

## Background

Anxiety disorders are the most common associated disorders in children with autism spectrum disorder (ASD). Without necessarily meeting the diagnostic criteria for a disorder, 80% of these children have anxious behaviors. This anxiety interferes with their quality of life (QoL). Among anxiety-provoking situations, school is one of them (e.g., change of teacher, oral presentations, exams). Besides medical and psychological interventions, new body-mind approach treatments, including yoga, are offered in a complementary way. Studies suggest that yoga appears to have the potential to ease anxiety symptoms in children with ASD.

## Objective

The objective of this study is to explore the effect of yoga practice on the anxiety of children with ASD and on their QoL in a school environment.

## Method

The sample is composed of 6 children with ASD (4 boys and 2 girls). The average age of this sample is 9 years old. The 8-week yoga Bali program was first adapted for children with ASD. A socio-demographic questionnaire was initially completed with one of their parents. A QoL questionnaire, the Systemic Quality of Life Inventory for Children (ISQV-E), and an anxiety questionnaire, the State Trait Anxiety Inventory for Children (STAIC), were completed with the children before the start of the yoga program and after it.

## YOGA BALI-ASD



Based on Dr Bali Method™ which include : Hatha yoga postures, moments of relaxation between poses and different educational themes

One yoga class per week during 8 weeks at the university given by a trained yoga teacher

Yoga at home : document with illustrations, recording of the relaxation and logbook are provided to participants

