

Intelligence and behaviour in children and adolescents with Hashimoto's thyroiditis



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DISCLOSURE STATEMENT

The authors have nothing to disclose

BACKGROUND

Hashimoto's Thyroiditis (HT) is an auto-immune-mediated disorder, and is the most common cause of thyroid disease and acquired hypothyroidism in children and adolescents. In adults with HT, concentration problems, memory disorders and an increased rate of depression have been reported.

OBJECTIVE AND HYPOTHESES

We aimed to investigate whether

- ✓ children and adolescents with HT have more behaviour and emotional problems
- ✓ and/or lower intelligence than healthy subjects.

METHODS

Children/ adolescents with HT recruited via our paediatric-endocrine clinics and age-matched healthy controls underwent psychometric testing. Table 1 gives details about the constructs and applied tests.

Construct	Test
Intelligence	Cultural-Fair-Intelligence-Test (CFT-20-R)
Physical complaints	Gießener complaint questionnaire (GBBKJ)
Alexithymia	Toronto-Alexithymia Scale (TAS 26)
Behavioural problems	Child-Behaviour-Checklist (CBCL)

Table 1. Constructs and applied tests

Student's t-test was used to compare the findings. In addition we determined serum antibodies against thyroper-oxidase (TPO) and thyroglobulin (TG) in both groups, and TSH and fT4 in HT patients.

	HT patients	Controls
Number of probands	31	28
with co-morbidities [with diabetes Typ I]	20 (7)	0 (0)
Mean age ± SD (yrs.) [range]	15.3 ± 2.7 [8.1-18.7]	14.7 ± 2.3 [10.8-18.9]
Female : male	28:3	23:5

Table 2. Characteristics of the study population.

RESULTS

Table 2 gives an overview of the study population. Age, gender, and parental education differed not between both groups. Figure 1a, b shows the HT patients' TSH- and fT4-values, figure 1c TPO- and TG antibody-values. No thyroid antibodies were found in the control probands.

Despite a marginally lower mean IQ in the HT group, no significant difference compared to the control group could be detected. Figure 2 shows the IQ-distribution in both groups. Neither the GBBKJ nor TAS 26 revealed significant differences between patients and controls. Behavioural problems, however, detected by CBCL ("Competence-Scales" covering "social competence", "activity" and "school" as well as "Syndrome-Scales" covering emotional problems and bodily complaints) were significantly more common in HT patients than in controls ($p < 0.05$, respectively) (Figure 3). Co-morbidities, especially Diabetes mellitus type I seemed not to influence the result.

