Understanding Loneliness
Jenna Anders and Amanda Pallais
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Because this experiment is conducted with Ph.D. students who could easily access this registry, we thought it important to include most of the details of our hypotheses in this document instead of the public AEA RCT registration. Here are the details that we otherwise would have posted publicly.

Abstract

This project aims to understand why so many people are lonely. Why don't individuals who are lonely find each other? We often think that market participants who would benefit from trade would find each other. We propose a search model, explaining why lonely individuals may fail to find lasting friendships, and test it using a field experiment with Ph.D. students.

Primary Outcomes (End Points)

The outcome data will come from three surveys. These surveys are very similar to the baseline survey, so we will be able to use the data from the baseline survey as controls to gain power. There are three types of outcomes.

1. Relationship between individuals and their teammates
    - Texting and spending time with teammates
    - How the respondent views the teammate (someone they haven't met, an acquaintance, friend, or good friend)
    - Whether the respondent thinks that if they had the desk next to the teammate for a year, the teammate could become one of their good friends

2. Overall friendships and social activities.
    - Number of people in the Boston area the respondent considers friends and good friends
    - Number of friendships and good friendships formed this year
    - Number of social events attended and non-family members texted recently

3. Loneliness and social satisfaction. These include
    - A version of the 3-question UCLA loneliness score
    - Self-reported satisfaction with their social life

Primary Outcomes (Explanation)

1. Relationship between individuals and their teammates

This is the primary place we expect the intervention to have treatment effects. It is also the set of outcomes for which we have the most statistical power. We will test whether the treatment leads

individuals to text their teammates more, spend more time with their teammates, and view their teammates as closer friends.

We will evaluate the heterogeneity of the impacts of the trivia competition for teammate pairs with different relationships before the competition (as indicated on the baseline survey). We expect the treatment will have larger impacts for pairs that are not already good friends and for pairs that have not already seen each other many times socially. In fact, we do not expect the treatment to impact pairs that are already good friends or have already seen each other many times socially, so we will estimate the main effects of the treatment for other teammate pairs. We are not sure whether to expect that the treatment will have larger impacts on pairs that have seen each other very few times socially or pairs that have had a few more social interactions. In the model, this depends on how high the threshold is for choosing to interact with a match, which depends on parameters such as the baseline probability of a match being good, the outside option, and the informativeness of the signals.

We will also look at heterogeneity by teammate gender as we expect that it might be easier for same-gender pairs to form friendships.

We plan to interpret the question asking individuals about whether a teammate would likely become one of their good friends as a measure of the respondent's belief about whether the teammate is a good match. Movement in this measure represents learning about match quality. We expect some treated pairs to increase on this measure (as they learn they are better matches than they thought) and other treated pairs to decrease on this measure (as they learn they are worse matches than they thought). We expect more movement on this measure in the treatment than in the control group since we expect the treatment group to meet more times than the control group.

2. Overall friends and social activities

In theory, any gains due to the treatment in terms of friendships with teammates could come at the expense of other relationships. While we expect that there may be some crowdout of other friendships, we don't expect full crowdout. We test this here by asking about other friendships as well as total social activities.

We want to test whether treated individuals have more friendships (and good friendships), have made more friends (and good friends), and have done more social activities/texted more people.

We will also look at heterogeneity in the impact of the treatment. We will look at the impact by team characteristics such as the closeness of teammates and the number of times they had interacted before trivia, as well as the gender makeup of the team. If we have power, we will also look separately at the impact of the treatment for people who signed up individually or in a small group as opposed to in a fully-formed team.

Because this outcome is at the individual as opposed to the pair level, we have less power than in the pair-level outcomes.

Note that individuals don't necessarily need to be more socially active or text more people to have improvements in their loneliness score or social satisfaction. For example, with or without trivia students could attend a certain number of activities during the week (e.g., an activity on Friday night and an activity on Saturday night). Forging closer friendships could induce students to do different activities or enjoy the same activities more because they are doing them with people they are closer to. In other words, the trivia could change the quality of social activities or friendships without changing their number.

3. Loneliness and social satisfaction

We will test whether treated students are less lonely and more socially satisfied than control students. This is where we have the least power.

We will also look at heterogeneity in this by the same variables as described above.

For (1), (2), and (3) we will also look at heterogeneity of the impact of the treatment with respect to all the individual characteristics we are collecting (which is not many). These include how lonely/socially satisfied the individual was before the trivia competition, as well as how socially active, and how many friends this person had. We are also collecting gender and year in graduate school.

We are also collecting baseline (and follow-up) relationship status. We will also look at heterogeneity by this as students in a serious, lasting relationship may be less lonely or benefit less from other friendships.

Note that one of our follow-up surveys happens during the trivia competition, while two others happen afterwards. The survey during the trivia competition has a slightly different goal and interpretation. For example, we ask outside of the trivia competition, how often have teammates seen each other. This measure may decrease with the treatment to the extent that the friends would have seen each other anyway and simply substitute trivia for another activity. This is more likely to happen the closer teammates report the relationship is. This allows us to measure how strong the treatment is.

In addition to the results of the experiment, we also plan to do a fair amount of descriptive work showing how the variables relate. For example, what variables predict loneliness and social satisfaction? Are the number of prior interactions, whether someone is considered a friend or acquaintance, and the measure of an individual's belief about the probability that a match is good related in the way we would expect based on the model? How do individuals interact differently (in terms of texting and interacting) with acquaintances, friends, and good friends? How often do two teammates agree on whether they are acquaintances, friends, or good friends or whether they would be good friends if they spent more time together?

Secondary Outcomes (End Points)

We will also ask about individuals' relationship status and observe who comes to the trivia nights.

Secondary Outcomes (Explanation)

Relationship status is not a key prediction of the model. While the treatment could make individuals more likely to be in a relationship, we are collecting it mostly to better interpret the impact of the treatment.

Randomization Method

Randomization done in office by computer

Randomization Unit

Randomization is at the team level.

Planned Number of Clusters

This depends heavily on interest and is hard to predict. We hope to have at least 40 teams.

Planned Number of Observations

40 teams would be 240 individuals. Note that many of the outcomes are at the pair level. We have many more pairs than individuals.

Sample Size (or number of clusters by treatment arms)

Again, this is hard to predict: perhaps 120 treatment students and 120 control students