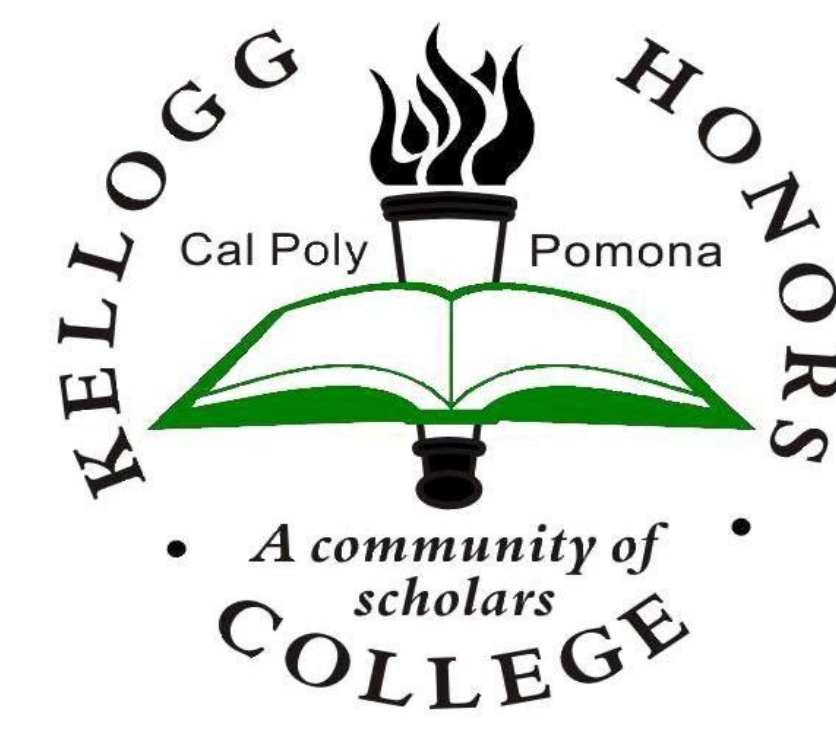


Imagination Inflation: Changing Confidence Inflation Rates with Memory Recovery Conditions



Daniel Mabie, Psychology
Mentor: Dr. Nicholas Von Glahn
Kellogg Honors College Capstone Project



Introduction

- The malleability of memory has been a heavily researched subject in the past few decades. The idea of our brains as camcorders, capturing everything we see and experience in perfect detail has been demonstrated to be wrong by years of research, and in its place, a new idea of our memories as being easily manipulatable has surfaced (Lindsay & Read, 1994).
- One such manipulation of memory is imagination inflation, which is the finding that imagining an event results in increased confidence that the event did happen (Gary, Manning, Loftus, & Sherman, 1996).
- No studies have yet examined how the plausibility of imagination as a memory recovery technique will affect imagination inflation. Hence, the purpose of the present experiment is to observe what effect informing participants of imaginations' role in memory recovery has on inflation rates.

Hypotheses: It is hypothesized that if memory recovery plausibility does influence inflation, then the control group will inflate more than the distortion group (i.e., those told imagination distorts memory), but less than the memory recovery group (i.e., those that are told imagination can help recover memory).

Methods

Participants

- 82 undergraduate students from California State Polytechnic University, Pomona, were recruited through SONA systems. However, only 60 completed all three sessions.

Design

- The experiment is a 3 (Recovery Plausibility: memory recovery, memory distortion, or control) \times 2 (Imagination: imagined and non-imagined) \times (Phase: pretest and posttest) mixed-design. Memory recovery plausibility was manipulated between-subjects.

Measures and Procedure

Pre-Test: During session one, participants were asked to complete a 20 question Life Event Inventory (LEI). In this inventory, participants were asked to rate how confident they were (1-8 scale) that certain events occurred to them before the age of 10.

The following week, during session two. Participants were guided told that imagination leads to memory recovery, distortion, or nothing about imagination's effect on memory. They were then guided through an imagination session of four, counter balanced target LEI items.

Post-Test: Finally, during session three, participants were asked to once again rate all 20 LEI items. Pre-test and post-test LEI scores were measured to determine if inflation occurred.

