Article title: The Burden of Caring for Individuals with Tuberous Sclerosis Complex (TSC) Who Experience Epileptic Seizures: A Descriptive UK Survey

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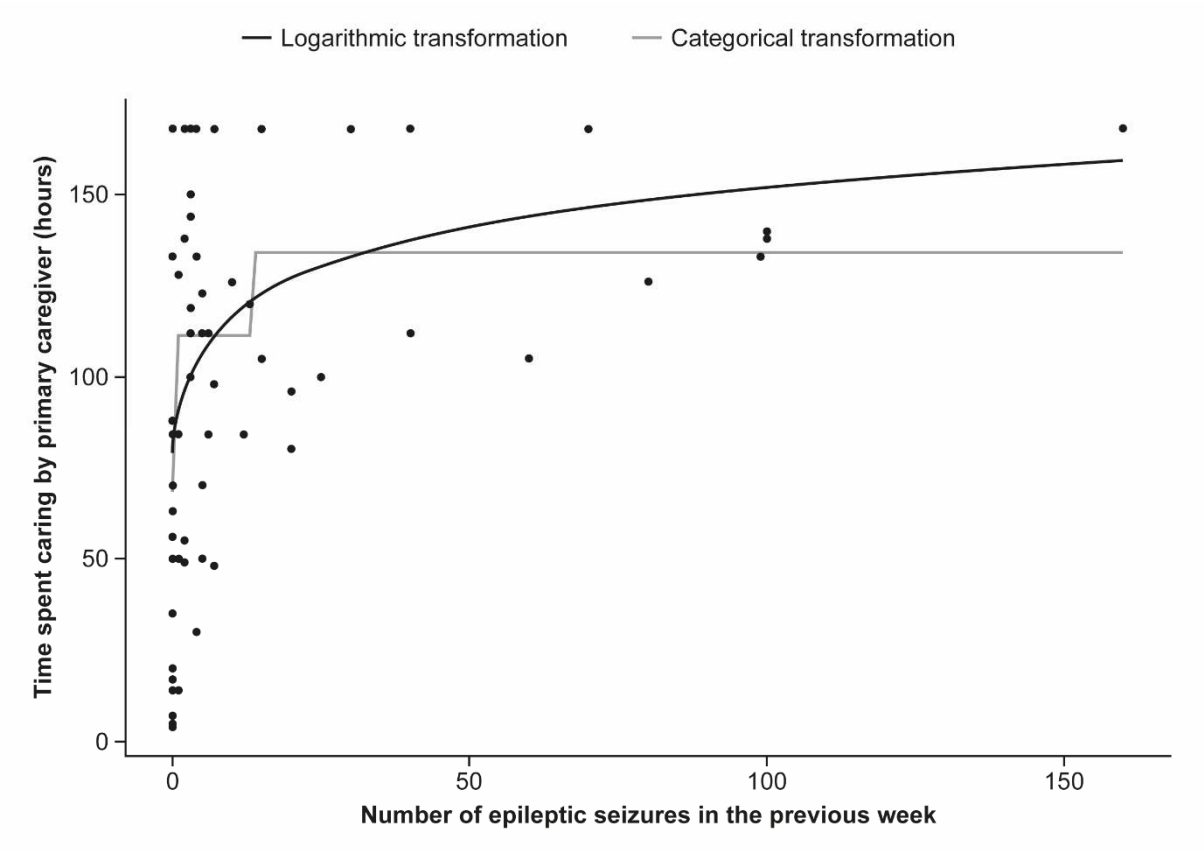
Supplementary Figures and Tables

Supplementary Fig. 1 Comparison of model fits for epileptic seizure frequency by time spent caring by the primary caregiver



Supplementary Table 1 Comparison of seizure frequency transformations for bivariate regression analysis

