# Method

## *Participants*

Participants were 189 students enrolled in Psychology 1000 at the University of Missouri – Columbia. They were primarily white (76%), female (68%), and freshmen (80%); further demographic information can be found in [Table here]. Participants received course credit for participation in the study.

*Procedure*

Participants were randomly assigned to one of three conditions representing different exposure to health benefits information. Our three conditions were an ‘active’ intervention condition (n=60), a ‘passive’ intervention condition (n=62), and our control condition (n=63). The two intervention conditions consisted of a packet of exercises adapted from the Choosing Healthplans All Together (CHAT) paradigm developed by Danis, Biddle & Goold (2002). CHAT is a simulation exercise where participants construct their own HBP by allocating a limited set of resources to benefit types (e.g. dental) and choosing scope of coverage (basic-to-high). Trade-offs are enforced as complete coverage is not possible with the limited resources. The core of the exercise is a simplified version of choosing priorities for a health care system. Our active intervention condition had participants creating their own HBP through the CHAT exercise, while our passive intervention condition had participants being given a completed CHAT exercise. The HBP in our passive intervention condition, consisted of the consensus choices for health insurance found by Danis et al. (2002). Our control condition consisted of participants completed an exercise similar to the active intervention condition, but mentions of health care are replaced with pizza topping choices instead. Trade-offs are enforced due to limited resources. This results in an exercise of similar length and intensity that is intentionally uninformative; see Appendix [LETTER HERE] for Study 1 experimental materials. Study 1 used a 2 (pre-post) x 3 (condition) mixed-subjects design, where condition was a between-subjects factor and participant were assigned to one of the three conditions. Time was a within-subjects factor with the primary outcome, support for UHC, measured before and after participants completed the control or one of the two intervention conditions.

## *Measures*

The primary outcome measure was the support for UHC scale, adapted from Shen & Labouff (2013), measured both pre and post-test. The scale was comprised of 4 items measuring support for UHC, which were averaged after reverse scoring the third item (‘I support the 2013 Affordable Care Act’, ‘Our government needs health reform because the underprivileged are not getting their basic need met’, ‘Universal health care is just designed to make the hard-working people of America pay for the health care of the lazy people of America’, and ‘Access to medical care and insurance is a basic, inherent right of man’) .Each item was measured on a 7 point Likert scale from 1 (strongly disagree) to 7 (strongly agree).

Several items querying our participants on behavior related to health insurance were also collected. Participants were asked whether they paid for their own health insurance and if they have been uninsured, and the active intervention condition was asked if they would be happy having the plan they built as their own health insurance. Each of these three items was measured as a ‘yes’ or ‘no’ response. Additionally, there was a free-response question asking about the subjects thoughts about the exercise they just completed. Finally, we also measured demographic information, including gender identity, age, race/ethnicity, and year in school.

## *Power and Statistical Analyses*

We planned to recruit 180 participants. Sample size was determined a-priori using G-power with the following parameters: greater than 90% power to determine a significant large-sized effect (Cohen’s *f* =0.10) at an alpha level of .05, for a linear multiple regression. Support for UHC outcome was treated as a continuous variable. We examined the effects of experimental condition (CHAT exercise, completed CHAT, and uninformative control) and time (pre vs. post) on our outcome variable by conducting a series of analysis of variance tests. We examined the main effect and the 2-way interaction between our two predictors. Additionally, we also tested models with random and fixed intercepts, with participants being treated as the random effect. All tests were conducted in R and were considered statistically significant when *P* < .05.

Additionally, we fitted Bayesian linear multivariate multilevel models to our support for UHC outcome variable as a function of dummy-coded factors ‘condition’ (reference level ‘control’), and ‘time’ (reference level ‘pre’) as well as the ‘condition x time’ two way interaction using the Stan modeling language and the R package *brms*. Condition, time, and their interaction were our fixed effects, with a random intercept for subjects as our random effect. Our priors were a normal distribution with a mean of 0 and a standard deviation of 2.5 for the mean of our reference levels for our three fixed effects. We used the *brms* package’s default priors for standard deviations of our random effects (Student’s t-distribution with ν = 3, µ = 0 and σ = 20), as well as for correlation coefficients in interaction models.

## Study 1 Hypothesis:

Hypothesis 1 – The experimental groups will differ in support for UHC.

H1a: Participants in the two intervention conditions will have greater increases in support for UHC compared to those in the control condition.

H1b: Participants in the ‘active’ paradigm for the intervention group will have greater increases in support for UHC than participants in the ‘passive’ paradigm.

**Results**

Descriptive statistics are summarized in [Table here]. Our hypothesis was tested using a linear mixed model fitted to our support for UHC outcome measure. The linear mixed model we constructed had condition, time (pre or post intervention), and the condition x time interaction as our fixed effects. A random intercept for each of the subjects was included to account for within-subject correlation in scores. In opposition to H1a and H1b, we observed no statistically significant main effect for our active intervention condition *t*(198.5) = 1.22 ,*p* = .224, or for our passive intervention condition *t*(198.5) = 1.04 ,*p* = .299. Additionally, we observed no statistically significant main effect of time *t*(181) = 1.00 ,*p* = .317. Finally, we also saw no significant interaction effect between time and the active condition *t*(181) = 1.14 ,*p* = .258, or the passive condition *t*(181) = 1.67 ,*p* = .0963.

For our Bayesian estimation, we had four sampling chains, each with 2000 iterations and 1000 warmup repetitions. This yielded 4000 estimated samples at convergence. Participants in our uninformative control condition had no significant change in support for UHC post intervention (℮ = 4.78, CI =4.49, 5.07) than pre intervention (℮ = 4.84, CI =4.55, 5.13). Participants in our ‘active’ experimental condition had no difference in support for UHC post intervention (℮ = 5.03, CI =4.74, 5.32) than pre intervention (℮ =5.19, CI =4.90, 5.48). Participants in our ‘passive’ experimental condition had no difference in support for UHC post intervention (℮ =4.99, CI =4.70, 1.34) versus pre intervention (℮ = 5.21 , CI =4.92, 5.50). In support of H1a, participants in both intervention conditions had greater support for UHC compared to the control. However, in opposition to H1b, participants in our active intervention condition did not have a greater increase in support for UHC compared to our passive condition.

Analysing our free-response question, we found several positive and negative trends in our findings. Participants occasionally had difficulties understanding the instructions. Several occasions occurred wherein the participant asked the administrator how to complete the exercise, after having read through the instructions. Many participants felt that the pencil and paper exercise was unnecessarily complex, and that the process of completing it was not self-explanitory. However, several participants also found the exercise particularly engaging, interesting, fun, and helpful. Given that the purpose of the interventions were to increase engagement with the often-times boring information necessary to explain UHC, this was a positive outcome.