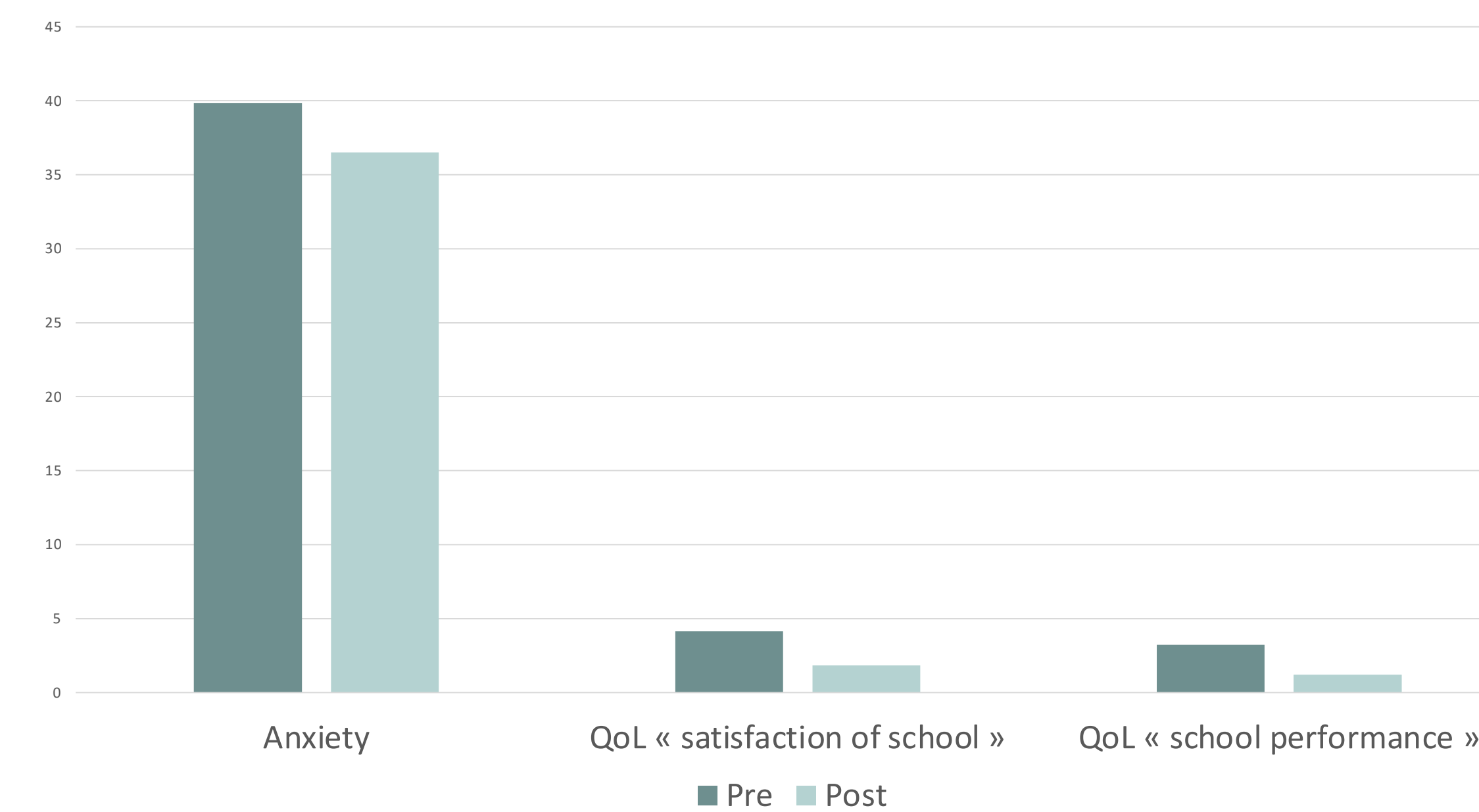
## Method

### Questionnaires

- The State Trait Anxiety Inventory for Children (STAIC) is a 20-item self-report scale to assess the severity of anxiety in children.
- The ISQV-E assesses the QoL of children in 20 domains of life, including school and grades, by measuring the gap between the current conditions in which they live compared to the conditions in which they would like to live for all domains.

