

What we say versus why we do: A basic two-factor model of helping decisions in hypothetical
and actual helping situations

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Abstract

Social psychology's long history of studying helping behavior has yielded longstanding theories of helping based on field research using classic confederate protocols (e.g., Gaertner & Dovidio, 1977; Dovidio & Gaertner, 1981; Gross, Wallston, & Pilliavin, 1975; Emswiller et al., 1971; West & Brown, 1975). Evolutionary and cognitive psychological theory have added to these findings by introducing ideas such as likelihood of reciprocation (Trivers, 1971) and cost/benefit analysis into the decision to provide help. In recent years, however, the shift toward utilizing survey methods to measure behavior has raised questions as to how accurately modern social psychological research captures human behavior (Baumeister et al., 2007). The current study collected field research on helping behaviors, of varied costs and benefits to both the helper and recipient, followed by an identical hypothetical survey utilizing the same variables on the same college population. Additionally, trials in both studies included researchers dressed to cue either ingroup or outgroup university affiliation as a manipulation of expectations of reciprocation. In both the field and hypothetical studies, there was little to no evidence of an effect of reciprocation likelihood and mixed evidence for high cost behaviors eliciting lower probabilities of helping. More pressingly, the qualitative pattern of helping differed between the hypothetical and field studies, indicating a difference in decision making processes in each type of survey. This finding has significant implications for the use of hypothetical survey methods to capture behavior in social psychological studies of helping.

Table of Contents

List of Figures.....	vi
List of Tables	vii
Chapter 1 - Introduction	1
Chapter 2 - Review of the Literature.....	6
Differences in Actual and Hypothetical Helping Behavior.....	6
Costs and Benefits of Altruistic Action for Each Party	7
Expected Probability of Reciprocation	10
Ingroup Versus Outgroup Membership	10
Initiation of Mutually Beneficial Relationships.....	12
Practical Constraints on Helping	15
Summary of Hypotheses.....	16
Costs and Benefits of Altruistic Action for Each Party.....	16
Expected Probability of Reciprocation.....	17
Hypothetical Versus Actual Helping Situations	17
Chapter 3 - Methods.....	18
Field Study.....	18
Participants.....	18
Procedures.....	19
Pilot Cost and Benefit Rating.....	19
Behavior Selection.....	22
Confederate Training.....	23
Picking up a dropped pen.....	25
Picking up a dropped dollar	25
Asking to borrow a phone.....	26
Asking for a dollar	26
Expected Probability of Reciprocation Based on Likelihood of Reciprocation	
Opportunity	27
Hypothetical Study	27
Participants.....	27

Procedures	28
Chapter 4 - Results	30
Field Study Results	30
Hypothetical Study Results	33
Chapter 5 - Discussion	36
Field Study.....	36
Costs and Benefits of Altruistic Action for Each Party	36
Expected Probability of Reciprocation.....	37
Hypothetical Study.....	37
Costs and Benefits of Altruistic Action for Each Party	37
Expected Probability of Reciprocation.....	38
General Discussion.....	38
Limitations	41
Future Directions.....	44
Conclusion	45
References	46
Appendix A - Confederate Protocol.....	51
Appendix B - Exploratory Analysis.....	55
Appendix C - R Script.....	59

List of Figures

Figure 3.1.1 Four behaviors representing high C_{self} and low B_{other} , low C_{self} and low B_{other} , high C_{self} and high B_{other} , and low C_{self} and high B_{other} conditions. Dotted lines mark means for overall C_{self} and B_{other}	23
Figure 3.2: An example vignette with photos of a research assistant in a K-State or KU t-shirt.	28
Figure 4.1: Ordinal regression probability estimates for each behavior divided by affiliative t-shirt for field study. CS = cost to self, BO = benefit to other.	32
Figure 4.2: Ordinal regression probability estimates for each behavior divided by affiliative t-shirt for hypothetical study. CS = cost to self, BO = benefit to other.	35
Figure 5.1: Frequency of helping responses by behavior for both the field and hypothetical studies. Per the rating scale, 0 indicates no helping and 2 indicates helping.....	40
Figure 5.2: Predicted helping outcome by estimated gender of subject in field study.	55
Figure 5.3: Predicted helping outcome by reported gender of hypothetical study participants.	56

List of Tables

Table 3.1.1. Pilot ratings of costs and benefits of helping behaviors for both parties, sorted by ascending mean benefit to recipient. Final behaviors selected to be enacted in the study are bolded.	19
Table 4.1: Field study ordinal regression effect tests.....	31
Table 4.2: Field Study ordinal regression probability estimates. Behavior estimates are relative to the "Drop a dollar" condition and shirt estimates are relative to KU shirts.....	31
Table 4.3: Hypothetical study ordinal regression effect tests.....	34
Table 4.4: Hypothetical study ordinal regression probability estimates. Behavior estimates are relative to the "Drop a dollar" condition and shirt estimates are relative to KU shirts.	34
Table 5.1: Exploratory field study ordinal regression effect tests with benefit to other removed.	57
Table 5.2: Exploratory field study ordinal regression estimates with benefit to other removed...	57
Table 5.3: Exploratory hypothetical study ordinal regression effect tests with benefit to other removed.	58
Table 5.4: Exploratory hypothetical study ordinal regression estimates with benefit to other removed.	58

Chapter 1 - Introduction

Despite its focus on the study of social behaviors, much of social psychology relies on the use of hypothetical self-report surveys rather than actual behaviors. A cursory glance at journal articles published in 2023 in *Personality and Social Psychology Bulletin* reveals that the use of hypothetical self-report methods to measure actual and intended behavior is both current and widespread (see Protoczek et al., 2023; Schumann et al., 2023; Thai et al., 2023). While these studies ideally correspond to actual behavior, they do not truly measure it. Despite this shortcoming, hypothetical studies of behavior are fast, cost-effective, and can reasonably capture individual differences like personality, some reasoning methods, and some behavioral preferences. For questions that cannot ethically or practically be answered with a behavioral study, such as to whom someone might donate large sums of money or even an organ (Shanteau & Skowronski, 1990), hypothetical surveys are at times the only method that can be used. In any such hypothetical survey, however, researchers must rely on each participant accurately estimating what they would do in an actual given situation, and psychologists know that human judgment is less than absolutely accurate (Baumeister et al., 2007).

In addition to the problem of human error in judgment, much of the previous research on helping behavior has focused on how participants act in a specific helping scenario (e.g. West & Brown, 1975), rather than creating a general predictive framework. This had led to a body of research that largely predicts when participants (or researchers) believe that help would be elicited in a specific context, but not which environmental conditions might generally elicit helping behavior.

Social psychology has a long history of conducting studies on helping behavior, both hypothetically and through field work, but has rarely successfully combined the two. In

hypothetical studies, specific factors like empathic concern or valuation of another person's well-being have been suggested to influence participants' decisions to help others (Batson et al., 1997; Batson et al., 2007). Another route to predicting helping behavior has been to isolate personality factors like other-oriented empathy and helpfulness to predict actual incidences of reported helping behavior (Penner, Fritzsche, Craiger, and Freifeld, 1995; Penner, 2002). Other hypothetical studies introduce realistic manipulations in an attempt to mirror real-life behavior. For example, Davis et al. (1999) led participants to believe that they were actually making a commitment to volunteering to raise the hypothetical stakes, though they did not ultimately have to follow through. In all such studies, however, participants' estimations of whether they would help might reflect the variables they consider when making helping decisions, but do not necessarily capture what they would actually do in real life.

Conversely, field studies examining helping behavior are able to capture the real behavior being studied but reveal little of the cognitive decision making processes driving participants' actions. In one study conducted on trains in New York city, Piliavin et al. (1969) had teams of research assistants stage collapses that varied based on characteristics of both victims and situations. In one study, the victim acted either drunk or ill. In a second study, the victim was played by either a black or white research assistant. In a third study, the researchers varied whether someone nearby acted as a model of helping. They found in this series of studies that an ill person will receive more help than a drunk one, the race of a victim does not matter, and the longer an emergency continues without anyone else helping, the more likely other people will simply leave the area. A later study on subway cars found that when an "emergency" occurred in the middle of a subway run versus at the end, there was no change in helping unless the victim had a highly visible birthmark (Piliavin, Piliavin & Rodin, 1975). Studies aimed at investigating

the role of race in helping behavior have found that manipulating ambiguity of an emergency, attribution of arousal, social status, and cognitive ability all differentially influence how frequently white and black confederates were helped (Gaertner and Dovidio, 1977; Dovidio and Gaertner, 1981). On college campuses, Darley and Batson (1973) found that seminary students in a hurry were less likely to help an individual in need, and Emswiller, Deaux, and Willits (1971) found that sex and appearance altered willingness to lend a dime to someone. In more direct lab manipulations, Gross, Wallston, and Piliavin (1975) found that an unpleasant experimenter is less likely to be helped than a pleasant one, while Garcia et al. (2002) found that priming participants with the presence of others is associated with less time spent volunteering to help the experimenter. These field studies have been able to identify and manipulate factors that affect helping behavior, but do not always explicitly address participants' general decision making process. While such studies demonstrate situations in which participants are more and less willing to help relative to other contrived conditions, they do not make conclusions regarding a general framework of helping likelihood.

Very few studies have truly compared hypothetical and actual helping behaviors in parallel contexts. Studies that do attempt to compare hypothetical and real life behavior often adopt different methodologies in the respective studies, rendering them incomparable. In one example, Matthews and Cannon (1975) completed studies on ambient noise in both the lab and in a naturalistic setting and found that both loud ambient lab noise and lawnmower revving decrease helping, but these two situations were not directly comparable in that they used different noises and very different settings (i.e., indoors versus outdoors). Furthermore, studies that have attempted to directly compare hypothetical and actual behavior have revealed disparities between participants' hypothetical reasoning strategies and their actual behavior. In a

trolley problem-esque study, Bostyn et al. (2018) found that when presented with either a real or hypothetical trolley problem involving giving electric shocks to either one or five mice, significant differences in relationships emerged. In the hypothetical study, participants were more likely to make a consequentialist (utilitarian) decision than their real-life counterparts. Additionally, individual differences such as morality and psychopathy showed no relation to decision making in the real life scenario but had significant relationships in the hypothetical scenario as well as previous survey-based morality research. These types of findings have driven the argument made by some psychologists that psychological research needs to return to direct behavioral observation in place of, or at least to supplement, hypothetical studies (Baumeister et al., 2007). Though some of the quantitative differences in hypothetical and actual behavior can be accounted for, the question of where the qualitative difference between judgment and action lies is still largely open.

Participants' hypothetical behaviors and strategies appear to differ from what they actually do, but the fundamental factors that drive this disparity have not been examined in depth. There are researchers who recognize that participants are often unable to voice their cognitive processes (i.e., factors that influence their actions) (Nisbett & Wilson, 1977) and that decision making and reporting in psychological studies might be influenced by self-editing for higher social desirability (Holtgraves, 2004). There are even scales designed to measure the extent to which someone is aware of social desirability in such studies and whether it is interfering with survey results (Crowne & Marlowe, 1960). While these efforts have been helpful in identifying that there is bias in hypothetical responding, the findings serve more as a label for the phenomenon rather than an explanation of how and why it occurs. In order to assess why the

disparity between hypothetical and real life responding might exist, additional research that explicitly compares patterns of hypothetical and real life responding is needed.

Chapter 2 - Review of the Literature

Differences in Actual and Hypothetical Helping Behavior

Social psychological research on helping behavior has rarely addressed the disparity between actual and hypothetical behavior. Helping behavior is difficult to study without observing situations in which helping can occur, and this is not easily accomplished through hypothetical studies because of a general norm for helping others. Baumeister et al. (2007) suggested that hypothetical answers are not enough to predict actual helping behavior, but previous research examining the gap between hypothetical and actual helping has largely failed to develop strong theoretical predictions as to why the actual versus hypothetical bias exists and explicitly test them. West and Brown (1975), for example, assessed participants' willingness to help a woman at varying levels of attractiveness and distress in both hypothetical and in-person scenarios. In this study, a female research assistant approached male subjects and asked for money for a tetanus injection. The appearance of the female research assistant varied in both physical attractiveness and state of emergency, as indicated by either no physical cue of injury or an artificially bloodied bandage on one hand. In a second, hypothetical, study, male participants were given a survey that detailed the real life situation and provided with a photo of the research assistant. It was found that in both hypothetical and in-person experiments, a person actively bleeding received significantly more help than someone with no indication of injury. In the field study, attractive assistants received more help in the high state of emergency condition, but this interaction was not replicated in the hypothetical study. This research provided good evidence for differential hypothetical and in-person helping patterns; however, with a sample size of only 120 participants (spread across eight between-subjects conditions) and predictions focused on the state of the confederate and not the nature of participation, the study contributed relatively little

to the understanding of why the differential rates were occurring. In another study that compared hypothetical and real life helping situations, Hauser et al. (2014) assessed how often a confederate with a sad, neutral, or happy affect had a door held for them in several university locations in a series of three studies. In a fourth study, they asked participants to read descriptions of subjects and make hypothetical decisions. In this task, however, they were asked to allocate money to a happy and sad hospital patient. This deviation from the methodology of the field studies once again made the results of the hypothetical and field studies functionally incomparable.

