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Effects of Social Isolation on Heart Rate Variability

Hailey Tanner  
*College of Saint Benedict/Saint John's University*, HLTANNER@CSBSJU.EDU

Jason Omann  
*College of Saint Benedict/Saint John's University*, jdomann@csbsju.edu

Nathaniel T. Lutmer  
*College of Saint Benedict/Saint John's University*, NTLUTMER@CSBSJU.EDU

John Beckius  
*College of Saint Benedict/Saint John's University*, jlbeckius@csbsju.edu

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Heart Rate Variability: Impact of Social Isolation

Hailey Tanner, Jason Omann, Nathaniel Lutmer, John Beckius
College of Saint Benedict and Saint John’s University

Abstract

The present study looked at the interaction and impact between social isolation and heart rate variability (HRV). Participants in this study included undergraduate (N= 16) students from St. John’s University and the College of Saint Benedict. This study included an online survey that measured neuroticism and anxiety. Social isolation was implemented through a computer program called CyberBall, in which the researchers programmed the “game” to include or exclude the participants. There were two groups in this study, one that started with the isolation condition and ended with the non-isolation, and the second group started with the non-isolation and ended with the isolation condition. RESULTS. More significant results may have been found if more participants were available for this study.

Method

Participants
• 16 undergraduate students from St. John's University and the College of Saint Benedict
• 9 Males and 7 females

Materials
• Participants were asked to have their heart rate variability measured through the use of a Biopac Machine (Model MP150).
• Three electrodes were used per participant and attached to the body from the Biopac Machine with the use of gel.
• A self-compassion survey was used and administered online through surveymonkey.com.
• An online game titled CyberBall was also used and programmed to isolate or exclude participants in one condition and include them in the other.

Procedure
Our study utilized an ABA design. Participants first read through and signed a consent form before proceeding with the experiment. Participants were then instructed to attach 3 electrodes with electrode gel to their body. One on the inside of each shoulder, underneath the collar bone and a third underneath the ribcage on the left side. Participants were then brought to a computer lab and instructed to provide an identification number as well as complete a 20-question neurometric survey. Following the completion of the survey, participants were brought into a different room to complete the experiment.

Participants were then instructed to sit in a chair, facing a computer screen as they began the CyberBall program. Participants that completed condition 1 first played the game with the other players including them equally by frequently passing a ball. Participants were instructed to relax for 5 minutes, before beginning condition 2. In condition 2 participants were socially isolated where other players rarely passed them a ball. Following the completion of this final phase, participants provided the same identification number as they had on the survey to allow for complete anonymity in the analysis. Participants were then debriefed and given a gift card.

Discussion

Researchers first hypothesis predicted that the isolation condition would produce lower heart rate variability, which was not found to be statistically significant. The second hypothesis researchers had was that the more neurotic a participant was, the lower the heart rate variability would be. Results supported this hypothesis. These results show that neuroticism is an important variable when analyzing heart rate variability.

Improvements could be made in the number of participants as well as in the selection of participants. They were made up of students in an introductory psychology class and received PRIA credit for participating. The number of participants was sixteen total. If there were more participants researchers would better be able to generalize about the population and potentially look at other factors that may vary and influence results. Improvements could be made in the program used.

A future study could examine how other social isolation tasks and conditions impact heart rate variability. The use of heart rate monitors that could be worn by the participants instead of the Biopac machine.

References