

Positive Psychological Interventions: A Food Pantry Field Study Pre-Analysis Plan

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Abstract

Various positive psychological interventions have been investigated in different contexts to increase subjective well-being. The Crisis Ministry of Mercer County in Trenton, New Jersey provided a unique opportunity to study this form of intervention in a real world setting. In this paper, we outline a pre-analysis plan for a study at the Crisis Ministry's food pantry to examine the effect of such an intervention on the participants. Participants in the treatment condition were asked to perform a task directly benefitting the Crisis Ministry that involved shopping for other clients who could not come to the Crisis Ministry. Participants in the control condition proceeded through the food pantry as usual. After shopping for food, a survey was administered to assess subjective well-being and information about the participant's relationship with the Crisis Ministry. Here we outline the analysis of the effect of asking people to do a small favor on subjective well-being and the relationship between them and the requester.

1 Introduction

For individuals, what is the effect of doing something for others on one's own subjective well-being? There is evidence for benefits from the literature on positive psychological interventions. In a study involving undergraduates at a Midwestern campus, Pressman, Kraft, and Cross investigated the effect on the mood of both givers and receivers of pay-it-forward actions (Pressman, Kraft, and Cross 2015). These actions included tasks such as holding the door open, feeding a parking meter, giving someone a high-five, and picking something up off the ground, among others. The authors found benefits for both givers and receivers in these conditions. Additionally, gratitude writing has seen benefits for increasing positive affect. Toepfer et al. asked study participants to write three letters of gratitude over a three week period and assessed happiness, life satisfaction, and depression following the experiment (Toepfer, Cichy, and Peters 2012). Although this was a short time frame, the authors did find some improvements for participants' happiness and life satisfaction. Despite being transient, positive emotions may result in more substantial increases in positive affect and psychological resilience (Fredrickson 2001).

This study was run in partnership with the Busara Center for Behavioral Economics, a non profit organization that implements research projects at the intersection of behavioral economics and poverty alleviation.¹ We developed a task designed to affect subjective well-being that involved incorporating both a pay-it-forward activity and a gratitude writing activity in the context of an urban food pantry at the Crisis Ministry (CM) in Trenton, New Jersey.

We used an exit survey to assess various aspects of participant psychology, including subjective well being, positive and negative affect, and their self reported relationship with the CM. Will this task help to improve the client's subjective well-being or their relationship with the CM?

This document serves as a pre-analysis plan for the experiment described above. In the sections to follow we will outline the details of the experiment, describe the econometric approach, and identify the main outcome variables.

2 Field Study

This study used a randomized field experiment to assess the effect of a small favor and gratitude letter on psychological well-being. Visiting clients to the CM's food pantry were randomly assigned to either a control group or a treatment group. Those in the control condition shopped at the food pantry as they normally would, while those in the treatment condition were asked to shop for a homebound food pantry client and to choose and sign a gratitude letter in addition to shopping regularly for themselves.²

¹www.busaracenter.org

²Details of the task will be explained in more detail in Section 2.1.3.

2.1 Methods

2.1.1 Participants

561 clients in the food pantry in July at the CM were asked to participate in the study by taking the survey each weekday July 9, 2015 to July 30, 2015 (except for July 28).

2.1.2 Materials

Tablets with a Google form are used to administer the survey and to collect the data. The survey itself was compiled from a variety of sources (Eisenberger, Cotterell, and Marvel 1987; Watson, Clark, and Tellegen 1988; Rosenberg 1965; Lyubomirsky and Lepper 1999; Diener 2013; Nickell 1998) and can be found in the appendix. The other materials used in this experiment were part of the normal shopping procedure and provided by the CM.

2.1.3 Procedure

Study Procedure Participants arrive and sign in as normal, providing identification and proof of address. The intake volunteer gives the participants a card with a randomized participant ID number. After intake, but before shopping, a Busara enumerator speaks with the participants. For participants with an odd ID number (control), the Busara enumerator greets them and introduces them to the Crisis Ministry shopping volunteer who assists them with their normal shopping. With an even ID number (treatment), the participants are asked by a Busara enumerator to perform the task of shopping for a homebound elderly, following a predefined script. The enumerator answers questions and clarifies aspects of the task as needed before introducing the participant to the shopping volunteer.³ The participant shops as appropriate, with assistance from the shopping volunteer as necessary.

Once the participant and volunteer have completed shopping in either condition, they approach the survey station. The shopping volunteer gives the participant and the number card to a Busara enumerator who is administering the survey. The Busara enumerator asks the participants in the treatment group who complete the task to choose and sign a message to be included in the homebound delivery. Next, the participants are asked to take a survey according to the script, regardless of if they perform the task or not. The Busara enumerator offers to read and administer the survey to the participants, which they do as needed. Once the survey is complete, the client is free to go.