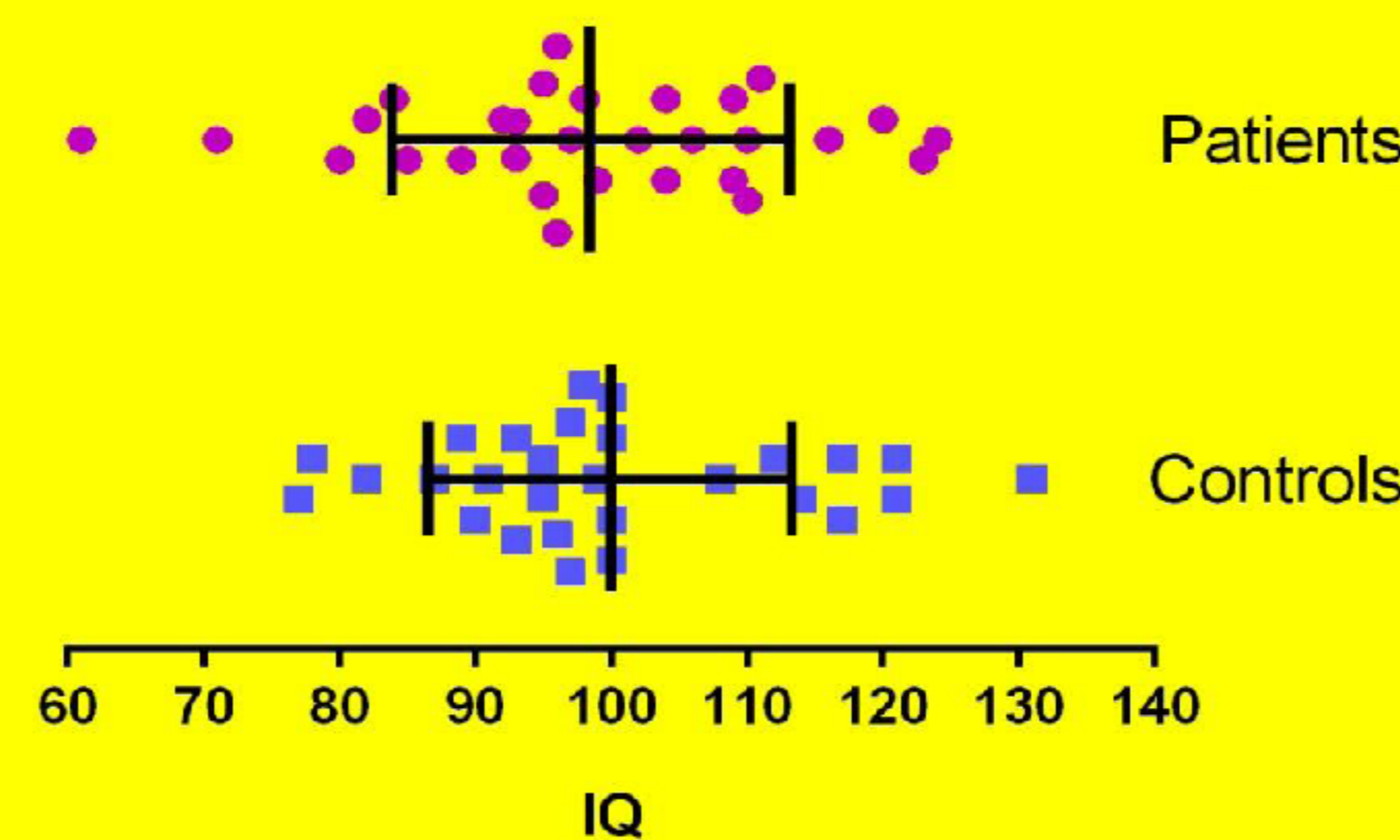


Figure 2. IQ (determined by CFT-20-R) in HT patients and controls; mean ± SD.

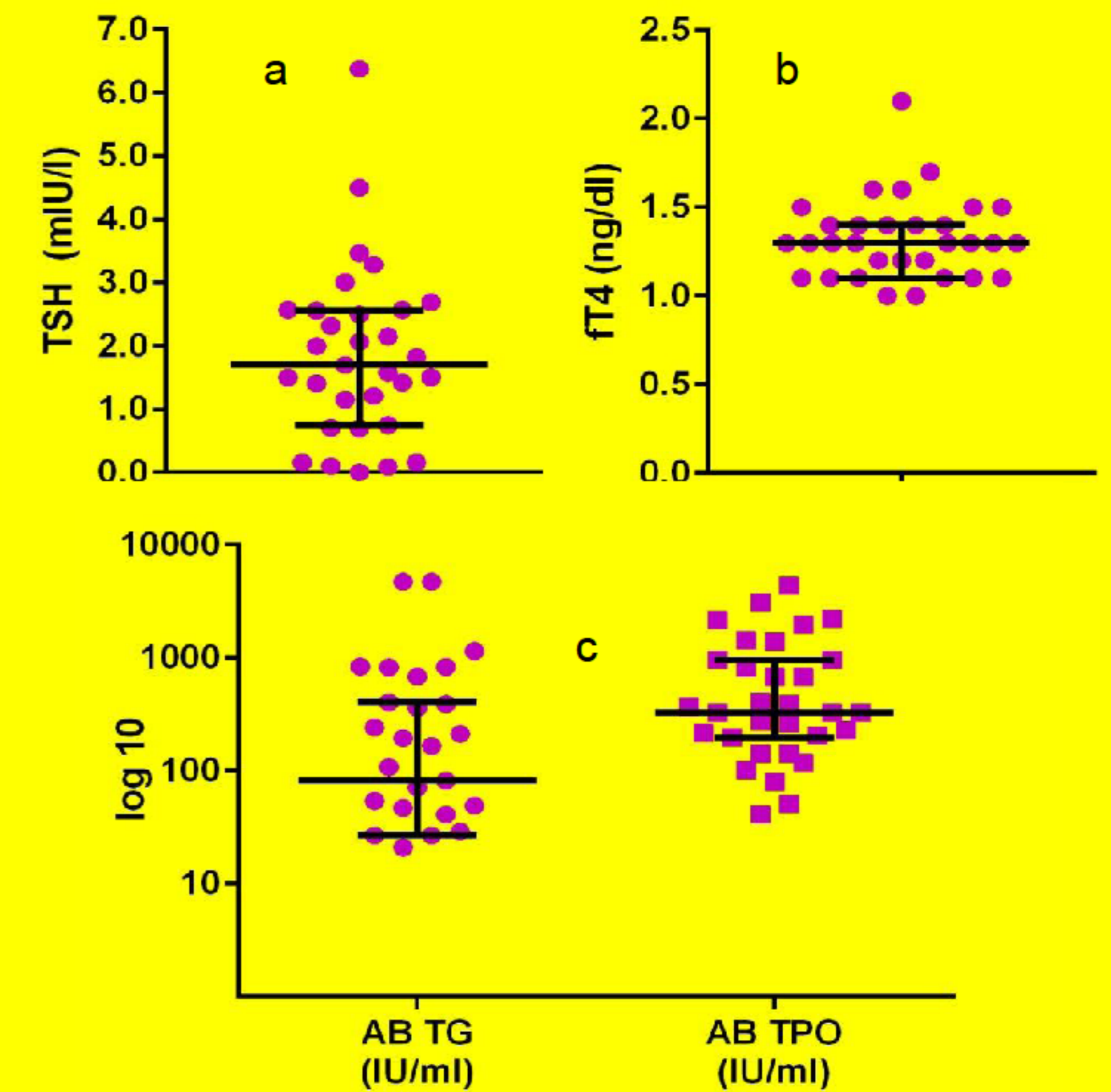


Figure 1a-c. TSH (a) – fT4(b) values, thyroglobulin [TG] – and thyroperoxidase [TPO]-antibody (AB)-values (c) in HT patients; median and inter-quartile range.

