

Sex Differences in the Expression of Explosive Outbursts in Youth with Tourette Syndrome

Presented at the
18th International Conference on Tourette Syndrome & Tic Disorders

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Sex Differences in TS

Tics

(Shprecher et al., 2014; Hirschtritt et al., 2015; Baizabal-Carvallo & Jankovic, 2023; Dy-Hollins et al., 2024)

- **No consensus** regarding sex differences in tic manifestations

Action planning styles

(Gagnon et al., 2024; Hartmann et al., 2024)

- Girls: ↓ **functional inflexibility** and **overall functional daily planning effectiveness**

Explosive outbursts

(Gagnon et al., 2024; Müller-Vahl et al., 2020)

- Boys: ↑ **prevalence** of explosive outburst
- Adult: No sex differences in explosive outburst **severity**

Explosive Outbursts

TS children

(Budman et al., 2000; 2015; Ashurova et al., 2021)

“Intense, recurrent, and unpredictable anger outbursts that are disproportionate to the trigger and different from the child’s usual personality.”

Environments and targets

- Occur primarily at home
- Less often at school or in other settings
- Directed more toward a parent (mother)

Sex Differences in Temper Tantrums

typically developing children

(Maguire et al., 2016; Lansford et al., 2012; Varnum et al., 2025)

Boys:

- ↑ externalizing behaviors
- ↑ physical aggression

Girls:

- ↑ direct aggression toward siblings

Sex Differences: The Missing Piece



Differences → Clinical expression of TS



No difference → Explosive outburst severity among adults with TS



Differences → Temper tantrums expression in typically developing children



What about explosive outbursts expression in children with TS?

Objectives

Examine Sex Differences in:

01

Frequency, intensity, and severity of explosive outbursts

02

Environments in which they occur

- school
- home

03

Targets they are aimed at

- objects
- classmates
- friends
- siblings
- father/mother
- other family members

Methods

Participants

Parents of children with
Tourette syndrome
(6–14 y/o)

Measures

Online questionnaire

Sociodemographic & clinical information

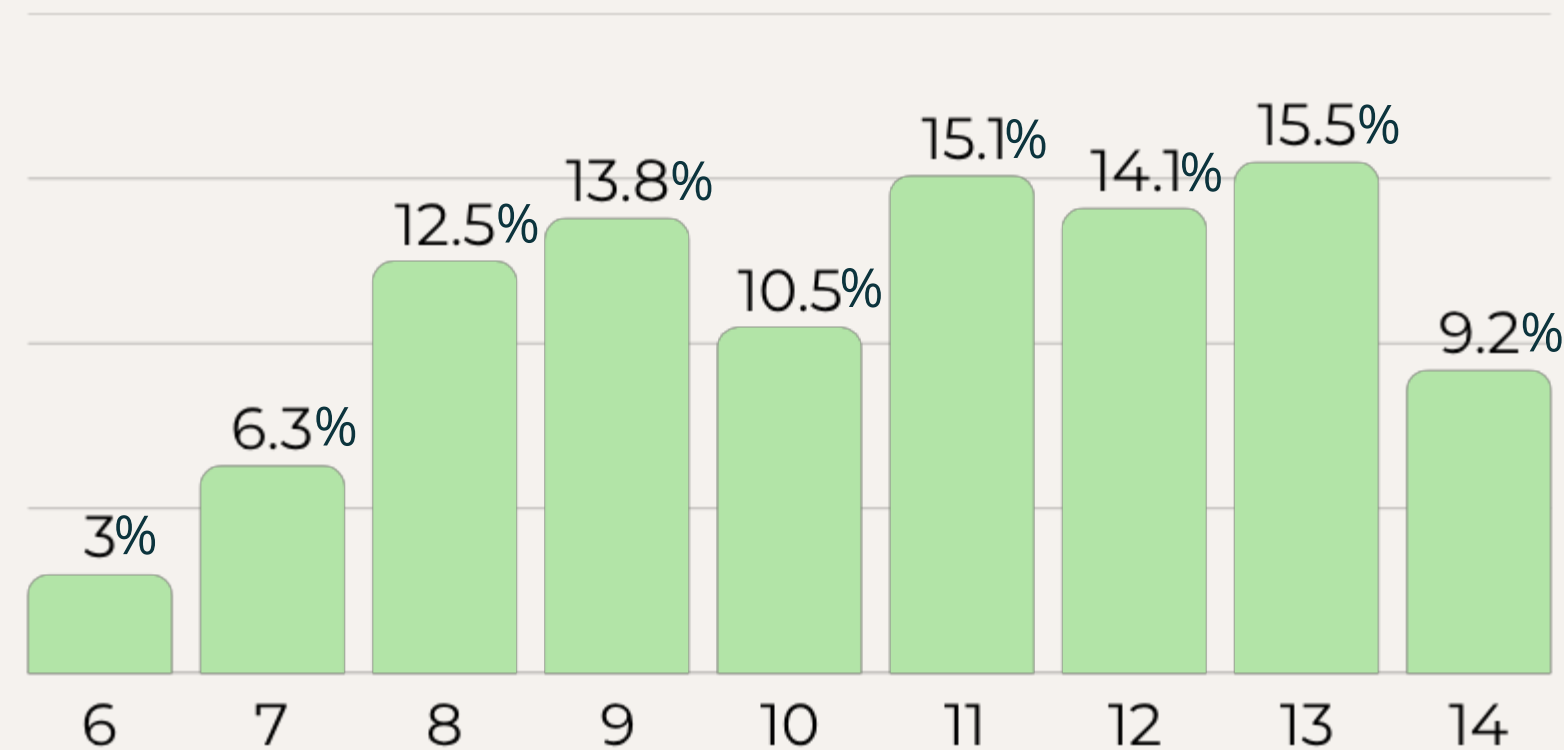
- Frequency, intensity
- Environnements
- Targets

