Knowledge and Pattern of Health-Inhibiting and Health-Promoting Behavior: The Positive Influence of a Fear/Education Appeal on Willingness to Engage in Behavioral Change

Lynn McGoey, Ph.D., Alicia Fels, B.A., & Danielle Guercio, B.S. ● St. Joseph's College, NY

Abstract

Self-report of health behavior and health knowledge of 122 young adults suggested unawareness of the implications of behavioral health choices due to lack of knowledge in what constitutes health-promoting versus health-inhibiting behavior. A subset of participants reported willingness to change health-inhibiting behaviors when presented with a fear/education appeal strategy.

Introduction

Over the last century, leading causes of death have changed from acute illness such as infections to chronic conditions that are age and lifestyle dependent. In 2018, heart disease was the leading cause of death in late adulthood followed by cancer (CDC, 2018). Knowledge and awareness of this concern is vital to change the lifestyles of the younger population in order to prevent certain chronic conditions. The International Food Information Council Foundation found that less than 10% of Americans can accurately estimate the number of calories they should eat in a day (Castillo, Feinstein, Tsang, & Fisher, 2016).

Young adults are often unaware of which behaviors promote health and wellbeing and which behaviors prevent and inhibit a healthy lifestyle beyond a surface level understanding of "eating healthy and getting exercise". In addition, there is a lack of knowledge regarding the negative consequences a health-inhibiting behavior can have because these consequences will not become apparent until years later. There is a reinforcement delay in seeing the effects of a health-promoting behavioral change and a punishment delay in the long term consequences of health-inhibiting behaviors that are lifestyle dependent.

There is minimal research on the best method to change health-inhibiting behaviors and promote a healthy lifestyle. Previous attempts to change behavior choices usually focus on either a "fear appeal" or an "educational appeal". The "fear appeal" is an attempt to scare adolescents or young adults from making dangerous decisions. The education appeal attempts to educate individuals into healthy choices. Research suggested that when utilized within the correct target populations, such as college student and drinking behaviors, the fear appeal is the most effective (Moscatz et al., 2001). However, the audience may believe that the appeal does not apply to them. For example, the individual may think that they do not smoke as much as the person in the fear-based advertisement, therefore they will not experience health problems in a similar way (Ruiter, Kessels,Peters & Kok, 2014). Research is mixed on the outcome of the educational appeal alone or in contrast with the fear appeal.

Purpose

- **Assess the knowledge of health-promoting and health-inhibiting behaviors in college students.**
- **Explore the immediate influence of the fear and educational appeal on self-reported health behaviors.**
- **Explore the relationship between experienced and perceived stress, and reported heath behaviors.**

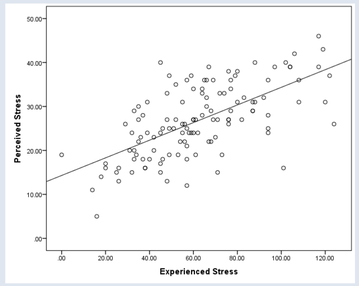
Demographics

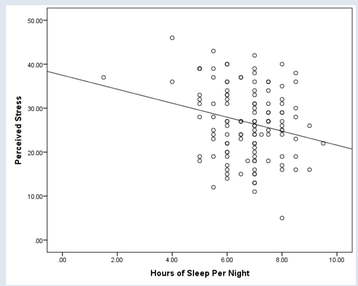
		Mean	Std. Dev.	Min.	Max.
Age (years)	122	19.18	2.21	18	28
Weight (Pounds)	120	143.60	32.16	85	239
Height (Inches)	120	64.64	4.22	56	77
Estimated Calories/Day	107	1,887.90	1,659.74	100	11,000

