

Deconstructing Diabetes Strengths: Factor Analysis of the Diabetes Strengths and Resilience Measure for Young Adults (DSTAR-YA)



Samantha A. Carreon, Esti Iturralde, Maureen Monaghan, Jessica C. Kichler, Jennifer K. Raymond, Sarah D. Corathers, & Marisa E. Hilliard

INTRO

- Despite the challenges of type 1 diabetes (T1D) management, many young adults (YAs) demonstrate resilience.
- Specific diabetes strengths among YAs have not been well-characterized.
- The DSTAR-YA was designed to assess YAs' T1D strengths for research and clinical care.
- Study aim: Examine the factor structure of the DSTAR-YA.

METHODS

- N=236 YAs (age 18-25) with T1D at four pediatric diabetes clinics in Texas, Ohio, California, and Washington DC completed the DSTAR-YA.
- Principal axis factoring with Oblimin rotation to conduct exploratory factor analysis (EFA).

RESULTS

- EFA yielded 3 factors explaining a total of 60.2% of the variance.
- See Table and Scree Plot.

DISCUSSION

- The 3 factors align with the Diabetes Resilience Model.
- Factors 1 and 2 mirror the DSTAR-Child and Teen versions. Factor 3 captures important developmental tasks for YAs.
- Identifying YAs' specific T1D strengths may help clinicians and researchers support YAs during this challenging transitional period.

The **DSTAR-YA** subscales assess three domains of young adults' diabetes strengths:

- 1. Diabetes Related Confidence**
- 2. Getting Help with Diabetes Management**
- 3. Disclosure/Social Support**

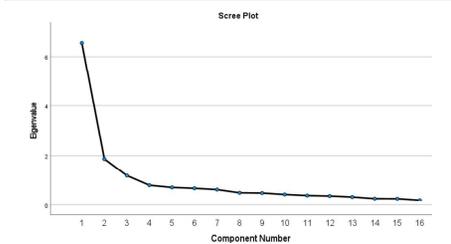
Participant Characteristics

Sample Demographics (M±SD or %)	
	YA (n=236)
Age, Years	19.7 ± 1.5
Gender, Female	52%
Race/ Ethnicity, Non-Hispanic White	78%
Private Insurance	80%
Hemoglobin A1c (HbA1c)	8.5 ± 1.7%
Insulin Pump Use	56%

DSTAR-YA Subscales & Items

DSTAR-YA Factors and Items	
Factor 1: Diabetes Related Confidence	Factor 2: Getting Help with Diabetes Management
Able to take care of my diabetes	Family helps me manage diabetes.
Able to take care of high or low blood sugars	Ask for help with diabetes when needed
Able to ask my medical team questions about diabetes	Family and friends help take care of my diabetes if needed
Able to handle diabetes problems that arise	Have someone I can ask for help with my diabetes
Able to take care of my diabetes without it interfering with my work/school	Factor 3: Disclosure/Social Support
Confident about being in charge of my diabetes	Talk to friends about diabetes
Able to take care of my diabetes even when busy	Comfortable teaching new people about how to help in a diabetes emergency
Able to talk calmly to other people about diabetes	Comfortable taking care of diabetes in social settings
It makes a difference when I work hard to manage diabetes	

Scree Plot



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Introduction

While type 1 diabetes (T1D) management is challenging, many young adults (YAs) demonstrate resilience; however, specific diabetes strengths among YAs have not been well-characterized. Behavioral research has begun to study how YAs with T1D manage diabetes demands using the psychometrically sound DSTAR-YA measure. The current study extended this work by examining the underlying factor structure of the DSTAR-YA.

Methods

Participants were 236 YAs (ages 18-25, $M=19.7\pm 1.5$ years; 52% female; $M\ HbA1c=8.5\pm 1.7\%$) from four children's hospitals. Participants completed the validated DSTAR-YA, which was adapted from child and adolescent versions. We used principal axis factoring with Oblimin (oblique) rotation to conduct exploratory factor analysis on the 16-item DSTAR-YA. We selected this exploratory method due to the distinct item set of the DSTAR-YA compared to child/teen versions and potential theoretical distinctions relevant to YAs.

Results

The factor analysis yielded three factors explaining a total of 60.2% of the variance. Factor 1 "Diabetes-Related Confidence" included 9 items (e.g., *I am confident being the person who is the most in charge of my diabetes*) and explained 40.9% of the variance. Factor 2 "Getting Help with Diabetes Management" included 4 items (e.g., *I ask for help with my diabetes when I need to*) and explained 11.7% of the variance. Factor 3 "Disclosure/Social Support" included 3 items [e.g., *I feel comfortable teaching new people in my life (roommates, coworkers, etc.) about how to help me in a diabetes emergency*] and explained 7.6% of the variance.

Conclusions

The three factors of the DSTAR-YA align with the Diabetes Resilience Model and qualitative research with YAs with T1D. Factors 1 and 2 mirror the DSTAR-Child and Teen versions, and factor 3 matches developmental theory for YAs. Delineating distinct types of strengths may help clinicians and researchers identify and support YAs' individual strengths to promote resilient diabetes outcomes.