In studies that have explicitly attempted to elucidate differences in hypothetical versus actual helping behaviors, there have been mixed conclusions regarding the nature of differences, and even whether or not the hypothetical versus in-person disparity exists. Investigations into helping behavior in children have found that the extent to which children say they will help friends and acquaintances is highly correlated to what they actually do in practice (Berndt, 1981), showing evidence of congruency between hypothetical and in-person scenarios. Lichtenbarger (2000) similarly found that two groups of college students returned lost letters to both their own and another school at the same rate a hypothetical scenario said they would. Neither study explicitly addresses another main issue associated with hypothetical and lab helping studies, however, which is that contrived helping situations are often not reminiscent of an actual helping opportunity that could feasibly arise in a participant's life.

Costs and Benefits of Altruistic Action for Each Party

Many studies have noted that the costs and benefits to benefactors and recipients in altruistic situations are likely key variables in decisions about helping (e.g., see Carlo et al. (1991) regarding decisions about hypothetical helping decisions). Previous research has

examined the costs and benefits of helping others independent of strong theoretical framing, utilizing a utilitarian framework that instead focuses on the perceived weight of the costs or benefits being incurred (McGuire, 1994). Likewise, judgment and decision making theories of risk provide benefit-based explanations for risky behavior. Expected utility theory posits that individuals will engage in a behavior if the potential outcome of that behavior results in a net increase in subjective utility, or value, to themselves (Bernoulli, 1954). Such studies and theoretical approaches have focused largely on one aspect, such as cost and benefit respectively, or else manipulated a target variable to determine its specific effect on hypothetical helping. For example, Small and Loewenstein (2003) found that identifying the recipients of hypothetical donations (i.e., telling participants their donation would go to a specified family in need rather than one yet to be selected) increased likelihood of donating. In another hypothetical setting, Kawamura et al. (2021) found that when vignettes varied the cost to a benefactor and benefit to a recipient in a scenario involving giving a friend emotional support, participants were more willing to help other individuals in both high cost and high benefit scenarios. In both examples, a factor influencing a helping outcome is examined, but a conclusion regarding how to predict helping behavior is not offered. Kraft-Todd and Rand (2019) found that when rating acts considered “heroic”, more costly acts were rated as more heroic but not more beneficial. This finding provides some evidence that participants might be tracking costs to benefactors more closely than benefits to recipients, but only in the extreme context of high cost heroic action. In a similar but roundabout way, Pancer et al. (1979) manipulated personal appeals to money donation in a field study wherein a donation table for a disability-related cause either stood empty, was attended by an able-bodied individual, or was attended by a disabled individual. They found that subjects tended to avoid the table when it was attended by someone, especially

when that individual was disabled, but ultimately did give more in the disabled attendant conditions. The results of this study also begin to establish a tentative tradeoff of costs of interacting versus benefits to a visible benefactor, but at a similarly direct manipulation level.

Previous naturalistic helping studies have directly addressed the effect of physical and psychological costs and benefits of helping behaviors, though they likewise do not consider a larger cognitive framework. Systematically varying the costs and benefits of behaviors, as well as the difficulty associated with performing them, has revealed the general pattern of lower amounts of helping for costly, difficult behaviors with lower rewards (e.g., Wilson & Kahn, 1975; Sommerville et al., 2018). Likewise, varying psychological variables has been shown to effectively alter helping behavior. Hornstein et al. (1968) found that a lost wallet left outside with an envelope and letter of intent to return it yields mixed results based on the contents of the letter. If its contents suggested that returning the wallet was a hassle, it was less likely to be returned than if the letter suggested the original finder was happy to do so. Manipulating both costs and the presence of bystanders was also found to influence helping, such that subjects in a field study were less likely to intervene in a bike theft when the thief had an intimidating aesthetic versus that of a businessman, but this effect was lessened the more bystanders were present (Fischer & Greitemeyer, 2013). Thus, perceptions of psychological cost and weighing of potential support have both been examined in specific contexts. These studies further contribute to knowledge about the factors potentially being considered and the situations in which they might have more influence, but more work is needed in developing a framework from which to make predictions about how those elements interact to produce patterns of helping.

Expected Probability of Reciprocation

Ingroup Versus Outgroup Membership

Generally, theoretical models of altruistic behavior have made the argument that individuals will be more likely to help others at a cost to themselves when they perceive the others to be socially close. There is, however, a threshold of closeness that must be achieved in order for another person to be a worthy recipient of help (Rachlin & Locey, 2011). People that receive help are generally expected to be those that belong to an individual's own group, or ingroup, more often than those that belong to a different group, or outgroup. Traditional social psychological methods have subsequently posited that we use ingroup and outgroup membership (e.g., race, nationality, institutional affiliation) as a strong cue of whether another individual should be offered help. Previous research in this area has shown that, in hypothetical scenarios, people tend to be prejudiced toward others perceived to be members of outgroups, which can affect attributions of prosocial motives, especially when salient negative information about that outgroup is presented (Borinca et al., 2021). In contrast, van Leeuwen et al. (2014) found that when presented with a negative meta-stereotype, or cue to outside perception of one's ingroup, subjects in a field study asked to provide directions to rival university students were more likely to provide help to outgroup members, potentially as a reputation preservation strategy. In a similar study, Nadler et al. (2009) found that when presented with a member of an outgroup that has a higher status than one's own ingroup, helping behavior will increase as a way of raising that ingroup's status in turn. In the second half of the van Leeuwen et al. (2014) study on meta-stereotype effects, however, the researchers found that in the presence of an audience, participants demonstrated the opposite effect. These results paint a conflicting picture of what is being considered when interacting with ingroup and outgroup members, and it is thus unclear

how individuals can be expected to act based on their environments, outside of recognizing when they're in the presence of ingroup or outgroup members.

A more solid connection has been made between reciprocity and ingroup membership, which indicates that we are more sensitive to violations of reciprocity by outgroup members than when ingroup members do the same, indicating a reciprocal relationship between helping behaviors and ingroup membership. Vermue et al. (2019) found that after negative experiences in one-shot investment trust games with members of political ingroups and outgroups, participants invested less in subsequent outgroup partners than ingroup partners, even though they had never interacted with them before. If in subsequent rounds an outgroup member chose to invest in the participant, however, investment levels for ingroup and outgroup members equalized. Past research has additionally suggested that the extinction of ingroup bias observed in reciprocal tradeoff conditions is moderated in part by interdependence of interests. In a replication of the minimal groups paradigm, Karp et al. (1993) placed participants into arbitrary groups, then had them complete a task where they were asked to make allocations of resources to ingroup and outgroup members and then receive allocations themselves. They found that ingroup bias emerged in this original condition but disappeared in conditions in which allocations to participants were already predetermined. In these conditions, participants were asked to make the same allocations with the understanding that their allocations would not affect what they received in return. Without the interdependence element, the ingroup bias effect disappeared. Thus, it appears that there have been some efforts made to determine the conditions under which helping behavior occurs for both ingroup and outgroup members, and these conditions are likely tied to issues of fitness interdependence.

Initiation of Mutually Beneficial Relationships

In one-shot interactions like those used in many helping studies, participants have been found to provide help to others, despite the fact that it would be objectively more advantageous for us to always act selfishly in such situations (Delton et al., 2011). Some posit that this behavior is an evolutionarily advantageous tendency in small, tight-knit communities in which it could be assumed that one would interact with that person again (Simpson & Beckes, 2010). Likewise, we might engage in helping acts because while that person we help directly might not provide us benefits such as immediate reciprocity or genetic fitness, it might help our reputation with other members of the group and thus lead to later prosocial behavior directed toward us (Nowak & Sigmund, 2005). Alternatively, however, it might be advantageous for us to not necessarily possess a general tendency toward prosociality in one-shot interactions, but rather a high sensitivity to cues to future interactions that make one-shot helping less risky (Delton et al., 2011).

Within the evolutionary psychology literature is the understanding that individuals are not likely to act in a traditionally altruistic way that purely presents a benefit to another individual at a cost to the benefactor; rather, altruistic behavior is more likely to occur when gains in trade exist. It is more beneficial in a survival context to engage in reciprocal altruism, in which they help others with the assumption that that help will be repaid in the future in a way that provides a net benefit (Trivers, 1971). Thus, when weighing the costs and benefits of an altruistic action, an individual is often deciding whether there will be a mutual gain in trade that offsets the cost to the helper by providing some sort of benefit to them either immediately or in the future (Tooby & Cosmides, 1996). This predisposes people to be more likely to help when there will be little to no net loss to them as the result of an interaction with another individual.

Following from this theoretical framework, knowing that reciprocation is or is not likely to happen again will then inform the decision to cooperate or choose not to (Cosmides & Tooby, 1992). In one-shot interactions, there is no certainty of future interactions, meaning that we must look for cues of likely, rather than certain, future interactions. As such, it has been found that the perceived potential length of a relationship is one cue that heavily influences perceptions of future opportunities to reciprocate (Delton & Robertson, 2016).

The likelihood of future interactions is not the only important factor to consider, however. Helping someone you will interact with in the future can be helpful to you in the long run, but only if that person also helps you in return down the road. Another key component to reciprocal altruism is whether reciprocation will actually have the opportunity to occur. This component could incorporate factors as simple as physical ability to help, but can also refer to more abstract constructs such as ingroup affiliation or personal relationship that would make someone more likely to provide assistance. Helping others who will in return have the power to return the assistance is a key component of evolutionary theories of helping behavior, and as such, we must be responsive to cues indicating whether or not it is beneficial to cooperate with certain other individuals. Factors like relatedness, perceived disposition to cooperate, ability to reciprocate aid, and likelihood of future interactions are all theorized to comprise a welfare tradeoff ratio, which is utilized to inform the decision to act at a cost to oneself for the benefit of another. The welfare tradeoff ratio calculation takes into account individual features like relatedness or reciprocity potential as well as environmental conditions like the potential for indirect reciprocity benefits or cost of resources at stake to determine the relative benefit to oneself and the other individual. Individuals use this ratio to determine whether trading their own welfare in the form of time, energy, or resources—thus devaluing their own welfare in favor of

the other individual—is worth the potential reciprocated benefits (Delton & Robertson, 2016).

The most advantageous cues to pay attention to, then, would be ones indicating ability to reciprocate, disposition to reciprocate, and likelihood of opportunities to reciprocate.

Once armed with these cues to advantageous altruistic helping, we can be more confident that our costly action will not result in a net loss, but engaging in an uncertain helping interaction is still a risk. It thus follows that we would also have mechanisms in place to ensure that we are first inclined to initiate these reciprocally beneficial relationships and then are motivated to maintain them over time. Incorporating a cost and benefit structure into this decision making process could provide a method of describing this phenomenon. McGuire (2003) conducted a series of experiments that combined signals of reciprocation, such as social closeness, with cost and benefit variation to create a fuller picture of how people perceive the costs and benefits of helping. In an initial study, participants were asked to recall events in which they had helped and been helped, and it was found that they consistently recorded higher costs and benefits to others who had helped them and been helped by them, respectively. In a second study that utilized behavior prompts from McGuire (1994), participants were again asked to estimate costs and benefits to helpers and recipients of help and showed the same pattern: they indicate that they benefit more than the people that they help and also incur less of a cost than those who help them. This combination of reactions was suggested to indicate that we overweight the benefit of other people helping us to increase our positive feelings about them and underweight the cost of helping others to create a sense of debt that encourages repeated interactions. What this study did not address, however, is whether there was an effect of the judged costs and benefits of those behaviors for each party on the likelihood of the helping occurring. The framework put forth by McGuire (2003) provides initial evidence for the functional combination of cost and benefit

analysis and reciprocation, but requires more research on the effect of the costs and benefits themselves to contribute to a framework capable of predicting helping likelihood. Thus, in addition to manipulating costs and benefits of behaviors, the current study also sought to manipulate likelihood of reciprocation via ingroup and outgroup membership cues to further investigate the interaction between the two concepts.

Practical Constraints on Helping

A final goal of the current research is to examine hypothetical helping situations that are constructed more similarly to real life helping situations: with constraints and tradeoffs. At the extreme, many hypothetical helping situations are one-shot scenarios presented in a contextual vacuum (e.g., West & Brown, 1975), whereas actual helping decisions inherently include considerations of real costs to oneself (in effort, in opportunity costs) and benefits (to the other person, to oneself in possible rewards).

Some studies have attempted to incorporate real life tradeoffs in hypothetical situations. For instance, Burnstein, Crandall, and Kitiyama (1994) asked participants to decide the order in which they would help other individuals. This method introduces constraints and tradeoffs in the form of weighing the need of each individual and, in some cases, their relatedness to the participant, which somewhat addresses the qualitative aspect of helping decision making. Cialdini et al. (1997) manipulated both the closeness of a helping target to the participant and later manipulated the severity of need of the target. Otten, Penner, and Waugh (1988) manipulated the time an individual would have to spend helping another, their deservingness of help, and probability of diffusion. While each study was able to generate predictions as to which hypothesized situations will influence more helping behavior relative to each other, a general

framework for predicting the situations in which helping behavior is more or less likely is still largely missing.

