Title:
Young adults' responses to e-cigarette advertisement features and the effect of restricting features on tobacco use (K99DA046563)

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Study Protocol:
RESEARCH DESIGN
K99 Phase: Aim 1:

The purpose of the K99 Phase is to identify which e-cigarette ad features most strongly influence young adults' attitudes, susceptibility, and intentions to use e-cigarette.

Participant Recruitment and Screening. We will recruit 65 young adults susceptible to e-cigarette use to complete the study. Participants will be recruited from the greater Worcester, Massachusetts area using email, flyers, and social media, advertising an opportunity to participate in a health messaging study. Inclusion criteria are as follows: 1) 18-26 years old and 2) reporting never trying an e-cigarette, not even a puff. Susceptibility to EC use, will be determined using the Susceptibility to Use Tobacco Products questionnaire.[13] Only those who select "very unlikely" for all three susceptibility questions, will be excluded from the study. All others will be considered susceptible to use.

Procedures. Following confirmation of eligibility and informed consent, participants will complete sociodemographic questions and a pre-exposure questionnaire. Then participants will view an e-cigarette print advertisement that includes one or more of the following popular feature categories:[7] 1) brand, 2) descriptor, 3) modeling, and 4) warning. A monitor on the computer will track the participant's eye movements and two sensors on the participant's fingers will track heart rate and skin conductance. Each advertisement will appear for ten seconds. After each advertisement, participants will answer a post-exposure questionnaire with items pertaining to perceptions about e-cigarettes. This process will be repeated 14 additional times, resulting in a total of 15 different advertisements seen by participants. All methods are consistent with accepted standards of psychophysiological measurement for media studies.

Measures. Psychophysiological measures will include: 1) Visual attention assessed using eye-tracking, It will determine dwell time on areas of interest (brand, descriptor, modeling, warning) and collect data dwell time, 2) Attention, conceptualized as cognitive resources allocated to encode a message into working memory will be operationalized as heart rate, 3) Arousal, an indicator of physiological activation in the sympathetic nervous system, will be measured by sampling skin conductance. Self-report measures will be collected through iMotions, a secure web application for building and managing surveys and collection of psychophysiological data.

Data Analytic Plan: Self-report scores motivation to avoid e-cigarettes were averaged for each participant, and then averaged across participants to create a mean score for each advertisement and brand. Psychophysiological scores for each construct (i.e., heart rate, skin conductance, visual attention) were also averaged across participants to create a mean score for each advertisement. The lowest scores for the self-report and heart rate data were ranked highest. For visual attention and skin conductance, highest scores were ranked highest. Using a multi-attribute decision-making model, we created a decision matrix in which each row (e.g., alternative or message) represented an advertisement and each column (attribute) represented a construct collected via the self-report or psychophysiological data. The rank of each attribute was summed within each message to create a total rank for each message by study type (self-report, psychophysiological).