



Subjective Sleep, Burden, Depression and Health Among Caregivers of Veterans Post Stroke

¹Maude Rittman, PhD, RN; ^{2,3}Melanie Sberna Hinojosa, PhD

¹HSR&D/RR&D Rehabilitation Outcomes Research Center Research Enhancement Award Program (RORC REAP), Chief Nurse for Research, North Florida/South Georgia Veterans Health System, Gainesville, FL; ²Milwaukee Veterans Affairs Medical Center, Milwaukee, WI

³Department of Family and Community Medicine, Medical College of Wisconsin, Milwaukee, WI



OBJECTIVE

Sleep plays an important part in everyone's life and is likely to be affected by providing informal care to those who are disabled or who are managing a chronic illness such as stroke. Few studies have examined the sleep experiences of caregivers and no studies to date have examined the sleep experiences of caregivers of stroke survivors. The following research questions are answered:

What is the subjective sleep experience of stroke caregivers?

How is burden, depression, and general health related to the subjective sleep experience of stroke caregivers?

METHODS

Sample: 276 Informal caregivers of veterans who experienced a new, first-time stroke in FY00-FY06 in VISN 8, 11, 15 or 16.

The definition of an informal caregiver used in this study included two criteria:

- (1) The stroke survivor must identify the person who provides the most assistance to them.
- (2) Verification by the caregiver that the caregiver assists with at least one activity of daily living (ADL) or instrumental activity of daily living (IADL).

Instruments:

SLEEP: Used the Pittsburgh Sleep Quality Index to assess Amount of Sleep, Sleep Quality, Time to Fall Asleep, Nighttime Waking, Importance of Sleep, Daytime Enthusiasm, and Sleep Medication. Each item was measured as a self-report by the stroke caregiver at the time of the interview and was coded as a categorical variable.

BURDEN: Created a summative scale that represents the number of ADL and IADL for which caregivers provide assistance to the stroke survivor on a daily basis. These include: Getting in and out of beds and chairs, getting dressed, getting to and from toilet, handyman chores, feeding, bathing or showering, housework and transportation.

DEPRESSION: Measured using CES-D10 scale. This brief measure produces a continuous score that dichotomizes at 8 points for classifying subjects with clinically relevant symptoms of depression.

GENERAL HEALTH: Measured as a general self-reported health (excellent, very good, good, fair, poor).

RESULTS

Greater risk of depression (CES-D) among caregivers who:

- ❖ Sleep less
- ❖ Have difficulty achieving daytime enthusiasm
- ❖ Use sleep medications
- ❖ Have poor sleep quality

Greater risk of poor health among caregivers who:

- ❖ Sleep less
- ❖ Have difficulty achieving daytime enthusiasm due to lack of sleep
- ❖ Have poor sleep quality

Caregiver burden is associated with:

- ❖ Less sleep
- ❖ Use of sleep medications

TABLES

Caregiver Demographics		Mean%	SD	Min	Max	N
Race	White	58.3%				276
	African American	20.6%				
	Latino	16.3%				
	Other	4.7%				
Gender	Female	89.9%				276
	Male	9.1%				
Relationship to Veteran	Spouse	70.1%				274
	Parent	6.2%				
	Other	23.7%				
Caregiver Employment	Caregiver Employed	36.4%				272
	Caregiver Not Employed	63.6%				
Caregiver Education	Less than High School	31.9%				270
	High School	28.1%				
	Some College	27.4%				
	Bachelor's Degree or >	12.6%				
Caregiver Health	Excellent	10.2%				274
	Very Good	19.7%				
	Good	31.4%				
	Fair	27.4%				
	Poor	11.3%				
Caregiver Burden	# of ADL & IADL Assistance	9.25	4.17	0	16	200
	CESD-10 Scale	10.35	5.17	2	27	276
Hours of Care Per Week	Hours	35.99	41.00	0	168	230
Length of Time in Caregiving Role	Years	2.74	1.66	0.83	6.72	276