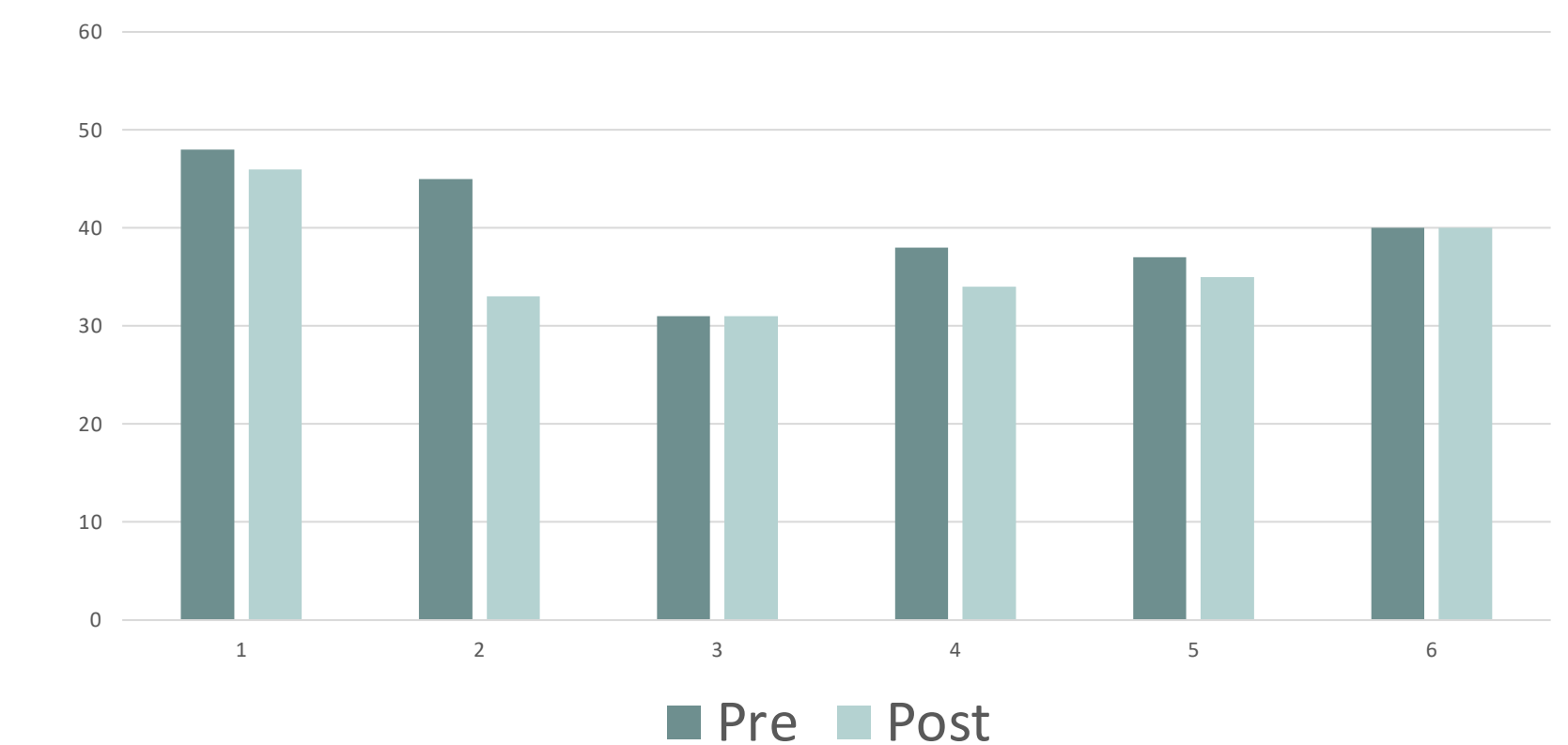
## Results

Global scores of the group of childrens

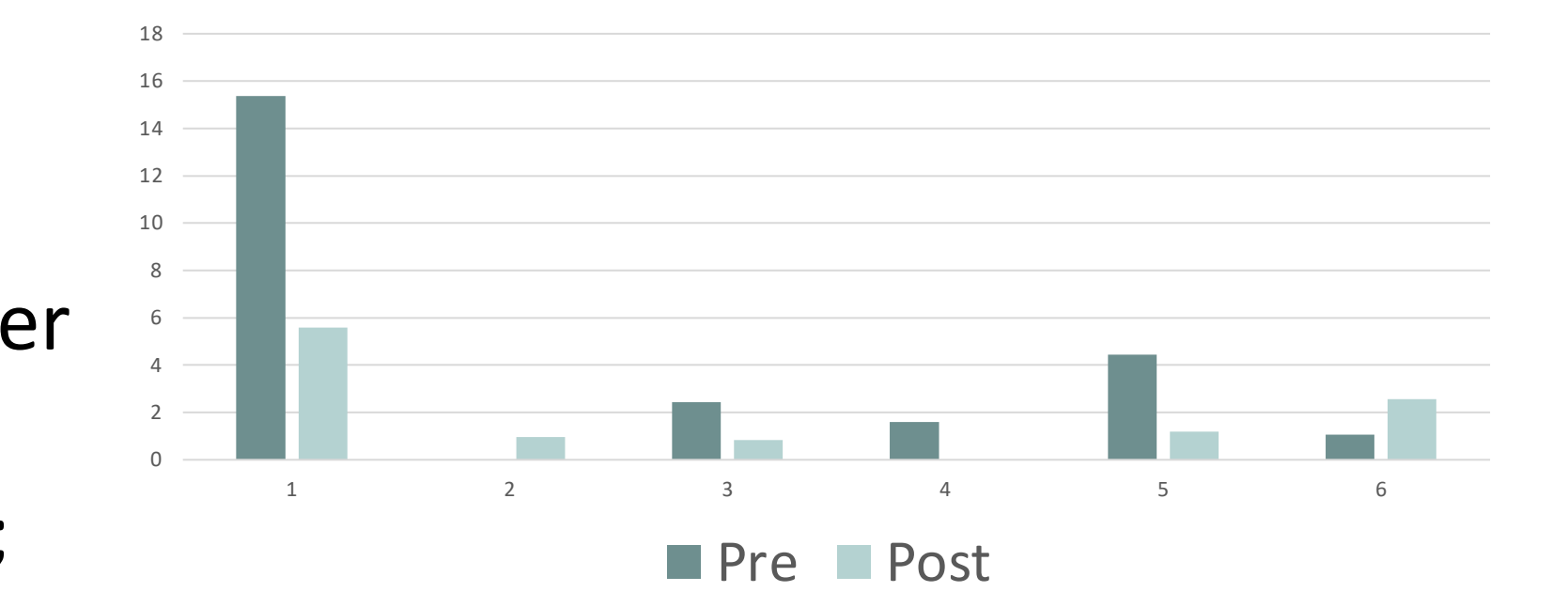


- No significant difference was found on the “satisfaction with school” quality of life scales before (M= 4.15; SD= 5.69) and after (M= 1.85; SD= 2.00) the program ( $p > 0.05$ ) and “school performance” before (M = 3.22; SD = 6.86) and after (M = 1.21; SD = 1.39) the program ( $p > 0.05$ ).
  - Analyzes showed a large effect size for the scale “satisfaction with school” ( $r = 0,71$ ) and a zero effect size for the scale “school performance” ( $r = 0$ ).
- No significant difference between the overall mean scores of the STAIC questionnaire before (M= 39.83; SD= 6.05) and after (M=36.50; SD= 5.54) the program was obtained.
  - Analyzes showed a large effect size ( $r = 1.00$ ).