Summary of Hypotheses

The task at hand, then, is to make predictions based on costs, benefits, and probability of reciprocation, as to which variables and combinations of variables elicit helping decisions both hypothetically and in actual field studies. Utilizing both traditional psychological cost and benefit theories, as well as additional theoretical predictions derived from reciprocal altruism literature from evolutionary psychology, the current aim is to examine which factors are being weighed when deciding to act or not act altruistically, and whether these factors differentially influence hypothetical and in-person decisions. Establishing what these patterns are and how strongly they affect helping decisions can also help to establish a baseline for future helping research in both hypothetical and field studies.

Costs and Benefits of Altruistic Action for Each Party

According to the framework put forth by McGuire (1994), it can be expected that people will be more willing to help others when the benefit to the individual being helped is high, and if the cost of helping them is low. These predictions can be formulated as $\text{Benefit}_{\text{Other}} > \text{Cost}_{\text{Self}}$ and are presented below:

- H1: Behaviors with higher than average $\text{Cost}_{\text{Self}}$ will receive less help than behaviors with lower than average costs.
- H2: Behaviors with lower than average $\text{Benefit}_{\text{Other}}$ will receive less help than behaviors with lower than average benefits.

Expected Probability of Reciprocation

People can be expected to provide more help to someone they might see again. This chance of future interaction raises the probability that any time, resources, or energy expended might be repaid later, which should make helping more likely and establishes the following prediction:

- H3: Helping behavior will occur at higher rates for someone with whom the participant is likely to have future interactions.

Hypothetical Versus Actual Helping Situations

Given the mixed results from studies attempting to reveal the difference or lack thereof between hypothetical and actual behavior, an overarching question of the present study is whether hypothetical commitments to helping behavior are aligned with actual observations of helping behavior. The subsequent predictions being tested are thus a set of competing hypotheses:

- H4a: Response patterns of participants will be qualitatively similar for both hypothetical and field studies.
- H4b: Response patterns will be qualitatively different for hypothetical and field studies, with field study respondents less likely to be influenced to act altruistically.

Chapter 3 - Methods

Field Study

Participants

To determine the number of participants necessary for the field study, power analyses were performed based on estimated effect sizes from the studies of Pilliavin, Pilliavin, and Rodin (1975) and West and Brown (1975), who both utilized confederates to create real-life helping situations in public environments. Based on recreations of the respective data, both studies are estimated to have achieved moderate effect sizes (0.25). A power analysis was subsequently performed utilizing 0.25 as the target effect size at 90% power with a 10% alpha error rate. For a full factorial 2x4 design, the analysis, conducted using GPower (Faul et al., 2007), determined that 192 participants would be needed, which was rounded up to 200. In this design, each of four helping behavior was performed 50 times each, with 100 total behaviors occurring in a K-State t-shirt and KU shirt, indicating ingroup and outgroup affiliation respectively. In order to ensure equal distribution of behaviors and shirts, a list of all possible shirt/behavior combinations was created, randomized, and randomly distributed to research assistants in a quota sampling method.

Participants consisted of 202 individuals present in the Kansas State University Student Union during the Spring and Fall 2022 semesters estimated to be generally college-aged or older. Due to the naturalistic nature of the study, informed consent and debriefing were not used, as approved by Kansas State University's Institutional Review Board (approval no. 10932), meaning that all participant demographics were estimated by research assistants. It is estimated that the sample consisted of 101 men and 101 women, with all but two participants estimated to fall into an age range of roughly 18-22 (i.e., college-aged).

Procedures

Pilot Cost and Benefit Rating

A pilot study asked 60 participants to rate the costs and benefits associated with 25 different helping behaviors, largely from McGuire (1994), that could be feasibly reenacted in the community. Pilot participants were given a helping scenario, then asked to rate both how much the scenario would benefit the individual receiving the help and how much it would cost them on a scale from zero (not at all beneficial/costly) to 100 (very beneficial/costly). Likewise, participants were also asked to rate the costs and benefits to the helper in each situation. Participants were told that benefits could include resource gain, relationships made, gains in trade obtained, or time saved, for example. Costs could include penalties like time or resources lost, debt incurred, or potential danger. Mean ratings for each of the four dimensions for every behavior are listed in Table 3.1.1.

Table 3.1.1. Pilot ratings of costs and benefits of helping behaviors for both parties, sorted by ascending mean benefit to recipient. Final behaviors selected to be enacted in the study are bolded.

Behavior	Mean Benefit to Recipient (SD)	Mean Cost to Recipient (SD)	Mean Benefit to Helper (SD)	Mean Cost to Helper (SD)
Picking up a dropped paper or other item	54.40 (34.98)	17.10 (25.14)	27.86 (30.04)	21.55 (27.78)
Opening/holding a door for someone	59.52 (32.37)	17.16 (27.07)	26.18 (24.39)	19.17 (25.03)
Helping someone choose a gift and	65.88 (27.70)	24.02 (27.64)	30.20 (29.65)	23.60 (27.57)

giving an honest
opinion on it

Lending a pen	70.08 (27.65)	14.32 (22.90)	24.59 (27.42)	20.25 (25.08)
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Carrying a suitcase or package for someone	72.35 (26.89)	20.18 (23.78)	27.33 (29.11)	37.00 (28.02)
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Looking up a phone number or making a phone call for someone	71.78 (26.10)	22.46 (29.60)	23.14 (27.67)	27.15 (25.62)
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Answering a short question for or giving information to someone	73.55 (25.04)	18.16 (22.00)	28.31 (29.38)	21.73 (24.32)
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Asking to borrow someone's phone	76.43 (26.37)	22.47 (28.51)	24.53 (28.06)	38.27 (30.63)
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Watching someone's belongings for a few minutes	77.58 (25.49)	24.35 (25.96)	27.48 (28.23)	31.57 (29.69)
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Donating money or buying a raffle ticket for a charitable organization	78.27 (25.24)	21.60 (28.02)	37.07 (27.93)	40.08 (31.09)
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Pointing out a forgotten item	78.10 (24.96)	25.98 (31.41)	28.49 (30.67)	16.51 (24.08)
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Letting someone use a computer	77.68 (23.37)	20.02 (26.56)	25.14 (28.51)	39.45 (30.71)
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Asking for directions on campus	77.58 (22.38)	18.30 (21.96)	26.61 (28.07)	20.42 (23.30)
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Returning a letter found on campus to	77.10 (21.57)	26.12 (28.84)	33.45 (29.00)	28.62 (25.65)
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the person it was intended for				
Asking someone for directions by walking them to their destination	79.51 (23.14)	22.47 (27.31)	32.61 (29.88)	43.98 (28.03)
Asking someone for money to pay for lunch	80.02 (22.90)	28.95 (31.08)	22.64 (26.31)	56.92 (27.69)
Helping someone look for their ID	81.13 (22.97)	28.48 (32.21)	28.76 (28.70)	31.30 (25.35)
Voluntarily answering a survey or participating in a study	83.28 (23.06)	24.23 (28.79)	30.16 (28.56)	34.80 (28.98)
Helping someone look for their phone	81.58 (21.35)	29.38 (30.50)	28.31 (28.38)	34.03 (26.29)
Giving someone a ride within your city	80.07 (19.48)	28.16 (27.38)	28.50 (26.98)	48.53 (26.50)
Helping someone with homework or other schoolwork	81.72 (19.70)	26.50 (27.57)	40.26 (29.51)	39.72 (26.67)
Changing a tire for someone	85.82 (20.40)	33.60 (31.57)	30.19 (28.21)	46.54 (25.59)
Helping someone look for their pet	85.72 (19.76)	29.68 (32.17)	34.62 (29.10)	36.17 (25.26)
Jumping a car	86.95 (17.62)	23.86 (27.33)	28.36 (28.09)	39.82 (27.00)
Returning a wallet or money	89.90 (18.64)	31.14 (36.47)	38.86 (28.62)	32.32 (28.60)

Behavior Selection

Four behaviors were selected from the 25 behaviors rated for use in the field and hypothetical studies. Behaviors were selected primarily based on the cost to the helper (C_{self}) and the benefit to the recipient (B_{other}), given the theoretical importance of those two dimensions. Thus, four combinations of costs and benefits were selected: high C_{self} /low B_{other} , low C_{self} /low B_{other} , high C_{self} /high B_{other} , and low C_{self} /high B_{other} . High and low cost behaviors were defined as those behaviors that had an average rating above or below the overall average cost rating respectively and were feasible to enact in a campus setting (i.e., behaviors such as jumping a car or giving a ride to a stranger, which would require the acquisition of a vehicle and potential risk to research assistants, were excluded). High and low benefit behaviors were defined as those behaviors that had an average rating above or below the overall average benefit rating respectively. Returning a wallet or money was rated as low C_{self} and high B_{other} , picking up a dropped paper or other item was rated as low C_{self} and low B_{other} , asking for money to pay for lunch was rated as high C_{self} and high B_{other} , and asking to borrow someone's phone was rated as high C_{self} and low B_{other} . C_{self} and B_{other} for selected behaviors are shown in Figure 3.1.1., along with the average C_{self} and B_{other} marked for comparison.

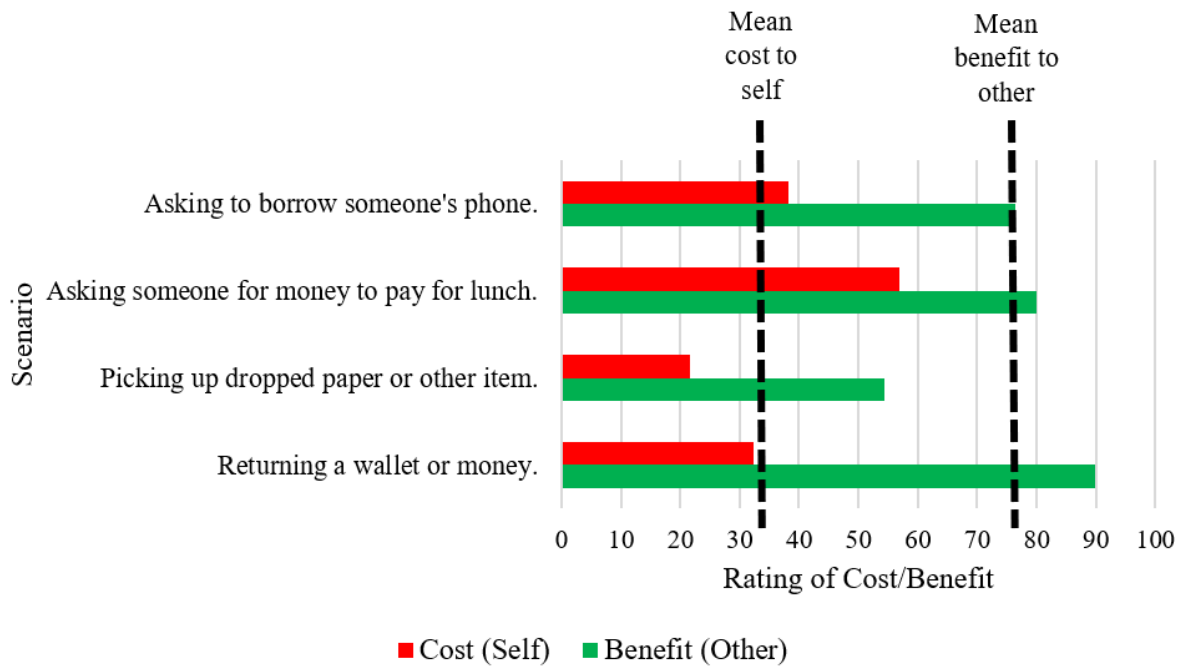


Figure 3.1.1 Four behaviors representing high C_{self} and low B_{other} , low C_{self} and low B_{other} , high C_{self} and high B_{other} , and low C_{self} and high B_{other} conditions. Dotted lines mark means for overall C_{self} and B_{other} .

Confederate Training

Eight undergraduate research assistants were trained to act as confederates enacting helping situations in the Kansas State Student Union. A previous meta-analysis found that there is some evidence for gender differences in helping behavior, such that men are more likely to help others, especially in situations in which the benefactor is a woman, and women are generally more likely to receive help when they need it (Eagly & Crowley, 1986). In order to avoid gendered helping effects that might obscure the effect of the target manipulations, all research assistants were woman-presenting and took measures to ensure rough homogeneity in appearance. (Exploratory analysis revealed no effect of estimated subject gender; see Appendix B for result figures for studies 1 and 2). When approaching subjects in the Student Union, all research assistants were instructed to wear the designated university t-shirt (either reading K-

State or KU across the front with the university's respective logo underneath, depending on the trial) and full length jeans. Assistants with long hair tied their hair back in a ponytail. Assistants were also instructed to take off all outerwear such as coats or cardigans and to wear a backpack.

