Predictors of Quality of Life in Adolescents with Type 2 Diabetes

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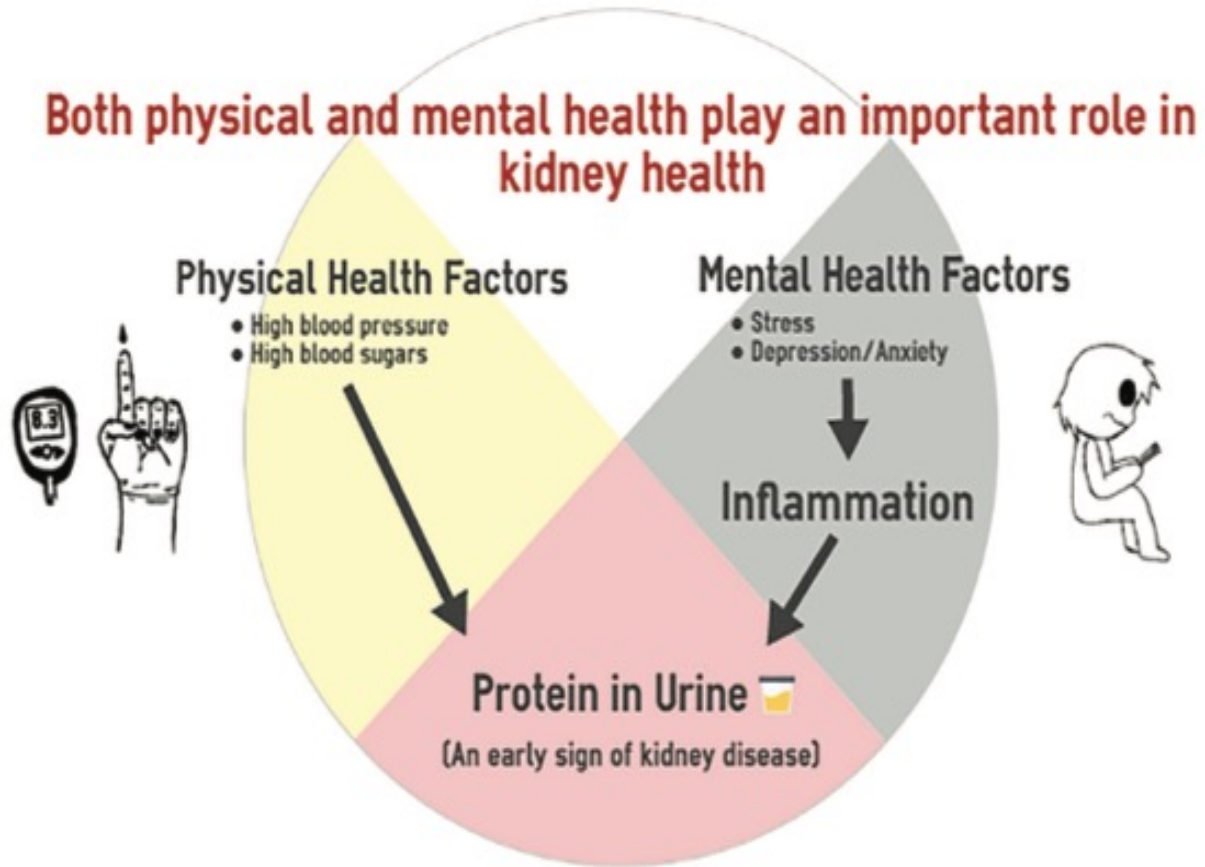
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The iCARE Study

Improving renal **C**omplications in **A**dolescents with type 2 diabetes through **Re**search

Both physical and mental health play an important role in kidney health

Physical Health Factors
- High blood pressure
- High blood sugars

Mental Health Factors
- Stress
- Depression/Anxiety

Inflammation

Protein in Urine
(An early sign of kidney disease)

- Target glycemic control: HbA1C >1% different from the iCARE cohort.

- Mostly urban populations.

