

Association of Children's Type 1 Diabetes With Parents' Capability Well-being Assessed by The ICECAP-A Measure

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OBJECTIVES

There is limited data on how managing type 1 diabetes mellitus (T1DM) in children relates to parents' capability well-being.

This interim analysis aimed to assess the diabetic status of children with T1DM and to investigate which factors are associated with parents' capability well-being.

METHODS

- Design: cross-sectional study carried out in 2022
- Participants: dyads of parents and children with T1DM aged 8-15 years attending a university pediatric diabetes center in Hungary

Basic and disease characteristics were assessed:

- Sociodemographics (sex, age)
- Type of blood glucose measurement (conventional, sensor) and insulin administration (pen, pump)
- Glucose control status (average HbA1C level in the past 6 months)
- Self-reported impact of child's T1DM on parents' life (visual analogue scale, VAS; 0: not at all, 10: to the greatest extent you can imagine)

Standard measurement tools:

- Parents' capability well-being was recorded with the ICECAP-A¹⁻³
- Children's health-related quality of life was examined with the Pediatric Quality of Life Inventory (PedsQL) Diabetes Module⁴

Visual analogue scales (VAS; 0: the worst you can imagine, 10: the best you can imagine) were used by treating physicians to report parents':

- Therapeutic cooperation
- Knowledge of the disease
- Knowledge of the therapeutic tools

Statistics:

- Group differences were assessed by parametric and non-parametric tests
- Associations between parental characteristics, children's glucose control and health-related quality of life were analyzed by calculating the Pearson correlation coefficients

RESULTS

- At the time of the interim analysis (October, 2022), the total number of dyads was N=121
- Parents' mean age was 42.5 ±5.8 years (81.1% female), and their average ICECAP-A score was 0.88 ±0.14.
- Children's (mean age 11.8 ±1.8 years, 48.5% female) 6 months average HbA1C was 7.6 (±1.3), while the mean PedsQL Diab score was 73.9 ±13.0.
- HbA1C differed significantly across treatment modalities being the best in the pump+sensor subgroup but PedsQL Diabetes score did not. Results are shown in Table 1.

Table 1. Children's basic and disease characteristics by treatment modalities

	Pen	Pen + sensor	Pump + sensor	p*
N (%)	31 (25.6)	48 (39.7)	42 (34.7)	-
Sex, female	41.9 %	43.8%	57.1%	0.331
Age, years	11.5 (2.1)	11.8 (1.8)	12.0 (1.6)	0.495
6 months HbA1C	8.7 (1.8)	7.3 (1.0)	7.2 (0.6)	<0.001
PedsQL Diab score	69.6 (15.4)	74.2 (11.7)	76.8 (11.7)	0.059

Values are means (SD) unless otherwise indicated
One child was without a sensor in the pump+sensor group

- Parents' therapeutic cooperation ($F_{2,118}=30.1$, $p<0.001$), knowledge of disease ($F_{2,118}=36.2$, $p<0.001$), and knowledge of therapeutic device ($F_{2,118}=86.2$, $p<0.001$) significantly differed across treatment modalities (Figure 1).
- ICECAP-A values significantly differed ($F_{2,118}=4.9$, $p=0.009$) by treatment modalities (Figure 2).
- Weak, significant correlations were found between ICECAP-A scores, glucose control and parents' attitude towards and knowledge of children's diabetes (Figure 3).

