

# Getting Out of Your Way to Help Others: Responsibility to Help and Warm-Glow

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## *Abstract*

In the past decades, three major theories emerged as key motivators in altruistic behaviors: pure altruism, external motivation, and warm-glow, which refers to utility that people derive from altruistic actions in a form of warm, positive feeling. Recently, more studies have focused on understanding warm-glow and its components, such as social image concern and empathic stimuli, in order to better comprehend and encourage altruistic behaviors. We propose that responsibility to help is a potential factor that influences warm-glow from altruistic behavior. In our proposed experimental design, we will test the hypothesis that people would anticipate less warm-glow if the responsibility to help is high, but would anticipate more warm-glow if the responsibility to help is low. We also hypothesize that higher responsibility to help would lead to more altruistic behaviors. Support for our hypothesis, as shown in the preliminary data, would render significant implications to charities as their tendency to make people feel responsible to give may have a tradeoff between increased short-term donation and reduced warm-glow feeling that donors experience.

## *Introduction*

Traditional economic theories argue that all human beings are motivated exclusively by material self-interest. According to those theories, altruism, a form of unconditional kindness, cannot exist in the real world. However, overwhelming evidence in the real world and experimental settings suggest that concerns for altruism and fairness strongly motivate people. For example, in the U.S., \$373.25 billion- over 2% of U.S. GDP- was contributed to charity in 2015 alone.<sup>1</sup> Addressing this phenomena, I will reflect on research developments in the field of altruism and propose a study design that would further our understanding of real-life altruistic behaviors. The main focus is to understand different factors that amplify the ‘warm-glow’ and to study effective manipulation of those factors that help encourage altruistic behaviors in real life.

I will first define “altruism” in the context of psychology studies and will go over studies that have demonstrated the existence of altruism in various forms. Next, I will briefly introduce studies on the benefits of altruistic behaviors, which lead to the main topic of this paper: if altruistic behaviors are beneficial to individuals and society, how can we effectively motivate people to perform altruistic actions in real life? To address this topic, I will first highlight different theories on the underlying motivation and psychological process behind

<sup>1</sup> As reported by giving USA in its 61th edition of Giving USA, and re-printed in the popular press – see, for example, The Washington Times “Charitable giving reached record high in 2015: report” October 10, 2016, <http://www.washingtontimes.com/news/2016/oct/10/charitable-giving-reached-record-high-2015-report/>

altruistic behaviors, where the warm-glow, receiving utility in the form of positive feelings from the act of giving itself, stands as a crucial motivating force. I will focus on explaining previous studies that provide insights on different factors that influence warm-glow and consequently, altruistic behaviors. Lastly, I will identify responsibility to help as a potential factor that influences warm-glow, and will propose a full experimental design that would test such relationship. This study would help better understand warm-glow and altruistic behaviors, especially in the context of charity giving.

*Altruism: Which definition to take?*

According to Merriam Webster online dictionary, altruism is defined as “feelings and behavior that show a desire to help other people and a lack of selfishness.” One thing to note is that altruistic behaviors that we observe in psychology studies are not necessarily ‘selfless’ in a complete sense: people may unconsciously or consciously expect to gain something out of their altruistic actions, whether that may be a better social reputation, the feeling of “warm-glow” (Andreoni 1989; 1990), and many others. Therefore, many scholars embrace a more inclusive definition of altruism, “the willingness to sacrifice one’s own resource in order to improve the well-being of others” (Fer and Schmidt, 2006). Research that I will introduce through the rest of the paper have in one way or the other studied altruistic behaviors where agents willingly sacrifice personal resources to improve the well-being of specified or unspecified others, regardless of their motive types which can be purely or partially selfless.

*Existence of Altruism in experimental settings*

Many behavioral economists and psychologists have used different forms of distribution games in their experiments to demonstrate the existence of altruistic behaviors. The ultimatum game developed by Guth et al. (1982) is the classic example, where a proposer decides on the division of money between himself and the responder, who either accepts or rejects the proposal. The robust result across hundreds of experiments is that most offers to the responders were made between 40 and 50 percent of the pie and that about 40 to 60 percent of responders tended to reject proposals offering them less than 20 percent of the pie (Fer and Schmidt, 2006). Such results demonstrate that not only self-interest but also a notion of fairness, which is a form of social norm, come into play in determining people’s behaviors. After all, it seems like such notion of fairness motivates people to act altruistically.

