

Supplemental Table 1. Factor Analysis Table for SOLID participants with type 1 diabetes

Domain	Cognitive test	Rotated Factor Pattern*			
		Factor 1: Language	Factor 2: Executive Function/Psychomotor Speed	Factor 3: Episodic Memory	Factor 4: Simple Attention
Language	Phonemic fluency	0.73	0.16	-0.02	0.03
	Category fluency	0.69	0.25	0.11	0.02
	List sorting	0.67	0.21	0.15	0.12
	Multilingual Naming Test	0.50	0.24	0.08	-0.01
Executive function/psychomotor speed	Trail Making Test, A	0.08	0.84	0.09	0.01
	Digit Symbol Substitution	0.32	0.77	0.19	0.06
	Trail Making Test, B	0.31	0.73	0.16	0.05
	Stroop	0.44	0.65	0.11	-0.02
Episodic memory	Benson Complex Figure - Delayed Recall	0.13	0.12	0.71	-0.03
	Benson Complex Figure - Immediate Recall	-0.12	0.16	0.68	0.06
	Word List Learning - Delayed Recall	0.51	0.08	0.66	0.07
	Word List Learning - Immediate Recall	0.58	0.11	0.62	0.06
Simple attention	Diamond Cancellation Test	0.001	0.06	0.05	0.82
	TMX Cancellation Test	0.11	-0.01	0.02	0.81
Eigenvalue		4.76	1.41	1.28	1.07
% of Total Variance		34%	11%	9%	8%
Total Variance = 62%					

*Principal components analysis using varimax (orthogonal) rotation

Supplemental Table 2. Mean (SD) z-scores on each cognitive test included in analysis by DKA status

Domain	Cognitive test	No DKA (n=513)	Single DKA (n=132)	Recurrent DKA (n=69)	p-value
Language	Phonemic fluency	0.05 (1.02)	0.12 (0.93)	-0.13 (1.04)	0.25
	Category fluency	0.06 (1.02)	0.03 (0.97)	-0.04 (0.97)	0.77
	List sorting	0.05 (0.98)	0.10 (0.93)	-0.08 (1.12)	0.52
	Multilingual Naming Test	0.07 (0.91)	0.15 (0.87)	-0.18 (1.14)	0.06
Executive function/psychomotor speed	Trail Making Test, A	0.07 (0.92)	0.15 (0.82)	-0.42 (1.18)	<0.0001
	Digit Symbol Substitution	0.05 (0.98)	0.15 (1.00)	-0.33 (0.91)	0.004
	Trail Making Test, B	0.08 (0.92)	0.09 (0.77)	-0.26 (1.14)	0.02
	Stroop	0.05 (0.97)	0.24 (0.71)	-0.30 (0.96)	0.001
Episodic memory	Benson Complex Figure - Delayed Recall	0.01 (0.98)	0.12 (1.06)	-0.02 (0.92)	0.50
	Benson Complex Figure - Immediate Recall	0.05 (0.93)	-0.07 (1.12)	-0.06 (0.79)	0.36
	Word List Learning - Delayed Recall	-0.01 (0.99)	0.23 (1.02)	-0.04 (0.95)	0.05
	Word List Learning - Immediate Recll	0.01 (0.97)	0.22 (0.96)	-0.06 (1.05)	0.08
Simple attention	Diamond Cancellation Test	-0.03 (0.99)	0.11 (1.03)	0.07 (1.04)	0.33
	TMX Cancellation Test	-0.02 (1.05)	0.11 (0.79)	0.001 (0.85)	0.43

Supplemental Table 3. Association between exposure to lifetime diabetic ketoacidosis (DKA) resulting in hospitalization and cognitive function among older adults with type 1 diabetes stratified by childhood onset T1D and adult onset T1D

Model outcome	Childhood onset T1D	
	Age of onset <7 n=33	Age of onset <18 n=205
	β (95%CI)	β (95%CI)
Global cognition		
No DKA	REF	REF
Single DKA	-0.28 (-0.64, 0.09)	-0.03 (-0.19, 0.12)
Recurrent DKA	-0.73 (-1.36, -0.10)	-0.09 (-0.27, 0.10)
Language		
No DKA	REF	REF
Single DKA	-0.06 (-0.73, 0.61)	-0.01 (-0.24, 0.22)
Recurrent DKA	-0.87 (-2.03, 0.28)	-0.01 (-0.28, 0.26)
Executive function/psychomotor speed		
No DKA	REF	REF
Single DKA	-0.08 (-0.59, 0.43)	-0.001 (-0.21, 0.21)
Recurrent DKA	-0.98 (-1.86, -0.10)	-0.27 (-0.52, -0.01)
Episodic memory		
No DKA	REF	REF
Single DKA	-0.13 (-0.66, 0.40)	0.01 (-0.22, 0.24)
Recurrent DKA	-0.19 (-1.10, 0.73)	-0.16 (-0.43, 0.11)
Attention		
No DKA	REF	REF
Single DKA	-0.83 (-1.67, 0.02)	-0.11 (-0.40, 0.18)
Recurrent DKA	-0.87 (-2.33, 0.59)	0.10 (-0.24, 0.45)

Models presented adjust for age, sex, race, diagnosis age, education, recent exposure to severe hypoglycemia, and prevalent microvascular complications (retinopathy, neuropathy and nephropathy).