Coping Styles and Cardiovascular Health: Heart Rate Variability Response to Stress

Kristen Kettler, Department of Psychology, College of Arts and Sciences Honors College
Joseph Doster, Ph.D., Professor, Department of Psychology
Introduction

- Relationships of psychological and physiological variables are an important area of study
- Different styles of coping have different implications for cardiovascular health
- What effects do different styles of coping have on heart rate variability?
Cardiovascular Disease is the number one cause of death in the U.S. (CDC, 2005)

Important to examine relationships between cardiovascular disease and controllable factors

Early intervention may be key
Literature Review: Heart Rate Variability

- Measure of changes in heart rate that vary by situation (Malik, 1996)
- Can be used to measure relationships between physiological states and emotional ones (Appelhans & Luecken, 2006)
- Certain types of emotion processing can lead to higher heart rates (Low, Stanton, & Bower, 2008)
Literature Review: Heart Rate Variability

- Higher HRV is good—shows you are more adaptive! (Appelhans & Leucken, 2006)
- People may have lower HRV when in stressful situations (Lyonfields, 1996)
Coping styles can have implications for physical health

People who ruminate about anger have higher blood pressure (Hogan & Linden, 2004)

Repressive coping style is associated with coronary artery disease, myocardial infarction, and death (Denollet et al., 2008)
Literature Review: Coping

- People who repress anger are more likely to become victims of early death (Harburg et al., 2003)
- Clear that coping methods have important interactions with cardiovascular health
We used the Brief COPE
› 28-item questionnaire
› Measures 14 different coping mechanisms

Developed by Charles S. Carver

Demonstrated internal validity (Carver, 1997)

Briefer version of the full-scale COPE (Carver, 2007)
My research will determine what relationships exist between types of coping and Heart Rate Variability in response to a stressful event.
Methodology

- Part of a larger study intended to collect different types of data
- Study was done in 2 phases, each about 1 hour long
  - Phase I: Battery of questionnaires, including the Brief COPE
  - Phase II: HRV, blood pressure, and cholesterol measurements, and another brief questionnaire
Methodology: Sample Population

- **Eligibility**
  - Enrollment in psychology course
  - 18 years old
  - Fluent in English
  - Participants were excluded if they could not fast the night before Phase II

- **UNT undergraduate psychology students receiving course credit**
  - Recruited through SONA system
  - Final Sample: 501 Phase I participants, 297 Phase II participants

- **Representative sample of overall student population of UNT, taking into account race, age, and sex**
References

Acknowledgments

- Joseph Doster, Ph. D., Professor, Department of Psychology
- Joseph Critelli, Ph.D., Professor, Department of Psychology
- Andrea Kirk, Ph.D., Lecturer, Honors College
- Susan Eve, Ph.D., Associate Dean of the Honors College
- Gloria Cox, Ph.D., Dean of the Honors College
- Warren Burggren, Ph.D., Dean of the College of Arts and Sciences
- Wendy Wilkins, Ph.D., Provost and V.P. of Academic Affairs
- Gretchen Bataille, Ph.D., President of the University of North Texas