Different variations and multiple replications of experimental studies have consistently provided similar results, rendering strong support for the existence of altruism and fairness concerns in human behaviors. The dictator game is one variation, where it has been observed that a proposer tends to give a substantial proportion of money to the unknown responder, despite the fact that the responder has no option but to accept any amount given by the proposer (e.g. Forsythe et al., 1994). Another game, called Third Party Punishment Game, has demonstrated that the observer (player C) is willing to punish unfair behavior by the proposer (player A) at his own cost, demonstrating people’s strong concerns about fairness of an action regardless of its direct impact on oneself (Fehr

and Fischbacher, 2004). The robustness of such outcomes has also been substantiated by manipulation of different variables such as monetary stakes [Fehr and Tougareva, 1995, Slonim and Roth, 1998, Cameron, 1999] and culture (Buchan et al., 2002) which have produced statistically consistent outcomes. As shown, different experimental games have demonstrated that people's actions strongly accommodate concerns about altruism and fairness.

### *Benefits of Altruistic Behaviors*

At the same time, many scholars began to study relationships between altruistic actions and happiness, life satisfaction, or health of both the agents and receivers of such actions. Multiple surveys and longitudinal studies have shown that acts of kindness (e.g. volunteering) were strongly correlated with subjective happiness (Otake et al., 2006), mental health (Schwartz et al., 2003), physical health (Oman et al., 1999) and longevity (Rowe and Kahn, 1998). More importantly, recent experimental works have started to render support for a causal relationship between altruistic behaviors and well-being. A study by Lyubomirsky et al. (2005) showed that simply asking people to commit random acts of kindness can significantly increase subjective happiness levels for weeks. They randomly assigned students to an experimental group where students were asked to commit five random kind acts per week for six weeks and found that students who engaged in kind acts were significantly happier than those in control group (Lyubomirsky et al., 2005). Dunn et al. (2008) also suggested that participants who were randomly assigned to spend money in a prosocial manner were happier at the end of the day compared to the others who spent money on themselves. An interesting feature of this study was that the amount of money subjects were provided to spend did not correlate with their perceived happiness at the end of the day, suggesting that the way people spend money is more important for well-being than the amount of money they received (Dunn et al., 2008). For example, a minimal amount of five dollars of pro-social purchases was enough to substantially increase happiness levels (Dunn et al., 2008). The studies above provide us with strong evidence for the benefits of altruistic actions, which not only redistribute wealth in an economical sense but also improve well-being of both agents and recipients.

### *What motivates altruistic behaviors?*

As evidence for such benefits piled up, more scholars began to study ways to encourage more altruistic behaviors (e.g. volunteering, charity giving) in real life. This requires a fundamental understanding of the underlying motivations behind altruistic actions in order to identify and manipulate (to our advantage) factors that influence such actions. In the last two decades, three major theories that are considered key motivators for altruistic behaviors emerged: external motivation, pure altruism, and warm-glow. First, external motivation refers to material reward or benefit associated with altruistic actions, such as tax benefits and thank you cards (Ariely et al., 2009). Second, pure altruism refers to increase of utility solely from increasing the welfare of others (Ariely et al., 2009). The actor does not derive utility from any external or internal personal gain but only from the outcome that recipients' welfare has increased. Lastly, the individuals motivated by warm-glow receive

utility from the act of giving itself, as Andreoni puts “people get some private goods benefit from their gift per se” (Andreoni, 1989). This utility is in the form of the positive emotional feeling that people receive from helping others, therefore named ‘warm-glow’. In this paper, I will focus on studies that tested different components of warm-glow, and propose a study design that attempts to identify responsibility to help as a factor that influences warm-glow and altruistic behaviors.

### *Warm-Glow in experimental and field studies*

At the basic level, various studies have used functional magnetic resonance imaging (fMRI) evidence to show that altruistic behavior (e.g. making a donation to charity) leads to brain activity in regions related to pleasure and reward [Breiter et al., 2001; Vartanian and Goel, 2004; Harbaugh et al., 2007]. For example, Harbaugh et al. (2007) demonstrated that making a decision to donate to the food bank led to activation in the ventral striatum, a brain region associated with rewards. This evidence rendered support for the existence of warm-glow as an action-associated, not the outcome-associated (which would be the case of pure-altruism) reward.

Various studies took a step back to identify components or origination of warm-glow motivation. One component of warm-glow seems to be social image concerns. Research have shown that people derive pleasure from social acclaim: they aspire to appear generous in the eyes of the others or themselves. For example, Andreoni and Bernheim (2009) used a modified dictator game to demonstrate that giving is more likely when people believe their altruistic acts will be more vivid in the mind of the recipient. They randomly divided and assigned pairs into a dictator and recipient role and let each pair split a prize while varying the probability of the nature to intervene ( $p$ ) and set the transfer from dictator to some fixed value,  $x_0$ . Results showed that as their unselfish division became more visible to the recipients (e.g. when  $p=0$ ), dictators acted much more altruistically, rendering division of close to a 50-50 split. Ariely et al. (2009) have also shown that the presence of monetary incentives increased the subjects’ effort significantly in private condition, but not in public condition, both in the experimental and field studies. These studies have demonstrated that the desire to maintain positive social-image could strongly shape people’s altruistic behaviors.