Characteristic		Total hours of care by primary caregiver		
		β	95% CI	*p* value
Intercept[a]		78.3	61.7, 95.0	—
Log (number of epileptic seizures in the previous week + 1)[b]		**16.0**	**8.4, 23.6**	**< 0.001[c]**
		Adjusted R^2 = 0.207; N = 69		
Intercept[a]		68.7	48.1, 89.3	—
Epileptic seizures in the previous week	0 seizures	—	—	
	1–12 seizures	42.7	16.6, 68.8	**0.002[d]**
	> 12 seizures	65.2	34.3, 96.1	**< 0.001[d]**
		Adjusted R^2 = 0.203; N = 69		

[a] Mean total hours of care when caring for individuals with TSC who had 0 seizures in the previous week

[b] +1 was added to allow for logarithmic transformation when seizures in the previous week = 0

[c] Relative to a difference of one seizure in the previous week

[d] Relative to those caring for individuals with TSC who had 0 seizures in the previous week

β correlation coefficient, CI confidence interval, *N* number of observations, TSC tuberous sclerosis complex

Supplementary Table 2 Comments regarding the total amount of time spent caring

Response category	Example quotes
Respite/support from other caregivers	
Some caregivers described how they receive some respite when the individual is at school (*n* = 11)	*"Time spent caring dependent on whether they are at school or not."* *"If he is at school, I get a break otherwise it is continual support."*
Some caregivers reported that the individual is cared for by their other parent for some of the time (*n* = 3)	*"Hours I am involved in care would be more but another person also supports her."* *"The other 75 hours care were provided by her other principal caregiver (parent, living separately)."*
A few caregivers reported receiving help from a support worker or childminder (*n* = 3)	*"I am constantly on call, day or night, 24/7 apart from two 3-hour sessions a week with a support worker."* *"He is 20 months so I care for him full time anyway except 5 hours a week at a childminder."*
Continuous provision of care	
Several caregivers reported providing continuous care throughout the day, and even during the night (*n* = 15)	*"All day, every day and often through night as well."* *"Care is 24 hours a day, seven days a week."*
Some caregivers mentioned not letting the individual out of their sight due to their risk of seizures (*n* = 4)	*"As my daughter's seizures are unpredictable, I need to be available all the time."* *"I am caring 24/7 as my son has seizures day or night."*

Supplementary Table 3 Comments regarding the total amount of time spent caring due to seizures

Response category	Example quotes
Variability	
Several caregivers described that their hours of care varied due to the number and unpredictability of the individual's seizures (*n* = 9)	*"The numbers of seizures have increased this month resulting in increase in related seizure specific care."* *"Unpredictability of seizures means time varies."*
Care whilst the individual is having a seizure	
Two caregivers reported spending time comforting the individual while they are having a seizure (*n* = 2)	*"She likes to be cuddled when she has a seizure but is fine after she comes out of it they can last up to 15 minutes."*
Two caregivers reported spending time holding the individual to keep them safe while they are having a seizure (*n* = 2)	*"I make sure our daughter is safe by holding her when necessary."*
Post-seizure care	
Two caregivers mentioned spending time providing emotional support while the individual is recovering from a seizure (*n* = 2)	*"Make her comfortable afterwards."* *"Recovery is variable in time but at least 2 hours post seizure full support and supervision needed."*
One caregiver described having to sometimes spend time administering rescue medication or calling emergency services when the individual's seizures last too long (*n* = 1)	*"His rescue medication requires me to intervene should the seizures not respond to a single dose and the possibility of calling in paramedics is my decision."*
Care due to nocturnal seizures	
One caregiver reported having to sleep in the individual's room to monitor their seizure activity (*n* = 1)	*"Seizures are nocturnal. So I have to sleep in his room with him so that I can be there when he has them."*

A few caregivers mentioned spending time supporting the individual during the night, when they are recovering from a seizure (*n* = 2)	*"These seizures generally occur at night and so I just have to stay with her until the seizure stops and I know she is sleeping."*

