

# The effect of GnRH-analogue therapy on the quality of life of patients with central precocious puberty and their families

Lucaccioni Laura<sup>1</sup>, Pugliese Marisa<sup>1</sup>, Manzotti Elena<sup>2</sup>, Bruzzi Patrizia<sup>3</sup>, Bigi Elena<sup>3</sup>, Madeo Simona F.<sup>3</sup>, Poluzzi Silvia<sup>2</sup>, Righi Beatrice<sup>2</sup>, Paterlini Elisa<sup>1</sup>, Predieri Barbara<sup>1,3</sup>, Iughetti Lorenzo<sup>1,2,3</sup>

<sup>1</sup> Department of Medical and Surgical Sciences of the Mother, Children and Adults. University of Modena and Reggio Emilia.  
<sup>2</sup> Post-graduate school of Paediatrics, University of Modena and Reggio Emilia.  
<sup>3</sup> Paediatric Unit, University Hospital of Modena.



## INTRODUCTION

Quality of Life (QoL) is a multidimensional indicator that includes physical, emotional, social and academic performance parameters, and represents an important evaluator of patient's health, affecting long-term outcomes of chronic diseases. There is no agreement between disease severity, duration of treatment and QoL. Among the diseases requiring "chronic" treatment during pediatric age, there is central precocious puberty (CPP) in which the duration and the mode of administration of the GnRH analog (aGnRH) represent an important stress factor for patients and their families. The aim of our study is to evaluate the QoL and treatment-related stress in children with CPP and their families during and after treatment.

## MATERIALS AND METHODS

56 patients (2 males) with CPP attending a tertiary Endocrinological Outpatient Clinic between 2015 and 2016 were enrolled.

The population was divided, according to the age, in 4 categories:

G1: 3 patients, age 4-7 years – on treatment with aGnRH

G2: 15 patients, age 8-12 years - on treatment with aGnRH

G3: 13 patients, age 13-18 years - off therapy, still on clinical follow up

G4: 25 patients beyond 18 years – off therapy

30 controls paired for age and level of instruction were also evaluated.

Each patient underwent two different questionnaire:

### Pediatric Quality of Life Inventory (PedsQL)

Validated Self-completion questionnaire due of 23 items divided in 4 areas:

- Physical functioning (8 item)
- Emotional functioning (5 item)
- Social functioning (5 item)
- School functioning (5 item)

Groups G1 – G2 – G3 and controls underwent this questionnaire

### Questionnaire to test self perception

Experimental questionnaire divided by age groups and tailored ad hoc for CPP by Psychologists aimed to specifically evaluate self perception during therapy.

It was administered to groups G1 - G2 - G3 and their parents. It was also administered to the G4 group, with reference to both the treatment period and the current period.

## RESULTS

### PedsQL QUESTIONNAIRE

	G1 (n: 3)	G2 (n: 15)	G3 (n: 13)	CONTROLS (n:30)	COMPARISON BETWEEN G1-G2-G3	COMPARISON BETWEEN PATIENTS ON TREATMENT AND CONTROLS
Physical functioning	82.64 ± 6.87	77.54 ± 18.16*	84.86 ± 12.55	86.43 ± 8.85*	$\chi^2= 0.79$ $p=0.67$	$p=0.066$
Emotional functioning	83.3 ± 16.99	76.56 ± 15.18	77.88 ± 15.44	77.3 ± 13.65	$\chi^2= 0.72$ $p=0.69$	$p=0.98$
Social functioning	90 ± 8.16	86.86 ± 13.21	94.23 ± 6.75	89.7 ± 9.91	$\chi^2= 1.84$ $p=0.39$	$p=0.746$
School functioning	75 ± 5	75.31 ± 19.08	81.92 ± 13.52	81.83 ± 12	$\chi^2= 1.95$ $p=0.37$	$p=0.279$

Table 1: Scores of PedsQL for cases and controls in each sub-scale (mean ± SD)

A difference statistically significant was detected in the evaluation of physical functions between G2 and controls (\* $p:0.02$ ).

No significant differences were detected comparing PedsQL scores among G1, G2 and G3 groups each others nor comparing patients and controls.

In G2 and G3 no significant association was found between the duration of treatment and the 4 functions of PedsQL (Spearman correlation).