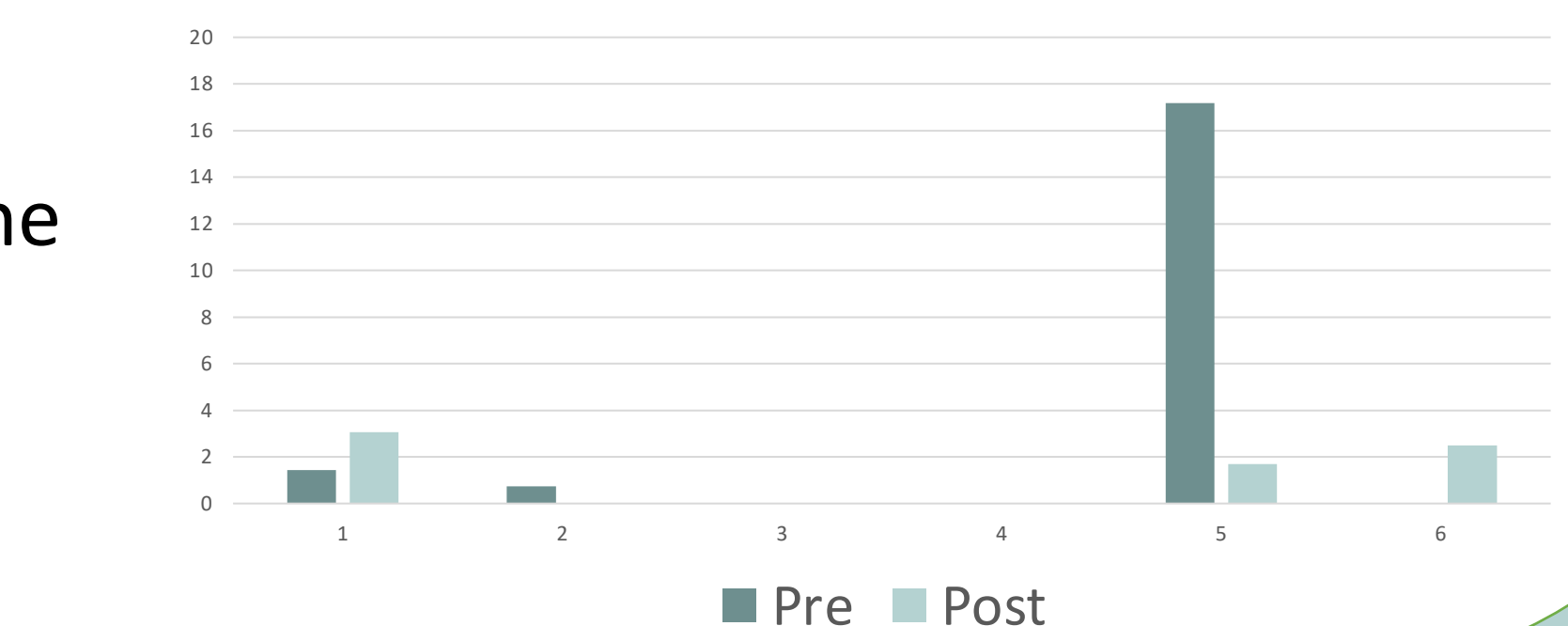
Scores of Anxiety severity of childrens before and after the yoga program



Scores of Quality of Life on « satisfaction of school » of childrens before and after the yoga program



Scores of Quality of Life on « school performance » of childrens before and after the yoga program



## Conclusion

Based on the effect size coefficients, the results suggest that :

- Yoga helps children with ASD to manage their anxiety symptoms and improve their QoL in relation to their satisfaction at school. The results demonstrate large effect size;
- Yoga does not appear to influence satisfaction with academic performance.

The small sample size may have reduced statistical power, which would explain why the results are not statistically significant.

## References

- Dupuis, G., Perrault, J., Lambany, M. C., Kennedy, E., & David, P. (1989). A new tool to assess quality of life: The quality of life systemic inventory. *Quality of life and cardiovascular care*, 5(1), 36-45.
- Levy, S. E., & Hyman, S. L. (2015). Complementary and alternative medicine treatments for children with autism spectrum disorders. *Child and Adolescent Psychiatric Clinics*, 24(1), 117-143.
- Poirier, N., & Kozminski, C. (2011). *Accompagner un enfant autiste: guide pour les parents et les intervenants*. Québec, Canada : Les Presses de l'Université Laval.
- Rivard, M., Paquet, A., & Mainville, J. (2011). Thérapies cognitivo-comportementales pour les troubles anxieux chez les enfants et les adolescents ayant un trouble du spectre de l'autisme. *Journal de thérapie comportementale et cognitive*, 21(3), 97-102.
- Sample, R. J. (2019). Yoga and mindfulness for youth with autism spectrum disorder: review of the current evidence. *Child and Adolescent Mental Health*, 24(1), 12-18.
- Spiedlberger, C. D., Edwards, C. D., Lushene, R. E., Montuori, J., & Platzeck, D. (1973). State-trait anxiety inventory for children (“How I feel questionnaire”): Professional manual. Redwood, CA: Mind Garden.