

Chapman University

Chapman University Digital Commons

Student Scholar Symposium Abstracts and Posters

Center for Undergraduate Excellence

Spring 5-2019

Characterizing Range Anxiety in Electric Vehicle Users

Maiia Tolia-Shah

Chapman University, toliaashah@chapman.edu

Brenda Gutierrez

Chapman University, bgutierrez@chapman.edu

Sook Mun (Alice) Wong

Chapman University, sowong@chapman.edu

Uri Maoz

Chapman University, maoz@chapman.edu

Follow this and additional works at: https://digitalcommons.chapman.edu/cusrd_abstracts



Part of the [Other Psychiatry and Psychology Commons](#), and the [Psychological Phenomena and Processes Commons](#)

Recommended Citation

Tolia-Shah, Maiia; Gutierrez, Brenda; Wong, Sook Mun (Alice); and Maoz, Uri, "Characterizing Range Anxiety in Electric Vehicle Users" (2019). *Student Scholar Symposium Abstracts and Posters*. 424. https://digitalcommons.chapman.edu/cusrd_abstracts/424

This Poster is brought to you for free and open access by the Center for Undergraduate Excellence at Chapman University Digital Commons. It has been accepted for inclusion in Student Scholar Symposium Abstracts and Posters by an authorized administrator of Chapman University Digital Commons. For more information, please contact laughtin@chapman.edu.



Characterizing Range Anxiety in Electric Vehicle Users

Maiia Tolia-Shah ², Brenda Gutierrez ², Alice Wong ¹, Uri Maoz ^{1,2}

1: Schmid College of Science and Technology 2: Crean College of Health and Behavioral Sciences

Introduction:

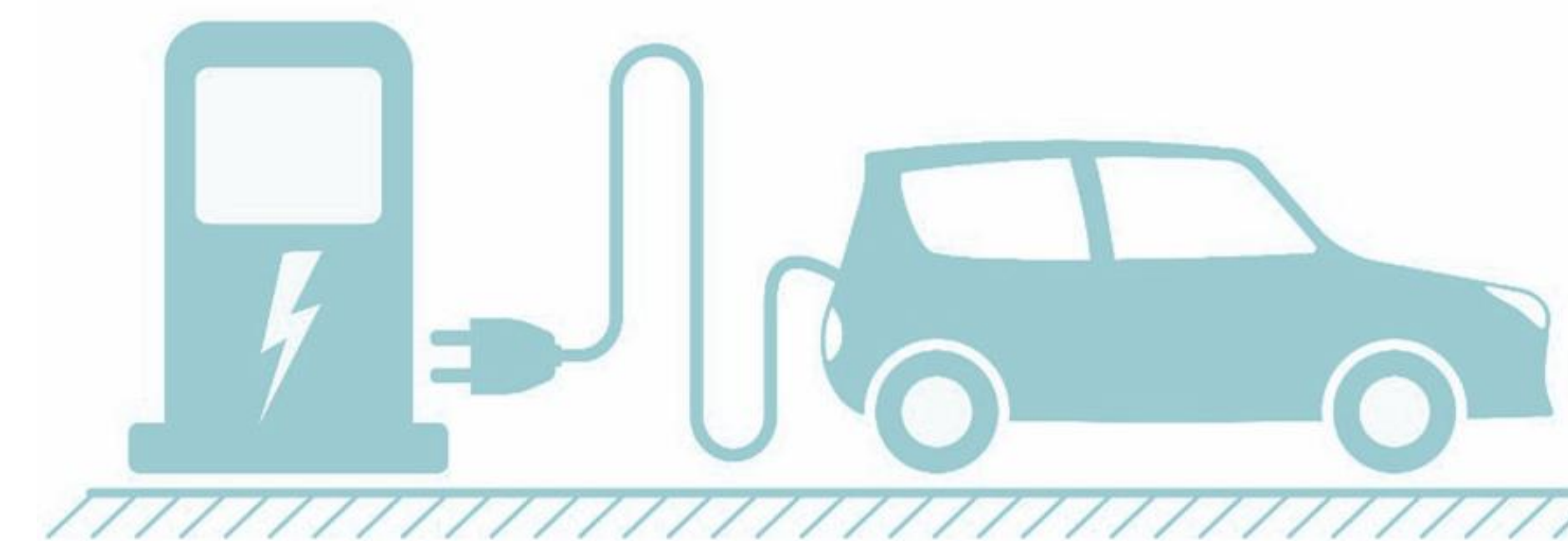
- Fear of running out of battery/gas before arriving at a charging/gas station or final destination.
- Fewer charging stations than gas stations might help explain low adoption of electric vehicle (EV)
- Previous research has that found more experience in driving EVs results in less range anxiety
- Participants will drive around. Heart rate and galvanic skin response (GSR) used as a proxy for anxiety.
- Participants will complete surveys evaluating habits and their daily use of their vehicle.
- We anticipate seeing an increase in heart rate and GSR as car battery depletes.



