

# Impact of Performance Anxiety on the Accuracy of the Singing Voice Among Music Students

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## AIMS

Musicians are more likely to feel anxious under conditions of evaluation.<sup>1</sup>

→ Does a solfeggio examination lead to a high anxiety level ?

Performance anxiety causes physical and cognitive symptoms.<sup>2</sup> Effect on the vocal features, including the f0.<sup>3</sup>

→ Impact on the singing voice accuracy ?

## METHODS

### Participants :

- 31 music students (19 men)  
14-24 years old  
M = 19.29, SD = 2.19
- Music level :  
1<sup>st</sup> degree : 18 students  
2<sup>nd</sup> degree : 13 students



**Procedure :** Recording of the sung performance at T1, T2 and T3

T0 : Learning

T1 : Quiet situation

T2 : Examination

T3 : Quiet situation

### Subjective measures :

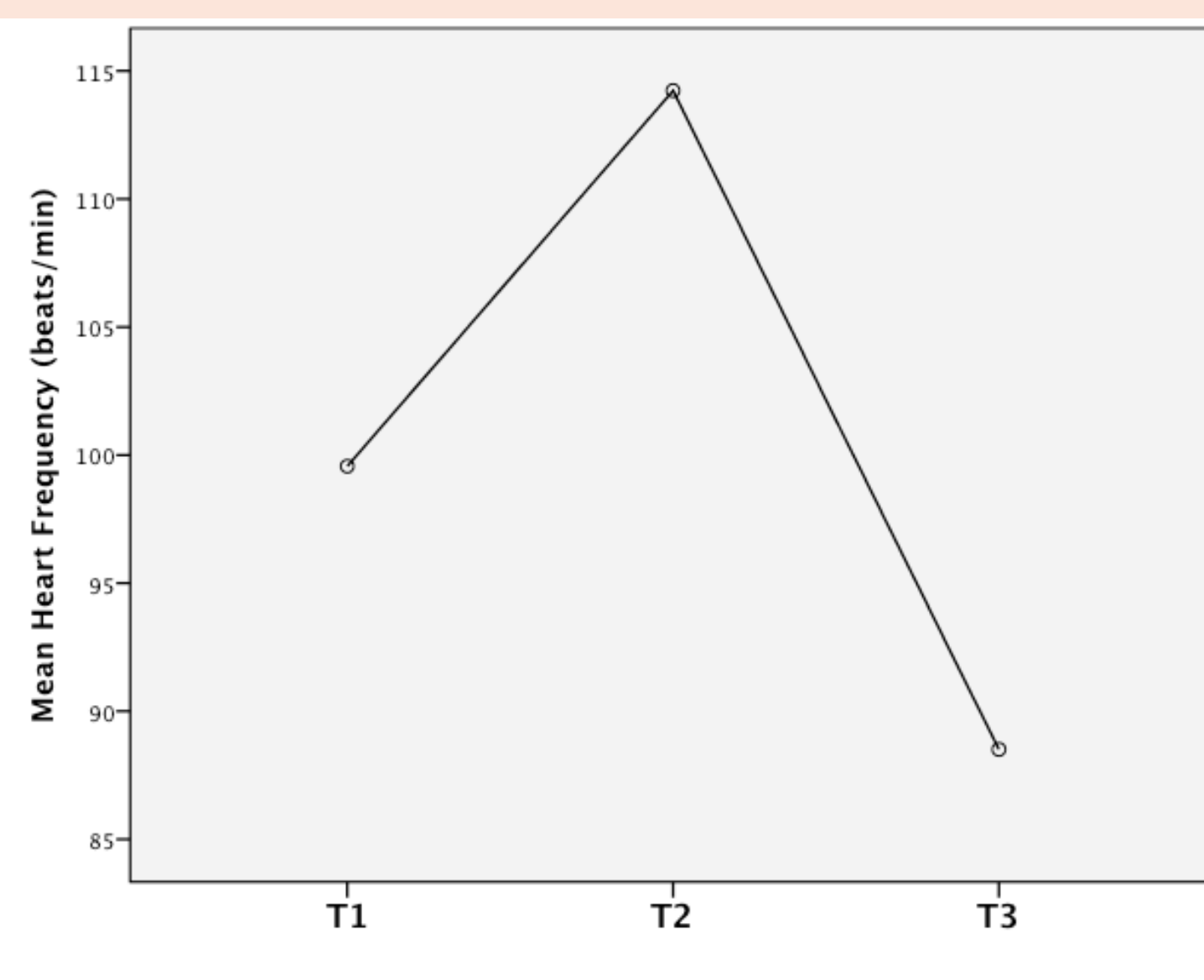
- Self-evaluation : CSAI-2R
- Intensity and direction (debilitating or facilitating) of anxiety symptoms