Some may argue that social image concern is associated with external motivation in altruistic behaviors, as people may expect external rewards as a result of their behavior (e.g. social and economic benefit you may get from social image enhancement). However, there are several reasons why external motivation by itself cannot fully explain the social image concern. First, it is difficult to argue that subjects in the studies above have significantly changed their actions solely based on the slight chance that a positive social image to a stranger, who is randomly-assigned to be the pair, will bring any external benefit. Rather, as Evren et al. (2015) showed, people experience warm-glow in the form of pleasure from social acclaim, regardless of its direct impact on their external payoffs. Therefore, a more plausible explanation would be that subjects acted less altruistically when the pleasure (warm-glow) they expect to derive from a positive social image is undermined by visibility (Andreoni and Bernheim, 2009) or monetary incentive (Ariely et al., 2009).

Second, social-image concern seems to be at work even in complete absence of potential extrinsic reward. Everett et al. (2014) demonstrated that making donations to charity a default option resulted in more participants donating part of their income. The participants' decisions were private and thus without any potential external reward. This demonstrates that the participants, who perceived the default option as the social norm, chose to donate their income in order to derive positive feeling from maintaining a positive social image to themselves (Everett et al., 2014). These studies strongly demonstrate that social image concern stands as an important component of warm-glow (Andreoni et al., 2015), although multiple motivations including extrinsic motivation often simultaneously exert influence on an altruistic behavior.

Another type of social concern that underlies the warm-glow is social distance. Various studies have demonstrated that altruistic behaviors increase when social distance from the prospective recipient is reduced [Hoffman et al., 1996; Bohnet and Frey, 1999] and when subjects communicate [Xiao and Houser, 2005; Andreoni and Rao, 2011]. Some people may argue that reduction of social distance increases the subject's perceived need level of the recipient, thereby influencing assessments relevant to pure altruism (outcome distribution) rather than warm-glow. However, Small and Loewenstein (2003) demonstrated that even a very weak form of identifiability, which does not change the subject's perception of the recipient's need level, increases altruistic behavior. For example, in a modified dictator game, subjects were more willing to compensate others who lost their money when they simply heard losers had been already determined than when they heard losers will be determined (Small and Loewenstein, 2003). This suggests that reduced social distance does not necessarily affect pure altruistic motive but promotes more prosocial behavior through another channel: warm-glow.

But a question arises: how exactly does the reduced social distance increase warm-glow? The answer lies in another big component of warm-glow, empathic concern. Multiple researchers have demonstrated that altruistic acts are often preceded by empathic stimuli [Batson, 1991; Batson et al., 1996; Preston and deWaal, 2002; Andreoni and Rao, 2011]. The resulted empathy leads to a tension between either giving and feeling good (warm-glow) or not giving and feeling guilt. This explains how reduced social distance, which often heightens the empathy, increases warm-glow as such tension is resolved by giving. For example, Andreoni and Rao (2011) demonstrated that an imagined conversation is just as effective as the real conversation with the prospective recipient in significantly increasing giving relative to a control group. As the imagined conversation did not in any way increase the need level of the situation (pure altruism) nor extrinsic reward from their giving (external motive), this shows that emphatic stimulation in the imagined conversation treatment has led to warm-glow and altruistic behaviors.

Emphatic concern as a component of warm-glow explains why people often strive to avoid empathic stimuli. In a distribution game by Dana et al. (2006), many exited the game even at a personal cost in an effort to avoid emphatic stimuli (considering what the recipient may feel). In another field study at a shopping mall with two entrances, Andreoni et al. (2015) implemented a 2 x 2 design where the solicitation style (only bell ringing and bell ringing with a verbal request) and location of the solicitor (at one door only or

at both doors) were manipulated for the annual Red Kettle campaign. The result shows that about 25% would-be entrants avoided the verbal request by going around to another door without a solicitor (Andreoni et al., 2015). These studies demonstrate that people incur a significant cost to avoid emphatic stimuli because it creates a strong tension that has to be resolved at some cost, either that of helping (and feeling warm glow) or feeling guilt (and not helping). The studies also found that when such tension arises, many choose to help and feel warm glow than to feel guilt from not helping. For example, Andreoni et al (2015) found that verbal request dramatically increased both the number of givers (by 55%) and total donations (by 69%). Such results demonstrate that while emphatic stimuli can be powerful in increasing warm glow and altruistic behaviors, it can also be aversive, rendering practical implications to the charity fundraising strategies.

