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SOCIAL INTERACTIONS & CARDIOVASCULAR REACTIVITY: A TIME COMPARISON

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According to the CDC about 610,000 people die from heart disease every year in the United States, that is 1 in every 4 deaths (CDC, 2017). Due to the high mortality rate of cardiovascular disease, there are growing concerns of how cardiovascular health can be influenced by different social interactions. Specifically, interpersonal interactions that can make cardiovascular functions more reactive. However, there has been little research into how time of day during these social interactions may lead to varying cardiovascular reactions.

This study tests both dominant and hostile stimuli at the same time while also testing the effects of different types of interpersonal styles. The time of day when these interactions take place is recorded. Interpersonal styles are altered by randomizing the confederate's affiliation and control conditions during an online social conversation. In regards to affiliation, social support is a protective factor of cardiovascular disease where conflict, social isolation, and hostility in a personality can increase the risk (Uchino, 2016). Part of the control spectrum is dominance, a person high in dominance or many social interactions with increased levels of dominance is a risk factor for cardiovascular disease (Gallo, Smith, & Cox, 2006). Cardiovascular disease is thought to be developed through cardiovascular reactivity which can be triggered by certain social interactions (Smith & Ruiz, 2002). Time of day has also been seen to influence cardiovascular reactivity in small sample sizes of research. In one study, participants who performed mental arithmetic tasks in the evening had increased heart rate and blood pressure recordings compared to participants who performed mental arithmetic tasks in the morning (Roeser, Obergfell, Meule, Vogeles, Schlarb, & Kubler, 2012). This gives us some indication that stressors from the day may impact an individual's heart rate and blood pressure in the evening. Stress can be a key contributor to cardiovascular disease (Esler, Schwarz, & Alvarenga 2007) and this accumulation of stress leading up to the evening could increase systolic blood pressure (SBP) and heart rate (HR) levels.

This study aims to examine the possibility of how different social interactions can change SBP and HR recordings in relation to the time that these social interactions take place. Through our research, we hope to have a better understanding of how various social interactions can influence cardiovascular reactivity and in turn, our overall cardiovascular health.

References

Esler, M., Schwarz, R., & Alvarenga, M. (2008). Mental stress is a cause of cardiovascular diseases: From scepticism to certainty. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 24(3), 175–180.
<https://doi.org/10.1002/smi.1198>

Gallo, L. C., Smith, T. W., & Cox, C. M. (2006). Socioeconomic status, psychosocial processes, and perceived health: An interpersonal perspective. *Annals of Behavioral Medicine*, 31(2), 109-119.

Heart Disease. (2017, November 28). Retrieved June 21, 2-18, from
<https://www.cdc.gov/heartdisease/facts.htm>

Roeser, K., Obergfell, F., Meule, A., Vögele, C., Schlarb, A. A., & Kübler, A. (2012). Of larks and hearts—morningness/eveningness, heart rate variability and cardiovascular stress response at different times of day. *Physiology & Behavior*, 106(2), 151–157.
<https://doi.org/10.1016/j.physbeh.2012.01.023>

Smith, T. W., & Ruiz, J. M. (2002). Psychosocial influences on the development and course of coronary heart disease: current status and implications for research and practice. *Journal of consulting and clinical psychology*, 70(3), 548.

Uchino, B. N. (2006). Social support and health: a review of physiological processes potentially underlying links to disease outcomes. *Journal of behavioral medicine*, 29(4), 377-387.