SUMMARY

❖ Children/adolescents with HT show more behavioural problems but not more intellectual problems than healthy subjects of the same age.

❖ Further investigations should clarify whether the socio-emotional problems are specifically related to HT, or are due to affection by a chronic disease per se.

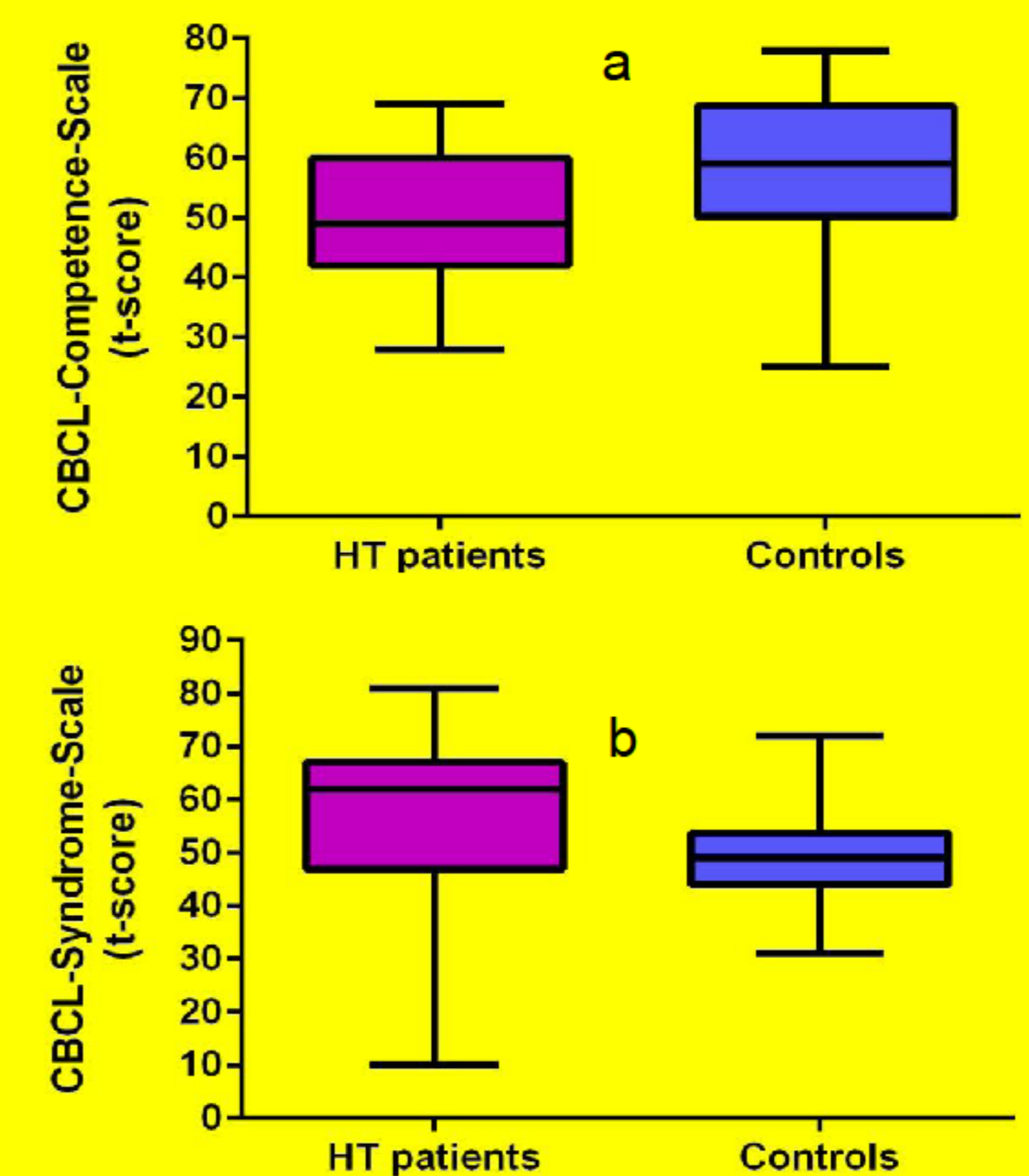


Figure 3 a, b. CBCL-Competence-Scale (a) and Syndrome-Scale (b) in HT patients and controls (t-scores); mean, min-max.