The Influence of Internal and External Evidence on Health Beliefs
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Background

Problem
- People are non-adherent to prescribed medication regimens
  - E.g. two years after a heart attack, 60% of patients stop taking their prescribed medication (American Heart Association)
- Non-adherence is related to patient beliefs about their current health state (i.e. misaligned beliefs lead to problems in adherence)

Common Sense Model (CSM)

Mental Tools To Understand Symptoms
- Ascribed Meaning of Symptoms
- Mental Model of Illness

Previous Experiences

Response and Self-Treatment

Possible explanations
- The CSM explains symptomatic acute illnesses, where adherence leads to symptom reduction
- Chronic diseases are sometimes asymptomatic (i.e. heart disease, diabetes)
- Patients second guess doctors because their mental model of illness is inconsistent with their doctors’ (Jääskallio, Ruusuvuori & Peräkylä, 2010)

Current Study
- Seeks to quantify the difference between internal (e.g. symptoms) and external evidence (e.g. from a doctor) on health beliefs
- In the experiment, internal evidence meant having participants measure and chart their own heart rates
- External evidence, in the experiment, meant measuring and verbally communicating to participants what their heart rates were
- The purpose of this study is to measure the way people assign weight to evidence based on the source, be it internal or external

Goals

- To understand how beliefs about our health change with evidence
- Pinpoint which type of evidence (internal or external) is weighted more heavily in belief construction
- Measure the influence of strong prior beliefs on evidence integration

Methods

Participants
- People from the Rutgers community

Stimuli/Materials
- Electronic stethoscope
- iPhone heart rate application

The electronic stethoscope was created by modifying a traditional stethoscope. A small microphone was placed between the ear buds of this stethoscope, and foam insulation was added around the earpiece in order to increase sound sensitivity, and decrease outside noise. The microphone connected to the computer, in order to play heart rate over the speakers. This electronic stethoscope was used in the second condition of this experiment.

The “Instant Heart Rate” application allowed us to accurately measure participants’ heart rates. The app measured participants’ pulses through their pointer fingers, which were held up to the iPhone camera. This application was used in both conditions of this experiment.

Projected Results/Future Directions

- Beliefs about heart rate will be influenced more heavily by the internal (hearing their heart rate) rather than external evidence (being told their heart rate by the experimenter)
- People with stronger prior beliefs about their heart rates (e.g. frequently exercise or measure their heart rate) will be influenced less by internal or external evidence
- In the future, we hope to create a health-monitoring mobile application that will mimic somatic (internal) information, to improve mental models of illness

Procedure

- Complete the Beck anxiety scale to prescreen for anxiety
- Answer questions about health and heart rate, as well as their exercise habits
- Measure resting heart rate
  - Condition 1: verbally inform of heart rate (external evidence)
  - Condition 2: Play heart rate over speakers (internal evidence)
- Moderate exercise
- Measure their elevated heart rate
- Answer questions about health beliefs
- Measure resting heart rate
- Answer questions about their previous and current beliefs and heart rate

*see Figure 1 below for experimental sequence

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Figure 1

Listened to heart rate  Told heart rate

Or