Assistants were instructed to approach lone individuals in public spaces in seven designated zones of the Kansas State Student Union. These zones were selected based on assessment of their having regular but not high traffic, high visibility, and lack of sightline overlap. Assistants were instructed to avoid overly crowded areas, such as tables advertising clubs or other university activities being held in the Union, in order to avoid groups of people and minimize diffusion opportunity. Subjects were designated as the second lone individual to enter the Union zone at the beginning of a trial so as not to introduce bias in subject selection. After each trial, assistants either moved to a new zone of the Union, or else waited five minutes and repeated the trial once again with the second lone individual to enter the zone.

After completing a trial, the assistant that completed the behavior recorded an estimate of each subject's age and gender and the observing assistant provided a code for the subject's response, and this was done for both subjects that did and did not help. Similar to the methodology of Hauser et al (2014), different helping responses were coded based on the judgment of the observing assistant. Hauser et al. (2014) designated four response types in their study corresponding to different levels of effort made by a subject, and a similar rating system was utilized for the current study. Each subject response was given a rating of 0, 1, or 2. A rating of 0 indicated that no help was given, a rating of 1 indicated that a subject demonstrated intent to help, and a rating of 2 indicated that the subject did help the assistant. Specific behavioral components of each rating for respective helping behavior conditions are detailed below. More

detailed information and contingency plans devised for all behaviors are included in the confederate protocol in Appendix A.

Picking up a dropped pen

An assistant walked toward the intended subject at a practiced, moderate pace (15 paces in 10 s). When they were an estimated ten feet away, facing the subject (so that the front of their shirt was clearly displayed), they reached into their back pocket for their phone, and when they pulled it out, they seemingly inadvertently pulled a pen out with it, which dropped to the ground. The assistant then continued walking past the subject and sat down an additional 10-15 feet from the subject for 30 seconds. If 30 seconds elapsed without the subject returning the pen, the encounter was rated as a 0 below.

Scoring:

0 = Subject said nothing to the assistant.

1 = Subject verbally told the assistant they dropped something.

2 = Subject picked up the pen and brought it to the assistant.

Picking up a dropped dollar

An assistant walked toward the intended subject at a practiced, moderate pace (15 paces in 10 s). When they were an estimated ten feet away, facing the subject (so that the front of their shirt was clearly displayed), they reached into their back pocket for their phone, and when they pulled it out, they seemingly inadvertently pulled a dollar bill out with it, which dropped to the ground. The assistant then continued walking past the subject and sat down an additional 10-15 feet from the subject for 30 seconds. If 30 seconds elapsed without the subject returning the dollar, the encounter was rated as a 0 below.

Scoring:

0 = Subject said nothing to the assistant.

1 = Subject verbally told the assistant they dropped something.

2 = Subject picked up the dollar and brought it to the assistant.

Asking to borrow a phone

For the phone borrowing condition, an assistant approached an individual and interjected with the following: “Hey, my phone is dead. Can I borrow yours to make a quick call?”.

Scoring:

0 = Subject declined.

1 = Subject expressed the desire to lend their phone but could not or did not have one or pointed the assistant toward a public phone.

2 = Subject agreed to lend their phone.

Whenever the assistant obtained a phone, they made a brief call to the primary researcher and left the following message: “Hey, it’s [name], I just wanted to let you know that I’m running late for our meeting, but I’ll be there soon.”

Asking for a dollar

For the snack money condition, an assistant approached an individual and asked them if they would give them one dollar to pay for a snack from a vending machine. Upon approaching a subject, assistants interjected with the following: “Hey, could you give me a dollar for the vending machine?”

Scoring:

0 = Subject declined (including “I don’t have my wallet.”).

1 = Subject attempted to find money to give to the assistant and failed, or gave less than the requested dollar.

2 = Subject gave the participant a dollar or more, in which case the assistant was again instructed to thank the subject and give a rating of 2.

All money collected from subjects, which totaled \$7.00, was donated to Cat's Cupboard, a charity organization at Kansas State that collects food and money donations that benefit the student community.

Expected Probability of Reciprocation Based on Likelihood of Reciprocation

Opportunity

Lastly, to evaluate likelihood of helping based on reciprocation probability cues, scenarios that differentially communicate the chance of reciprocity were utilized. In half of all scenarios, the research assistant wore a K-State shirt, while they wore a University of Kansas (KU) shirt in the other half. Previous research has indicated that when university membership is emphasized, biases observed between different colleges increases (Dovidio et al., 2000). In accordance with evolutionary theories of cooperation, these differences should thus be a cue of probability of reciprocation. Assistants wearing K-State shirts represented individuals with whom the subject might interact again, while assistants wearing KU shirts represented individuals with whom participants will have a lower chance of interacting with again.

Hypothetical Study

Participants

The hypothetical portion of the study utilized student research participants via the Kansas State University research participation pool and was distributed via Qualtrics. As in the field study, 200 participants were required for analysis, and 233 were collected during the Fall 2022 and Spring 2023 semesters. Of the 233 participants, 19 were excluded for failing to complete more than 50% of the survey. The single survey item was distributed in three surveys that also

measured facial perception and various individual differences. The average age of the sample was 20, and out of the 214 remaining participants, 91 identified as men, 117 identified as women, and six identified as either outside the gender binary or preferred not to list their gender.

Procedures

Participants were presented with vignettes of the situations enacted in the helping field study, with every participant seeing only one vignette. Accompanying every vignette was an image corresponding to the scenario, similar to the research assistant photos that accompanied the vignette descriptions of scenarios used by West and Brown (1975). (See Figure 3.2 for example question with research assistant image).

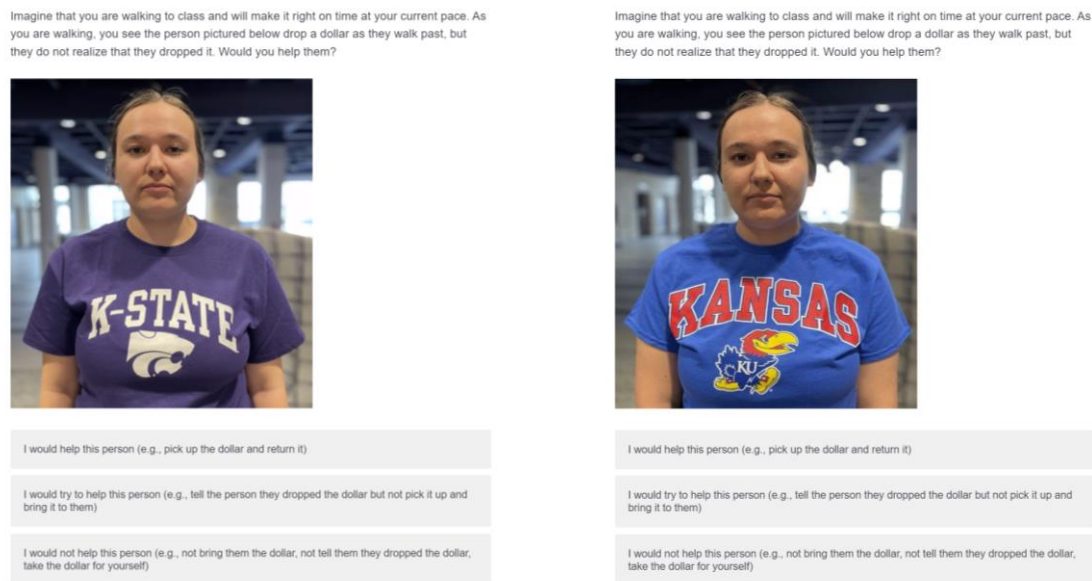


Figure 3.2: An example vignette with photos of a research assistant in a K-State or KU t-shirt.

Participants were then asked to rate their probable response to each scenario based on the same rating scale used in the field study. Participant responses indicating that they would not help were coded as 0, participant responses indicating that they would try to help were coded as

1, and participants who indicated that they would help were coded as 2, consistent with field study response coding.

Chapter 4 - Results

Field Study Results

In order to investigate the effects of cost/benefit combinations and ingroup affiliation on helping behavior, an ordinal logistic model was run utilizing the four-level variable of behavior, the two-level variable of shirt, and their interaction as predictors and the 0-1-2 rating scale as the outcome variable, such that higher ratings correspond to helping, while lower ratings correspond to not helping. Utilizing the ordinal regression allows for the prediction of a latent helping variable represented by the rating scale, and parameter estimates generated by the model thus represent probabilities of helping. Alternatively, a multinomial logistic regression was considered if the assumption of parallel lines was not met for the ordinal logistic regression. In order to assess whether an ordinal logistic regression would be appropriate, a Brant test of parallel lines was run, and indicated that the assumption of parallel lines was upheld, which suggests that the relationship between the predictors and outcome are constant across levels of the outcome (Brant, 1990). Due to the ordinal nature of the rating scale outcome, analysis continued with the ordinal logistic regression.

Overall model effects (Table 4.1) revealed an effect of behavior ($L-R X^2 = 46.40, p < .001$). Investigation of the parameter estimates for the model indicates that there were significant differences in helping probability based on the behavior performed. Asking to borrow a phone had a significantly higher probability of eliciting help than any of the other behaviors ($t = 5.07$), while asking to borrow a dollar had a significantly lower probability ($t = -4.33$) (Table 4.2, Figure 4.1). This result did not support hypothesis 1, which stated that behaviors with higher than average costs will receive less help than behaviors with lower than average costs, given that asking for a phone was rated as having a higher than average cost. Similarly, the relatively low

probability of helping elicited in the asking for and dropping dollar conditions was not consistent with hypothesis 2, which stated that behaviors with higher than average benefits would receive more help than behaviors with lower than average benefits.

Table 4.1: Field study ordinal regression effect tests.

	Df	L-R X^2	Prob > X^2
Behavior	3	46.40	<.001
Shirt	1	3.11e ⁻⁴	.986
Behavior*Shirt	3	2.74	.434

Table 4.2: Field Study ordinal regression probability estimates. Behavior estimates are relative to the "Drop a dollar" condition and shirt estimates are relative to KU shirts.

	Estimate	Std Error	<i>t</i>
Intercept (0)	-0.85	0.18	-4.83
Intercept (1)	-0.13	0.17	-0.78
Behavior (Ask for a dollar)	-1.06	0.25	-4.33
Behavior (Ask to borrow phone)	1.80	0.35	5.07
Behavior (Drop a pen)	-0.63	0.25	-2.50
Shirt (K-State)	-2.94e ⁻³	0.16	-0.02
Ask for a dollar*K-State	0.05	0.25	0.21
Ask to borrow phone*K-State	-0.51	0.35	-1.44
Drop a pen*K-State	0.32	0.25	1.25

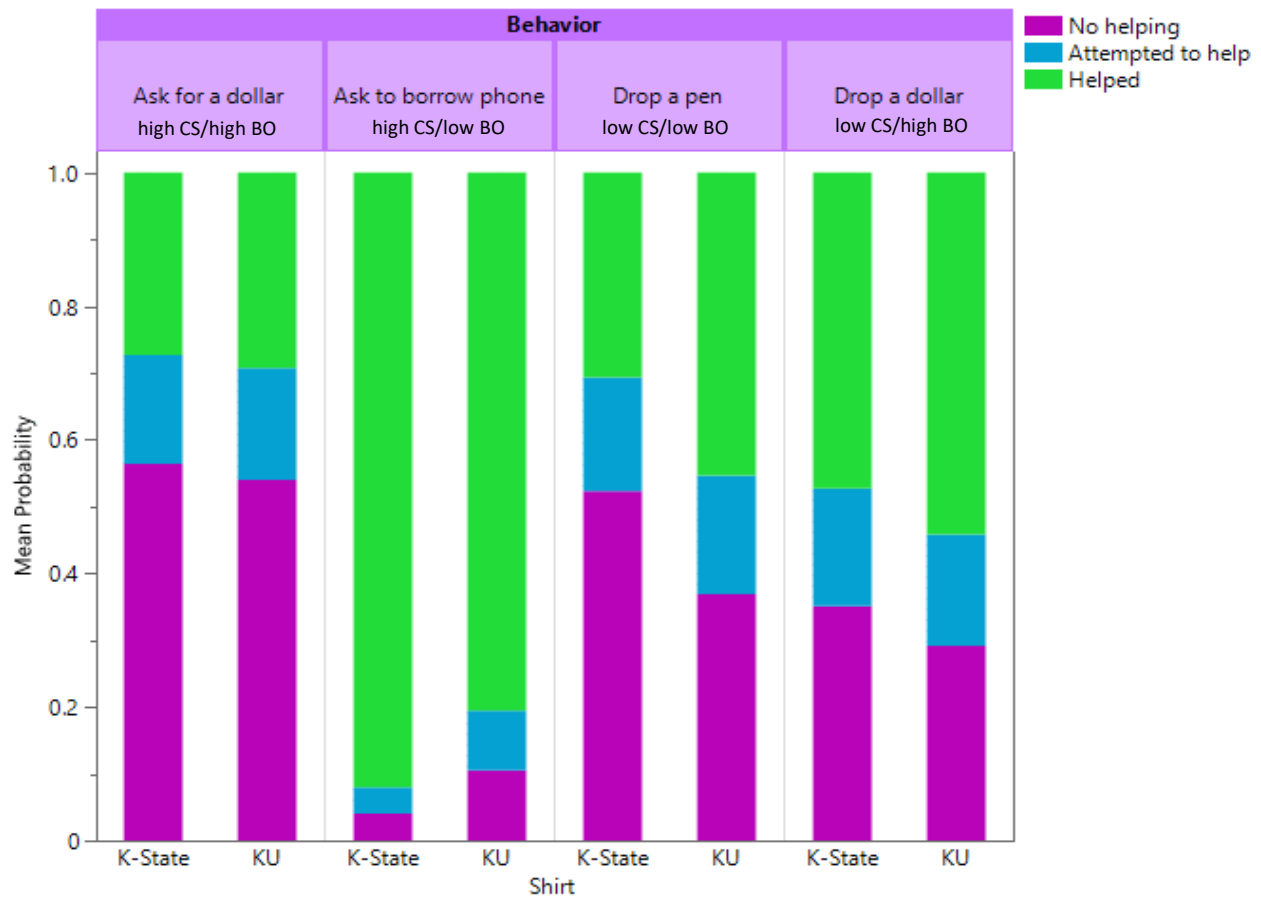


Figure 4.1: Ordinal regression probability estimates for each behavior divided by affiliative t-shirt for field study. CS = cost to self, BO = benefit to other.