*Potential area of study: responsibility to help and warm-glow*

Studies both in experimental and field settings have demonstrated that both the desire to maintain positive social image and the presence of emphatic stimuli increase warm-glow. Scholars have successfully demonstrated how effective manipulation of different variables can encourage more altruistic behaviors. For example, manipulation of default effect (Everett et al., 2004) and visibility [Andreoni and Bernheim, 2009, Ariely et al., 2009] have triggered the social image concern in warm-glow and thereby increased the total amount of charity donations. On the other hand, manipulation of mood [Isen and Levin, 1972; Harris and Huang, 1973; Cialdini et al., 1987], social distance (Hoffman et al., 1996), identifiability (Small and Loewenstein., 2003), inter-subject communication [Xiao and Houser, 2005; Andreoni and Rao, 2011], and verbal request (Andreoni et al., 2015) have triggered empathic stimuli, which led to increased altruistic giving both in experiments and in real life settings (e.g. charity donations). However, the relationship between warm-glow and many other factors are still unexplored and we identify responsibility to help as a potential variable that influences warm-glow and altruistic behaviors.

In real life, people find themselves in different situations where they feel varying degrees of responsibility to behave altruistically. For example, social expectation influences degree of responsibility to help: people feel more responsible to offer one's seat in a subway to elders when it is a social norm than when it is not. In other situations, other factors such as cause of the problem may influence perceived responsibility to help. For instance, people may feel more responsible to help when they believe they have partially contributed to the aggravation of the problem (e.g. water problems exacerbated by massive water waste in developed countries) than when they think they are not related in any meaningful way (e.g. the same problem caused by broken pipelines or ill-management by the local municipality).

The need to study the relationship between responsibility to help and warm-glow grounds on real life observations that people seem to highly value an altruistic behavior when the person does over and beyond one's responsibility to help others. For example, donating a kidney to a stranger tends to be more highly praised than donating one to a family member, as people believe it is beyond one's duty to help a stranger in such a sacrificing way. Accordingly, people who derive warm-glow from maintaining a positive social image would feel much warm-glow from going over and beyond their responsibility to help others

than from fulfilling what others and themselves regard as a basic responsibility. Such a potential relationship between responsibility to help and altruistic behavior has sparsely been studied. In the early 1990s and 2000s, several studies have shown that people demonstrate more prosocial behaviors when they believe to have a personal responsibility to act [Baumeister et al, 1994; Rai and Fiske, 2001]. Harbaugh et al (2007) also sheds light on this field through an fMRI scanning where voluntary giving clearly showed activation of the reward-center in the brain while obligatory giving showed much less activation of the same region. Such results hinted at the potential connection between responsibility to help and warm-glow that compared to the one with low responsibility to help (voluntary), a situation with high responsibility to help (obligatory) would lead to less warm-glow (reward) from helping.

In recent years, some scholars began to study the relationship between warm-glow and autonomy of one's action. Weinstein and Ryan (2010) found that when people do not have autonomy over their helping decision, they experience less emotional well-being after the altruistic behavior. For example, when helping was autonomous, people experienced improved mood after donating more money. However, when helping was obligated, people felt slightly worse after donating more money. Moreover, Dunn et al (2014) found that even one's internalized moral standards can make people feel obligated to help, which leads to less warm-glow than when the participants feel no obligation. Lastly, a recent study by Erlandsson et al (2016) demonstrated that increased personal obligation to help reduces anticipated warm glow from helping and increases anticipated guilt from not helping.

We want to take these findings further and test whether the degree of perceived responsibility to help has an inverse correlation with the degree of anticipated warm-glow from helping, specifically in the context of charity giving. In other words, we hypothesize that the more one feels responsible to help a cause, the less warm-glow one would anticipate from helping. We also want to test whether people give more often and in bigger amounts when the perceived responsibility to donate to a charity is higher.

We believe testing our hypothesis could provide a significant insight about people's real-life donation decisions. Charities tend to make people feel responsible to give, in an effort to call for more donations (e.g. you should donate because many others do so!). If our hypothesis is true, such a tactic may elicit more short-term donation but would decrease the warm-glow feeling that donors experience, which may reduce the chance of future donations or long-term engagements. Such a tradeoff would provide productive insight to charities in developing their long-term strategies.

### Hypothesis

In our experimental design, we define warm-glow as a positive self-directed emotion that arises from being the agent of the altruistic action. We will measure anticipated warm-glow from an imagined altruistic behavior as a dependent variable, as studies have shown that anticipated warm-glow serves as a strong indicator that predicts the actual future altruistic actions, such as blood donations (Ferguson et al., 2008). Measuring anticipated warm-glow from imagined altruistic behaviors with varying degrees of responsibility to help would shed a meaningful light on people's real-life altruistic behaviors and the motives.

Our main hypothesis is that people would anticipate more warm-glow from a possible altruistic action when the perceived responsibility to help is lower, and anticipate less warm-glow when the perceived responsibility to help is higher. In other words, people would anticipate more warm-glow feeling when they do over and beyond their responsibility to help a cause. We also hypothesize that people will give more often when the perceived responsibility to help is higher.

