Evaluating the Associations of the AADQ and CompACT-10 with Glycemic Time-in-Range in Adults with Type 1 Diabetes

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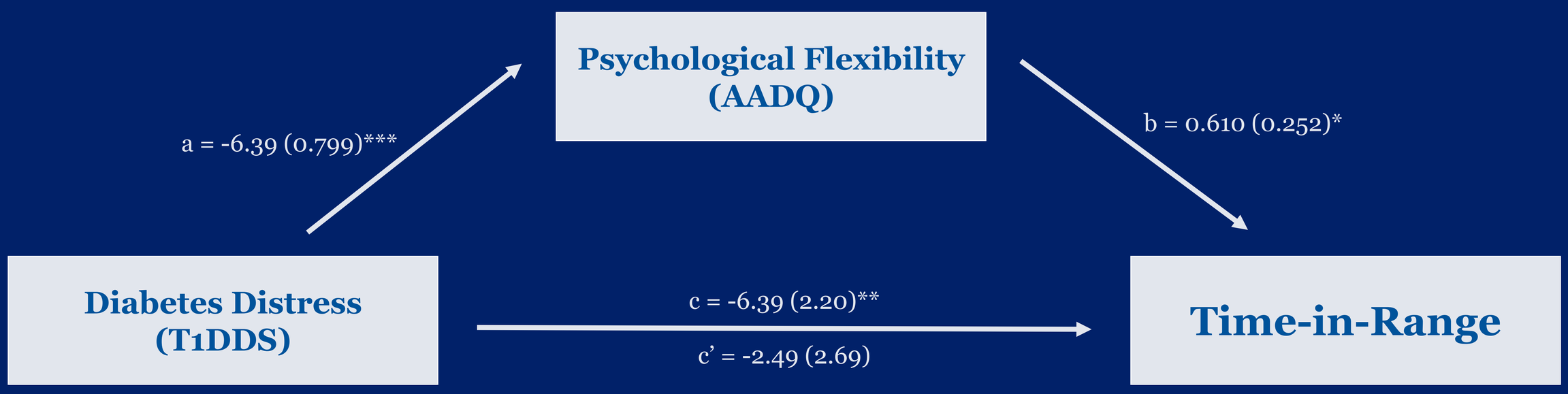
1. Context-specific measurement of psychological flexibility is more strongly associated with important physiological outcomes.
2. Psychological flexibility cross-sectionally mediates the relationship between diabetes distress and time-in-range in type 1 diabetes.



Note. Bootstrapped test of indirect effect: ab = -3.90 (SE = 1.66); 95% CI [-7.25, -0.68]; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Background

- Self-management of type 1 diabetes mellitus (T1DM) is psychologically burdensome
- Psychological flexibility (PF) is positively associated with self-management behaviors and QoL and negatively associated with HbA1c and diabetes distress (DD)[1].
- Given its clinical relevance, ensuring accurate measurement of PF in diabetes contexts is crucial
- The present study compares two measures of PF--one diabetes-specific, and one general--for (a) their associations with glycemic time in range (TIR), and (b) whether controlling for diabetes distress would differentially influence these associations.

Methods

Inclusion Criteria
- Baseline completed by 02/25/26
- 16-50 years old
- T1DM Diagnosis
- Disordered Eating Spectrum
- Independently manage T1DM

Exclusion Criteria
- Substance Use Disorder
- Psychosis
- Hypoglycemia unawareness
- Non-English speakers
- Anorexia Nervosa spectrum

7-10 Days

Visit 1: Enrollment + Provide CGM

Visit 2: Self-Report Measures + CGM end

Acceptance and Action Diabetes Questionnaire (AADQ)[2]	10-Item Comprehensive Assessment of Acceptance and Commitment Therapy (CompACT-10)[3]	Type 1 Diabetes Distress Scale (T1DDS)[4]
• Unidimensional PF • Diabetes-specific • Parent measure (AAQ) criticized for poor discriminant validity from measures of distress	• Multidimensional PF • General measure • Content validity, internal consistency, discriminant validity from measures of negative affect	• Multidimensional diabetes distress • Good total scale reliability, strong 9-month test-retest reliability, established construct validity

1. Data collection, cleaning, and assumption checks
2. Bivariate Pearson correlations between AADQ, CompACT-10, CGM % TIR, T1DDS
3. Hierarchical Regression predicting TIR: Step 1 – AADQ
   Step 2 – T1DDS
4. Exploratory mediation analysis

