

# Simulator Sickness: An Unexpected Effect of Priming

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## Research Question

This research examined the surprising effect of priming on the incidence of simulator sickness. We wanted to investigate the unusual priming effect found by Sawyer, et al (2012).

## Introduction

- ❖ Priming:
  - Exposing someone to a stimulus repeatedly, directly influencing future responses.
- ❖ Simulator Sickness:
  - Illness brought on by modern simulators.
  - Lower severity and incidence than motion sickness.
  - Brought on by visual displays and more specifically visuo-vestibular conflict, which makes it different from motion sickness (Kennedy, et al 1993).
- ❖ Generally thought that an increase in priming would result in an increase in simulator sickness
- ❖ Sawyer, et al (2012) investigated the effects of priming on simulator sickness using Kennedy's extended simulator sickness questionnaire (SSQ). An increase in priming decreased level of simulator sickness in participants.

## Extended SSQ

- ❖ Scores range from 0-100 but will likely never reach 50.
- ❖ Participants report their experience of each symptom on a Likert scale.

General Discomfort	Blurred vision
Fatigue	Dizziness (eyes open)
Boredom	Dizziness (eyes closed)
Drowsiness	Vertigo
Headache	Visual flashbacks
Eyestrain	Faintness
Difficulty focusing	Awareness of breathing
Increases salivation	Stomach awareness
Decreased salivation	Decreased appetite
Sweating	Increased appetite
Nausea	Desire to move bowels
Difficulty concentrating	Confusion
Depression	Burping
Fullness of head	Vomiting



## Method

- ❖ Participants (n=149) completed the Simulator Sickness Questionnaire prior to a texting while driving task in a PatrolSim Simulator.
- ❖ Minimum exposure condition:
  - Basic description of simulator sickness at the beginning of the study to meet IRB requirements.
- ❖ Maximum exposure condition:
  - Detailed description of simulator sickness at beginning of study
  - Additionally primed throughout the study with questions about how they were feeling.

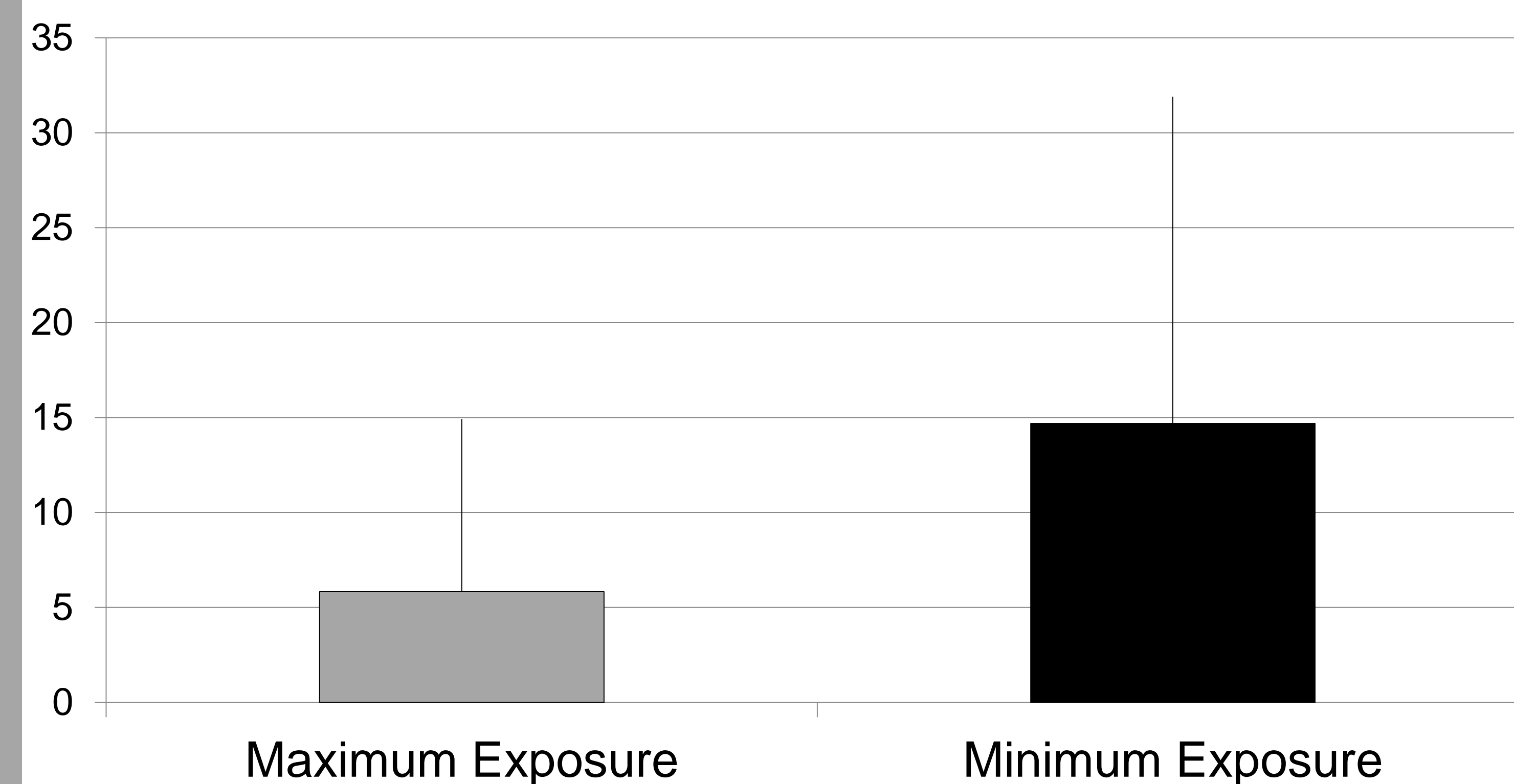
## Results

As anticipated, the results again showed the surprising effect first witnessed by Sawyer et al, (2012) on reported simulator sickness.

## Future Research

- ❖ Implications
  - Reduction of frequency of reported simulator sickness through priming and potential savings for researchers all over the world.
- ❖ The MIT<sup>2</sup> Lab is currently working on the third iteration of this study. While trying to replicate the findings of the past two projects, we also hope to gain insight as to the reason for this unusual priming effect.

**Simulator Sickness Questionnaire Results**



## References

- Robert S. Kennedy , Norman E. Lane , Kevin S. Berbaum & Michael G. Lilienthal (1993): Simulator Sickness Questionnaire: An Enhanced Method for Quantifying Simulator Sickness, *The International Journal of Aviation Psychology*, 3:3, 203-220
- Sawyer, B.D., Fok, A, Ludvigson, J, Hancock, P. A., (2012). Simulator Sickness, dare I speak thy name? *American Psychological Association 2012 Annual Convention.*