- Limited T2D literature: T1D report higher QOL than T2D.

Dart et. al Can. J. Kidney Health and Disease, 2019

Naughton et al, Archives of Pediatrics & Adolescent Medicine, 2008
Abdul-Rasoul et al, Medical Principles and Practice, 2013

Background
Objectives

- **Primary Objective**: To examine predictors of quality of life between youth <u>with and without</u> type 2 diabetes.

- **Secondary Objective:** To investigate the associations between biological markers of T2D and QOL.

Methods

- Quality of life refers to the impact of disease on multiple functional domains

Dimension	Component
Physical Functioning	Physical
Emotional Functioning	
Social Functioning	Psychosocial
School Functioning	

- Can be measured through self report questionnaires

Varni et.al, Diabetes Care 2003

Abdul-Rasoul et al , Med Princ Pract 2013

Methods

Between Groups Analysis

- Age
- Sex
- SES
- Diabetes Status
- Duration of Diabetes

- Levels of Distress (K6 scale)
- Depression
- Food Security
- Perceived Stress (PSS-14)
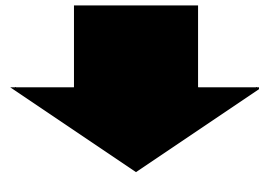
T2D Cohort Sub-analysis

- HbA1C
- CRP
- ACR
- eGFR
- Route of Medication Administration

- Participants of the iCARE study

- Written consent (≥ 18 years of age) or written assent (< 18 years of age)

Results
Descriptive Characteristics

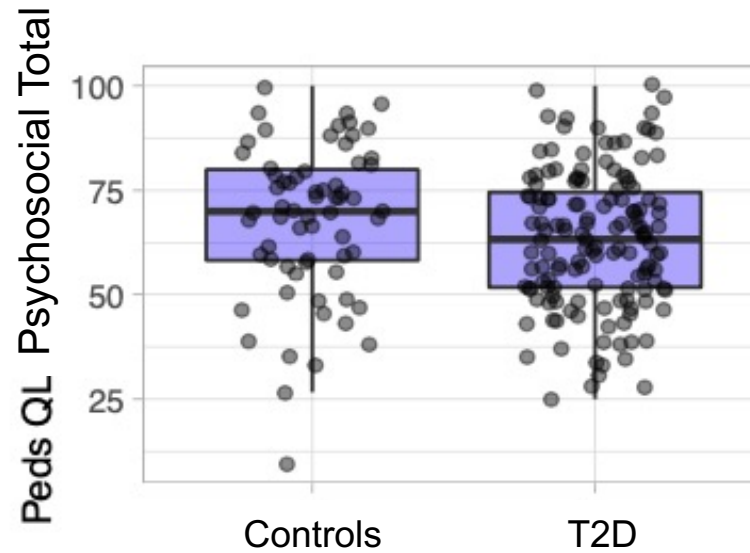| Variable	Controls (N=137)	Type 2 Diabetes (N= 331)	p value
Sex= Female (%)	56.2	65.0	0.094
Age at Baseline, mean ± SD	14.95 ± 3.15	14.93 ± 2.31	0.939
Ethnicity= Indigenous (%)	89.1	81.2	0.051
BMI z scores , mean ± SD	2.1 ± 1.2	2.9 ± 0.9	<0.001
HbA1C, mean ± SD	5.53 ± 0.31	9.21 ± 2.62	<0.001
Urban/Rural (%)			
Rural	68.6	75.6	
Urban	31.4	24.4	0.160