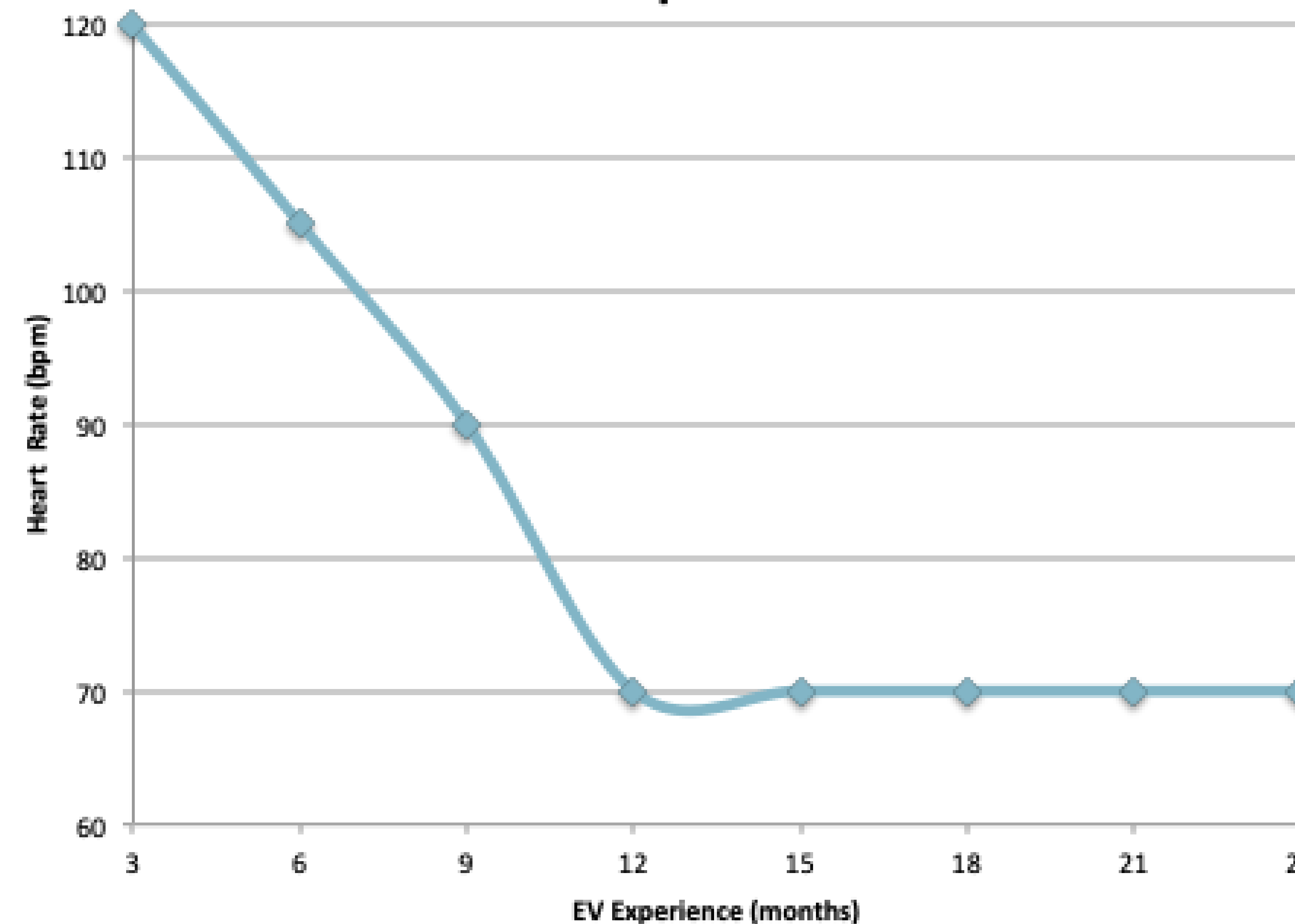
Contact: sowong@chapman.edu

Methods:

1. Participant arrive with car battery at 20% charge.
2. Completes background survey, “The Big 5 Personality Test”, “Driver’s Style Survey” and “Tolerance of Ambiguity Survey”.
3. Attach heart rate and GSR monitors (sweating & increased the heart rate common symptoms of anxiety), Drive around (close by) until 5% battery and come back.
4. Participant may now charge car battery.
5. Complete follow-up survey about range anxiety on a day-to-day basis.



The Effect of EV Experience on Heart Rate



Hypothesis:

If the range anxiety is low it is because the driver has more experience and knowledge about the electrical vehicle.

Acknowledgements:

Bongess, H., & Lusk, A. (2016). Addressing electric vehicle (EV) sales and range anxiety through parking layout, policy and regulation. *Transportation Research Part A: Policy and Practice*, 83, 63-73.

Rauh, N., Franke, T., & Krems, J. (2014). Understanding the Impact of Electric Vehicle Driving Experience on Range Anxiety. *The Journal of the Human Factors and Ergonomics Society*, 132.