There was no effect of ingroup affiliation cues, such that the university t-shirt worn by the research assistant did not differentially predict probability of helping. Likewise, there was no interaction between the shirt worn by the research assistant and the behavior they performed. The lack of effect of ingroup affiliation cue was not consistent with hypothesis 3, which stated that helping behavior will occur at higher rates for someone with whom the participant is likely to have future interactions. For this hypothesis to have been supported, the model would have revealed a significant difference in helping probability between the K-State and KU t-shirt conditions.

Hypothetical Study Results

Overall model effects (Table 4.3) revealed an effect of behavior (L-R $X^2 = 24.61$, $p < .001$). Investigation of the parameter estimates for the model indicates that there were significant differences in helping probability based on the behavior performed. Asking for a dollar had a significantly lower probability of eliciting help than any of the other behaviors ($t = -4.83$). This result partially supported hypothesis 1, which stated that behaviors with higher than average costs will receive less help than behaviors with lower than average costs given that asking for a dollar was rated as having a higher than average cost. Hypothesis 2, which stated that the behaviors with higher than average benefits would receive more help than behaviors with lower than average benefits, did not receive support given the relatively similar probabilities of helping across the other three behaviors.

As in the field study, there was no significant effect of ingroup affiliation. Unlike in the field study, however, there was a significant interaction between the behavior performed and the shirt worn (L-R $X^2 = 11.72$, $p = .008$). Dropping a pen in a K-State shirt was found to elicit a lower probability of help than doing so in a KU shirt ($t = -3.00$). (Table 4.4, Figure 4.2). This finding provides evidence contrary to hypothesis 3, which predicted increased helping for ingroup members, but was ultimately not replicated across behavioral conditions as would be predicted by a general ingroup affiliation effect on helping. The additional significance of the interaction in the hypothetical study does provide support for hypothesis 4b, which stated that response patterns of participants will be qualitatively different for both hypothetical and field studies. Overall patterns of significance between the behavior being performed, the shirt being worn, and the probability of helping indicates a qualitative difference in helping in real life and in hypothetical scenarios.

Table 4.3: Hypothetical study ordinal regression effect tests.

	Df	L-R X^2	Prob > X^2
Behavior	3	24.61	<.001
Shirt	1	0.04	0.85
Behavior*Shirt	3	11.72	.008

Table 4.4: Hypothetical study ordinal regression probability estimates. Behavior estimates are relative to the "Drop a dollar" condition and shirt estimates are relative to KU shirts.

	Estimate	Std Error	T
Intercept (0)	-2.10	0.22	-9.49
Intercept (1)	-0.73	0.16	-4.47
Behavior (Ask for a dollar)	-1.20	0.25	-4.83
Behavior (Ask to borrow phone)	0.37	0.27	1.35
Behavior (Drop a pen)	0.17	0.28	0.60
Shirt (K-State)	-0.03	0.16	0.19
Ask for a dollar*K-State	0.18	0.24	0.75
Ask to borrow phone*K-State	0.01	0.27	0.04
Drop a pen*K-State	-0.84	0.28	-3.00

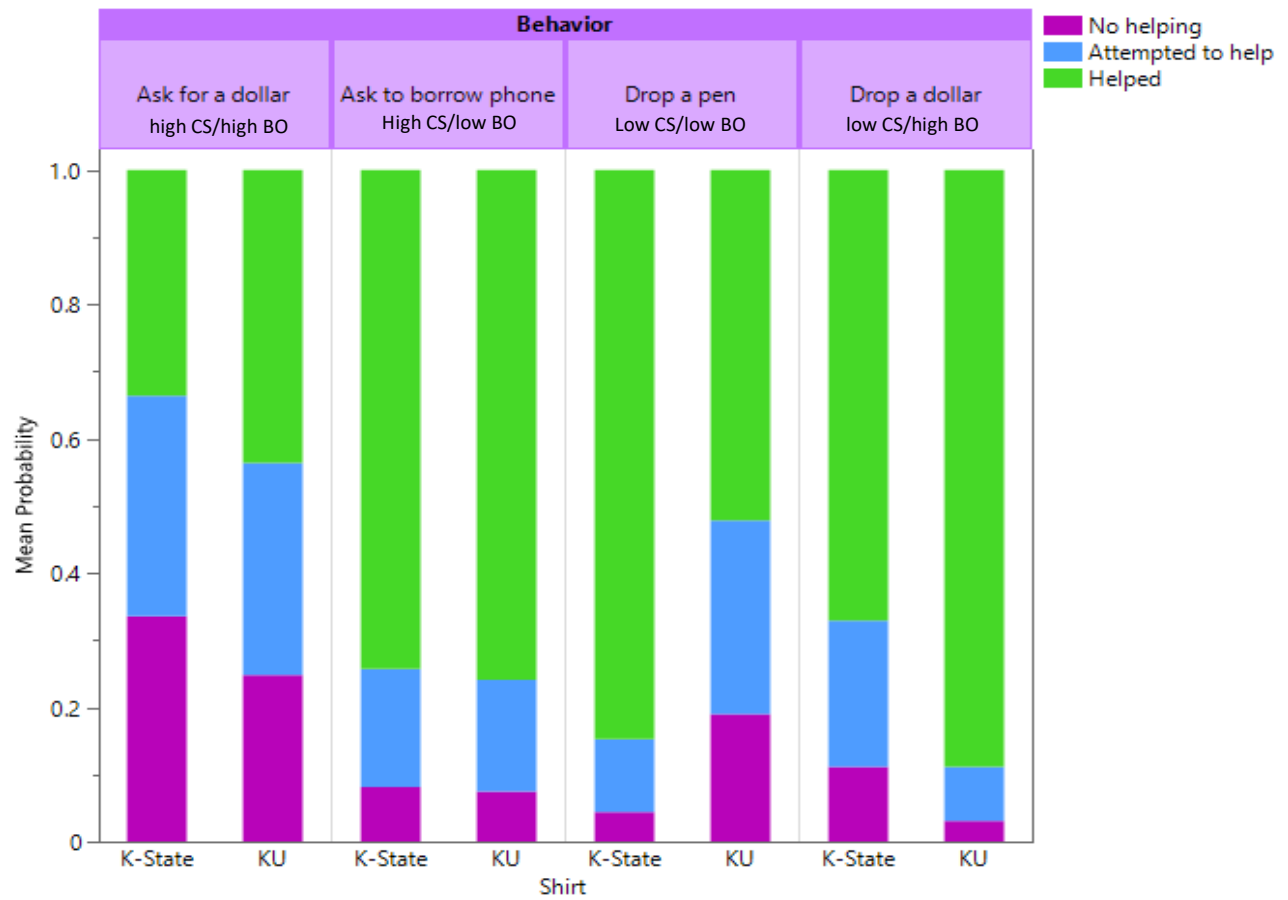


Figure 4.2: Ordinal regression probability estimates for each behavior divided by affiliative t-shirt for hypothetical study. CS = cost to self, BO = benefit to other.

Chapter 5 - Discussion

Field Study

Costs and Benefits of Altruistic Action for Each Party

Contrary to hypotheses 1 and 2, the results of the field study did not indicate that low cost helping behaviors were more likely to occur, nor were high benefit helping behaviors. Rather, the highest amount of observed helping occurred in the condition in which research assistants asked to borrow a subject's phone, with the vast majority of subjects agreeing to lend it. This finding is not consistent with predictions generated from the pilot study results, which indicated that pilot participants viewed lending a phone as more costly than average. In a similar vein, the relatively low occurrences of low cost helping behaviors that included picking up a dropped item was inconsistent from the pilot generated hypothesis that such helping behaviors should occur at a higher rate. The cost-benefit analysis approach indicates that the results of the field study should have yielded the highest rate of helping in the low cost/high benefit dropped dollar condition, but this was in fact one of the conditions that garnered the lowest rate of helping.

The results from the field study indicate that either the same cost/benefit factors were not being considered in the field study as in the pilot study, or else those factors do not contribute to the decision making process in real life helping situations. Though a cost/benefit approach such as that posited by McGuire (1994) should theoretically yield patterns of helping behavior consistent with perceived costs and benefits of acting, it is possible that these cost/benefit structures are in fact not what is being factored into the decision to help. Further, there could be an entirely different decision structure underlying real life versus hypothetical action, which will be further discussed in the general discussion.

Expected Probability of Reciprocation

Hypothesis 3, which stated that helping behavior will occur at higher rates for someone with whom the participant is likely to have future interactions—in this case, a person with shared university affiliation—was also not supported, indicating that ingroup affiliation also might not be factoring into real life decisions to help. Though it is possible that university affiliation might activate an ingroup bias effect in some domains (e.g., Nadler et al., 2009; Dovidio et al., 2000), the current paradigm did not reveal any effect of ingroup bias in helping behavior.

Hypothetical Study

Costs and Benefits of Altruistic Action for Each Party

Differing from the field study, the hypothetical study yielded results that partially supported several hypotheses. The finding that asking someone for a dollar elicited the lowest reported probability of helping was consistent with hypothesis 1, which predicted high cost behaviors receiving less help than lower cost behaviors. As lending money to someone was rated as the most costly behavior to the benefactor, this finding was partially consistent with that hypothesis. Hypothesis 2 received no support, however, given the relatively similar probability of helping observed across the other three behaviors. Had participants been tracking and acting according to a cost/benefit analysis, low cost behaviors should have been relatively more likely to occur, and the high cost behavior of asking for a phone should have also significantly differed from the low cost comparison behavior of dropping a dollar. This pattern was not observed, however, leading to a similar conclusion as in the field study: either the same factors are not being considered in this study as were considered in the pilot rating study, or else those factors are not the ones at play when making a hypothetical decision to help another person.

Expected Probability of Reciprocation

Unlike in the field study, there was a significant interaction of the behavior performed and the shirt being worn, which yielded the finding that the probability of helping was lower in the dropping a pen condition for someone wearing a K-State shirt as opposed to a KU shirt. This finding was in direct opposition with hypothesis 3, which stated that helping behavior will occur at higher rates for someone with whom the participant is likely to have future interactions. The intended effect of the t-shirt manipulation was to cue that there were some assistants with whom the subject was more likely to interact with in the future (those wearing a K-State shirt) and some with whom they were less likely to interact with in the future (those wearing a KU shirt). The finding that ingroup members were actually less likely to receive help in the pen dropping condition is in direct opposition with the predictions posited by theories of reciprocal altruism and welfare tradeoff ratios (e.g., Cosmides & Tooby, 1992). It is to be noted that the effect was only present in the lowest pilot rated benefactor cost condition, and was not replicated across other behaviors; however, it still contributed to a stark lack of support for hypothesis 3.

General Discussion

In both the hypothetical and field studies, little support was found for hypotheses 1, 2, and 3. Though there was marginal support for hypothesis 1 in that the highest rated cost behavior received the smallest probability of helping in both studies, the opposite was not observed for the lowest cost behaviors. Hypothesis 2 garnered even less support, with a relatively low benefit behavior receiving the highest probability of help, contrary to predictions, in the field study. In the hypothetical portion, even less support was found for the high benefit/high helping hypothesis, as every behavior but asking for a dollar garnered statistically similar probabilities of receiving help. Though the pilot rated costs and benefits were generated by the same population

who was answering in the hypothetical study and participating in the field study, it is possible that the particular pattern of costs and benefits selected for the present study did not accurately represent what individuals might be weighing when analyzing the costs and benefits of helping others. It is also possible that individuals are also, or even more so, tracking the benefit to themselves and/or the cost to the other person when making a helping decision, which were elements of McGuire's 1994 study that were omitted from the current study. Regardless, there is little evidence to support the theoretical prediction that behaviors that presented a higher cost to the benefactor and/or a lower benefit to the person benefitting will receive less help overall.