Results

Univariate Analyses
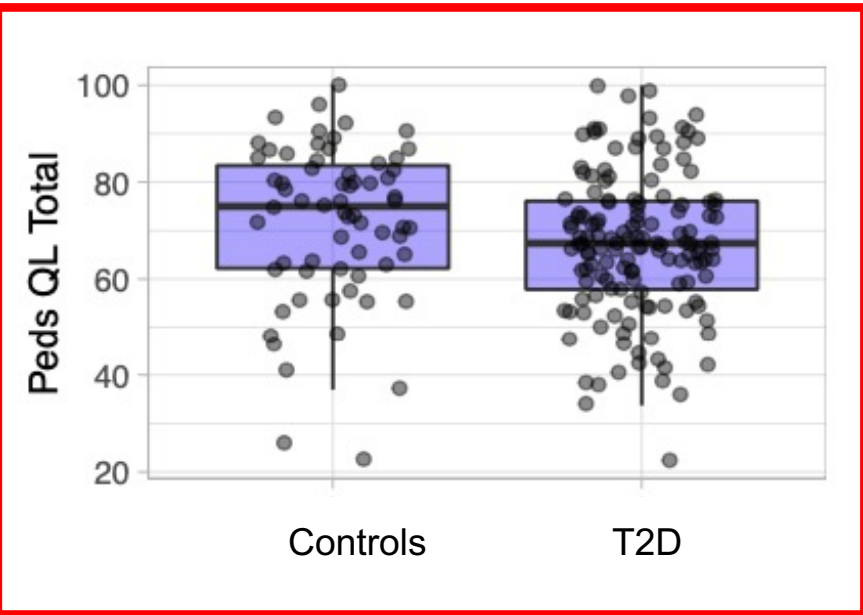
Controls: 71.71 ± 16.15
T2D: 67.01 ± 14.74
P= 0.0392

Controls: 67.85 ± 15.43
T2D: 63.14 ± 16.55
P= 0.0686
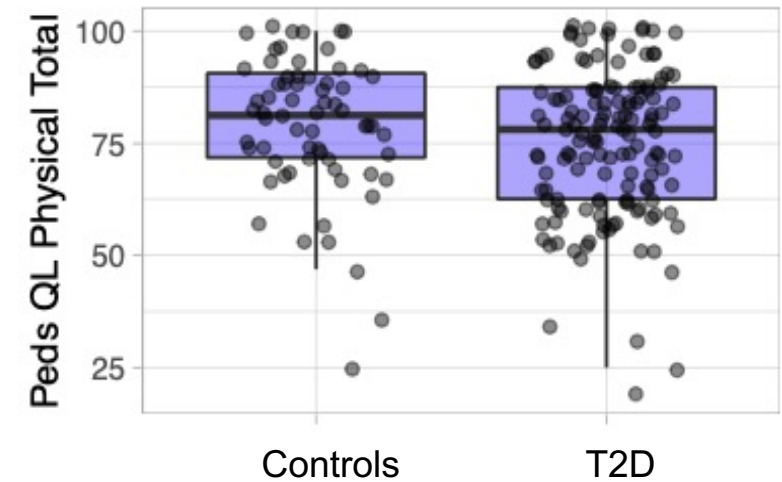
Controls: 78.93 ± 15.43
T2D: 74.71 ± 16.33
P= 0.0731

Multivariate Analysis: PedsQL Total

	Regression Coefficient	p Value
Diabetes Status	-2.3845	0.2817
PSS-14 total score	-0.194	0.3321
K6 total score	**-1.4662**	**<0.001**
Depression (No depression diagnosis)	1.2793	0.6766
Food security		
Marginally insecure,	-5.1571	0.1860
Moderately insecure	-3.4978	0.2064
Severely insecure	**-6.2615**	**0.0366**

Type 2 Diabetes Sub Analysis

	Regression Coefficient	p Value
HbA1C	0.806	0.195
CRP	-0.101	0.483
ACR	-0.0353	0.692
eGFR	0.0268	0.673
Insulin	3.020	0.368
Oral Anti-Diabetes	0.155	0.956