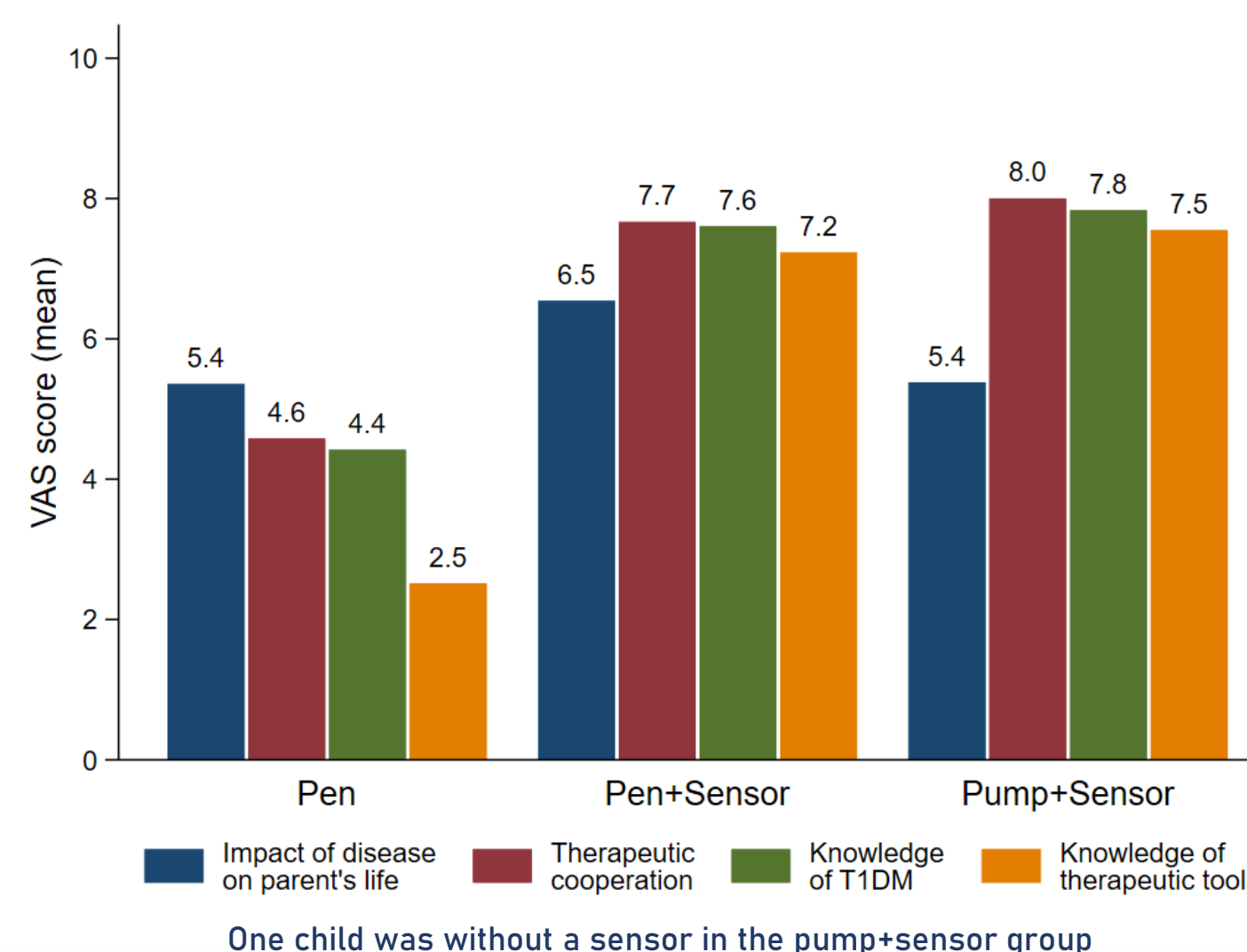


Figure 1. Self-reported disease impact on parents' life and diabetologists' opinion on parents' attitude and knowledge analyzed by treatment modalities

Note: Higher VAS score refers to better status, except the 'Impact of the disease on parents' life' item

Figure 2. Parents' capability well-being (ICECAP-A scores) by treatment modalities