Shopping Shopping at the food pantry is not the same as at a traditional grocery store. At the CM food pantry a volunteer accompanies each client and walks a pre-determined path to collect items from shelves according to food group. Clients have a certain number of “points” to spend on each food group

³The volunteer shops with the participant regardless of whether s/he agrees to do the task.

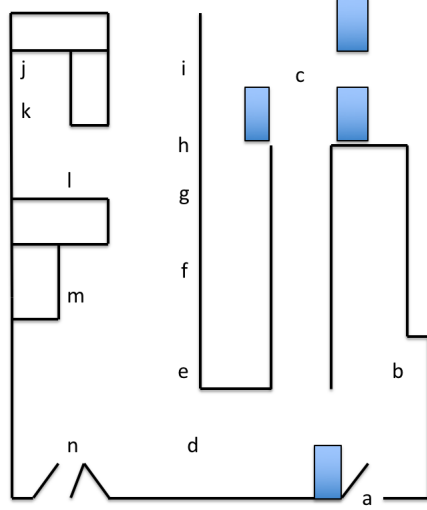


Figure 1: A schematic of the CM. Participants enter and sign in at the table (a) and wait (b) to be called to intake (c). Then, Busara enumerator speak to the clients (d) and shop with CM volunteers to get fruits (e), vegetables (f), beans (g), protein (h), cereals (i), potatoes/rice (j) and pasta (k). Next, participants are asked to take a survey (l) while their groceries are being bagged (m). Once all is complete, they can leave (n).

and can select items within their budget.⁴ In our treatment, participants simultaneously shopped for themselves as well as for a single individual homebound client.

After shopping, the participants are given the opportunity to choose a message from a sheet of four messages.⁵ Once they choose, they can sign a pre-printed copy and it will be included in the delivery.

2.1.4 Hypotheses

We have two hypotheses relating to the participants' own subjective well-being and the relationship between the participants and the CM.

H1: Participants in the treatment group display higher levels of subjective well-being.

The primary outcome measure is an index of two affective questions regarding how inspired and distressed participants feel. The secondary outcome measure is an index of evaluative well-being questions.

H2: Participants in the treatment group will show a stronger affinity towards the CM.

⁴A client's budget varies on how many people are in his/her family. The points for each food group, and for each food item are determined by the CM.

⁵The exact messages are available in the appendix.

The primary outcome measure is an index of four questions assessing the relationship between the participants and the CM.

3 Analysis

3.1 Attrition

To assess whether attrition potentially confounds our results, we proceed as follows. First, we define $attrit_i = 1$ if individual i was surveyed at intake but not at the exit survey, and zero otherwise. We then assess the severity of attrition using three approaches. First, equation 1 estimates whether the magnitude of attrition is different for treatment groups and the control groups:

$$attrit_i = \beta_0 + \beta_1 TREAT + \varepsilon_i \quad (1)$$

Second, equation 2 assesses whether attrition individuals are different in terms of a comprehensive range of baseline characteristics:

$$y_{i,t=0} = \beta_0 + \beta_1 attrit_i + \varepsilon_{i,t=0} \quad (2)$$

And third, equation 3 measures whether the demographic characteristics of attrition individuals in the treatment group are significantly different from those in the control group. The sample for regression will be restricted to attrition individuals:

$$(y_{i,t=0} \mid attrit_i = 1) = \beta_0 + \beta_1 TREAT + \varepsilon_{i,t=0} \quad (3)$$

If worrying levels of differential attrition are found, we will adjust for the potential effect of such attrition using Lee bounds or Heckman selection.

3.2 Treatment

Our basic treatment effects specification estimates the following equation:

$$y_i = \beta_0 + \beta_1 TREAT_i + \varepsilon_i \quad (4)$$

where y_i is the outcome of interest for individual i . $TREAT_i$ is a dummy variable equal to 1 if the participant was randomly assigned to the treatment condition, and 0 otherwise. ε_i is the unobserved error component, which is assumed to be serially uncorrelated. We also run the analysis including control variables. The modified estimating equation is:

$$y_i = \beta_0 + \beta_1 TREAT_i + \beta_2 \mathbf{X}_i + \varepsilon_i. \quad (5)$$

3.3 Heterogeneous treatment effects

We will further test whether the impact of the psychological intervention varies with pre-determined individual characteristics, measured at baseline and denoted by \mathbf{S}_i . The estimating equation for differential effect of treatment for a particular characteristic is given by:

$$y_i = \beta_0 + \beta_1 TREAT_i + \beta_2 S_i + \beta_3 TREAT_i \times S_i + \beta_4 \mathbf{X}_i + \varepsilon_i. \quad (6)$$

where β_3 captures the additional effect that treatment has for individuals with characteristic S .

