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Background

Metabolic control (MC) of children with type 1 diabetes (DM1) is linked to complications in the short and long term follow up. Adolescence is a critical period in the treatment of DM1, making it difficult to achieve a good MC. Few studies have shown association between mother's depressive symptoms with poor MC of their children. Metabolic control in children and adolescents with DM1 depends on the socioeconomic level, educational level of the parents, nutritional status, adherence to treatment, and mental health of their caregivers.

Aims

- 1) To evaluate the association between maternal depressive symptoms and metabolic control in adolescents with DM1.
- 2) To determine the association between maternal depressive symptoms with depressive symptoms in their children
- 3) To associate adolescent depressive symptoms and metabolic control.

Subjects and methods

- Cross-sectional study of adolescents 10 to 18 years with DM1 over one year of evolution, and their mothers.
- Surveys:
 - Mothers: Beck II test (BDI-II), SALUFAM and a socio demographic data questionnaire.
 - Adolescents: Child depression questionnaire (CDI).
- HbA1c was used as a metabolic control marker.
- For numerical variables, a Mann-Whitney U test was performed and for categorical variables two-tailed Fisher test. Any value $p < 0.05$ was considered significant.

Results

- There was no difference between mothers with vs without depressive symptoms regarding: maternal or paternal occupation, per capita income, maternal or paternal chronic diseases, number of people at home, adolescent comorbidities, and nutritional status.

Table 1: Main characteristics of mothers with (+) and without (-) depressive symptoms

	Mother (+) n = 22 (25.6%)	Mother (-) n = 64 (74.4%)	P Value
Female sex	11 (50)	31 (48.4)	1.00
Mean adolescent age in years (SD)	14.4 (2.53)	13.9 (2.22)	0.42
Mean maternal Age in years (SD)	44.5 (9.52)	42.5 (7.53)	0.51
DM1 duration. Years	5.03 (3.74)	6.27 (3.81)	0.157
Mean number of siblings (SD)	3.45 (1.06)	2.19 (1.19)	<0.001
Brother with chronic illness	7 (33.3%)	6 (10.3%)	0.03
Mean per capita income (SD)	US\$ 170 (133)	US\$ 447 (609)	0.099
Mother's educational level			
< 12 years	4 (18.2)	6 (10)	
> 12 years	9 (40.9)	18 (30)	0.99
Technical level	8 (36.4)	19 (31.7)	0.82
University	1 (4.5)	17 (28.3)	0.02
Father's educational level			
< 12 years	6 (30)	2 (3.8)	
> 12 years	6 (30)	18 (34.6)	0.04
Technical level	6 (30)	15 (28.8)	0.02
University	2 (10)	17 (32.3)	0.004
Health Vulnerability SALUFAM	15 (68.2)	9 (14.8)	< 0.001
Adolescent's depressive symptoms	4 (19.0)	11 (17.5)	1.00
Mean % HbA1c (SD)	8.91 (1.52)	7.66 (1.34)	<0.001

Fig. 1: Average HbA1c according to severity of maternal depressive symptoms. 0: No depressive symptoms, 1: Mild, 2: Moderate, 3: Severe