### Objective measures :

- Heart frequency
- Singing voice accuracy<sup>4</sup>
  - Pitch interval deviation
  - Tonal center deviation (1, 4, 7, 14, 15, 16, 17, 18)

### Heart frequency :

- T2 > T1 ( $p = .02$ )
- T2 > T3 ( $p < .001$ )



## RESULTS

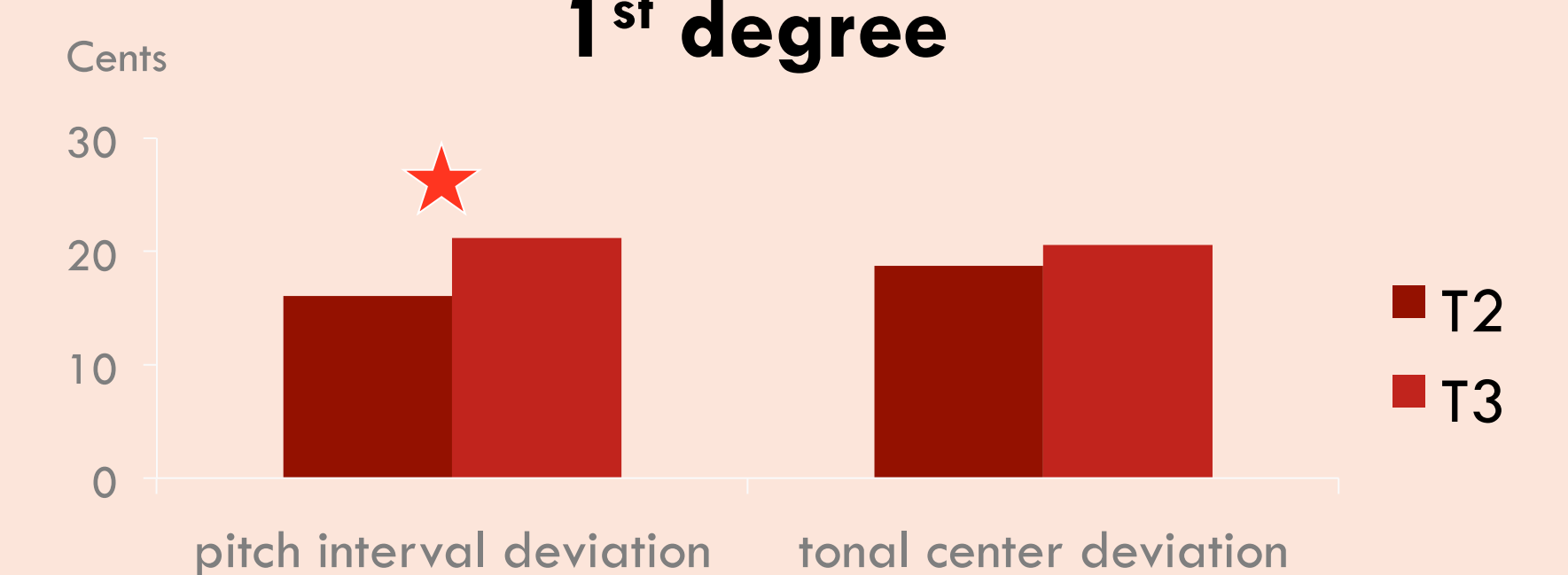
### Cognitive and somatic symptoms : T2 ≠ T3

Symptoms	T2 M (SD)	T3 M (SD)	Difference T2 / T3
Somatic (intensity)	23.74 (1.10)	13.13 (0.78)	$p < .001$
Somatic (direction)	-5.13 (1.33)	3.29 (2.53)	$p = .002$
Cognitive (intensity)	27.68 (1.40)	15.06 (1.07)	$p < .001$
Cognitive (direction)	-9.10 (1.54)	3.23 (2.44)	$p < .001$