Likewise, both studies found little support for hypothesis 3, which predicted that ingroup members would receive more help than outgroup members. In the field study, no effects of the K-state vs KU shirt manipulation were found, and in the hypothetical study, an effect was only found in the pen dropping condition. In this condition, participants actually reported a lower likelihood of picking up and returning a pen to an individual wearing a K-State t-shirt, which directly contradicted the hypothesis. Possible reasons for the lack of ingroup affiliation effect are discussed further in the limitations section.

Lastly, hypothesis 4 presented a set of rival hypotheses that predicted that either response patterns of participants will be qualitatively similar for both hypothetical and field studies (4a) or that they would be qualitatively different for hypothetical and field studies, with field study respondents less likely to be influenced to act altruistically (4b). Support was found for hypothesis 4b in the form of differential patterns of significance in the field and hypothetical helping models. For hypothesis 4a to have been supported, the two models, which had nearly identical sample sizes from theoretically similar populations, should have had similar patterns of effects and regression estimates. Contrary to that hypothesis, the hypothetical study yielded a

significant interaction of behavior and shirt worn that was not present in the field study, and slightly different patterns of helping overall. A cursory glance at figures 4.1 and 4.2 indicate a higher overall helping response in the hypothetical study than in the field study, and figure 5.1 more directly displays this difference. The overall observed difference in helping patterns between the two studies is not only consistent with hypothesis 4a, but with previous research that has found different and often higher rates of hypothetical helping than matching field helping (e.g., Bostyn et al., 2018).

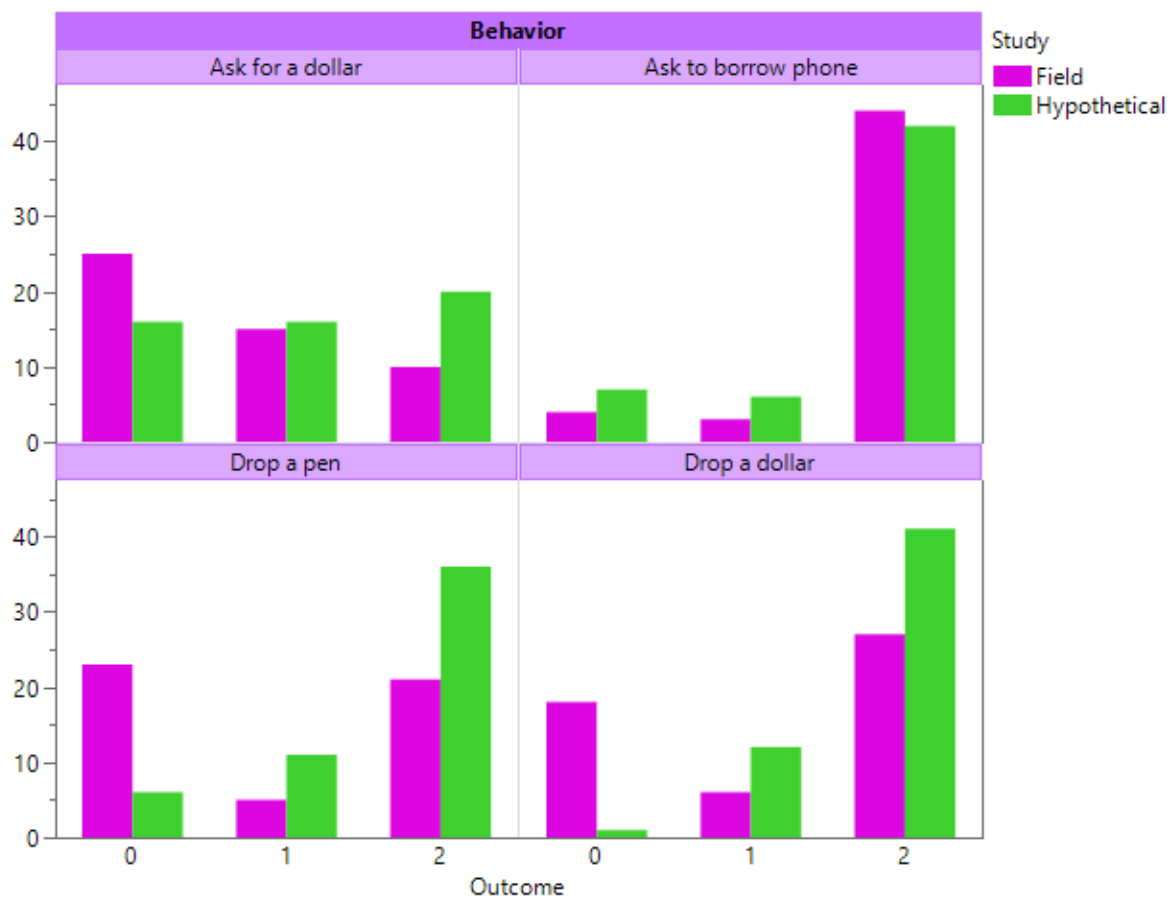


Figure 5.1: Frequency of helping responses by behavior for both the field and hypothetical studies. Per the rating scale, 0 indicates no helping and 2 indicates helping.

Statistical analysis also revealed that although the two studies had a similar result for the asking for a dollar condition, they differed in other areas. For example, in the field study, subjects were more likely to lend their phone than any other helping behavior, which was inconsistent with both the pilot study and hypothetical study results. The difference in helping likelihood observed in the hypothetical study between K-State and KU affiliated assistants in the pen dropping condition was also not consistent with the field study, which found no such interaction. Regardless of factors being considered when making a decision about whether to help another individual, the current results indicate that the decision making process might be different in a real life versus hypothetical situation. Alternatively, in accordance with Nisbett and Wilson (1977), it is possible that hypothetical survey participants might not have access to the internal decision making processes that would be engaged when making the decision in real life. Outside of reasons behind the disparity, however, it is evident that there are differences in hypothetical and real life helping situations, and further research is needed to narrow down where those qualitative differences lie.

Limitations

The most significant limitations of the current studies are in the field study, which suffered from practicality constraints that might have affected the strength of some of the study's manipulations. First, when choosing the behaviors that would be enacted in real life, the truly very high and low cost/benefit behaviors could not always be selected due to feasibility. For example, the highest cost behavior in the study was asking another person for money. The actual highest cost behaviors in the pilot test ratings included giving someone a ride within your city and changing a tire, but both of these behaviors were deemed either too time-consuming or potentially dangerous for research assistants to enact. Additional practical constraints related to

the behaviors that were chosen might have come into play as well. In the asking for money condition, research assistants frequently noted that the reason they did not receive help was because the subject they approached was not carrying cash. The fact that these subjects rarely, if ever, offered to use an electronic payment or buy something for the assistant instead indicates that not every subject declined to help solely because of the lack of cash, but it is possible that the overall rarity of a college student carrying cash affected rates of helping in that condition.

It is also possible that though theoretically important, utilizing the cost to the helper and the benefit to the beneficiary as predictors while omitting the cost to the beneficiary and the benefit to the helper might have influenced both studies' results. Exploratory regressions were run utilizing the pilot rated cost to self, benefit to self, cost to other, and benefit to other to predict helping to determine whether the omitted variables might have influenced results. In both analyses, the initial regressions yielded singularity issues, with benefit to other having a linear relationship with the other three variables. Subsequent analyses with the benefit to the other person removed as a variable yielded significant effects for all three remaining predictors, which can be found in Appendix B. The significant relationships found in these regressions suggest that both costs to the other person and benefits to the self might also be at play in these types of helping decisions, but further analysis to detangle those relationships from the benefit to the other person would be needed to determine the extent.

Next, it is possible that the use of the K-State and KU t-shirts as an ingroup affiliation cue was not strong enough to cue any type of ingroup bias. Though previous research has shown bias effects as a result of university membership (see Dovidio et al., 2000), the effect might not have been strong enough to influence differential helping behavior. The fact that all trials happened in the K-State student union might have further dampened ingroup/outgroup effects due to the

plausibility of a K-State student wearing a KU shirt because they are from the neighboring university city; ultimately, it might not have been assumed that the student in a KU shirt really attended KU. The relative neutrality of the student union might have also yielded smaller effects than a location in which group differences might have been more salient, like at a basketball or football game. Alternatively, in accordance with defensive outgroup helping literature, we might actually be more likely to help a member of the outgroup in order to comparatively raise the status of the ingroup; this is especially prevalent in situations in which the two groups are relatively similar status-wise but one poses a threat to the other based on higher perceived ability (Nadler et al., 2009). This might have been especially relevant at the time the field study was being conducted, during which K-State and KU were closer contenders in both football and basketball than they have been in recent history.

Lastly, it is possible that the ingroup-outgroup affiliation manipulation was not successful due to the location of the field study and the expectations that accompanied it. Though participants in the pilot study rated lending a phone to someone as high cost, the realistic risk in the K-State student union of something negative happening (someone taking the phone and running off, dropping it, etc.) was relatively low. Further, subjects might have had the expectation of cooperation given the community setting, which can often make people less suspicious of wrongdoing (Rachlin & Locey, 2011). The unexpectedly high rate of phone lending might also have tapped into a third variable in the form of direct versus indirect helping. In the phone condition, subjects were directly approached with a request, which might have triggered more of a helping response than the passive dollar and pen dropping conditions. Personal appeals, such as asking for a phone, tend to elicit more of a reaction in bystanders,

which can cause higher avoidance behavior but also higher effort in helping when it does occur (Pancer et al., 1979).

Future Directions

If a future field study were to be conducted, a different cue of reciprocation likelihood other than ingroup or outgroup affiliation could be used. One way to cue likelihood of meeting again would be to station research assistants in academic buildings rather than the student union, where the likelihood of running into the same person again is higher. Alternatively, a future field study could utilize the same cue of university affiliation, but conduct trials at both rival universities, or else select an outgroup university that was currently beating the ingroup university in a tournament or other popular context. Additionally, future field studies might incorporate an explicit manipulation of direct vs indirect help solicitation. Given that it is possible that the directness of asking for a phone might have contributed to the high rate of helping in the field study, a future study might more systematically alter direct and indirect asks to determine whether the directness of the need affects probability of helping.

In future hypothetical studies, an important goal will be determining how best to create a hypothetical survey that mimics the results of the field study. One way to do this would be to pit theoretically backed methods of soliciting help in surveys against each other to find out which method produces a pattern of results that most closely mirrors the patterns observed in the field study. Determining the hypothetical structure that produces results that most closely resemble the field study results will be a key step in determining how best to capture social behavior utilizing survey methods.

Conclusion

Ultimately, comparing the results of the field study and identical hypothetical survey did not elucidate the cost/benefit analysis being performed by individuals making the decision to help another individual. Likewise, little support was garnered for the role of university affiliation as a cue to future reciprocation of helping behavior. The disparities found between the patterns of helping in the two studies, however, reveal that hypothetical survey methods of capturing behavior might not be capturing what participants would truly do if faced with the same situation in real life. Future research is needed to determine whether this represents environmental influences present in naturalistic situations that do not affect hypothetical responses, different structures of decision making for different contexts, a combination of these influences, or a wholly different root cause. Moving forward, it is evident that continuing research on disparities between reported and actual behavior can shed light on the accuracy of hypothetical judgments, and this research can help to uncover which factors might influence the misalignment—and, ideally, alignment—of hypothetical reports and actual observed behavior. Before these factors are uncovered, however, researchers seeking to capture behavior using hypothetical measures should keep in mind that what is being captured with these measures is not necessarily a perfect reflection of what participants would do if actually placed in the target situation. Also to be considered is the ecological validity of measures being utilized; whether it be checking for validity with the target population, imposing time or other costs to simulate real life, or other considerations related to a specific behavioral measure, researchers should keep in mind that the goal of these hypothetical instruments is to simulate human behavior and make a concentrated effort to approximate it as closely as possible given the confines of hypothetical methods.

References

- Batson, C. D., Eklund, J. H., Chermok, V. L., Hoyt, J. L., & Ortiz, B. G. (2007). An additional antecedent of empathic concern: valuing the welfare of the person in need. *Journal of Personality and Social Psychology*, 93(1), 65-74.
- Batson, C. D., Sager, K., Garst, E., Kang, M., Rubchinsky, K., & Dawson, K. (1997). Is empathy-induced helping due to self–other merging? *Journal of Personality and Social Psychology*, 73(3), 495-509.
- Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2007). Psychology as the science of self-reports and finger movements. *Perspectives on Psychological Science*, 4(2), 396-403.
- Berndt, T. J. (1981). Effects of friendship on prosocial intentions and behavior. *Child Development*, 636-643.
- Bernoulli, D. (1954). Exposition of a new theory on the measurement of risk. *Econometrica*, 22(1), 23-36.
- Borinca, I., Falomir-Pichastor, J. M., Andrighetto, L., & Durante, F. (2021). Outgroup prejudice and perceptions of prosocial intergroup behaviors. *European Journal of Social Psychology*, 51(1), 40-53.
- Bostyn, D. H., Sevenhant, S., & Roets, A. (2018). Of mice, men, and trolleys: Hypothetical judgment versus real-life behavior in trolley-style moral dilemmas. *Psychological Science*, 29(7), 1084-1093.
- Brant, R. (1990). Assessing Proportionality in the Proportional Odds Model for Ordinal Logistic Regression. *Biometrics*, 46(4), 1171–1178.
- Burnstein, E., Crandall, C., & Kitayama, S. (1994). Some neo-Darwinian decision rules for altruism: Weighing cues for inclusive fitness as a function of the biological importance of the decision. *Journal of Personality and Social Psychology*, 67(5), 773-789.
- Carlo, G., Eisenberg, N., Troyer, D., Switzer, G., & Speer, A. L. (1991). The altruistic personality: In what contexts is it apparent? *Journal of Personality and Social Psychology*, 61(3), 450-458.
- Cialdini, R., Brown, S., Lewis, B., Luce, C., & Neuberg, S. (1997). Reinterpreting the Empathy-Altruism Relationship: When One Into One Equals Oneness. *Journal of Personality and Social Psychology*, 73(3), 481-494.