Caregiver's Subjective Sleep Experiences		N	All Caregivers
Sleep Duration	1-5 Hours	263	20.5%
	6-7 Hours		48.3%
	8 Hours or More		31.2%
Time to Fall Asleep	Less than 10 Minutes	260	28.1%
	10-30 Minutes		45.4%
	More than 30 Minutes		26.5%
Importance of Sleep to Caregiver Role	Extremely/Somewhat Important	266	87.2%
	Not Important		12.8%
Difficulty Achieving Daytime Enthusiasm	Not At All	264	36.0%
	Less than Once a Week		9.5%
	1-2 Times per Week		29.9%
	3 or More Times per Week		25.0%
Use of Sleep Medications	Not At All	272	69.9%
	Less than Once a Week		6.3%
	1-2 Times per Week		8.5%
	3 or More Times per Week		15.4%
Sleep Disturbance	Do Not Wake	256	18.8%
	Stroke Survivor Needs Assistance		15.2%
	Need to Use Bathroom		18.4%
	Worried		18.8%
	Can't Fall Asleep in 30 Minutes		6.3%
	Other Reasons		22.7%
Sleep Quality	Very Good	274	30.3%
	Fairly Good		54.0%
	Fairly Bad		9.5%
	Very Bad		6.2%

Probability of Depression (CESD-10) by Subjective Sleep Experience				Depression OR	95% CI	N
Sleep Duration	1	1-5 Hours	1 vs. 3	2.76	1.27 to 5.99 **	251
	2	6-7 Hours	2 vs. 3	1.03	.55 to 1.95	
	3	8 Hours or More				
Time to Fall Asleep	1	Less than 10 Minutes	1 vs. 3	0.42	.20 to .88	247
	2	10-30 Minutes	2 vs. 3	0.39	.20 to .77	
	3	More than 30 Minutes				
Importance of Sleep to Caregiver Role	1	Extremely/Somewhat Important	1 vs. 2	0.68	.30 to 1.56	254
	2	Not Important				
Difficulty Achieving Daytime Enthusiasm	1	Not At All	1 vs. 4	0.10	.04 to .22 **	252
	2	Less than Once a Week	2 vs. 4	0.14	.05 to .43	
	3	1-2 Times per Week	3 vs. 4	0.52	.26 to 1.08	
	4	3 or More Times per Week				
Use of Sleep Medications	1	Not At All	1 vs. 4	0.17	.08 to .38 **	261
	2	Less than Once a Week	2 vs. 4	0.23	.06 to .85	
	3	1-2 Times per Week	3 vs. 4	0.42	.14 to 1.32	
	4	3 or More Times per Week				
Sleep Disturbance	1	Do Not Wake	1 vs. 6	0.05	.22 to 1.21 *	245
	2	Stroke Survivor Needs Assistance	2 vs. 6	1.66	.66 to 4.14	
	3	Need to Use Bathroom	3 vs. 6	0.59	.24 to 1.45	
	4	Worried	4 vs. 6	1.19	.51 to 2.77	
	5	Can't Fall Asleep in 30 Minutes	5 vs. 6	1.68	.52 to 5.47	
	6	Other Reasons				
Sleep Quality	1	Very Good	1 vs. 4	0.09	.02 to .33 **	261
	2	Fairly Good	2 vs. 4	0.21	.06 to .71	
	3	Fairly Bad	3 vs. 4	0.55	.13 to 2.37	
	4	Very Bad				

* p<.05, ** p<.01 + Model controls for gender, race, educational level, relationship, age, length of time caregiving, veteran comorbid conditions & work status