## RESULTS

### SELF PERCEPTION QUESTIONNAIRE

Although no significant differences among G1, G2 and G3 nor between patients and their parents were detected, the scores trend showed in patients an increasing amount of stress therapy-related, proceeding with age (Fig.1).

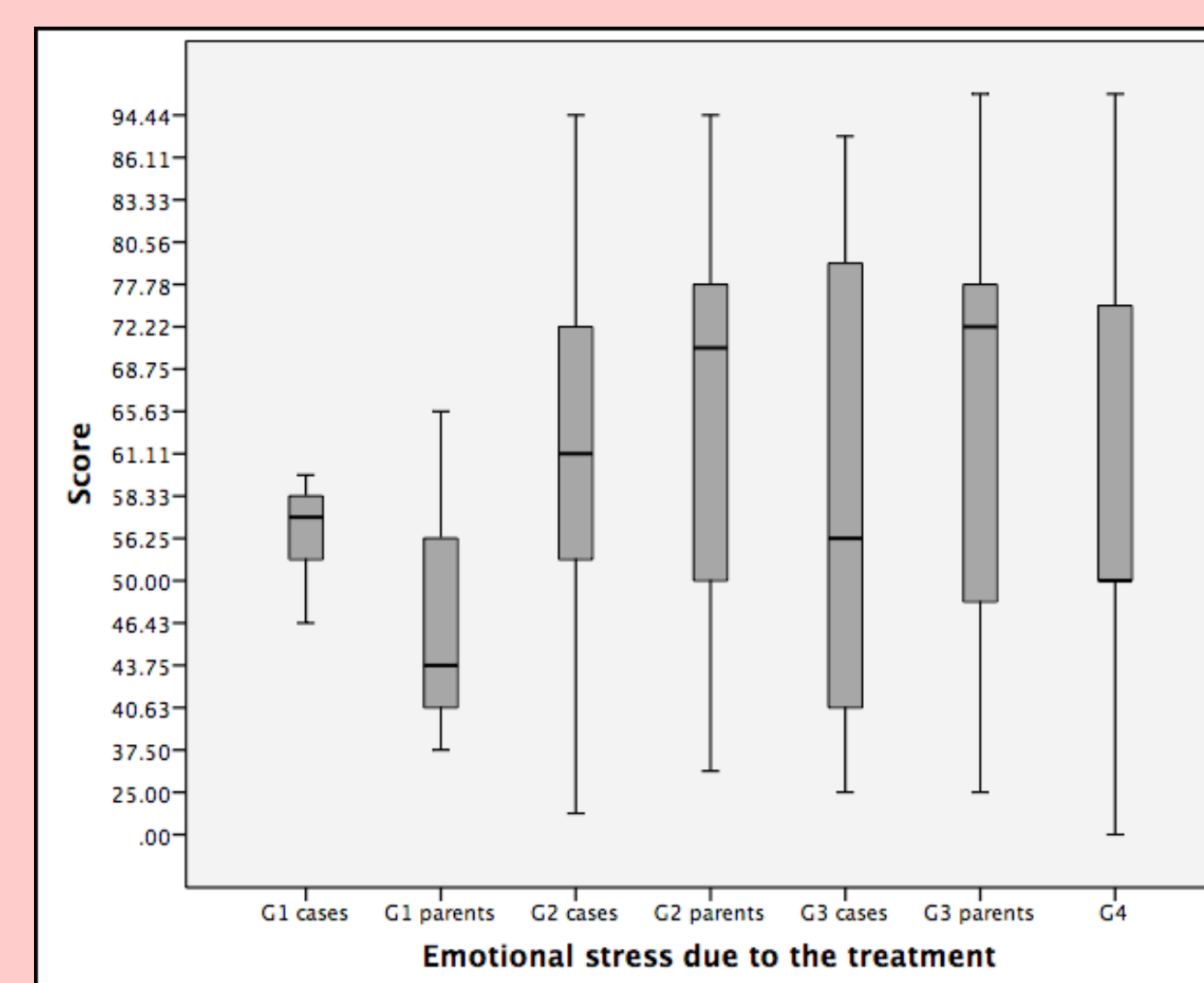
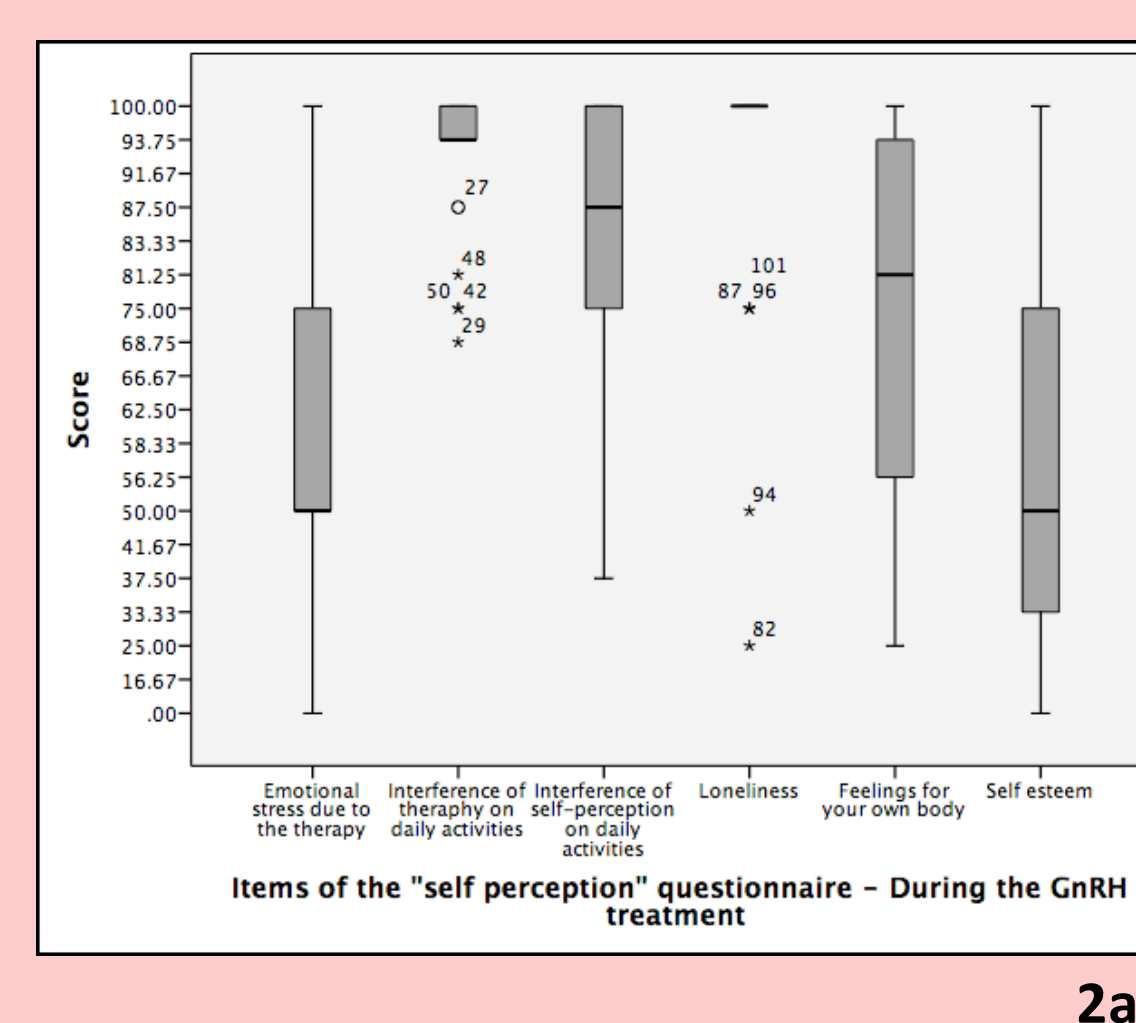