- Cosmides, L. & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture*. New York: Oxford University Press.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24(4), 349–354.
- Darley, J. M., & Batson, C. D. (1973). "From Jerusalem to Jericho": A study of situational and dispositional variables in helping behavior. *Journal of Personality and Social Psychology*, 27(1), 100-108.
- Davis, M. H., Mitchell, K. V., Hall, J. A., Lothert, J., Snapp, T., & Meyer, M. (1999). Empathy, expectations, and situational preferences: Personality influences on the decision to participate in volunteer helping behaviors. *Journal of Personality*, 67(3), 469-503.
- Delton, A. W., Krasnow, M. M., Cosmides, L., & Tooby, J. (2011). Evolution of direct reciprocity under uncertainty can explain human generosity in one-shot encounters. *Proceedings of the National Academy of Sciences*, 108(32), 13335-13340.
- Delton, A. W., & Robertson, T. E. (2016). How the mind makes welfare tradeoffs: Evolution, computation, and emotion. *Current Opinion in Psychology*, 7, 12-16.
- Dovidio, J. F., & Gaertner, S. L. (1981). The effects of race, status, and ability on helping behavior. *Social Psychology Quarterly*, 192-203.
- Dovidio, J. F., Gaertner, S. L., & Kafati, G. (2000). Group identity and intergroup relations The common in-group identity model. In *Advances in group processes* (Vol. 17, pp. 1-35). Emerald Group Publishing Limited.
- Eagly, A. H., & Crowley, M. (1986). Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100(3), 283-308.
- Emswiller, T., Deaux, K., & Willits, J. E. (1971). Similarity, Sex, and Requests for Small Favors 1. *Journal of Applied Social Psychology*, 1(3), 284-291.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191.
- Fischer, P., & Greitemeyer, T. (2013). The positive bystander effect: Passive bystanders increase helping in situations with high expected negative consequences for the helper. *The Journal of Social Psychology*, 153(1), 1-5.

- Garcia, S. M., Weaver, K., Moskowitz, G. B., & Darley, J. M. (2002). Crowded minds: the implicit bystander effect. *Journal of Personality and Social Psychology*, 83(4), 843-853.
- Gaertner, S. L., & Dovidio, J. F. (1977). The subtlety of White racism, arousal, and helping behavior. *Journal of Personality and Social Psychology*, 35(10), 691-707.
- Gross, A. E., Wallston, B. S., & Piliavin, I. M. (1975). Beneficiary attractiveness and cost as determinants of responses to routine requests for help. *Sociometry*, 131-140.
- Hauser, D. J., Preston, S. D., & Stansfield, R. B. (2014). Altruism in the wild: When affiliative motives to help positive people overtake empathic motives to help the distressed. *Journal of Experimental Psychology: General*, 143(3), 1295-1305.
- Holtgraves, T. (2004). Social desirability and self-reports: Testing models of socially desirable responding. *Personality and Social Psychology Bulletin*, 30(2), 161-172.
- Hornstein, H. A., Fisch, E., & Holmes, M. (1968). Influence of a model's feeling about his behavior and his relevance as a comparison other on observers' helping behavior. *Journal of Personality and Social Psychology*, 10(3), 222-226.
- Karp, D., Jin, N., Yamagishi, T., & Shinotsuka, H. (1993). Raising the minimum in the minimal group paradigm. *The Japanese Journal of Experimental Social Psychology*, 32(3), 231-240.
- Kawamura, Y., Ohtsubo, Y., & Kusumi, T. (2021). Effects of cost and benefit of prosocial behavior on reputation. *Social Psychological and Personality Science*, 12(4), 452-460.
- Kraft-Todd, G. T., & Rand, D. G. (2019). Rare and costly prosocial behaviors are perceived as heroic. *Frontiers in psychology*, 10, 1-7.
- Lichtenbarger, D. M. (2000). The effects of similarity on altruism and its relationship to predicted versus actual helping behavior. *IU South Bend Undergraduate Research Journal*, 3, 46-51.
- Mathews, K. E., & Canon, L. K. (1975). Environmental noise level as a determinant of helping behavior. *Journal of Personality and Social Psychology*, 32(4), 571-577.
- McGuire, A. M. (1994). Helping behaviors in the natural environment: Dimensions and correlates of helping. *Personality and Social Psychology Bulletin*, 20(1), 45-56.
- McGuire, A. M. (2003). "It was nothing"—Extending evolutionary models of altruism by two social cognitive biases in judgments of the costs and benefits of helping. *Social Cognition*, 21(5), 363-394.

- Nadler, A., Harpaz-Gorodeisky, G., & Ben-David, Y. (2009). Defensive helping: Threat to group identity, ingroup identification, status stability, and common group identity as determinants of intergroup help-giving. *Journal of Personality and Social Psychology*, 97(5), 823-834.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84(3), 231-259.
- Nowak, M. A., & Sigmund, K. (2005). Evolution of indirect reciprocity. *Nature*, 437(7063), 1291-1298.
- Otten, C. A., Penner, L. A., & Waugh, G. (1988). That's what friends are for: The determinants of psychological helping. *Journal of Social and Clinical Psychology*, 7(1), 34-41.
- Pancer, S. M., McMullen, L. M., Kabatoff, R. A., Johnson, K. G., & Pond, C. A. (1979). Conflict and avoidance in the helping situation. *Journal of Personality and Social Psychology*, 37(8), 1406-1411.
- Penner, L. A. (2002). Dispositional and organizational influences on sustained volunteerism: An interactionist perspective. *Journal of Social Issues*, 58(3), 447-467.
- Penner, L. A., Fritzsche, B. A., Craiger, J. P., & Freifeld, T.R. (1995) Measuring the prosocial personality. In J. Butcher & C. D. Spielberger (Eds.) *Advances in personality assessment*.(Vol. 10). Hillsdale, NJ: LEA.
- Piliavin, I. M., Rodin, J., & Piliavin, J. A. (1969). Good samaritanism: an underground phenomenon?. *Journal of Personality and Social Psychology*, 13(4), 289-299.
- Piliavin, I. M., Piliavin, J. A., & Rodin, J. (1975). Costs, diffusion, and the stigmatized victim. *Journal of Personality and Social Psychology*, 32(3), 429-438.
- Potoczek, A., Bukowski, M., de Lemus, S., Jiménez-Moya, G., Rodríguez-López, Á., & Jasko, K. (2023). Walk This Way: Ingroup Norms Determine Voting Intentions for Those Who Lack Sociopolitical Control. *Personality and Social Psychology Bulletin*, 49(5), 692–708.
- Rachlin, H., & Locey, M. (2011). A behavioral analysis of altruism. *Behavioural Processes*, 87(1), 25-33.
- Schumann, K., Ritchie, E. G., & Forest, A. (2023). The Social Consequences of Frequent Versus Infrequent Apologizing. *Personality and Social Psychology Bulletin*, 49(3), 331–343.
- Shanteau, J. and Skowronski, J.J. (1990) The Decision to Donate Organs: An Information-Integration Analysis. In J. Shanteau and R.J. Harris (Eds), *Organ Donation and*

- Transplantation: Psychological and Behavioural Factors* (pp. 59–67). Washington, DC, US: American Psychological Association.
- Simpson, J.A., & Beckes, L. (2010). Evolutionary perspectives on prosocial behavior. In M. Mikulincer & P.R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature*. (pp. 35–53). American Psychological Association.
- Small, D. A., & Loewenstein, G. (2003). Helping a victim or helping the victim: Altruism and identifiability. *Journal of Risk and Uncertainty*, 26, 5-16.
- Sommerville, J. A., Enright, E. A., Horton, R. O., Lucca, K., Sitch, M. J., & Kirchner-Adelhart, S. (2018). Infants' prosocial behavior is governed by cost-benefit analyses. *Cognition*, 177, 12-20.
- Thai, M., Wenzel, M., & Okimoto, T. G. (2023). Turning Tables: Offenders Feel Like “Victims” When Victims Withhold Forgiveness. *Personality and Social Psychology Bulletin*, 49(2), 233–250.
- Tooby, J. & Cosmides, L. (1996). Friendship and the Banker's Paradox: Other pathways to the evolution of adaptations for altruism. In W. G. Runciman, J. Maynard Smith, & R. I. M. Dunbar (Eds.), *Evolution of Social Behaviour Patterns in Primates and Man*. *Proceedings of the British Academy*, 88, 119-143.
- Trivers, R. L. (1971). The Evolution of Reciprocal Altruism. *Quarterly Review of Biology*, 46(1), 35–57.
- van Leeuwen, E., Oostenbrink, J. J., & Twilt, A. (2014). The combined effects of meta-stereotypes and audience on outgroup and ingroup helping. *Group Dynamics: Theory, Research, and Practice*, 18(3), 189-202.
- West, S. G., & Brown, T. J. (1975). Physical attractiveness, the severity of the emergency and helping: A field experiment and interpersonal simulation. *Journal of Experimental Social Psychology*, 11(6), 531-538.
- Wilson, D. W., & Kahn, A. (1975). Rewards, costs, and sex differences in helping behavior. *Psychological Reports*, 36(1), 31-34.

Appendix A - Confederate Protocol

Research assistant appearance

Each assistant should be wearing a KU or K-State shirt with no occlusion (i.e., no jackets or other outer wear) with jeans or other neutral pants that have a back pocket with their backpacks on. If the assistant has long hair, it should be worn in a ponytail for consistency.

Sampling and selecting procedure for participants (ALL tasks)

The goal of the sampling and selection procedure is to obtain samples that are as close to a random subset of the population as feasible. We are aiming for probability sampling (given a set of basic criteria, members of a population are chosen randomly).

Criteria:

- a) On campus (for logistics and so the KU/KSU manipulation is effective)
 - a. In study areas of the student union
- b) People walking alone (no groups of people, no one who is seated)
 - a. Not children, disabled, very old
 - b. Not people carrying heavy loads that would prevent them from seeing/helping

Selection (simple ratio sampling, with minimum interval):

- a) After moving to a new zone, select the second person meeting the above criteria. One sample per predetermined zone of the Union followed by a rotation to a new zone
 - a. Amendment: if there are zones with little to no traffic, wait five minutes after the conclusion of the previous trial, then again select the second person meeting the above criteria
- b) Equal estimated numbers of men and women

Note-taking procedure:

Participant demographics, scenario type, zone, and helping decisions will be recorded via a Qualtrics survey on the second assistant's phone.

Returning a dropped dollar. An assistant will be walking toward the intended subject at a practiced, moderate pace (15 paces in 10 s). When they are an estimated ten feet away, facing the subject (so that front of shirt is clearly displayed), they will reach into their back pocket for their phone, and when they pull it out, they will seemingly inadvertently pull a dollar bill out with it, which will drop to the ground. The assistant will then continue walking past the subject and sit down an additional 10-15 feet from the subject for 30 seconds. If 30 seconds elapses without the subject returning the dollar, the encounter will be rated as a 0 below.

Scoring:

- 0 = Subject says nothing to the assistant
- 1 = Subject verbally tells the assistant they dropped something
- 2 = Subject picks up the dollar and brings it to the assistant

Contingency Plans:

- a) If a subject picks up the dollar and verbally alerts the assistant but does not bring them the dollar, it will be given a 1.
- b) If the subject does not notice the dollar, the trial will not be counted.
- c) If the subject does not notice the dollar but someone else does and responds, they will replace the subject with a note that they were not the initially intended subject.
- d) If a subject picks up and keeps the dollar, it will be given a 0.

Picking up a dropped item. An assistant will be walking toward the intended subject at a practiced, moderate pace (15 paces in 10 s). When they are an estimated ten feet away, facing the subject (so front of shirt is clearly displayed), they will reach into their back pocket for their phone, and when they pull it out, they will seemingly inadvertently pull a pen out with it, which will drop to the ground. The assistant will then continue walking past the subject and sit down an additional 10-15 feet from the subject for 30 seconds. If 30 seconds elapses without the subject returning the pen, the encounter will be rated as a 0 below.

Scoring:

0 = Subject says nothing to the assistant

1 = Subject verbally tells the assistant they dropped something

2 = Subject picks up the pen and brings it to the assistant

Contingency Plans:

- a) If a subject picks up the pen and verbally alerts the assistant but does not bring them the pen, it will be given a 1.
- b) If the subject does not notice the pen, the trial will not be counted.
- c) If the subject does not notice the pen but someone else does and responds, they will replace the subject with a note that they were not the initially intended subject.
- d) If the subject picks up and keeps the pen, it will be given a 0.

