KeepCalm App Development:

Emotion Regulation in Children on the Autism Spectrum

Sydney Grant, University of Pennsylvania
Mentor: Heather Nuske, PhD
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Background and Significance

- Children with Autism Spectrum Disorder (ASD) often have difficulty expressing emotion
- Teachers have to multi-task
- Individualized data analysis is time consuming
How does KeepCalm address these limitations?

1. Heart rate monitoring can help to communicate stress
2. Top Emotion Regulation Strategies appear as pop-up notifications
3. The app tracks the data for you!
Overview

- KeepCalm is a mobile app including data collection and analysis, plus learning resource features
- Integrated with a wearable heart rate tracking bracelet which alerts teams of heightened stress
- Provides evidence-based strategies for de-escalating stress
- Funded by the National Institutes of Mental Health and designed for educational teams of preschool and elementary school students with ASD
Overview
A Story to Share from My Day

Today sensory sensitivities or needs happened, when my heart rate was 190% above baseline and I did climbing on furniture, and my teachers helped me to be/keep calm by communication.

My Top Keeping Calm Strategies

1. Communication
2. Response Interruption/Redirection

Resources

Calming and Behavioral Strategies

- Strategy Videos & Infographics

App Help

- Student App Social Story
- Device Help
- Student Gadget Choice Guide
- Teacher App Guide
Aims- Looking Ahead

Preparing for a randomized control trial by ensuring:

01. The data is representative, accessible, digestible.
02. The app is useable in intended settings.
03. The app is responsive to the communities needs.
App Testing: The Scientific Method In Action

**Step 1**
Observing a Problem
Heart Rate recording stops when offline

**Step 2**
Background Research
Have we seen this issue before? Let's crosscheck.

**Step 3**
Construct a Hypothesis
Heart Rate recording stops after x minutes of not having the app opened/in use
App Testing: The Scientific Method In Action

**Step 4**
Test with an experiment
Record heart rate while offline/ using other apps; observe additional measures while testing

**Step 5**
Analyze Data
Is the amount of time that app records in background consistent each time? If it records for different durations, why could that be?

**Step 6**
Draw Conclusions
Heart Rate recording stops after y minutes of not having the app opened/in use
Interview Feedback Analysis

After using the KeepCalm App for a week, teachers and parents were interviewed over zoom to hear their feedback.
Participants rated the statement “I think that I would like to use this app frequently” a 5

Participants strongly agreed that the app was a good match

Average Rating of Participants to the statement “the app is doable”
Lessons Learned

1. Research can come in many different forms
2. Community partnerships are important in research engagement
3. The validity of the scientific method
Thanks!

Questions or Comments?

Email: sydgrant@sas.upenn.edu