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Child Anxiety Sensitivity in Juvenile Adolescent Twins

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Introduction

Fear of anxiety symptoms, or anxiety sensitivity (AS), is an important factor in predicting the emergence and severity of panic symptoms (Eke & McNally, 1996) (McNally, 2002). AS is measured through the CASI and is broken down into three factor structures: Physical concerns-"It scares me when my heart beats fast", Cognitive Incapacitation concerns-"When I am afraid, I worry that I might be crazy", and Social concerns-"Other kids can tell when I feel shaky". To test to see if twins reacted more to panic related symptoms, they participated in a carbon dioxide breathing task. This task is used to predict the possibility of obtaining anxiety and panic related disorders. The goal of this study will explore anxious responding during the carbon dioxide breathing task and 2)review of the CASI, DSQ, and SUDS scores to determine a positive relationship.

Methods

~ 114 juvenile twin pairs (62.39% female; $M_{age}=10.05$ Years; $SD=1.00$) between the ages of 9-13 were recruited through the Mid-Atlantic Twin Registry.

CO2 Breathing Task

- Participants breathed room air for a 5 minute baseline, followed by 8 minutes of 7.5% CO2 enriched air, then finished with 5 minute recovery period. Physiological responses, heart rate, sweat, raw breath, were collected throughout the breathing task.
- During the task, Subjective Units of Distress (SUDS) were taken periodically and the Diagnostic Symptoms Questionnaire (DSQ) were taken to assess panic related symptoms physically and cognitively.
- Participants answered a series of questionnaires as another task. The Child Anxiety Sensitivity Index (CASI) is an 18 item self-report questionnaire that examines fear of panic symptoms (Silverman, Ginsburg, and Goedhart, 1999).
- Mixed effects linear models were used to examine the relationship between CASI scores and SUDS during CO2 peak, SUDS during CO2 recovery, DSQ physical and DSQ cognitive responses during CO2 and during CO2 recovery.
- A subscale consisting of three factors (Physical concerns, Cognitive concerns, and social concerns) was used to see areas that hold more significant to greater responses to anxiety sensitivity.

Results

- There was not a significant effect for Factor 1 physical concerns to CASI scores, SUDS, and DSQ responses during both the CO2 and recovery period.
- We observed significant effects for Factor 2 cognitive concerns with CASI scores and total DSQ scores and physical responses during CO2 such that as CASI scores increase so do the DSQ responses.
- Factor 3 social concerns had a significant effect on anxiety related symptoms during the CO2 task such that as CASI scores increased, so did the Peak and Average SUDS.
- We also observed a significant effect on panic related symptoms during the CO2 task such that as CASI scores increased, so did total DSQ, DSQ physical, and DSQ cognitive.

Predictors	Relationship between CASI, SUDS, & DSQ									
	Peak SUDS CO2	Avg. SUDS CO2	Peak SUDS Recovery	Avg. SUDS Rec.	DSQ Total CO2	DSQ Tot. Phys. CO2	DSQ Total Cog. CO2	DSQ Total Recovery	DSQ Total Phys. Rec.	DSQ Total Cog. Rec.
Factor 1- Physical concerns	3.59	3.80	0.29	0.44	3.21	1.86	3.73	0.06	0.02	0.48
Factor 2- Cognitive concerns	0.13	0.10	4.85*	4.23*	9.14**	10.00**	2.12	3.38	3.59	1.60
Factor 3- Social concerns	4.00*	6.49*	0.16	0.11	13.59**	13.81**	6.77**	0.36	0.38	0.13

Table 1. Predictive power of Factor 1: physical concerns, Factor 2: cognitive concerns, and Factor 3: social concerns on the relationship between the CASI, SUDS, and DSQ responses during CO2 and the recovery period. (predictive effect reported as an F statistic). *p<.05, **p<.01

Figure 1. Mean scores of DSQ panic symptoms during CO2 and CO2 recovery.