### *Experimental design and procedures*

#### Participants

We will recruit American participants online using Amazon Mechanical Turk. Amazon Mechanical Turk is a website that allows researchers to post a task and facilitate payments to the subjects for completing the task. The advantage of this participant pool is that the subjects are more representative of the general population than student samples. Moreover, research has shown that Amazon MTurk provides reliable data (Buhrmester, Kwang & Gosling, 2011).

Another advantage of using Amazon MTurk is that it prevents any direct interaction between the experimenter and subject. This will reduce potential confounding variables, such as possible social pressure from and empathy towards the experimenter coming into play when the subjects make the donation decision.

Participants completing the experiment online will be paid \$10 for their time, with an option to donate a portion of the participation fee to UNICEF. Accordingly, the final amount the participants would receive would be \$10 - donation to UNICEF, which the system will automatically process and pay out the corresponding amount. We will collect the donations made by the subjects and deliver them to UNICEF, and will email the participants the receipt of the donation.

For preliminary data, we recruited 137 students in University of Pennsylvania through social media. They have participated in the preliminary study through an online survey.

#### Distractor Task

The experiment involves an IQ test as a distractor task. At the beginning of the experiment, subjects will read a script that says the primary goal of the experiment is to measure their IQs (look at Appendix A for instructions and questions). They will be given 16 IQ test questions to answer with a time limit of 20 minutes.

We have the IQ test as a distractor task with two main goals. First, we want the subjects to feel justified in receiving the \$10 participation fee for their task, as an IQ test requires time and mental effort. This will give them a full sense of ownership over their participation fee of \$10, from which they will be making an allocation decision for an altruistic cause. This will provide a more meaningful insight into people's real-life altruistic behaviors, where people donate money that are rightly owned and earned by themselves. On the other hand, if they were simply given \$10 at the beginning of the experiment and were asked to allocate a portion of it to a charitable cause, people may consider it as "free

money” and behave differently (e.g. more generous).

Second, the task will distract subjects from conjecturing the experimenters’ study design and goals. If we simply give out questions in the beginning that measure the anticipated warm-glow, many subjects would be able to conjecture the main goal of the study, which may lead some of them to act against their first-hand instincts. As we would like to measure the most natural response to our questions with a goal to shed light on real-life behaviors, IQ tests will serve as a good distractor task that will make the subjects believe that the warm-glow questions are simply a “post-experiment” survey. In fact, 85% of the subjects in the preliminary study have answered that they could not guess the real purpose of the experiment. We predict this proportion to be much higher in the real experiment as some of the preliminary study participants were our personal affiliates who have previously heard about our study.

### Main task

After completing the distractor task, the subjects will move to a page where they will be asked to fill out a brief “post-experiment” survey. This survey will be the “main task” of the subjects from the experimenter’s perspective: we will test our hypothesis that the subjects who are put in high-responsibility treatment would anticipate less warm-glow from their imagined donation than those in low-responsibility condition who imagine donation of the same amount. Nevertheless, people in high-responsibility condition are expected to give more often.

The independent variable manipulated in this experiment will be degree of responsibility to help. Subjects will be randomly assigned to read one of the three scenarios: Control, High 1, High 2. In Control scenario, the responsibility to help a cause will be manipulated to be low. In High scenarios, the responsibility to help a cause will be manipulated to be high. High 1 and High 2 refer to different ways to manipulate responsibility to help: in High 1, high responsibility to help will be generated by placing strong social expectations of altruistic behaviors on the subject; in High 2 scenario, high responsibility to help will be generated by framing that the subject has partly aggravated the victim’s need situation. The following are scripts of the three scenarios.

### Control

Thank you for participating in this experiment. Please answer the following question carefully for a brief post-experiment survey.

At this very moment, more than 1.8 billion people lack access to safe water, and 100 people die every hour from water-related diseases. Governments in those regions are often incompetent to provide adequate infrastructure needed to solve water quality and supply problems.

UNICEF, an international Nonprofit Organization, helps those people in need of water, and we would like to support them by asking the participants to consider donating a portion of their participation fee (\$10).

### High 1 (Social Expectation)

Thank you for participating in this experiment. Please answer the following question carefully for a brief post-experiment survey.

At this very moment, more than 1.8 billion people lack access to safe water, and 100 people die every hour from water-related diseases. Governments in those regions are often incompetent to provide adequate infrastructure needed to solve water quality and supply problem.

UNICEF, an international Nonprofit Organization, helps those people in need for basic water, and we would like to support them by asking the participants to consider donating a portion of their participation fee (\$10). Most of the participants in the past have given some portion of their participation fee to this cause.

### High 2 (Cause of the problem)

Thank you for participating in this experiment. Please answer the following question carefully for a brief post-experiment survey.

At this very moment, more than 1.8 billion people lack access to safe water, and 100 people die every hour from water-related diseases. While an average African uses 1.25 gallons (4.5 Liters) of water each day, an average American uses 100 gallons (379 Liters) of water per day, producing massive water waste that contributes to global water shortage.