ADDITIONAL TABLES

Probability of Reporting Poor Health by Subjective Sleep Experience				Poor Health OR	95% CI	N
Sleep Duration	1	1-5 Hours	1 vs. 3	2.41	1.09 to 5.32 *	251
	2	6-7 Hours	2 vs. 3	1.26	.67 to 2.41	
	3	8 Hours or More				
Time to Fall Asleep	1	Less than 10 Minutes	1 vs. 3	0.44	.21 to .95	247
	2	10-30 Minutes	2 vs. 3	0.50	.25 to .99	
	3	More than 30 Minutes				
Importance of Sleep to Caregiver Role	1	Extremely/Somewhat Important	1 vs. 2	0.57	.24 to 1.38	254
	2	Not Important				
Difficulty Achieving Daytime Enthusiasm	1	Not At All	1 vs. 4	0.31	.14 to .65	252
	2	Less than Once a Week	2 vs. 4	0.18	.05 to .63 *	
	3	1-2 Times per Week	3 vs. 4	0.77	.37 to 1.58 *	
	4	3 or More Times per Week				
Use of Sleep Medications	1	Not At All	1 vs. 4	0.25	.11 to .55	261
	2	Less than Once a Week	2 vs. 4	0.19	.05 to .78	
	3	1-2 Times per Week	3 vs. 4	0.54	.17 to 1.73	
	4	3 or More Times per Week				
Sleep Disturbance	1	Do Not Wake	1 vs. 6	0.76	.30 to 1.92	245
	2	Stroke Survivor Needs Assistance	2 vs. 6	1.17	.45 to 3.03	
	3	Need to Use Bathroom	3 vs. 6	1.00	.40 to 2.48	
	4	Worried	4 vs. 6	1.53	.64 to 3.70	
	5	Can't Fall Asleep in 30 Minutes	5 vs. 6	2.30	.67 to 7.89	
	6	Other Reasons				
Sleep Quality	1	Very Good	1 vs. 4	0.09	0.2 to .36 **	261
	2	Fairly Good	2 vs. 4	0.17	.05 to .61	
	3	Fairly Bad	3 vs. 4	0.31	.07 to 1.38	
	4	Very Bad				

* p<.05, ** p<.01 + Model controls for gender, race, educational level, relationship, age, length of time caregiving, veteran comorbid conditions & work status

Level of Burden by Subjective Sleep Experience				Beta	St. Error	T Value	N
Sleep Duration	1-5 Hours	1 vs. 3		1.92	0.85	2.26 *	183
	6-7 Hours	2 vs. 3		0.64	0.69	0.93	
	8 Hours or More						
Time to Fall Asleep	Less than 10 Minutes	1 vs. 3		-0.95	0.79	-1.20	186
	10-30 Minutes	2 vs. 3		-0.60	0.71	-0.84	
	More than 30 Minutes						
Importance of Sleep to Caregiver Role	Extremely/Somewhat Important	1 vs. 2		-1.37	0.87	-1.58	190
	Not Important						
Difficulty Achieving Daytime Enthusiasm	Not At All	1 vs. 4		1.63	0.81	-2.01 *	190
	Less than Once a Week	2 vs. 4		-0.41	1.07	-0.38	
	1-2 Times per Week	3 vs. 4		-0.73	0.80	-0.91	
	3 or More Times per Week						
Use of Sleep Medications	Not At All	1 vs. 4		-1.85	0.84	-2.20 *	193
	Less than Once a Week	2 vs. 4		-1.26	1.55	-0.93	
	1-2 Times per Week	3 vs. 4		-2.26	1.22	-1.86 **	
	3 or More Times per Week						
Sleep Disturbance	Do Not Wake	1 vs. 6		-0.14	0.92	-0.15	244
	Stroke Survivor Needs Assistance	2 vs. 6		3.55	1.03	3.46 **	
	Need to Use Bathroom	3 vs. 6		1.77	0.94	1.87	
	Worried	4 vs. 6		1.41	0.87	1.63	
	Can't Fall Asleep in 30 Minutes	5 vs. 6		1.02	1.38	0.74	
	Other Reasons						
Sleep Quality	Very Good	1 vs. 4		1.31	1.38	-0.95	192
	Fairly Good	2 vs. 4		1.23	1.31	-0.94	
	Fairly Bad	3 vs. 4		-0.21	1.58	-0.13	
	Very Bad						

* p<.05, ** p<.01 + Model controls for gender, race, educational level, relationship, age, length of time caregiving, veteran comorbid conditions & work status

IMPACT

This descriptive analysis demonstrates the important relationship between sleep, depression, health and burden.

Recognition of sleep difficulties among caregivers can lead to:

- Earlier identification of sleep problems
- Implementation of sleep hygiene strategies
- The development of health education materials
- Other targeted interventions to diagnose and treat sleep difficulties

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