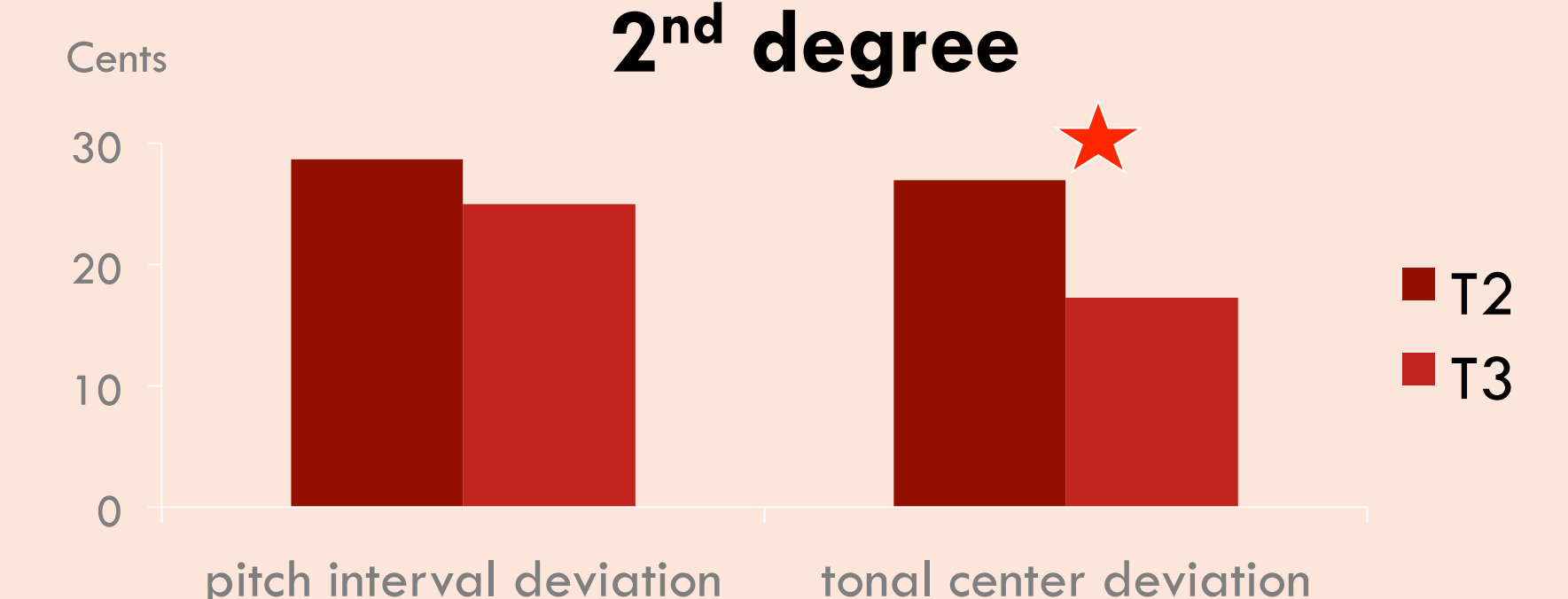
### Effect of the music level :

Difference between T2 and T3 (2<sup>nd</sup> degree > 1<sup>st</sup> degree)  
for the direction of the somatic symptoms ( $p = .002$ )

### Singing voice accuracy : 1<sup>st</sup> degree



### Singing voice accuracy : 2<sup>nd</sup> degree



## DISCUSSION

### Does a solfeggio examination lead to performance anxiety ?

Anxiety level T2 > T3

- Heart frequency
  - Self-evaluation of the anxiety symptoms
  - Somatic symptoms particularly debilitating for advanced students
- Impact of solfeggio evaluation situation on anxiety level

### Impact on the singing voice accuracy ?

- Students 1<sup>st</sup> degree : better at T2
  - Students 2<sup>nd</sup> degree : better at T3
- Different profiles according to the music level
- Tonal center of the tune altered : somatic symptoms involved

## CONCLUSION

**Bad effect of anxiety on the singing voice accuracy when the situation is a real challenge.**

### Consequences on future research :

- Anxiety as one of the causes of poor-pitch singing
- Impact of somatic symptoms and their perception

### Perspectives in music pedagogy :

- Organisation of examinations during the year
- Working on the somatic symptoms and their perception as facilitating or debilitating.

### References :

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