UNICEF, an international Nonprofit Organization, helps those people in need for basic water, and we would like to support them by asking the participants to consider donating a portion of their participation fee (\$10).

After the subjects have read the assigned scenario, we will measure three dependent variables of this experiment: the anticipated warm-glow from an imagined donation, the actual donation frequency and amount, and the perceived degree of responsibility to help after reading the scenario. We will first measure the anticipated warm-glow, the primary dependent variable, by asking the subjects to imagine how much warm, pleasurable feeling they would experience if they have given \$1, \$5, and \$10 out of their participation fee (\$10). This will allow us to compare the anticipated warm-glow across the subjects in three scenarios, as all the subjects would answer based on imagining the same amount of donation. Each of the three questions (with different donation amount) will be placed on a separate page in order to minimize one question's influence on the other. Moreover, we manipulated the order of the question (\$5 -> \$1 -> \$10) so that it would be difficult for the subjects to anticipate a pattern and answer without much contemplation. The following are scripts of the three questions.

(Page 1) Imagine that you have donated \$5 out of your participation fee (\$10) for this cause. How much "warm, pleasurable feeling" would you experience from your donation to this cause? (0 "not at all" to 10 "very warm")

(Page 2) Imagine that you have donated \$1 out of your participation fee (\$10) for this cause. How much “warm, pleasurable feeling” would you experience from your donation to this cause? (0 “not at all” to 10 “very warm”)

(Page 3) Imagine that you have donated \$10 out of your participation fee (\$10) for this cause. How much “warm, pleasurable feeling” would you experience from your donation to this cause? (0 “not at all” to 10 “very warm”)

After answering these questions, subjects will be asked on the next page to decide on the actual donation amount to UNICEF, which will affect the actual payment that they will receive at the end. On the following page, we will measure the subjects’ perceived degree of responsibility to help this cause in order to assess whether we have successfully manipulated the independent variable (high vs. low responsibility to help).

(Page 4) Would you like to donate a portion of your participation fee (\$10) to UNICEF? If yes, then how much? (out of \$10)

\*All the donations will be collectively delivered to UNICEF by the experimenters. All the participants will receive an email receipt of the donation once it is made.

(Page 5) To what extent did you feel obligated to donate to this cause after reading about it? (0: not at all obligated 10: very obligated)

After we have measured all dependent variables, we will ask for subjects’ background information (e.g. age, gender) and some procedural questions (Appendix B) aiming to measure the effectiveness of the study design. The subjects will then be debriefed about the experiment and be paid \$10 - donation amount on their Amazon Mturk account upon their dismissal.

#### Rationale behind the order and content of questions

We designed this experiment to have the optimal order of questions that independently measure three dependent variables: the anticipated warm-glow, actual donation frequency and amount, and degree of responsibility to help. The anticipated warm-glow is the primary dependent variable that we would like to test, so we tested it first to prevent intervention from any other variables. Having donation decision or the perceived degree of responsibility to help as our first question can potentially influence the subjects’ anticipated warm-glow, due to Cognitive Dissonance (Festinger 1957) or the desire to be consistent with one’s behaviors. Moreover, it is difficult for the subjects to make hypothetical considerations after they already have made a donation.

We will measure the perceived degree of responsibility in the last question in order to prevent its potential influence over the donation decision. As the degree of responsibility to help is the main manipulation in this experiment, it is optimally important to prevent the subjects from consciously factoring in this variable when they make decisions about donation or the anticipated warm-glow. Accordingly, the ideal order of questions will be anticipated warm-glow first, actual donation frequency and amount next, and finally the

perceived degree of responsibility.

Lastly, when we measure the anticipated warm-glow, we will include three imagined amounts of donation (\$1, \$5, \$10) as an effort to reduce possible influence of one amount as a reference point on the actual donation decision. Primacy and recency effect (Murdock, 1962) demonstrate that the first and last imagined amount may still influence the actual donation decision, but we believe the inclusion of three different imagined amount would significantly reduce its potential influence on the actual donation.

Result

The result analyzed in this paper is based on the preliminary data that we have collected over our online survey of 137 Upenn students. The participants of this preliminary study were recruited through personal network and social media. Although this preliminary study was not an experiment where the participants were paid, preliminary data analysis will not only shed light on how we will approach analyzing the real experimental data but also demonstrate that our study design effectively tests our hypothesis.

Out of the 137 survey results, 30 results were dismissed as the corresponding participant either correctly guessed the main purpose of the experiment (21 cases) or left the survey incomplete (9 cases). That provided us with with data of 107 samples (63 male, 44 female), out of which 38 were put into a Control treatment, 35 into a HIGH 1 (social expectation) treatment, and 34 into a HIGH 2 (cause of the problem) treatment.