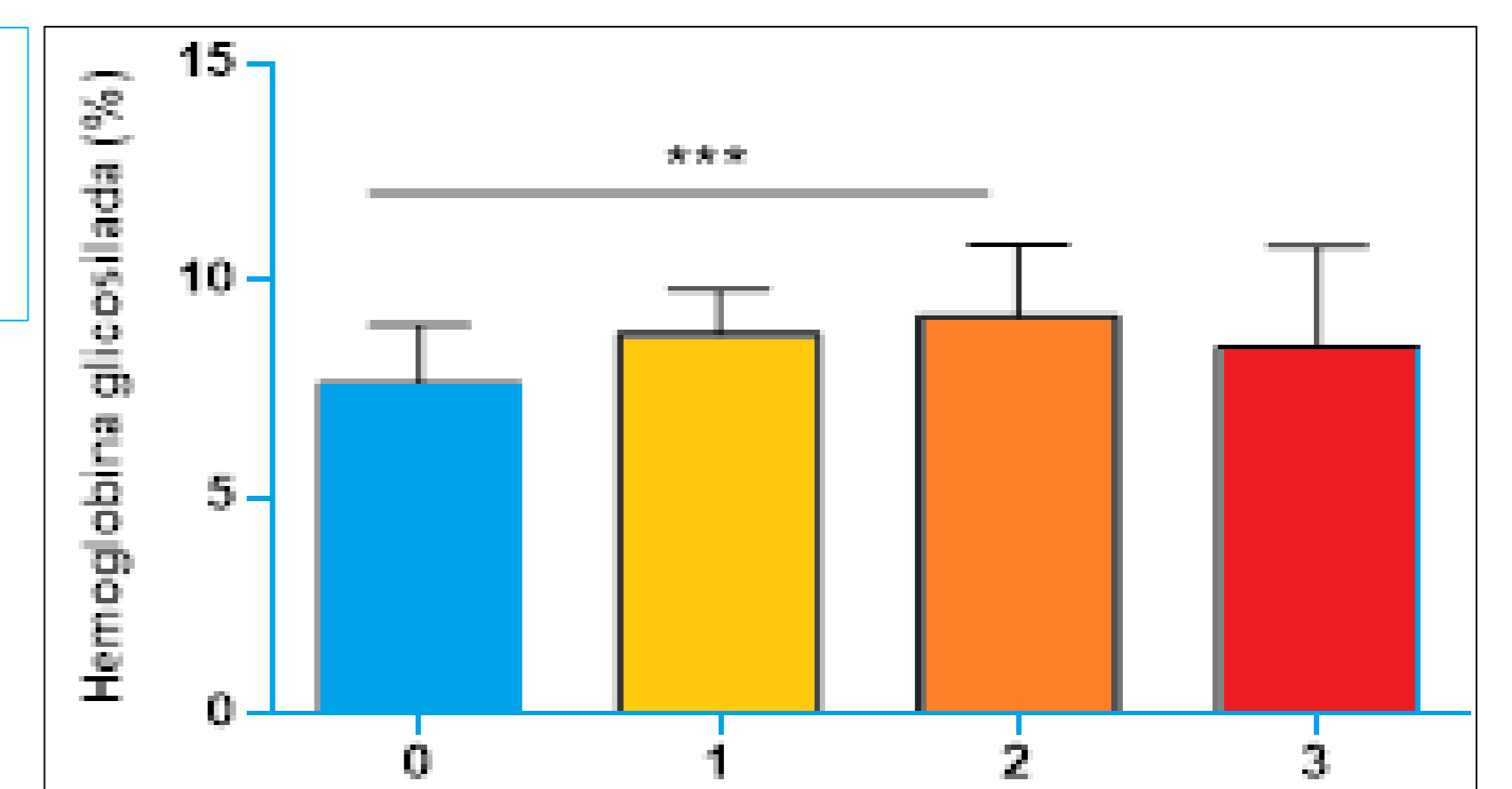


Fig. 2: Average HbA1c in patients with (+) and without (-) depressive symptoms

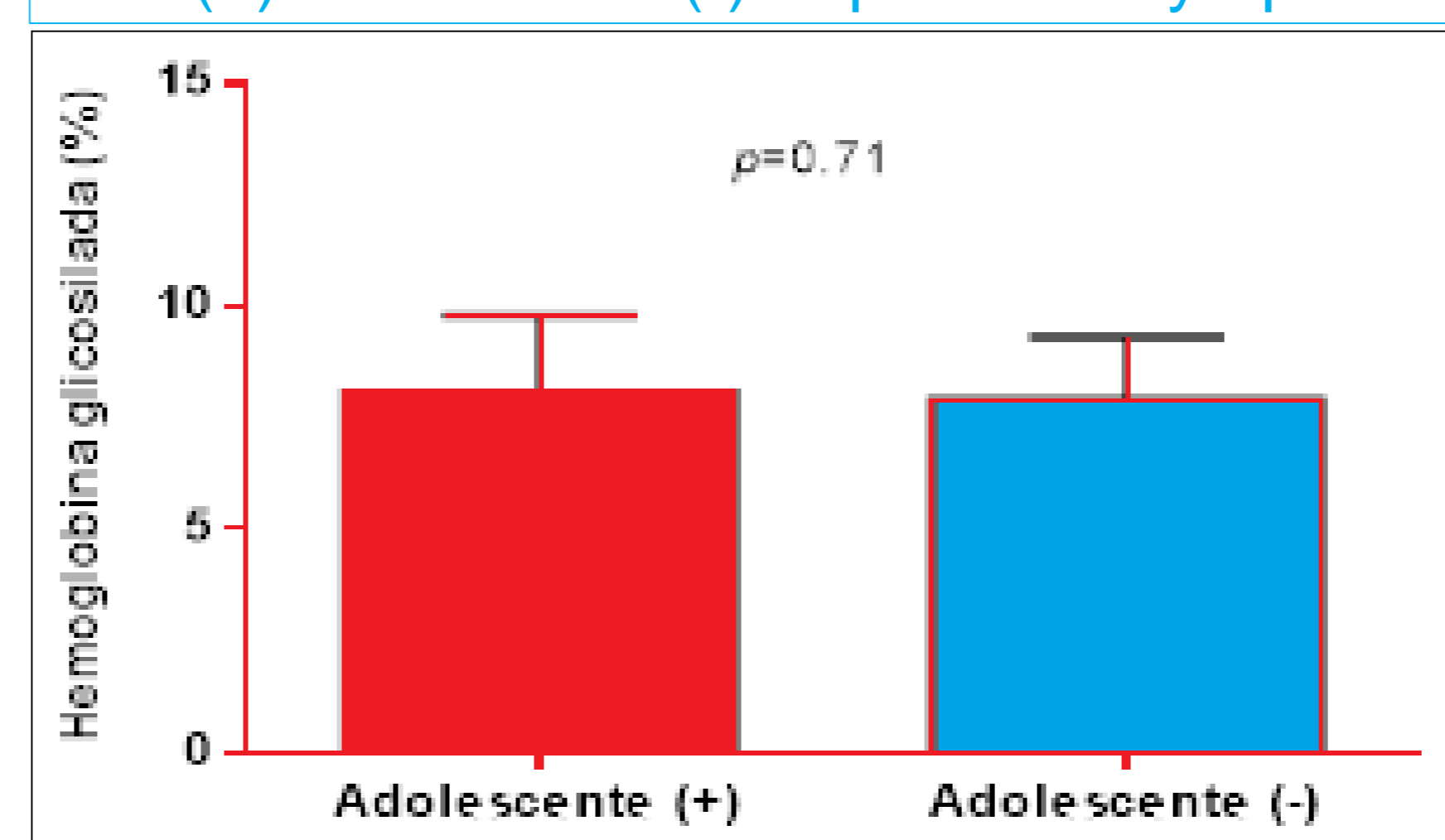


Fig. 3: Average HbA1c in patients with (+) and without (-) health vulnerability

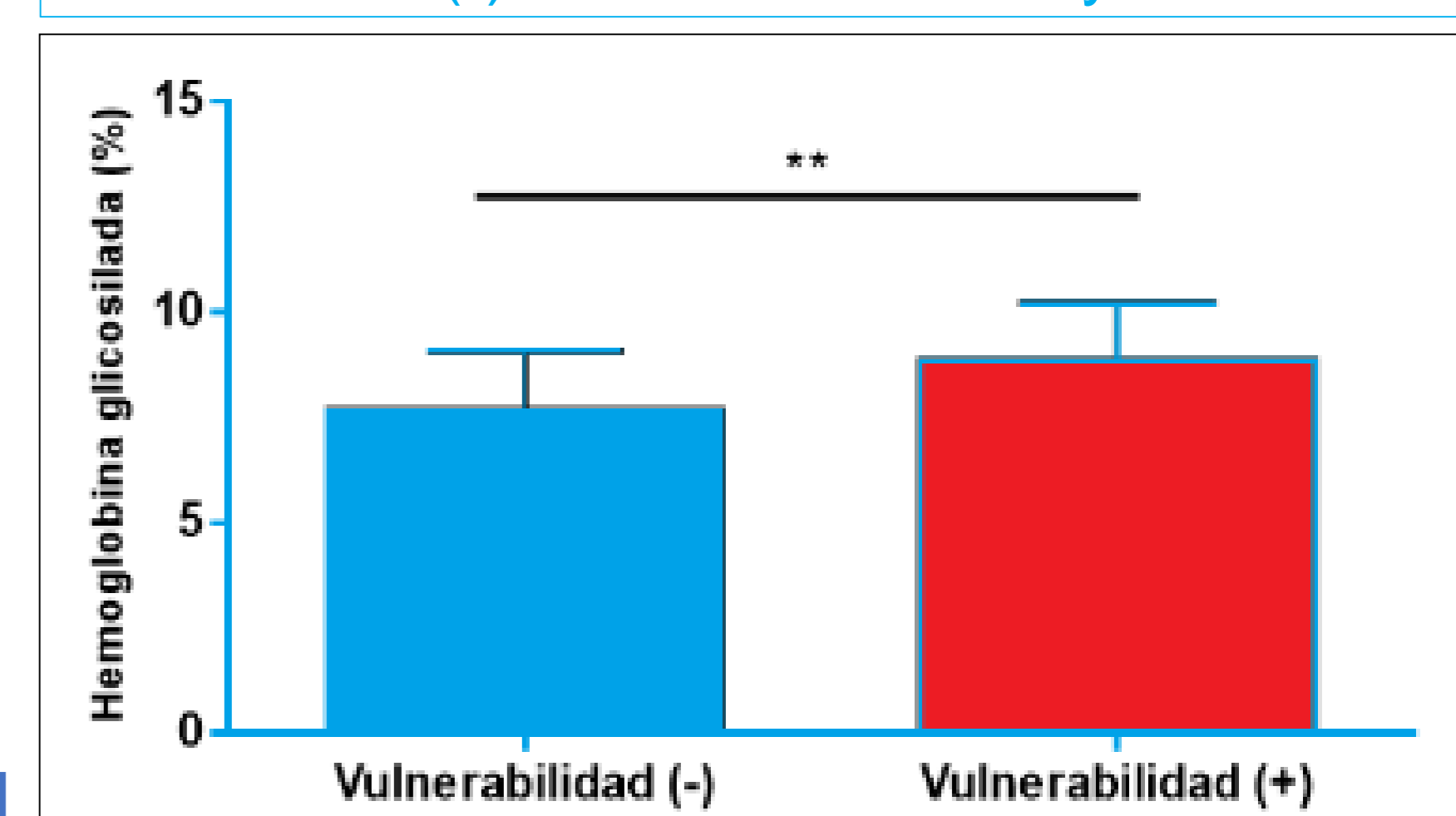


Table 2: Multivariate analysis for HbA1c

	Adjusted OR	CI 95%
Another chronic disease in the adolescent	3.82	1.11-13.12
Health vulnerability (SALUFAM)	5.7	1.08-30.09
Mother's depressive symptoms	6.15	1-14-33.06

Variables included: Gender, presence of another chronic disease in the adolescent, presence of maternal and adolescent depressive symptoms and health vulnerability

Conclusions

The presence of maternal depressive symptoms is associated with worse metabolic control in adolescents, so a family multidisciplinary approach is essential to obtain better metabolic results in adolescents with DM1.