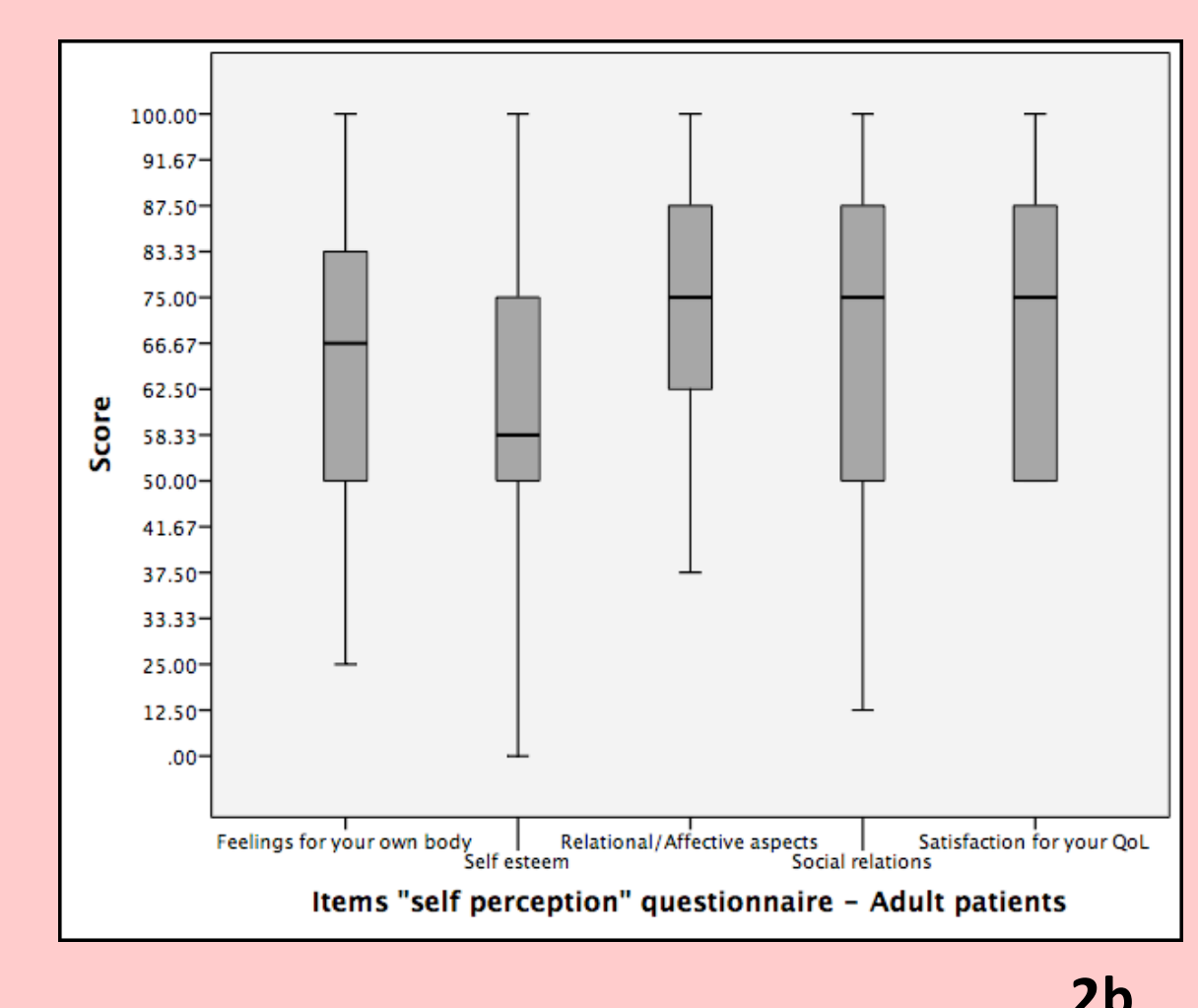
Fig 1: Comparison between Scores of cases and parents

For G4 a direct correlation was identified between duration of treatment and emotional stress due to the treatment ( $\gamma 0.47$ ;  $p: 0.021$ ).

In G4 lower scores about self-esteem were identified, referring both to the period of therapy and the period of questionnaire's compilation (Figure 2a and 2b).



2a



2b

## CONCLUSIONS

In CPP, from the PedsQL, it appears that therapy with aGnRH only affects QoL on physical functions. Levels of emotional stress therapy-related, detected through ad-hoc questionnaire, increase in treated patients, independently from the treatment interruption. In off-therapy patients a decreased self-esteem and an indirect correlation between emotional stress and duration of treatment were found, underlining the effect of therapy in self perception.