Results

- As shown in Figure 1, imagined items inflated more than non-imagined items. A three-way ANOVA revealed a significant Imagination \times Phase interaction, $F(1, 57) = 13.494, p = .001, \eta_p^2 = .191$. However, the Imagination \times Phase \times Recovery Plausibility interaction was not significant, $F(1, 57) = 0.795, p = .457, \eta_p^2 = .027$.
- As seen in Figures 2 and 3, participants' beliefs about the effect of imagination and memory were in the expected direction, but the differences were small and non-significant, $F_s < 2, p > .05$.
- Further, a manipulation check test revealed that only 46.7% of the participants remembered what was said to them regarding the effect of imagination on memory recovery.
- A small significant positive correlation ($r = .293, p = .023$) was found between personal belief of imagination leading to memory recovery and LEI score inflation. Conversely, a small non-significant negative correlation ($r = -.229, p = .079$) was found between personal belief of imagination leading to memory distortions and LEI score inflation.

Figure 1: Imagination \times Phase Interaction

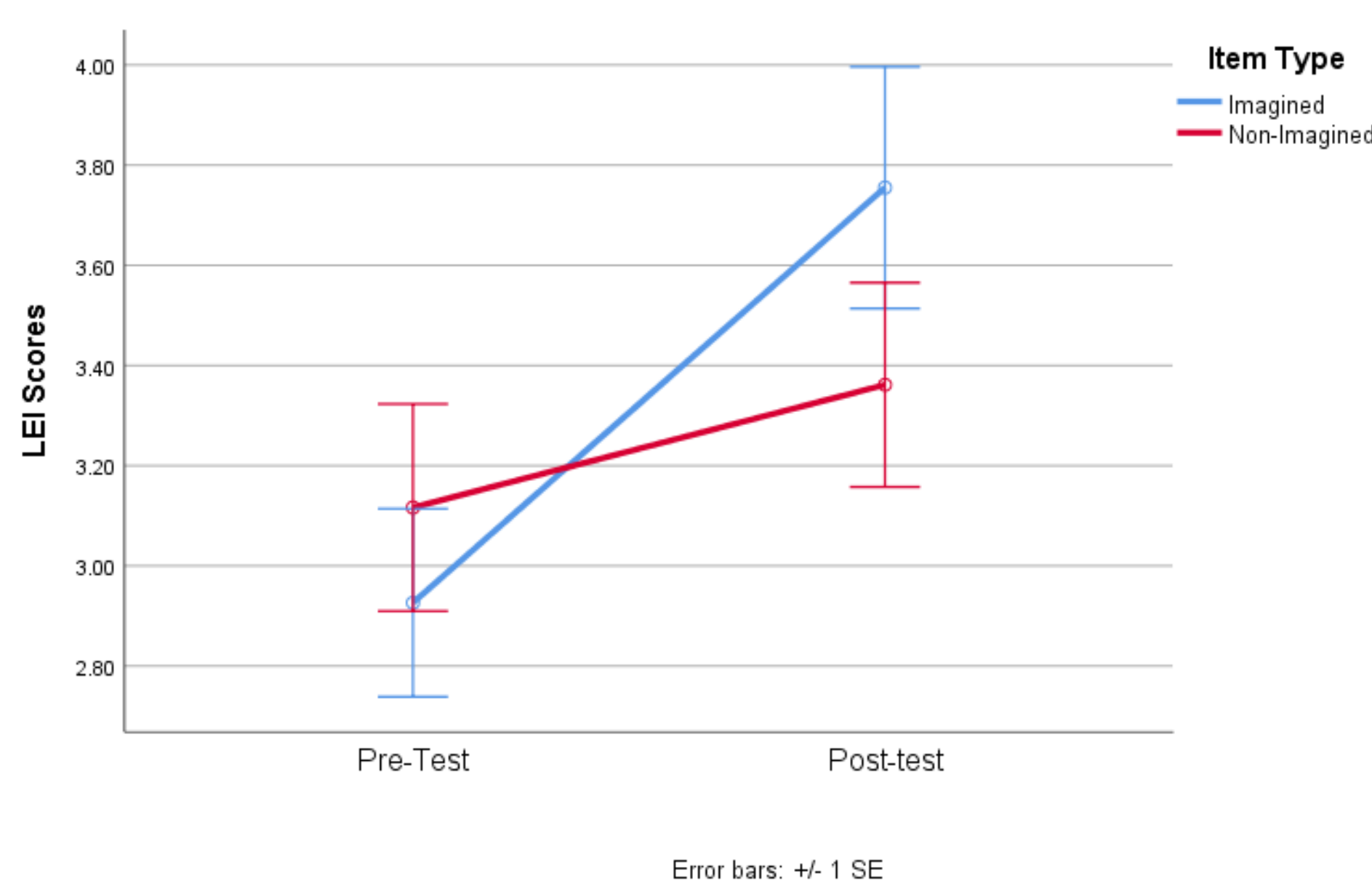


Figure 2: Belief that Imagination Recovers Memories

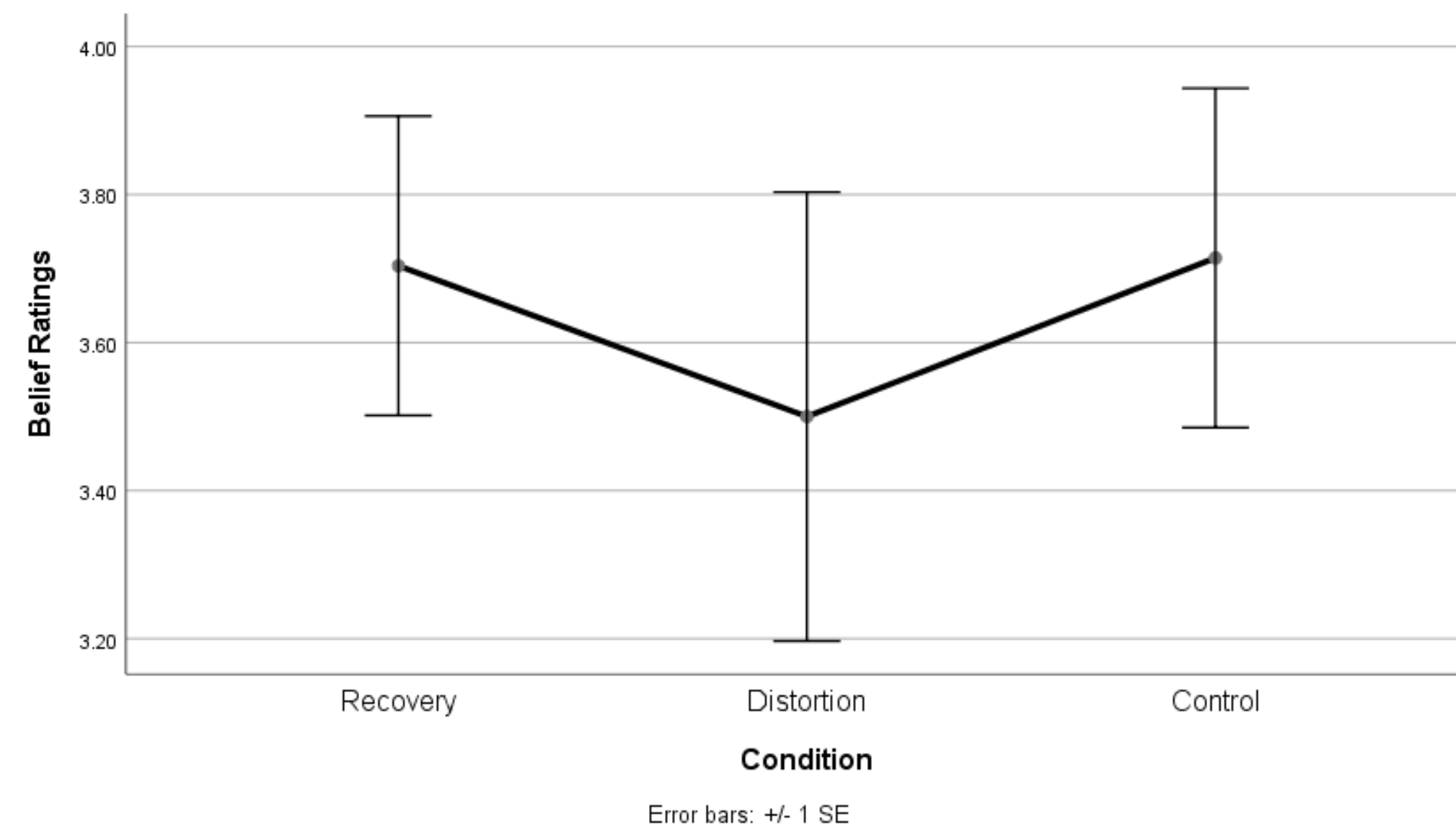
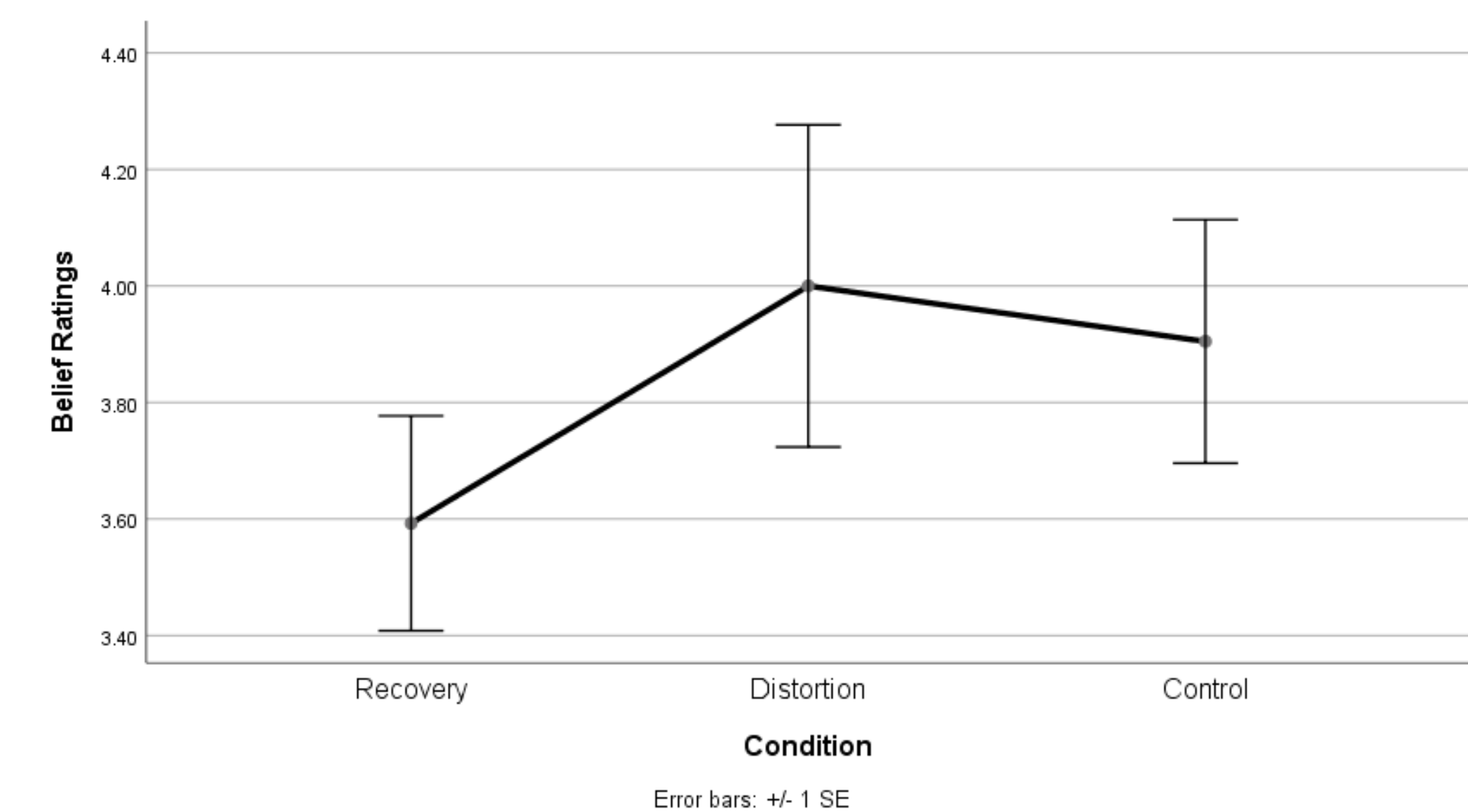


Figure 3: Belief that Imagination leads to Distortion



Discussion

Although only imagined items saw a significant increase across pretest and posttest, both imagined and non-imagined items inflated in every recovery plausibility condition. That is, an overall tendency to inflate regardless of conditions was observed (Figure 1). However, we had limited impact on their beliefs about how imagination influences memory. This was due to a few limitations. The present experiment lacked statistical power because only 60 participants completed all three phases of the experiment. Given the effect size of imagination inflation, we would have wanted 30 participants in each condition. Further, less than 50% of participants could recall what we told them about how memory should be affected by imagination. Unfortunately, our manipulation did not appear strong enough to test our hypothesis. However, this study revealed preliminary evidence that a person's belief about imagination on memory can affect imagination inflation.

References: Lindsay, D. S., & J. Read, D. S. (1994). Psychotherapy and Memories of Childhood Sexual Abuse: A Cognitive Perspective. *Applied Cognitive Psychology*, 8(4), 281–338.

Garry, M., Manning, C. G., Loftus, E. F., & Sherman, S. J. (1996). Imagination inflation: Imagining a childhood event inflates confidence that it occurred. *Psychonomic Bulletin & Review*, 3(2), 208–214. <https://doi.org/10.3758/BF03212420>