

EQ-5D STUDIES IN PEDIATRIC DIABETES: A SYSTEMATIC REVIEW

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BACKGROUND AND OBJECTIVES

EQ-5D refers to a family of instruments designed to assess and value health-related quality of life (HRQoL). EQ-5D is the most often used preference-based HRQoL measure to calculate health gains (quality adjusted life years, QALY) in cost-utility analyses.

The aim of this study was to systematically review the literature for studies reporting EQ-5D results in pediatric diabetes, with special focus on the EQ-5D-Y instrument version that was developed in 2009 to assess HRQoL of children and adolescents.

METHODS

Systematic literature review

- Databases, search: PubMed and Web of Science; 13 June, 2023
- Eligibility criteria: patients aged <18 and having diabetes; any/none intervention; any/none control group; outcome data were provided with any version of the EQ-5D measurement tool; original article in English.
- Screening of the records: first by Title and abstract, selected publications were then reviewed by full text.

- Data extraction, descriptive analysis

EQ-5D (for details, please visit: <https://euroqol.org/>):

- Descriptive system covers five dimensions of health:

mobility, self-care, usual activities, pain/discomfort, anxiety/depression

Response scale: 3 levels (EQ-5D-3L, EQ-5D-Y-3L)

5 levels (EQ-5D-5L)

Health state descriptions can be converted into an index value.

- EQ VAS: self-rated health on a visual analogue scale (0-100)

CONCLUSIONS

- There is a scarcity of EQ-5D data in pediatric diabetes.
- Studies were reported only from nine countries.
- Relevant methodological details regarding the EQ-5D were often incompletely reported.
- Given the increasing need to evaluate new diabetes-related technologies, EQ-5D (in particular EQ-5D-Y) studies in pediatric diabetes are encouraged.

RESULTS

- 11 articles reporting 10 studies were identified. (Fig. 1)
- The studies were published between 2009 and 2022. (Table 1)
- Tariffs used to calculate EQ-5D index score were specified in three studies.