Supplementary Table 4 Bivariate regression model for total hours of care per week by seizure frequency

Characteristic		Total hours of care per week by primary caregiver			Total hours of care per week by all household members[a]		
		β	95% CI	*p* value	β	95% CI	*p* value
Intercept[b]		66.7	44.0, 89.4	—	85.7	55.8, 115.6	—
Epileptic seizures in the previous week	0 seizures	—	—		—	—	
	1–12 seizures	**44.5**	**16.6, 72.3**	**< 0.01[c]**	42.3	5.6, 78.9	0.02[c]
	> 12 seizures	**66.4**	**34.8, 98.1**	**< 0.01[c]**	**92.1**	**50.5, 133.8**	**< 0.01[c]**
		RMSE = 44.41; adjusted R^2 = 0.20; N = 65			*RMSE = 58.44; adjusted R^2 = 0.22; N = 65*		

[a] Sum of hours of care per week provided by the primary caregiver, partner, parent/siblings, (other) children, and/or other relatives

[b] Mean total hours of care per week when caring for individuals with TSC who had 0 seizures in the previous week

[c] Relative to those caring for individuals with TSC who had 0 seizures in the previous week

β correlation coefficient, CI confidence interval, *N* number of observations, RMSE root-mean-square error, TSC tuberous sclerosis complex

Supplementary Table 5 Bivariate regression model for total hours of care per week by age of the individual with TSC

Characteristic	Total hours of care per week by primary caregiver			Total hours of care per week by all household members[a]		
	β	95% CI	*p* value	β	95% CI	*p* value
Intercept[b]	105.3	82.9, 127.8	—	136.3	107.1, 165.6	—
Age of individual with TSC	−0.1	−1.0, 0.9	0.91[c]	−0.4	−1.6, 0.8	0.52[c]
	RMSE = 51.31; adjusted R^2 = −0.02; N = 69			*RMSE = 66.95; adjusted R^2 = −0.01; N = 69*		

[a] Sum of hours of care per week provided by the primary caregiver, partner, parent/siblings, (other) children, and/or other relatives

[b] Mean total hours of care per week when caring for individuals with TSC whose age = 0 years

[c] Relative to 1 year difference in age of the individual with TSC

β regression coefficient, CI confidence interval, *N* number of observations, RMSE root-mean-square error, TSC tuberous sclerosis complex

Supplementary Table 6 Bivariate regression model for PedsQL FIM scores by seizure frequency

Characteristic		PedsQL Total Scale score			Family Functioning Summary score			Parent HRQL Summary score		
		β	95% CI	*p* value	β	95% CI	*p* value	β	95% CI	*p* value
Intercept[a]		52.5	42.7, 62.2	—	57.8	45.9, 69.7	< 0.01	54.8	44.6, 65.0	—
Epileptic seizures in the previous week	0 seizures	—	—		—	—		—	—	
	1–12 seizures	−8.0	−19.8, 3.9	0.18[b]	−11.6	−26.1, 2.9	0.11[b]	−7.3	−19.6, 5.1	0.24[b]
	> 12 seizures	**−15.2**	**−28.8, −1.7**	**0.03**[b]	**−18.6**	**−35.2, −2.1**	**0.03**[b]	**−16.6**	**−30.7, −2.4**	**0.02**[b]
		RMSE = 17.73; *adjusted R^2 = −0.05; N = 58*			*RMSE = 21.64;* *adjusted R^2 = −0.05; N = 58*			*RMSE = 18.54;* *adjusted R^2 = −0.06; N = 59*		

[a] Mean score when caring for individuals with TSC who had 0 seizures in the previous week

[b] Relative to those caring for individuals with TSC who had 0 seizures in the previous week

β correlation coefficient, CI confidence interval, FIM Family Impact Module, HRQL health-related quality of life, *N* number of observations, PedsQL Pediatric Quality of Life Inventory, RMSE root-mean-square error, TSC tuberous sclerosis complex