QOL in Other Populations
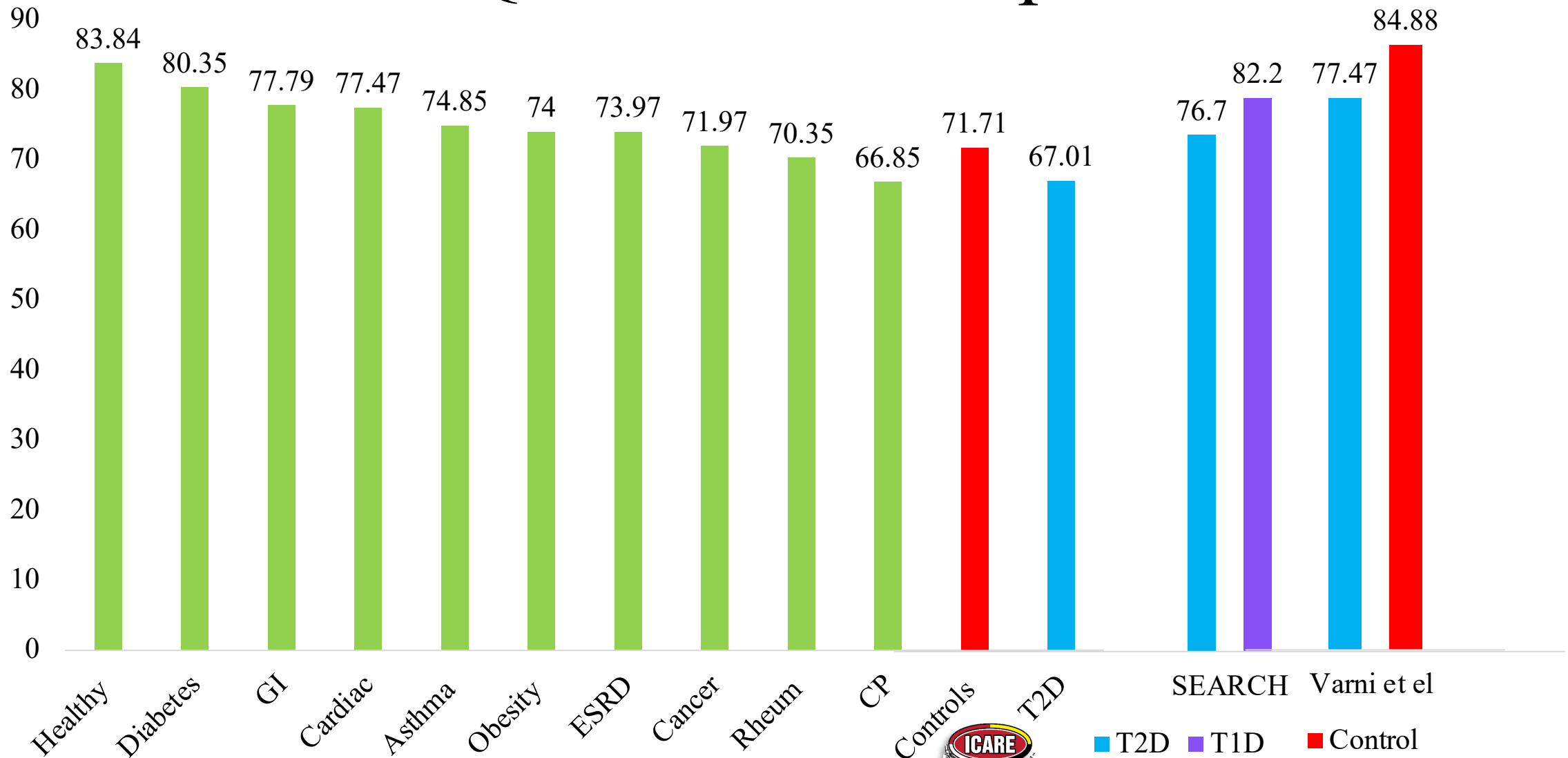
Varni et al, Health and Quality of Life Outcomes, 2007
Naughton et al, Archives of Pediatrics & Adolescent Medicine, 2008
Varni et al, Diabetes Care, 2003

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Conclusions
Key Findings

- Within the iCARE cohort, key predictors of decreased QOL in physical and psychosocial domains were:
    - Mental Distress
    - Severe Food Insecurity

- Identified areas for targeted intervention to improve QOL.

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Questions ?