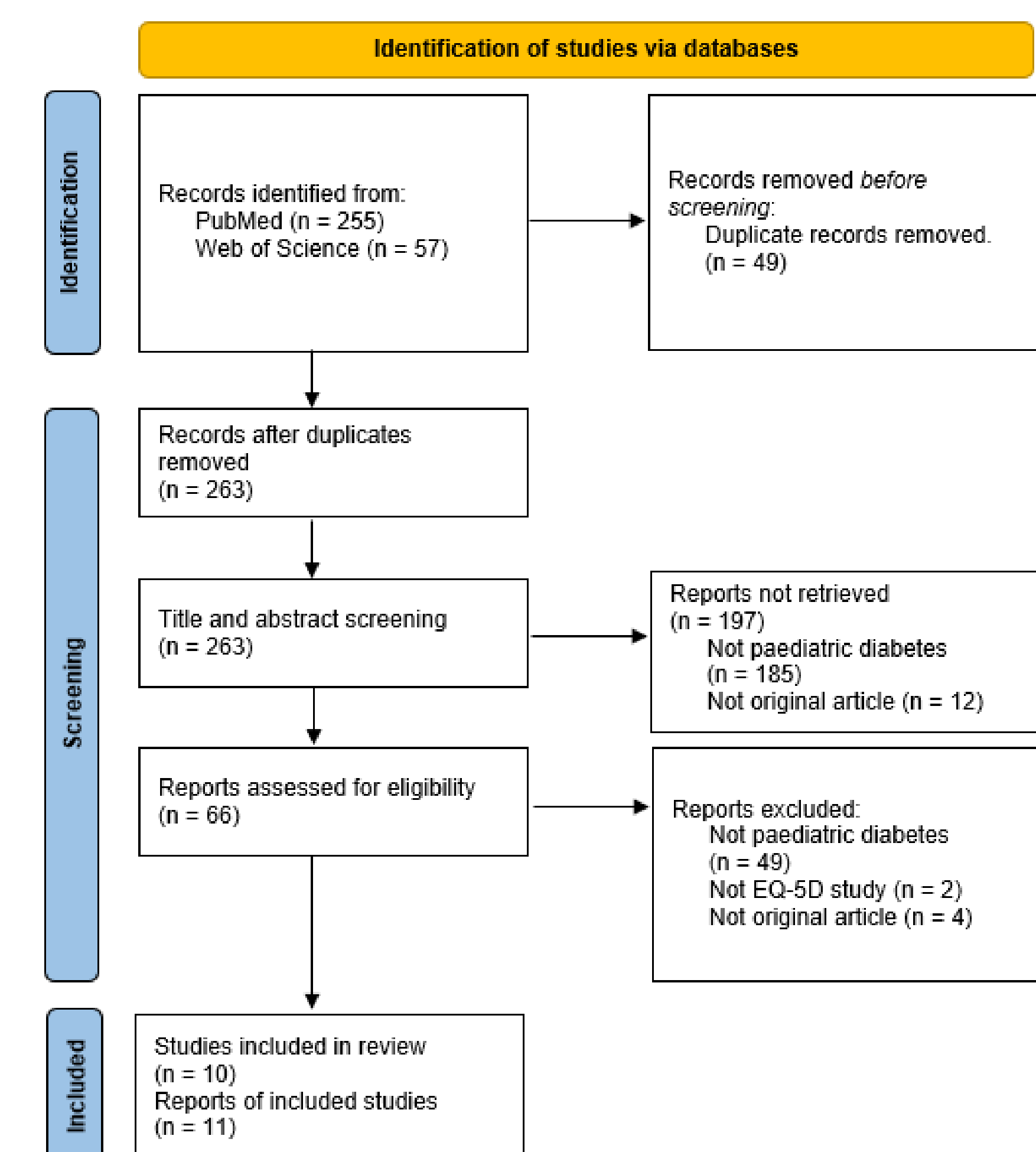


FIGURE 1. PRISMA FLOW DIAGRAM OF STUDY SELECTION

First author (Publication year)	Country	Study type (sample size)	EQ-5D version
Willems (2009)	Netherlands	Cross-sectional (N=182)	EQ-5D-3L (proxy); (early) EQ-5D-Y
Hanberger (2009)	Sweden	Cross-sectional (N=400)	EQ-5D-3L
Lloyd (2010)	UK	Cross-sectional (N=44)	EQ-5D-3L (proxy)
Ly (2014)	Australia	Cost-utility analysis	EQ-5D-3L
Lin (2015)	China	Cross-sectional (N=133)	EQ-5D-3L
Murillo (2017) Mayoral (2019)	Spain	RCT (N= 136)	EQ-5D-Y
Lopez-Bastida (2019)	Spain	Cross-sectional (N=275)	EQ-5D-3L (proxy); EQ-5D-Y
Noyes (2020)	England and Wales	RCT (N=293)	EQ-5D-3L; EQ-5D-Y
Ludwig (2021)	Germany	Cross-sectional (N=280)	EQ-5D-Y; cognitive bolt on
Azulay (2022)	Brazil	Cross-sectional (N=52)	EQ-5D-3L

TABLE 1. SUMMARY OF EQ-5D STUDIES IN PEDIATRIC DIABETES

References:

1.) Azulay RS et al. Relationship among health-related quality of life and global ancestry, clinical and socioeconomic factors in type 1 diabetes in an admixed Brazilian population. *Sci Rep.* 2022 Jun 30;12(1):11060. 2.) Hanberger L et al. Health-related quality of life in intensively treated young patients with type 1 diabetes. *Pediatr Diabetes.* 2009 Sep;10(6):374-81. 3.) Lin K et al. Diabetes Self-Care Activities and Health-Related Quality-of-Life of individuals with Type 1 Diabetes Mellitus in Shantou, China. *J Int Med Res.* 2016 Feb;44(1):147-56. 4.) Lloyd A et al. A valuation of infusion therapy to preserve islet function in type 1 diabetes. *Value Health.* 2010 Aug;13(5):636-42. 5.) López-Bastida J. Health-related quality of life in type 1 diabetes mellitus pediatric patients and their caregivers in Spain: an observational cross-sectional study. *Curr Med Res Opin.* 2019 Sep;35(9):1589-1595. 6.) Ludwig K et al. Developing and testing a cognitive bolt-on for the EQ-5D-Y (Youth). *Qual Life Res.* 2022 Jan;31(1):215-229. 7.) Ly TT et al. A cost-effectiveness analysis of sensor-augmented insulin pump therapy and automated insulin suspension versus standard pump therapy for hypoglycemic unaware patients with type 1 diabetes. *Value Health.* 2014 Jul;17(5):561-9. 8.) Myoral K et al. Measurement Properties of the Online EuroQol-5D-Youth Instrument in Children and Adolescents With Type 1 Diabetes Mellitus: Questionnaire Study. *J Med Internet Res.* 2019 Nov 12;21(11):e14947. 9.) Murillo M et al. Health-related quality of life (HRQoL) and its associated factors in children with Type 1 Diabetes Mellitus (T1DM). *BMC Pediatr.* 2017 Jan 13;17(1):16. 10.) Noyes J et al. Standardised self-management kits for children with type 1 diabetes: pragmatic randomised trial of effectiveness and cost-effectiveness. *BMJ Open.* 2020 Mar 12;10(3):e032163. 11.) Willems DC. Et al. Using EQ-5D in children with asthma, rheumatic disorders, diabetes, and speech/language and/or hearing disorders. *Int J Technol Assess Health Care.* 2009 Jul;25(3):391-9.