Supplementary Table 7 Bivariate regression model for PedsQL FIM scores by age of the individual with TSC

Characteristic	PedsQL Total Scale score			Family Functioning Summary score			Parent HRQL Summary score		
	β	95% CI	*p* value	β	95% CI	*p* value	β	95% CI	*p* value
Intercept[a]	40.7	32.3, 49.1	—	43.5	33.4, 53.6	—	43.0	34.1, 51.9	—
Age of individual with TSC	0.1	−0.2, 0.5	0.46[b]	0.1	−0.3, 0.6	0.52[b]	0.1	−0.3, 0.5	0.51[b]
	RMSE = 20.06; adjusted R^2 = −0.01; N = 62			*RMSE = 18.89; adjusted R^2 = −0.01; N = 62*			*RMSE = 22.70; adjusted R^2 = −0.01; N = 63*		

[a] Mean score when caring for individuals with TSC whose age = 0 years

[b] Relative to 1 year difference in age of the individual with TSC

β regression coefficient, CI confidence interval, FIM Family Impact Module, HRQL health-related quality of life, *N* number of observations, PedsQL Pediatric Quality of Life Inventory, RMSE root-mean-square error, TSC tuberous sclerosis complex

Supplementary Table 8 Bivariate regression models for HADS Anxiety and Depression summary scores (linear model) and 'probable clinical caseness' (logistic model), by age of the individual with TSC

Characteristic	HADS Anxiety Summary score			HADS Depression Summary score		
	β	95% CI	*p* value	β	95% CI	*p* value
Intercept[a]	13.2	11.2, 15.2	—	8.2	6.4, 10.3	—
Age of individual with TSC	**−0.1**	**−0.2, 0.0**	**0.02[b]**	0.0	−0.1, 0.1	0.56[b]
	RMSE = 4.52; *adjusted R^2 = −0.07; N = 62*			*RMSE = 4.34;* *adjusted R^2 = −0.01; N = 62*		
Characteristic	HADS Anxiety 'probable clinical caseness'			HADS Depression 'probable clinical caseness'		
	OR	95% CI	*p* value	OR	95% CI	*p* value
Intercept[a]	1.9	0.8, 4.8	—	0.3	0.1, 0.8	—
Age of individual with TSC	1.0	0.9, 1.0	0.09[b]	1.00	1.0, 1.0	0.70[b]
	RMSE = 2.05; R^2 = 0.06; N = 62			*RMSE = 2.25; R^2 = 0.00; N = 62*		

[a] Mean score/OR when caring for individuals with TSC whose age = 0 years

[b] Relative to 1 year difference in age of the individual with TSC

β regression coefficient, CI confidence interval, HADS Hospital Anxiety and Depression Scale, OR odds ratio, *N* number of observations, RMSE root-mean-square error, TSC tuberous sclerosis complex

Supplementary Table 9 Multivariable regression model for HADS Anxiety Summary score

Characteristic		HADS Anxiety Summary score		
		β	95% CI	*p* value
Intercept[a]		12.0	9.0, 15	—
Epileptic seizures in the previous week	0 seizures	—	—	
	1–12 seizures	0.8	−2.2, 3.8	0.60[b]
	> 12 seizures	3.3	−0.3, 6.9	0.09[b]
Age of individual with TSC		**−0.12**	**−0.22, −0.02**	**0.02[c]**
		RMSE = 4.42; adjusted R^2 = −0.11; N = 58		

[a] Mean score when caring for individuals with TSC whose age = 0 years and who had 0 seizures in the previous week

[b] Relative to those caring for individuals with TSC who had 0 seizures in the previous week

[c] Relative to 1 year difference in age of the individual with TSC

β regression coefficient, CI confidence interval, HADS Hospital Anxiety and Depression Scale, *N* number of observations, RMSE root-mean-square error, TSC tuberous sclerosis complex