Rage Attack Questionnaire- Revised (RAQ-R)

- Global severity

Descriptive Analyses

CHILD AGE DISTRIBUTION (YEARS)



TOTAL SAMPLE

N = 304

Parents of children with TS

CHILD SEX ASSIGNED AT BIRTH

Boys

75%

n = 228

Girls

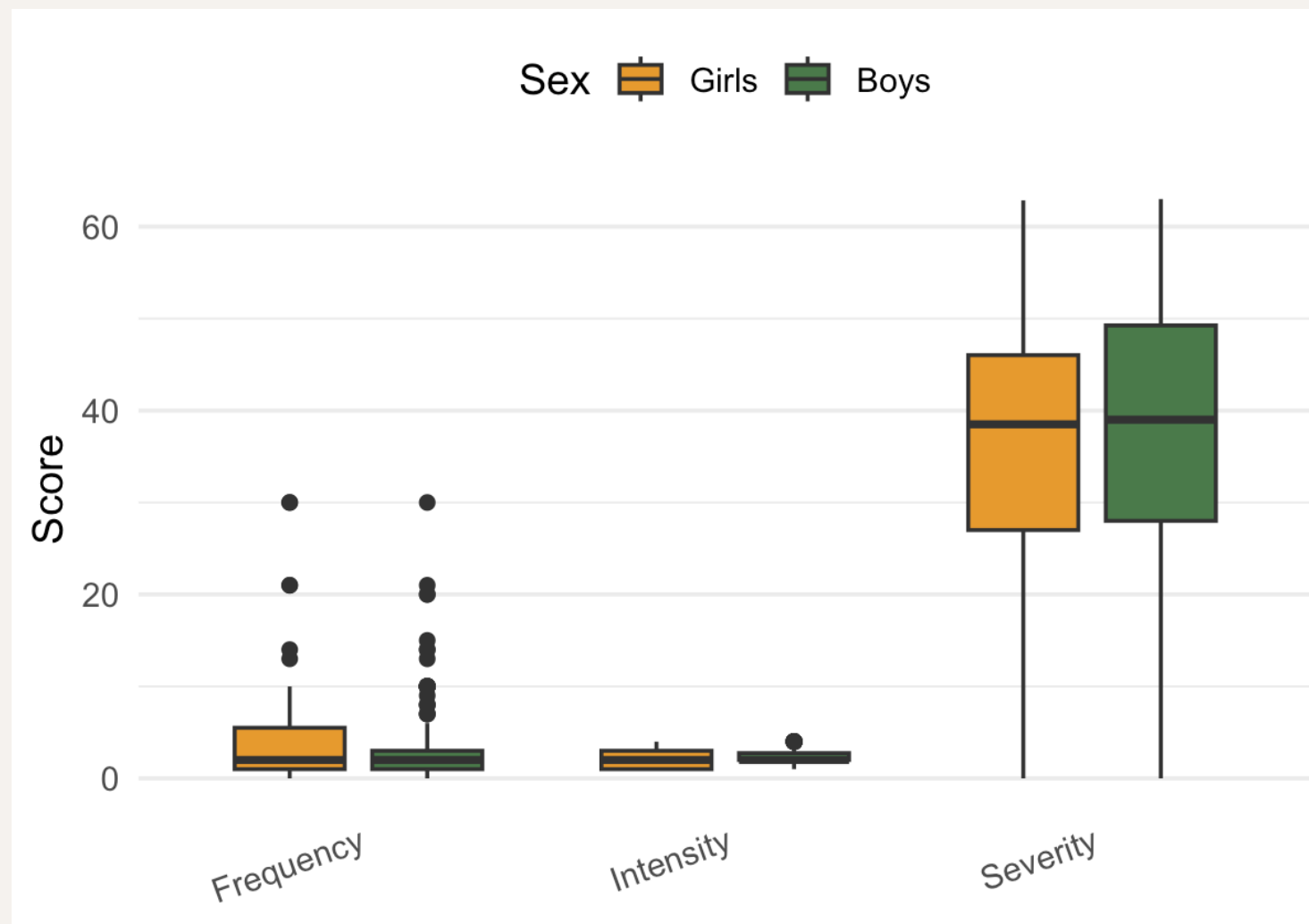
25%

n = 76

Results

01

Frequency, intensity, and severity



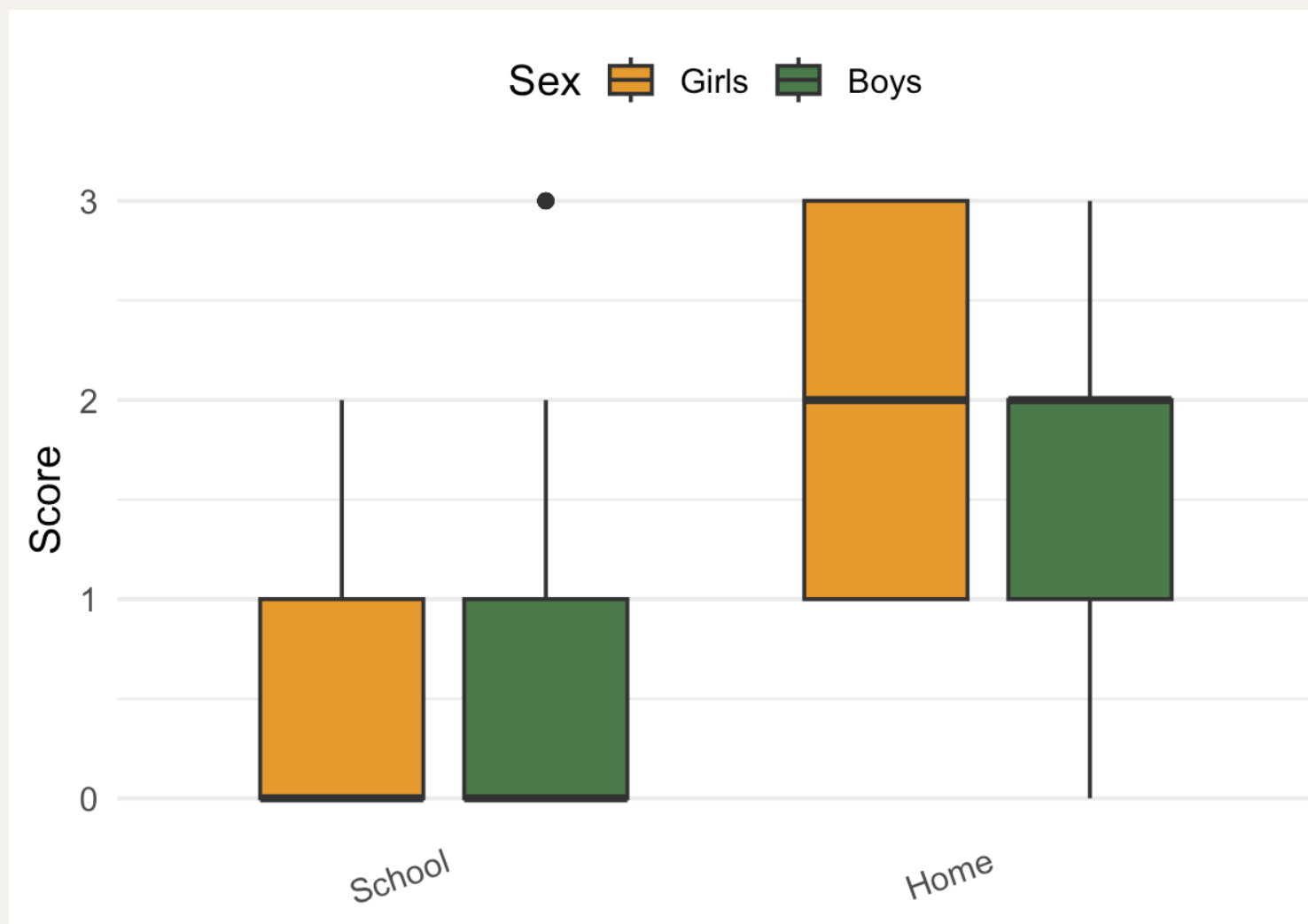
**No significant
sex differences**

Results

02

Environments in which they occur

- school
- home



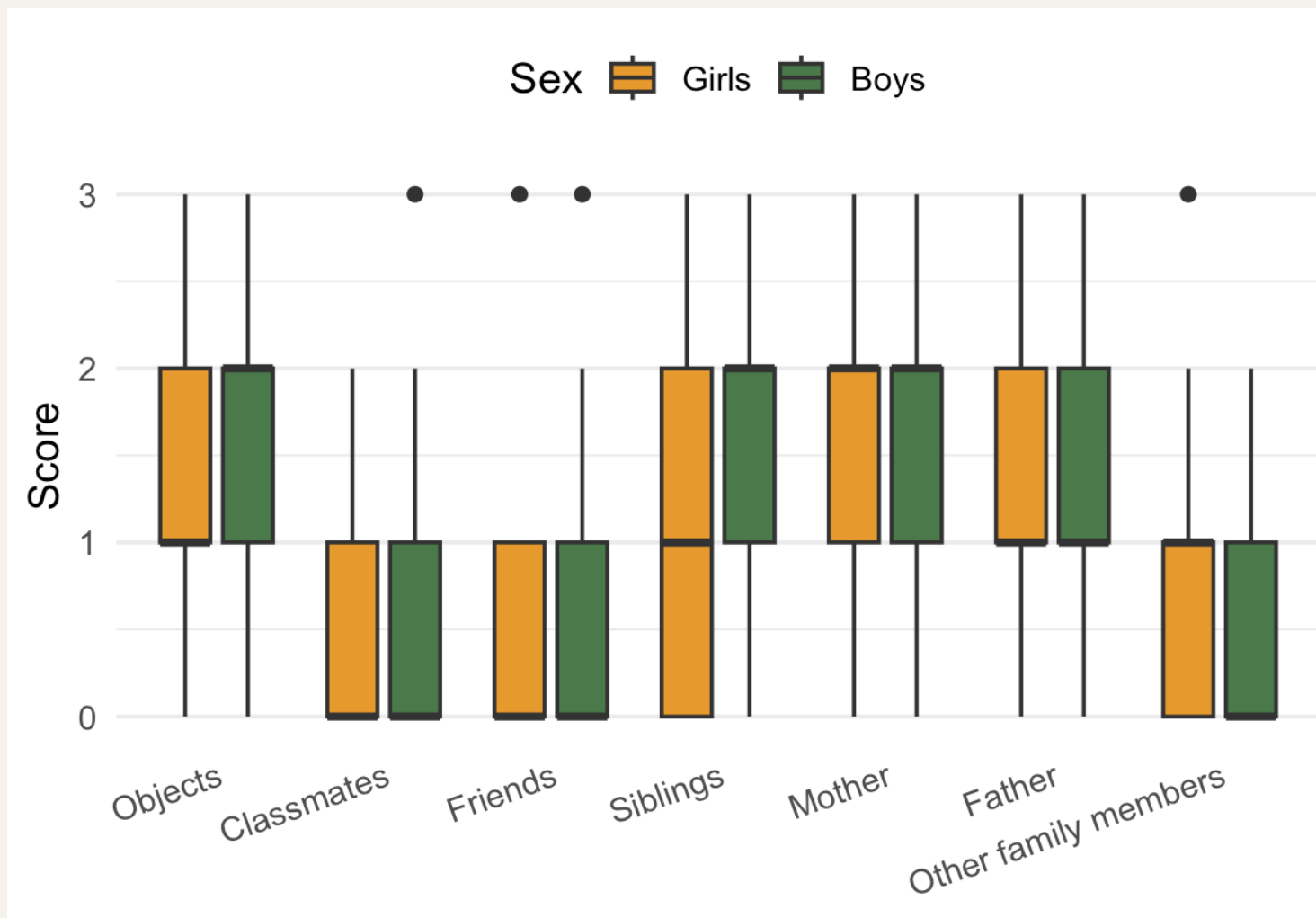
**No significant
sex differences**

Results

03

Targets they are aimed at