Result A- Perceived responsibility to help the cause (Figure 1)

Figure 1. Perceived responsibility to help the cause in three treatments

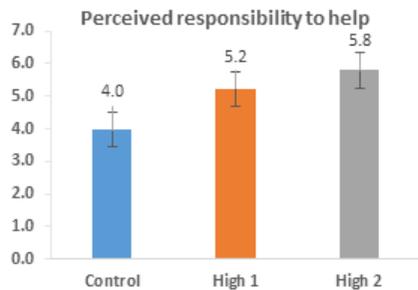


Table 1. Perceived responsibility to help the cause in three treatments

<b>Perceived responsibility to help the cause</b>			
	Control	High 1	High 2
Mean	3.97	5.23	5.79
SD	3.11	3.25	3.33
SEM	0.50	0.55	0.57
N	38	35	34

We first tested whether our manipulation of responsibility to help resulted in a significant difference in perceived responsibility by the participants. T-test analysis of the preliminary data showed that the manipulation was indeed successful. High 1 treatment (M = 5.23, SD = 3.25) generated significantly higher responsibility to help than the Control treatment [M = 3.97, SD = 3.11;  $t(73) = -1.69, p = 0.048$ ]. High 2 treatment (M = 5.79, SD= 3.33) even more successfully generated significantly higher responsibility to help than the Control treatment [M = 3.97, SD = 3.11;  $t(72) = -2.40, p = 0.009$ ]. As both results were statistically

significant, we concluded that our manipulation of the independent variable (responsibility to help) was successful.

**Result B- Anticipated warm-glow from imagined donation to the cause (Figure 2)**

Figure 2. Anticipated warm-glow from an imagined donation of three different amounts

Table 2. Anticipated warm-glow from an imagined donation of three different amounts

<b>Anticipated warm glow from an imagined donation to the cause</b>									
	Donation of \$1			Donation of \$5			Donation of \$10		
	Control	High 1	High 2	Control	High 1	High 2	Control	High 1	High 2
Mean	3.97	5.23	5.79	6.63	5.94	6.03	7.63	7.71	7.62
SD	3.11	3.25	3.33	2.85	2.59	2.85	2.45	2.84	2.76
SEM	0.50	0.55	0.57	0.46	0.44	0.49	0.40	0.48	0.47
N	38	35	34	38	35	34	38	35	34

Table 3. T test result of anticipated warm-glow from an imagined donation of three different amounts

**T test result of anticipated warm glow in three imagined donation amount**

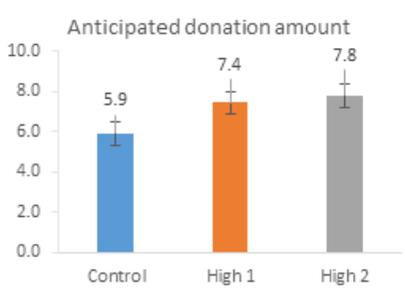
	Donation of \$1	Donation of \$5	Donation of \$10
P (Con vs. High 1)	0.074	0.143	0.447
P (Con vs. High 2)	0.024	0.187	0.491

As a next step, we analyzed our main dependent variable, anticipated warm-glow, in three different treatments. Our finding suggests that when the participants imagined a small donation (\$1), those in Control treatment (M = 4.55, SD = 3.24) anticipated significantly more warm-glow than High 2 [M = 3.12, SD = 2.74;  $t(72) = 2.02, p = 0.024$ ]. The Control treatment (M = 4.55, SD = 3.24) also generated more anticipated warm-glow than High 1 [M = 3.51, SD = 2.80;  $t(73) = 1.46, p = 0.07$ ], although the difference was just a little short to become statistically significant ( $p = 0.07 > 0.05$ ).

When the participants imagined a sizable donation (\$5), those in Control treatment (M = 6.63, SD = 2.85) did anticipate more warm-glow than those both in High 1 [M = 5.94, SD = 2.59;  $t(73) = 1.08, p = 0.143$ ] and High 2 [M = 6.03, SD = ;  $t(72) = 0.89, p = 0.187$ ]. However, the differences were not sufficient to be statically significant ( $p = 0.143$  (High 1)  $> 0.05, 0.187$  (High 2)  $> 0.05$ ).

Lastly, when the participants imagined a full donation (\$10) of their participation fee, there was no significant difference among those in Control treatment (M = 7.63, SD = 2.45) and the High treatments (High 1: M = 7.71, SD = 2.84; High 2: M = 7.62, SD = 2.76).

Based on such results, we concluded that participants in the control treatment anticipated more warm-glow from an imagined donation of \$1 than those in High responsibility treatments. There was no significant difference in warm-glow across treatments when the participants imagined a larger amount of donation, such as \$5 and \$10.

