	+33 .000**	
Self-concept percents				
Self-negativity percent	65	66	-02 .617	
Bodily misfortunes percent	29	35	-12 .217	
Negative emotions percent	80	80	+00 .995	
Dreamer-involved success percent	51	42	+18 .213	
Torso/anatomy percent	31	20	+26 .002**	
Other indicators				
Physical activities percent	60	52	-38 .000**	
Indoor setting percent	48	61	-26 .000**	
Familiar setting percent	62	79	-38 .000**	
Percentage of dreams with at least one				
Aggression	47	44	+05 .409	
Friendliness	39	42	-08 .197	
Sexuality	12	4	+31 .000**	
Misfortune	36	33	+06 .353	
Good fortune	6	6	+02 .787	
Successes	15	8	+24 .000**	
Failure	15	10	+17 .000**	
Striving	27	15	+31 .000**	

Note: The p values are based on the formula for the significance of differences between two proportions. The effect size derives from Cohen's *d*. The *d* statistic is determined by the following formula: $d = \frac{p_1 - p_2}{\sqrt{p_1(1-p_1) + p_2(1-p_2)}}$. *p*, and *p* are proportions between 0 and 1, and the *cos** operation returns a value in radians. * significant at the .05 level ** significant at the .01 level

Table 2 - Normative data.

RESULTS

68 patients completed the study. We collected 127 dreams (females 39.37%) (males 60.63%). Males showed a reduced presence of friends, anatomical elements, aggression, friendship, and sexuality. Instead, we found an increased presence of family members, situations in which the dreamer initiates aggressive action and familiar settings. In the female sample, we found a decreased presence of friends, aggressive and friendly elements, sex-related content, and misfortune, while an increase of animals.

	Male patients	Male norms	p
Characters			
Friends %	14	31	.000 **
Family %	23	12	.004 **
Social Interaction Percents			
Aggression/Friendliness %	26	59	.000 **
Aggressor %	86	40	.009 **
Settings			
Familiar Setting %	81	62	.008 **
Self-Concept Percent			
Torso/Anatomy %	0	31	.009 **
Dreams with at Least One			
Aggression %	10	47	.000 **
Friendliness %	23	38	.008 **
Sexuality %	1	12	.000 **

Table 4 - Characteristics of male patients' dreams and comparison with male normative data.

	Female patients	Female norms	p
Characters			
Friends %	23	37	.022 *
Animal %	12	4	.017 *
Social Interaction Percent			
Aggression/Friendliness %	24	51	.018 *
Dreams with at Least One			
Aggression %	10	44	.000 **
Friendliness %	22	42	.003 **
Sexuality %	00	0.4	.010 *
Misfortune %	18	33	.016 *

Table 3 - Characteristics of female patients' dreams and comparison with female normative data.

CONCLUSIONS

Our results demonstrate that dream content in ALS patients differs from that of healthy subjects, and we noticed some gender differences among ALS patients. The dream content can offer insights into ALS patients' mental state and may improve clinicians' ability to support their patients during their therapeutic course.



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