- objects
- friends
- father/mother
- classmates
- siblings
- other family members



**No significant
sex differences**

Discussion

Findings

 **No sex differences observed in explosive outbursts:**

- Frequency, intensity, severity
- Environments
- Targets

Temper tantrums

- Sex differences reported in literature
 - ➔ Shaped by socialization processes

(Mahmood et al., 2024; Archer 2000; Zoleta, 2021)

vs

Explosive outbursts

- Similar expression in boys and girls
 - ➔ May not be driven by socialization mechanisms
 - ➔ May represent a distinct phenomenon specific to TS

Conclusion

Key message

Explosive outbursts
≠
temper tantrums

Clinical implications

- Interventions tailored to explosive outbursts
 - Address unique features & underlying mechanisms



Thank you!



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Acknowledgments

We wish to thank all participants for their contribution, as well as funding organizations, and organizations who helped with recruitment:



Association Québécoise du syndrome de la Tourette (AQST), Association Française du Syndrome de Gilles de la Tourette (AFSGT), European Society for the Study of Tourette Syndrome (ESSTS), Tics and Tourette Across the Globe (TTAG), Tourettes Action, Tourette Canada, Tourette OCD Alberta Network, Finnish Tourette and OCD Association (STOy), and Tourette Syndrome Association of Australia (TSAA)



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Appendix

Child's gender

Gender	Number	%
Female	71	23.4
Male	230	75.7
Non-binary	2	0.7
In question	1	0.3

Note. N = 304. Seven cases excluded due to missing data

Discrepancies between sex assigned at birth and child's gender

Sex assigned at birth	Reported gender	Number
Female	Male	3
Female	Non-binary	2
Male	In question	1
Male	Non-binary	2