Evaluating The Impact of Patient-Provider Relationships on Adherence to Type 1 Diabetes Management Tasks and Glycemic Control in Emerging Adults

Deepika Baskar[1], April Idalski Carcone[2], Deborah Ellis[3]

Wayne State University School of Family Medicine and Public Health Sciences

INTRODUCTION

- Type 1 Diabetes (T1D) is a demanding chronic illness requiring daily care:
  - Blood glucose monitoring
  - Insulin delivery
  - Carbohydrate counting
- Emerging Adulthood (EA/EAs; 18-25 years) is a high-risk developmental period
  - Transitioning from adolescence to adulthood
  - Focus is on developing identity and autonomy
  - Poor T1D management is a consequence
- Originating from BIPOC (Black, Indigenous, People of Color) groups may exacerbate risk
- Self Determination Theory (SDT)
  - three innate psychological needs
    - Competence
    - Relatedness
    - Autonomy

PURPOSE

- To examine the relationship of the patient-provider relationship (PPR) on T1D management and glycemic control
- To assess whether perceptions of the PPR quality vary between EAs from White and BIPOC backgrounds

METHODS

Design

- Cross-sectional: baseline data from an ongoing randomized clinical trial

Participants

- Inclusion criteria
  - EA age 16-25 years
  - T1D diagnosis ≥6 months
  - elevated HbA1c (≥8.0%)
  - No mental or physical health comorbidities
  - Device to receive interventions
- Fifty-one EA recruited from social media platforms, local universities, community health organizations, and local diabetes clinics

Measures

- Quality of the Patient-Provider Relationship (PPR)
  - *Heath Care Climate Questionnaire* (HCCQ): assesses practical and communicative support
  - *Patient Activation Scale* (PAS): evaluates perceptions of patient-centered care and patient active participation
- T1D Management Behavior
  - *Diabetes Management Scale* (DMS): assesses how often patients take care of their T1D over the past month
- Glycemic Control
  - *Hemoglobin A1c (HbA1c):* lab test measuring average blood glucose values in past 2-3 months

Statistical Analysis Plan

- Pearson's correlation (*r*)
  - test the hypothesis that the quality of the PPR is associated with T1D management and glycemic control
- Independent samples *t*-test
  - evaluate whether perceptions of PPR quality vary between EAs from White and BIPOC backgrounds
- Software: SPSS, version 28
- Significance threshold: $\alpha \leq 0.05$

RESULTS

Table 1. Characteristics of Study Participants

Variable	*M* or *f*	*SD* or %
Sex		
Female	32	62.7%
Age (years)	20.7	2.7
Race		
White	18	35.3%
BIPOC	33	64.7%
Education		
Some high school or less	33	64.7%
High school degree or more	18	35.3%
Work Status		
Employed	33	64.7%
Diagnosis Duration (years)	12.3	5.2
Blood Glucose Monitoring		
CGM	26	51.0%
BGM	25	49.0%
Insulin Delivery		
Basal-Bolus Injections	26	51.0%
Insulin Infusion Pump	24	47.1%
HbA1c	10.1%	2.3%

Note: CGM refers to Continuous Glucose Monitor; BGM refers to Blood Glucose Meter

Table 2. Correlation Among Study Variables

	HCCQ	PAS	HbA1c	Mean (SD) Cronbach's α
Diabetes Management Scale (DMS)	-0.045	-0.045	-0.176	64.9 (15.15) α = 0.79
Health Care Climate Questionnaire (HCCQ)		0.907**	-0.118	2.96 (0.791) α = 0.91
Patient Activation Scale (PAS)			-0.065	3.73 (0.744) α = 0.94

** *Correlation is significant at p < .05*

Table 3. Independent t-test Results Comparing Strength of Patient-Provider Relationships between White and non-White Emerging Adults

	M (*SD*)	*t*-test
HCCQ		
White	3.02 (0.69)	*t*(49) = -0.423, *p* =0.337
BIPOC	2.90 (0.84)	
PAS		
White	3.70 (0.61)	*t*(49)= 0.190, *p* =0.425
BIPOC	3.70 (0.82)	

CONCLUSION

- Results did not support the hypothesis that high PPR quality is associated with improved T1D management and improved glycemic control
  - Correlation between HCCQ and DMS was not statistically significant and was not in the hypothesized direction
  - Correlation between HCCQ and HbA1c was not statistically significant and was not in the hypothesized direction
  - Correlation between the PAS and DMS was not statistically significant and not in the hypothesized direction
  - Correlation between the PAS and HbA1c was not statistically significant and not in the hypothesized direction
- Results did not support the hypothesis that BIPOC EA have poorer perceptions of PPR quality in comparison to White EA
  - HCCQ and PAS scores for White EAs were slightly higher than scores for BIPOC but the difference was not significant

PUBLIC HEALTH IMPLICATIONS

- Despite no findings in the study, diabetes literature suggests that PPR quality does impact T1D management and glycemic control
- The literature suggests that T1D patients who feel connected with their providers during clinic visits are more likely to experience positive diabetes outcomes
- While some studies indicate that BIPOC and White EA may both experience similar challenges (i.e., increased stress, isolation, and lack of familial support), health equity research suggests that BIPOC community members are most affected by health disparities
- The literature recommends that providers utilize equity-oriented patient care services including culturally competent and trauma-informed care to reduce health disparities among the BIPOC community

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