Asking someone for money to pay for a snack. For the snack money condition, an assistant will approach an individual in the Kansas State student union and ask them if they would give them one dollar to pay for a snack from a vending machine. Upon approaching a subject, assistants will interject with the following: “Hey, could you give me a dollar for the vending machine?”

Scoring:

0 = Subject declines (including “I don’t have my wallet.”)

1 = Subject attempts to find money to give to the assistant and fails, or gives less than the requested dollar

2 = Subject gives the participant a dollar or more, the assistant will again be instructed to thank the subject and give a rating of 2.

Contingency Plans:

- a) If a subject offers an assistant up to \$5, all assistants will carry \$2 in change to reimburse subjects for the difference.
- b) If a subject offers more than \$5, assistants will say, “That’s very nice, but I don’t have enough change for that.” If the subject insists, the assistant will be instructed to take the amount offered.

- c) If a subject offers to buy a snack for the assistant, the assistant will give a rating of 2 and will be instructed to purchase a snack from the vending machine that is between \$2 and \$3.
- d) If a subject offers to give the assistant food directly, the assistant will say, “That’s okay, I’ll find something.” and give a rating of 1 with a note that food was offered in place of money. If the subject insists, the assistant will be instructed to take the offered item and give a rating of 2 with a note that food was exchanged in place of money.
- e) If a subject offers to pay via electronic banking app such as Venmo, assistants will say, “Thank you, but I don’t have that app,” and give a rating of 1.

All money or food collected from subjects will be donated to Cat’s Cupboard, a charity organization at Kansas State that collects food and money donations that benefit the student community.

Asking to borrow someone’s phone. For the phone borrowing condition, an assistant will approach an individual and interject with the following: “Hey, my phone is dead. Can I borrow yours to make a quick call?”.

Scoring:

0 = Subject declines

1 = Subject expresses the desire to lend their phone but cannot or does not have one or points confederate toward a public phone.

2 = Subject agrees to lend their phone.

Whenever the assistant obtains a phone, she will make a brief call to the primary researcher (Nora @ 785-236-8201) and leave the following message: “Hey, it’s [name], I just wanted to let you know that I’m running late for our meeting, but I’ll be there soon.”

Contingency Plans:

- a) If the subject offers a phone charger, the assistant should say, “Thanks, but that’s okay,” and leave the subject.
- b) If the subject offers to make the call for the assistant, they should use the same script as above.

Overall contingency plans:

- a) In any trial, if the subject or another person catches on to or suspects this is an experiment, assistants can tell them that they are conducting observations of human behavior. If pressed, they can say they are psychological observations of helping behavior. Any subject who catches on to the experiment will have their trial excluded. If this does happen, make sure to make a note of it in Qualtrics and redo the trial.
- b) If in any trial, a subject asks about the shirt the assistant is wearing, say, “I’m from Lawrence.” If a subject is asked why they are at K-State, say, “I’m in vet med.” If pressed or uncomfortable, the assistant can reveal the same as above.

Additional Notes section:

In the additional notes section of the Qualtrics survey, record anything that might have impacted the results of the trial. This means recording any of the above contingencies and making note when a rating is a special circumstance (e.g., giving a rating of 1 if someone offers to pay via Venmo in the asking for money condition). If subjects engage with researchers at all (commenting on the shirt, making conversation, etc.) this should also go in the additional notes section. If a subject does not appear to be college-aged, there is some sort of unforeseen challenge, someone else notices what you're doing, etc., those should go in this section as well.

If any additional issues are encountered that have not been accounted for in this document, let Nora know at nbalboa@ksu.edu or 847-997-6432.

Appendix B - Exploratory Analysis

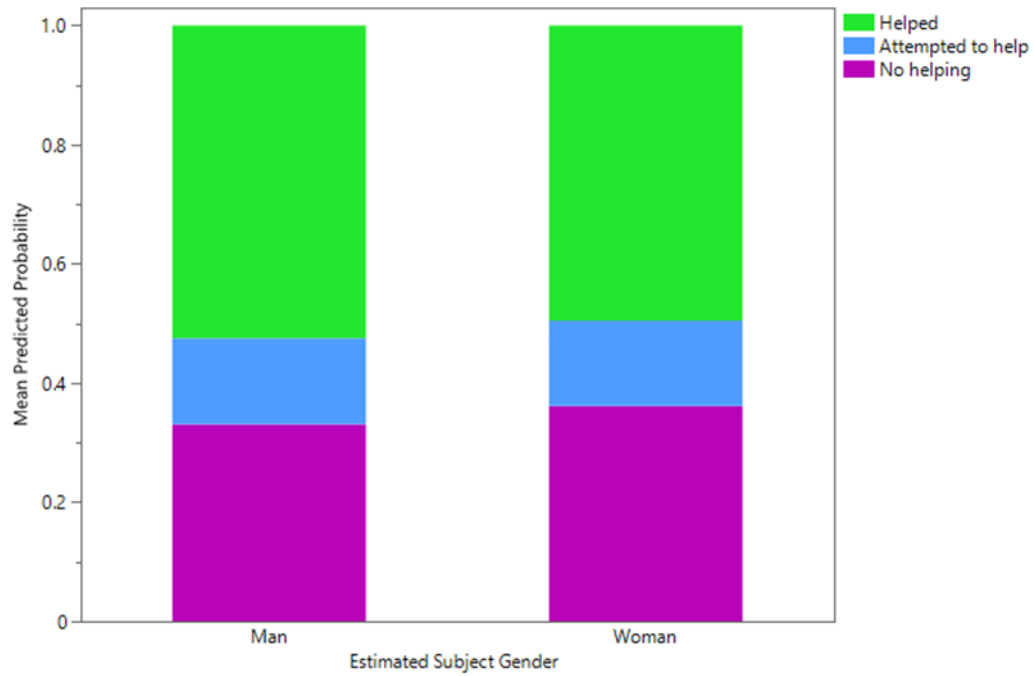


Figure 5.2: Predicted helping outcome by estimated gender of subject in field study.

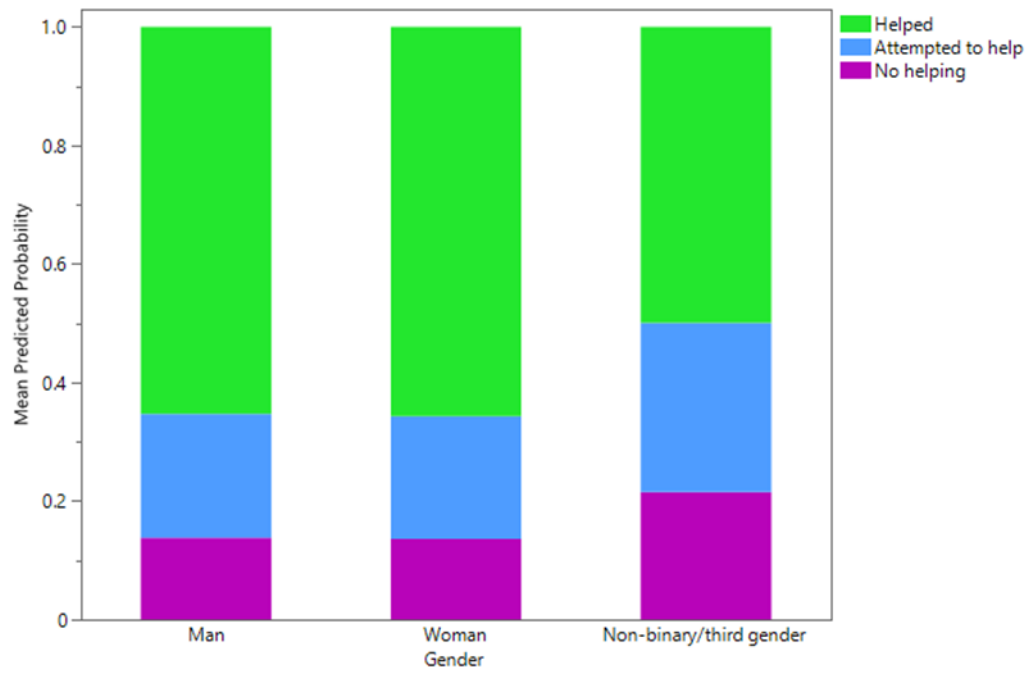


Figure 5.3: Predicted helping outcome by reported gender of hypothetical study participants.

Table 5.1: Exploratory field study ordinal regression effect tests with benefit to other removed.

	Df	L-R X^2	Prob > X^2
Cost to self	1	1	<.001
Benefit to self	1	1	<.001
Cost to other	1	1	<.001

Table 5.2: Exploratory field study ordinal regression estimates with benefit to other removed.

	Estimate	Std Error	ChiSquare	Prob<ChiSq
Intercept (0)	-83.53	14.79	31.89	<.001
Intercept (1)	-82.81	14.77	31.43	<.001
Cost to self	2.37	0.42	31.79	<.001
Benefit to self	4.31	0.77	31.35	<.001
Cost to other	-5.14	0.92	31.49	<.001

Table 5.3: Exploratory hypothetical study ordinal regression effect tests with benefit to other removed.

	Df	L-R X^2	Prob > X^2
Cost to self	1	7.82	.005
.008Benefit to self	1	6.94	.008
Cost to other	1	7.27	.007

Table 5.4: Exploratory hypothetical study ordinal regression estimates with benefit to other removed.

	Estimate	Std Error	ChiSquare	Prob<ChiSq
Intercept (0)	-33.60	11.94	7.92	.005
.007Intercept (1)	-32.28	11.92	7.34	.007
Cost to self	0.94	0.34	7.58	.006
Benefit to self	1.63	0.63	6.74	.009
Cost to other	-1.99	0.75	7.09	.008

Appendix C - R Script

Field Study

```
library(MASS)
```

```
library(nnet)
```

```
library(polr)
```

```
library(brant)
```

```
library(carData)
```

```
library(emmeans)
```

```
library(ggplot2)
```

```
library(sjPlot)
```

```
library(lme4)
```

```
library(psych)
```

```
library(car)
```

```
msdata = read.csv("C:/Users/nbalb/Documents/Documents/Masters/Analysis.csv")
```

```
View(msdata)
```

```
str(msdata)
```

```
#Resetting order of outcome variable, formatting categorical variables
```

```
msdata$Shirt = factor(msdata$Shirt)
```

```
msdata$Behavior = factor(msdata$Behavior)
```

```
msdata$Outcome = factor(msdata$Outcome, order = TRUE,
```

```
levels = c("0", "1", "2"))
```

```
msdata$Behavior <- relevel(msdata$Behavior,ref = "Drop a pen")
```

```
msdata$Shirt <- relevel(msdata$Shirt, ref = "KU")
```

```
msdata$Estimate.Gender = factor(msdata$Estimate.Gender)
```

```
summary(msdata)
```

```
#Ordinal regression
```

```
#Setting baseline helping behavior
```

```
contrasts(msdata$Shirt) = contr.sum(2)
```

```
contrasts(msdata$Behavior) = contr.sum(4)
```

```
#Ordinal regression model
```

```
ol <- polr(data=msdata, Outcome ~ Behavior*Shirt)
```

```
summary(ol)
```

```
Anova(ol)
```

```
#Testing assumption of parallel lines
```

```
brant(ol)
```

```
#Assumption holds
```

```
#Multinomial logistic regression
```

```
ml <- multinom(Outcome ~ Behavior*Shirt, data=msdata)
```

```
summary(ml)
```

```
mloddsratio <- exp(coef(ml))
```

```
mloddsratio
```

Hypothetical Study

```
library(MASS)
```

```
library(nnet)
```

```
library(polr)
```

```
library(brant)
```

```
library(carData)
```

```
library(emmeans)
```

```
library(ggplot2)
```

```
library(sjPlot)
```

```
library(lme4)
```

```
library(psych)
```

```
library(car)
```

```
library(tidyr)
```

```
msdata2 = read.csv("C:/Users/nbalb/Documents/Documents/Masters/Hypothetical  
Analysis.csv")
```

```
View(msdata2)
```

```
str(msdata2)
```

```
summary(msdata2)
```

```
#Resetting order of outcome variable, formatting categorical variables
```

```
msdata2$Shirt = factor(msdata2$Shirt)
```

```

msdata2$Behavior = factor(msdata2$Behavior)

msdata2$Outcome = factor(msdata2$Outcome, order = TRUE,
                          levels = c("0", "1", "2"))

msdata2$Behavior <- relevel(msdata2$Behavior, ref = "Drop a pen")
msdata2$Shirt <- relevel(msdata2$Shirt, ref = "KU")


#Ordinal regression

#Setting baseline helping behavior

contrasts(msdata2$Shirt) = contr.sum(2) #this is to make the outcome match what's in JMP
contrasts(msdata2$Behavior) = contr.sum(4)

#Ordinal regression model

ol2 <- polr(data=msdata2, Outcome ~ Behavior*Shirt)

summary(ol2)

Anova(ol2)


#Testing assumption of parallel lines

brant(ol2)

#Assumption holds

```