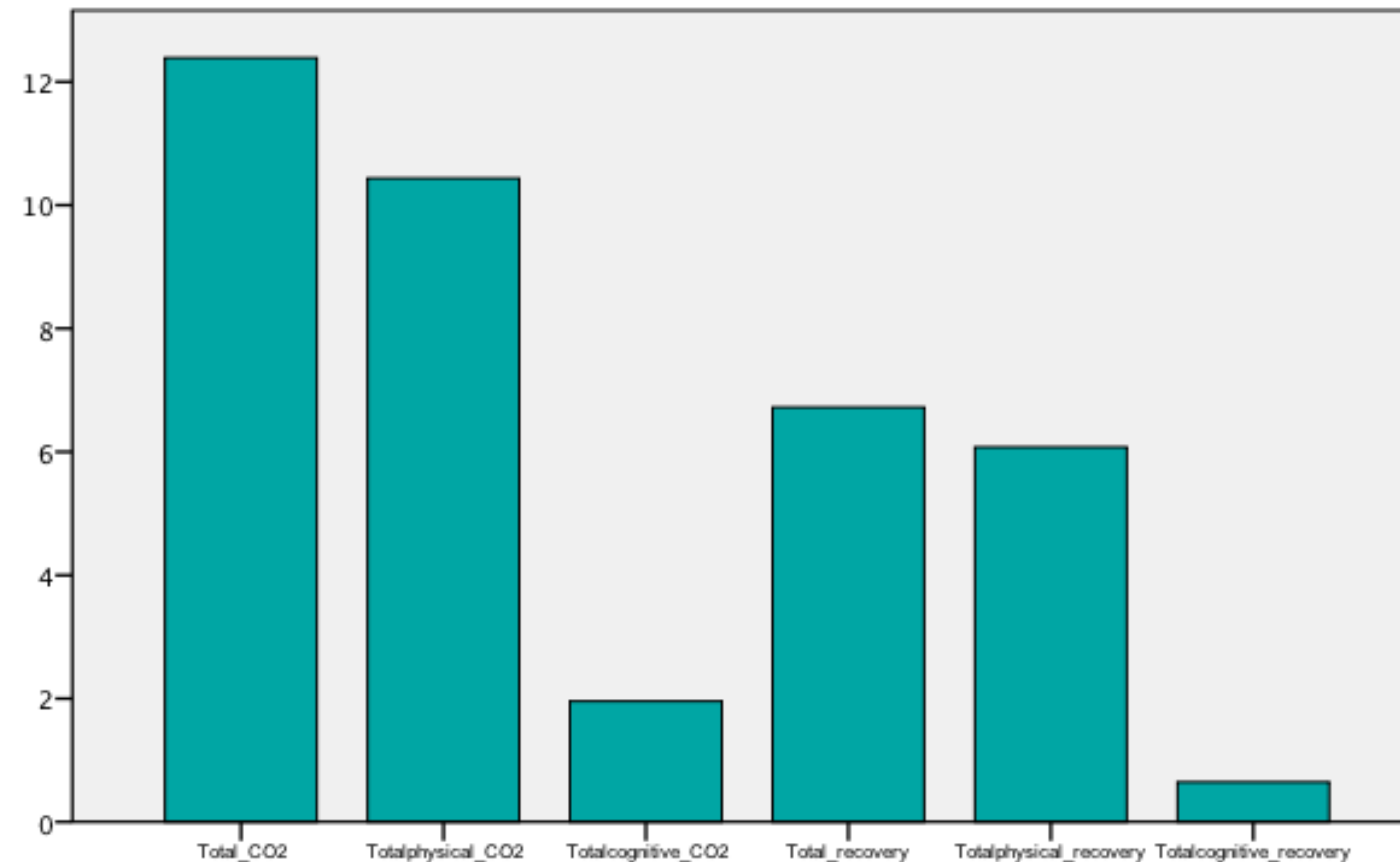
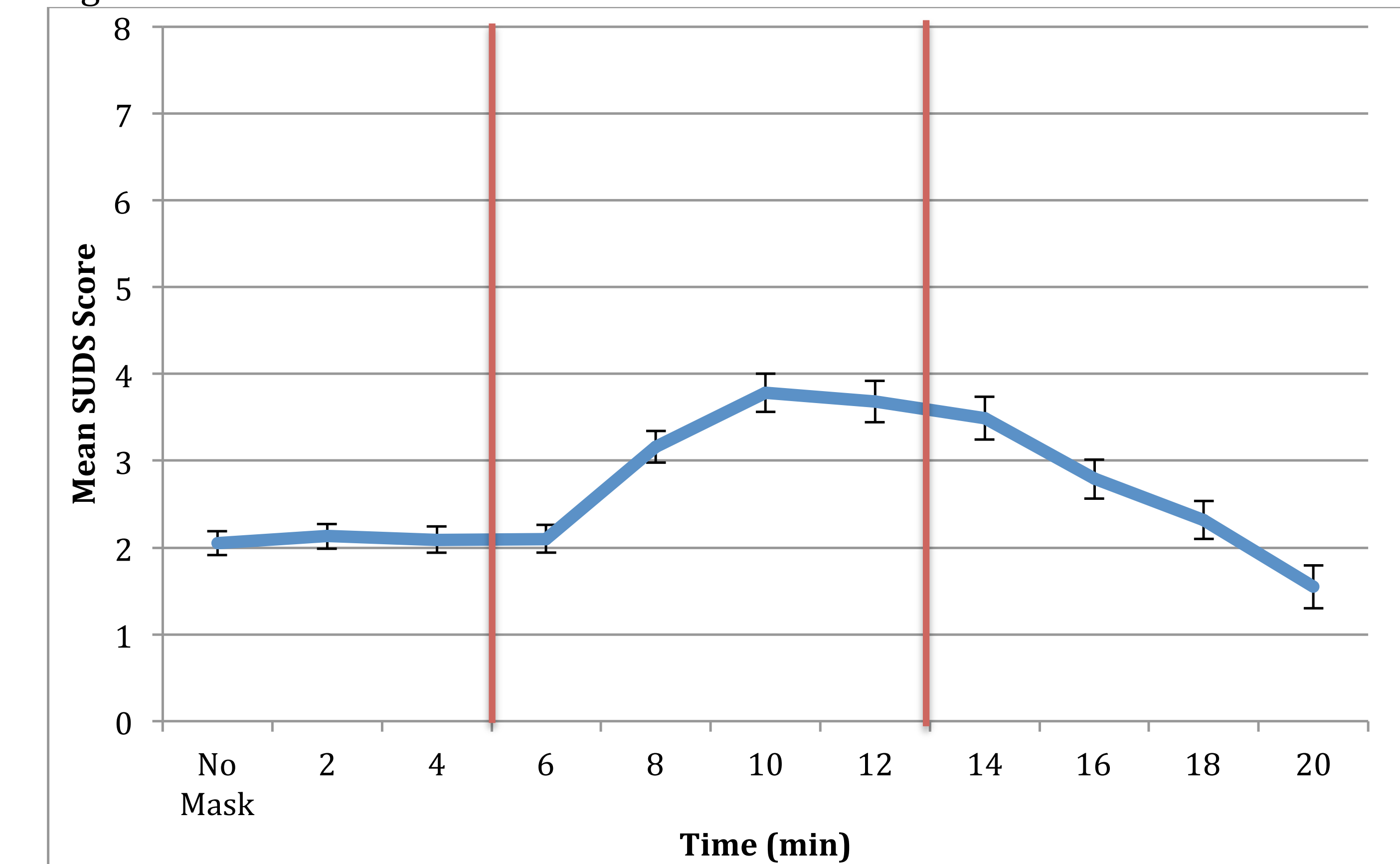


Figure 2. Mean SUDS scores



Discussion

- The results of our study provide additional evidence that the three first-order factors (physical concerns, cognitive concerns, and social concerns) suggests that participant scores differ amongst these factors when reporting their fear to panic related symptoms.
- The results indicated that CASI physical scores did not share a significant relationship with SUDS or DSQ scores. This was interesting considering participants physical responses increased during the CO2 task.
- The high CASI scores from cognitive and social concerns were significantly associated with DSQ physical and total DSQ responses when breathing the CO2 enriched air. These results may provide evidence that fear of social and cognitive factors lead to individuals feeling more panic related symptoms while undergoing an anxiety provoking situation.
- There could be an age limitation in the study affecting the ability to monitor internal states for the SUDS and DSQ scores.
- There is a limitation that we did not use our own factor structure and the factor structure we based our results off of did not replicate.
- Future studies aim to look at our own factor structure
- Once the sample is large enough, our future study plans to look at genetic and environmental contributions in association with CASI measures during the CO2 task.

Acknowledgements

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