The dimensions of heterogeneous effects are:

1. Respondent gender
2. Respondent age (younger vs. older)
3. Family size (children vs. no children)
4. Respondent ethnicity
5. Respondent zip code
6. Message chosen

3.4 Correcting for multiple comparisons

Because we are testing multiple hypotheses in this experiment, we adjust the p -values of our coefficients of interest for multiple statistical inference. To this end, we proceed as follows, reproduced from Anderson (2012). A similar procedure is described in Lee and Shaikh (2014) and Romano and Wolf (2005). First, we compute naïve p -values for all index variables \hat{y}_j of our j main outcome groups and sort these p -values in ascending order such that $p_1 < p_2 < \dots < p_J$.

Second, we follow the Anderson (2012) variant of Efron and Tibshirani (1994) non-parametric permutation test: for each index variable \hat{y}_j of our j main outcome groups (see Section 3.5), we randomly permute the treatment assignments across the entire sample, and estimate the model of interest to obtain the p -value for the coefficient of interest. We enforce monotonicity in the resulting vector of p -values $[p_1^*, p_2^*, \dots, p_J^*]'$ by computing $p_r^{**} = \min\{p_r^*, p_{r+1}^*, \dots, p_J^*\}$, where r is the position of the outcome in the vector of naïve p -values. We then repeat this procedure 10,000 times. The non-parametric p -value, p_r^{fwer*} , for each outcome is the fraction of iterations on which the simulated p -value is smaller than the observed p -value. Finally we enforce monotonicity again: $p_r^{fwer} = \min\{p_r^{fwer*}, p_{r+1}^{fwer*}, \dots, p_J^{fwer*}\}$. This yields the final vector of family-wise error-rate corrected p -values. We will report both these p -values and the naïve p -values. Within outcome groups, we report naïve p -values for individual outcome variables other than the indices.

3.5 Outcome Variables

Below we list the outcome variables and indices which we will consider by group. Items indicated with a star are considered primary outcomes, and we will control for multiple hypothesis testing across these outcomes. Other items are secondary outcomes.

1. Subjective well-being
 - (a) Affective index (questions 9 and 10 on the survey)*
 - (b) Evaluative index (questions 3, 7, and 8 on the survey)
2. Egoistic or altruistic tendencies
 - (a) Index of questions 4, 5, and 6 on the survey
3. Relationship with the Crisis Ministry
 - (a) Index of questions 11, 12, 13, and 15 on the survey*

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4 Appendix

4.1 Survey

1. ID Number
2. Did the client sign a consent form?
 - (a) Yes
 - (b) No
 - (c) Busara forgot
3. If you imagine your own life, where do you stand on the ladder, from the Worst possible to Best possible life you can imagine? On what step of the ladder is your life?
 - 0-10 Likert scale
4. You should help others without expecting something in return.
 - 1-5 Likert scale
5. When given the opportunity, I enjoy aiding others who are in need.
 - 1-5 Likert scale
6. The most realistic policy is to let others do more for you than you do for them
 - 1-5 Likert scale
7. I feel useless at times.
 - 1-5 Likert scale

8. Some people enjoy life regardless of what's going on, getting the most out of everything. How often does this describe you?
 - 1-5 Likert scale
9. To what extent do you feel distressed?
 - 1-5 Likert scale
10. To what extent do you feel inspired?
 - 1-5 Likert scale
11. How do you feel about your relationship with the Crisis Ministry in general?
 - 1-5 Likert scale
12. To what extent do you feel that your relationship with the Crisis Ministry has improved your quality of life?
 - 1-5 Likert scale
13. Comparing your experience today with the last few times you have come to the Crisis Ministry, how do you feel about today specifically?
 - 1-5 Likert scale
14. How often do you come to the Crisis Ministry?
 - (a) less than 3 times per year
 - (b) 3-6 times per year
 - (c) 7-12 times per year (once a month for the food pantry)
 - (d) more than 12 times per year
15. Would you be interested in (select all that apply):
 - (a) being called to do other volunteer work for the Crisis Ministry?
 - (b) taking a 20-30 minute survey on the phone about the Crisis Ministry
 - (c) None of the above

4.2 Messages

1. I'm glad that the Crisis Ministry has brought us together through this community program. I prepared this food package for you as a fellow member of the Crisis Ministry community. I hope you are healthy and happy!
2. I'm glad that the Crisis Ministry has brought us together through this community program. I prepared this food package for you as a fellow member of the Crisis Ministry community. I am thankful that I get to pay it forward!
3. I hope you enjoy this food package that I put together for you! I'm glad I'm able to connect with you through this food. I hope you're healthy and happy!
4. I hope you enjoy this food package that I put together for you! I'm glad I'm able to connect with you through this food. I am thankful that I get to pay it forward!