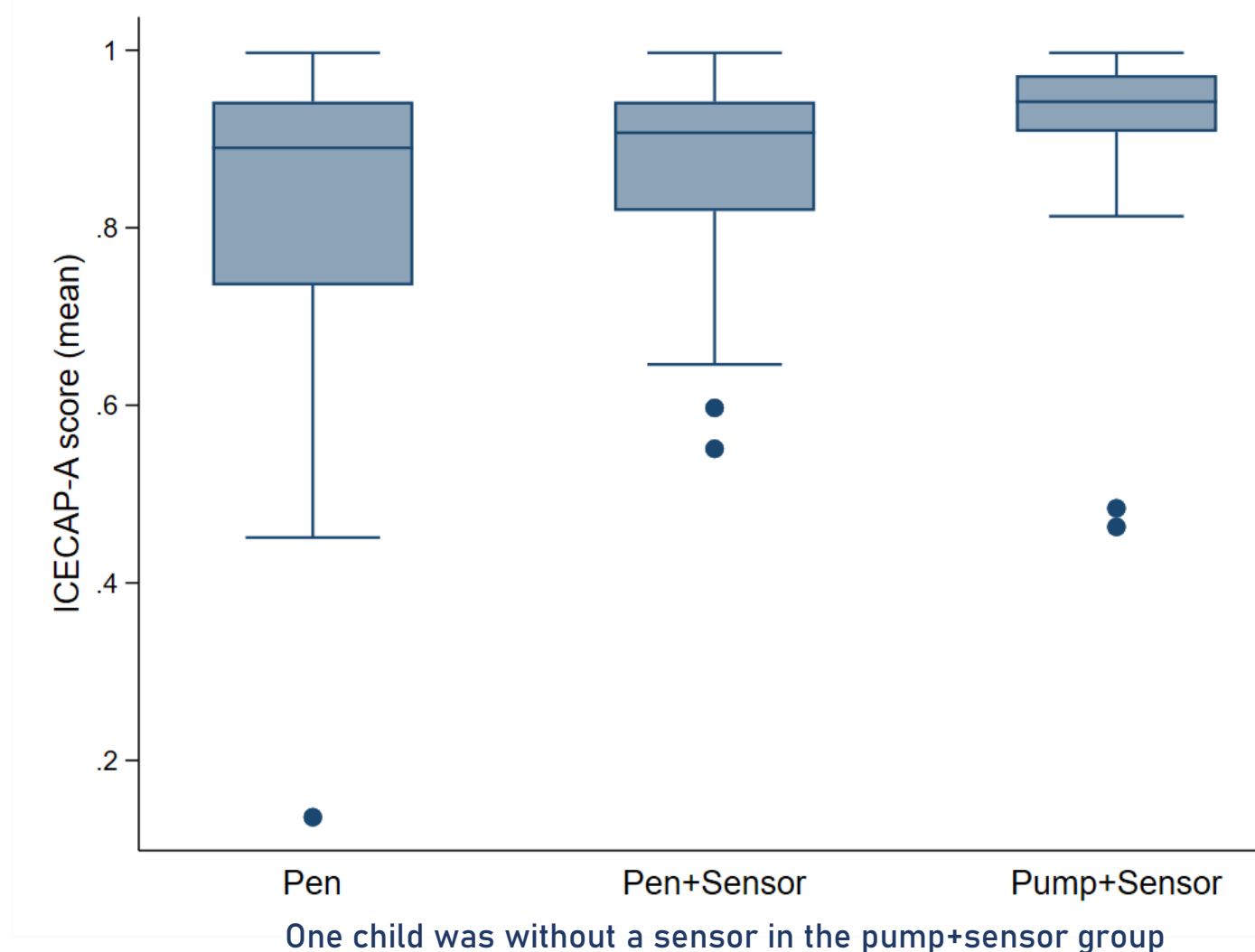
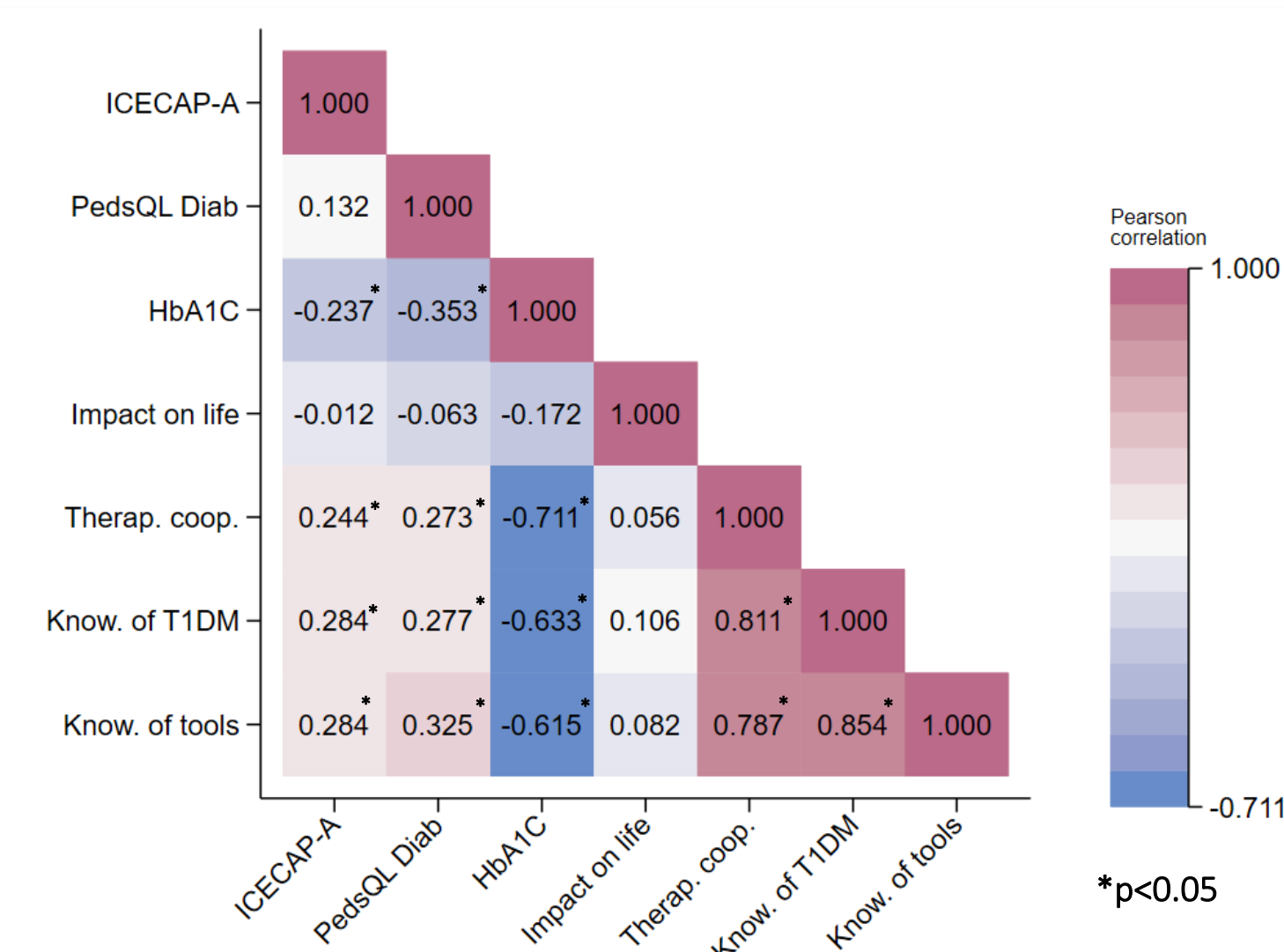


Figure 3. Correlation of parental scores, children's health-related quality of life, and glucose control



CONCLUSIONS

Preliminary results of this study suggest slight associations between parents' generic capability well-being as measured with the ICECAP-A, and the choice of their children's therapy and glucose control. The weak relationship between ICECAP-A and parental therapeutic cooperation and T1DM knowledge draws attention to the need for further studies to explore additional determinants of parent's cooperation and becoming an informed caregiver.

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