Method

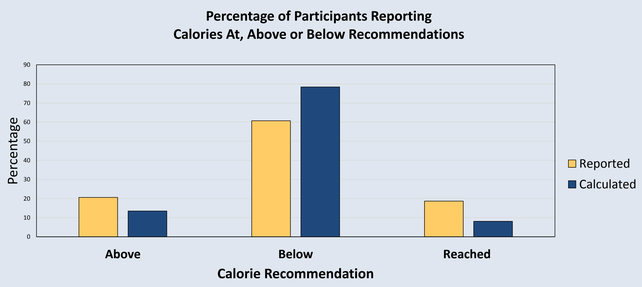
- **Participants**
  - Participants were recruited from a small college using *Sona Systems Ltd.* participant pool software. Participants primarily included those enrolled in Introduction to Psychology and Research Methods, although students from other classes were encouraged to participate. Participation was limited to those aged 18 and older. Participation was kept confidential and individual responses were anonymously collected. They were randomly assigned to be primed with either with either the fear, educational or appeal. **Measures**
  - ***Health Behavior Inventory:*** Previous research (McGoey, presented at EPA 2018) suggested education influenced behavior choices more than fear. However, participants demonstrated a lack of health behavior knowledge. This inventory was designed to assess students' self-reported health behaviors and knowledge using open ended responses, multiple-choice responses, and Likert-type scales. Questions addressed the knowledge of health behavior recommendations and their own health behaviors.
  - ***Stress Inventory:*** The perception of stress scale and actual stress experienced scale was created by modifying the stress perception scale (Cohen, 1994) and the Holmes & Rahe Stress Scale, 1967.
  - **Fear or Educational Prime**: Participants were asked to either view a series of health-related images (fear appeal), or read an informational packet (educational appeal). The educational packet included information about the negative effects of poor diet, smoking, and alcohol use, while the fear packet included images depicting obesity, diseased lungs, and cirrhosis of the liver.
- **Procedure:**
  - After giving consent to participate, all participants completed a demographics form stating their age, gender, height, weight and ethnicity. The Health Behavior Inventory and they Stress Inventory were then distributed in a counter-balanced fashion.
  - As part of the survey, participants were asked to self-report the food that they consumed the day prior and estimate the number of calories they thought they ate. To determine the accuracy of their estimate, the number of calories as well as other nutrition information was calculated based on the serving size or brand name that was given. If a brand was reported, nutritional information was used from the brand's website. If a brand was not reported, nutrition content was calculated using the websites https://www.nutritionvalue.org/nutritioncalculator.php and https://www.nutritionix.com/. Total fat, saturated fat, sugar, cholesterol, sodium, carbohydrate and protein content of the reported food intake was also calculated.

Results

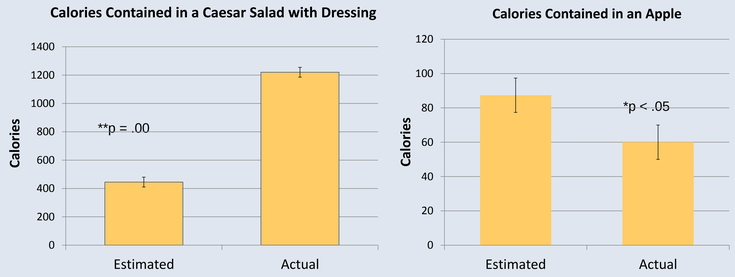




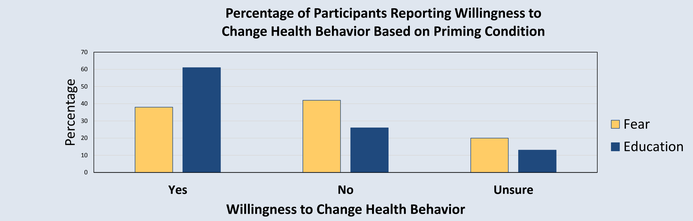
Not surprisingly, a Pearson's *r* correlation test revealed a significant positive relationship between the participant's perceived level of stress and their reported number of stressful experiences, *r* (120) = -.644, *p* = .000. However, only a negative relationship was found between hours of reported sleep per night and a person's perceived stress level, *r* (120) = -.232, *p* = .010.



Descriptive analyses show that participants were more likely to self-report getting below the recommended amount of calories per day and the calculation of their reported food in-take was in agreement. There was no significant different in the average calories reported and the average calories consumed, *t* (37) = -4.501, *p* = 0.00. This may be due to the fact that students tend to underreport their consumption and estimated calories or



One-sample *t*-tests revealed that college students were more likely to significantly underestimate the calories found in items that may be healthy but often contain "hidden" calories, fats and sodium and significantly overestimate the calories contained in known healthy foods such as an apple. When asked the number of calories a small sized red apple contained, students estimated an average of 87.39 calories (SD = 86.24) which was significantly higher than the average of 60 calories (*t* (60) = 2.48, *p* = .016). When asked the number of calories a popular chair restaurant's grilled chicken Caesar salad contained, they reported an average of 445.27 calories (SD = 268.74), significantly below the average of 1220 calories is actually contained, (*t* (59) = -22.33, *p* = .000).



In a small sample (N = 22), a greater percentage of participants reported willingness to engage in health behavior change when primed with an education appeal.

Conclusions

- Participants were more likely to overestimate calories in healthy foods and underestimate calories in foods that give the perception of health. They also were more likely to underestimate their consumed calories when analyzing their food log.
- There was a relationship found between stress, dietary behaviors, and lifestyle choices. The more health promoting behaviors, the better the reported health outcomes.
- Participants varied in their understanding of the requirements of a healthy diet, the recommended amount of exercise and consequences of health inhibiting behaviors.
- Overall it was found that there is disconnect between what participants believed to be healthy and what they were actually doing.
- There were correlations between self-reports of experienced/perceived stressful life experiences and participants'.
- There were no significant differences in the influence of priming (Educational or Fear) on reported health behaviors except in the area of Experienced Stress. Those that viewed the fear appeal reported more stressful experiences.
- A small sample of participants stated they were willing to change their behavior when educated on their health behaviors.

Presented at the Association for Psychological Science Annual Meeting:
May 2019 Washington, D.C.

Research was funded by St. Joseph's College Office Department of Psychology and the Office of the Executive Dean and Provost.