INTRODUCTION AND SIGNIFICANCE

- Over the last decades, studies have noted an increase in children’s blood pressure (BP) levels (Beacher et al., 2015; Kropa et al., 2016; Rice et al., 2016).
- The incidence of BP elevations has led to an increased recognition of the importance of BP measurements in children (Flynn et al., 2017).
- Elevated BP in children can extend into adulthood, placing individuals at risk for strokes, ischemic heart disease, renal disorders, and other health problems (Kelly et al., 2015).
- Studies have found an association between psychological factors and blood pressure; however more studies are needed to confirm this relationship in adults (Liu, Li, Li, & Khan, 2017).
- Fewer studies have been done with children.

PURPOSE

The purposes of this study were to:

1) Determine the effect sizes of psychological factors that influence blood pressure
2) Determine the feasibility of collecting physical and physiological measurements from 10-12 year-old children

RESULTS

- All children were able to complete the study protocol without problems.
- This study demonstrated feasibility of data collection.
- Participants provided salivary samples for testing of cortisol and C-reactive protein (CRP).
- Questionnaires for the pilot study indicate good reliability; the CDI had a level of reliability of .85, and the FBS had a Cronbach’s alpha of .85.
- An association was shown between perceived stress and depressive symptoms ($r = .61, p < .01$).
- BP Categories/Findings: 22.5% SBP and 16.1% DBP in the 90th percentile; 29% SBP > 95th percentile
- A meaningful effect size was determined for depressive symptoms and BP ($R^2 = .177, p = .02$)

METHODS AND MEASUREMENT

- Cross-sectional, descriptive design
- Convenience sample of 31 children 10-12 years-old recruited from one elementary and one middle school in a rural southeastern state
- Inclusion criteria consisted of children who were: in 5th or 6th grade (10, 11, and 12 years of age); mentally capable of signing assent and had parental consent; capable of understanding, speaking, and responding in English; cognitively capable of responding to instruments and following instructions
- Data for each participant were collected one time in the school setting during physical education course or a non-academic elective course
- Physiological measurements (salivary samples for cortisol and CRP) collected as a group
- Blood pressure was measured using the Dinamap Pro 100
- Children completed the following self-report questionnaires: The Feel Bad Scale and Children’s Depression Inventory (CDI-2)

DISCUSSION

- Results show recruitment, participation, and data collection are feasible in 10-12 year-old children in a school setting.
- This pilot study enrolled a limited number of participants.
- This study included one-time data collection of physiological measurements.
- Due to the low sample size, no significant effects were shown among the mediator variables (cortisol and CRP) and BP.

IMPLICATIONS

- As a pilot study, examination of relevancy thresholds for effect sizes between variables of interest supports the need for future research in a larger, more representative sample, including the role of cortisol and CRP play as potential mediators among the variables.
- Health care providers need to screen children for elevated BP, and use the standardized protocol in child health visits.

REFERENCES