Results

Figure 1. Sample Demographics

	N	Mean	SD
Age	119	33.91	8.78
HbA1c	109	7.66	1.63
CGM %TIR	120	54.30	22.44
AADQ Total Score	120	54.87	10.04
CompACT Total Score	117	33.32	9.68
T1DDS Global Distress Score	120	2.78	0.93

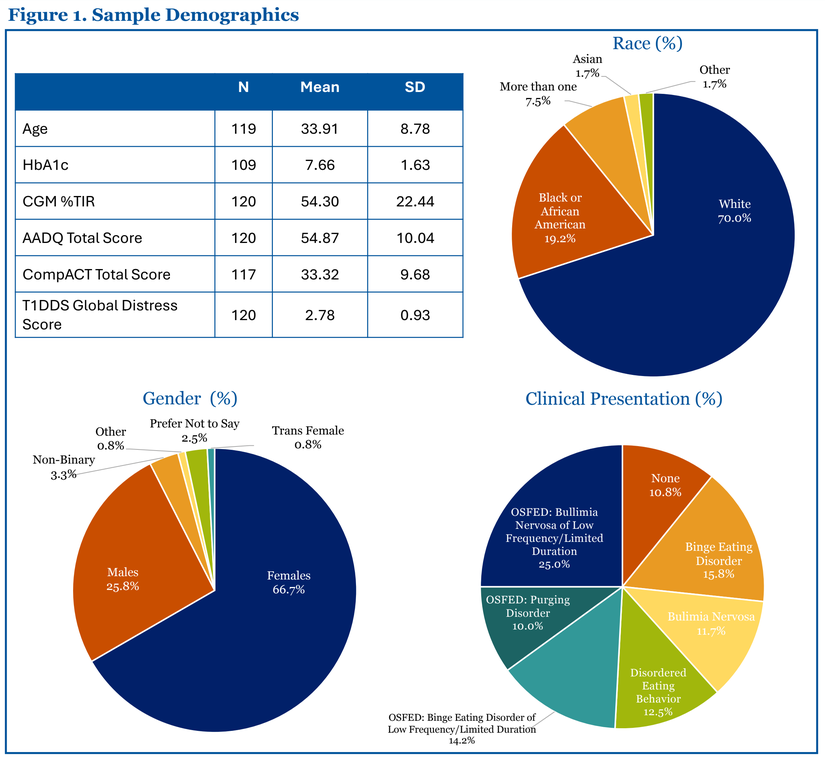


Table 1. Bivariate Correlations Among Primary Variables

Measure	1		2		3	
	r	N	r	N	r	N
1. AADQ	--					
2. CompACT-10	**0.427****	117	--			
3. TIR	**0.309****	120	0.080	117	--	
4. T1DDS	**-0.610****	120	**-0.362****	117	**-0.257****	120

Note. **$p < 0.01$, *** $p < 0.001$

Table 2. Hierarchical Regression Predicting TIR

Effect	β	SE	95 CI		p-value	VIF
			LL	UL		
Step 1						
AADQ	0.309	0.196	0.304	1.079	**<0.001**	
Step 2						
AADQ	0.243	0.247	0.055	1.033	**0.030**	1.593
T1DDS	-0.108	2.664	-7.886	2.667	0.329	

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Discussion

- Association of AADQ and TIR aligns with previous findings of associations between the AADQ and HbA1c.
- CompACT-10's lack of association highlights the potential importance of context-specific measurement of PF[5].
- Because the association with DD and TIR was significant at the bivariate level but not when modeled together with PF, a mediation analysis was conducted. PF mediates the relationship between DD and TIR, aligning with other research[6] and ACT theory.
- While the AADQ's association with TIR reduced after controlling for DD, it retained significance showing incremental validity beyond distress, suggesting the AADQ may not share the same validity issues as its parent measure.

Future Directions

- Development of a multi-dimensional, diabetes-specific measure of PF to target context-specificity while evaluating facets of PF
- Disordered eating treatment-seeking sample of predominantly female (66.7%), white (70.0%), and non-Hispanic (92.4%) individuals calls for greater demographic diversity in order for generalizability to T1DM populations
- Explore computerized, performance-based PF assessments and their associations with diabetes outcomes for use alongside self-report measures to overcome self-report limitations.

References

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