**Result C- Actual Donation frequency and amount for this cause (Figure 3)****Figure 3. Anticipated donation amount out of the participation fee (\$10)****Table 4. Anticipated donation amount out of the participation fee (\$10)**

<b>Anticipated donation for the cause</b>			
	Control	High 1	High 2
Mean	5.90	7.43	7.77
SD	3.14	2.85	2.74
SEM	0.56	0.54	0.49
N	31	28	31

*Note . Based on imagining actual participation in the paid (\$10) experiment.*

We then finally analyzed our last dependent variable, actual donation frequency and amount, of the participants across three different treatments. In our preliminary study, we could not precisely measure this variable as we did not provide the participants with a participation fee (\$10). Therefore, we instead asked the participants to imagine how much they would have donated out of their participation fee (\$10), if they had actually participated in the experiment setting.

The result showed that participants in High responsibility treatments (High 1:  $M = 7.43$ ,  $SD = 2.85$ ; High 2:  $M = 7.77$ ,  $SD = 2.74$ ) anticipated giving significantly more than those in Control treatment [ $M = 5.90$ ,  $SD = 3.14$ ;  $p = 0.028$  when Control vs. High 1;  $p = 0.008$  when Control vs. High 2]. High 2 treatment had the highest proportion of participants who are willing to donate (91.2%), followed by Control treatment (81.6%) and High 1 treatment (80.0%).

***Discussion of the preliminary data analysis***

As we have not conducted the real experiment yet, it is beyond the scope of this paper to discuss the significance of the preliminary data in support of the hypothesis. However, we believe it is worthwhile to highlight some interesting aspects about the result of the preliminary data analysis.

First, we found that the manipulation of perceived responsibility to help was especially successful in High 2 treatment ( $p = 0.009$ ) but much less so in High 1 treatment ( $p = 0.048$ ). The analysis of the dependent variables (discussed in the following paragraphs) demonstrate strong support for our hypothesis in High 2 treatment, but less in High 1 treatment. We suggest improving the experimental design for High 1 treatment by strengthening the social expectations, that would in turn further increase the perceived responsibility to help (e.g. adding a phrase “we strongly encourage you to join other participants in helping those in need”).

Second, the analysis of the main dependent variable, anticipated warm-glow, demonstrate that participants anticipated significantly more warm-glow in Control treatment than in High 1 treatment ( $p = 0.024$ ) when the imagined donation was small (\$1). This finding supports our hypothesis that people anticipate much more warm-glow from altruistic behaviors when their perceived responsibility to help is lower- in

other words, when they go over and beyond their responsibility to help others. The possible explanation as to why we do not observe such a strong pattern in higher amount of donations (\$5 and \$10) is that donating a significant portion of the participation fee (50% or 100% as opposed to 10%) may itself be an altruistic behavior much beyond one's responsibility. As the participants perceive they have done more than required by their sense of responsibility, they would feel significant warm-glow regardless of which treatment they are assigned to. In order to test whether this explanation is valid, we could improve the experimental design by measuring perceived responsibility to help for each of the three amounts of donations (e.g. To what extent did you feel obligated to donate \$1 to this cause after reading about it? \$5? \$10?). The result of High 1 treatment showed a strikingly similar pattern, but it failed to generate statically significant results. We believe improving the study design laid out in the previous paragraph would render a statistically significant result for High 1 treatment as well in the real experiment.

Third, analysis of the last dependent variable –actual donation frequency and amount- in our preliminary data also demonstrated support for our hypothesis. Under a strong responsibility manipulation (High 2 treatment), we found that high responsibility to act resulted in a higher percentage of people making (hypothetical) donation. More specifically, 91.2 % of participants in High 2 treatment made (hypothetical) donations, compared to 81.6% of those in Control treatment (81.6%). We predict that more successful responsibility manipulation in High 1 treatment (80.0%) would provide a similar support for our hypothesis in the real experiment. Interestingly, High treatments (High 1:  $M = 7.43$ ,  $SD = 2.85$ ; High 2:  $M = 7.77$ ,  $SD = 2.74$ ) also showed significantly higher average amount (hypothetically) donated than Control treatment ( $M = 5.90$ ,  $SD = 3.14$ ), which was unexpected in our hypothesis. A possible explanation is that the amount donated reflects the opportunity cost of feeling guilt from not donating, which is projected to be much bigger in high responsibility conditions.

#### Limitations of the preliminary data

There are several limitations to our preliminary data analysis. First, the subjects in the preliminary study participated without any material reward and without any time pressure during the distractor task. As a result, participants lacked the incentive to maintain focus throughout the study, as noted by some post-experiment feedback. In fact, we observed some participants leaving early in the survey or making illogical answers to the questions, such as anticipating the warm-glow the most when the imagined donation amount was the least (\$1). We believe that such seeming lack of focus was the primary reason why we could not see a successful responsibility manipulation in High 1 treatment, where the manipulation (adding just one line “most of the participants have donated some portion...”) was not as outright noticeable as High 2 treatment (“Average American uses...”). In the real experiment, we believe the subjects who now get paid will have a stronger incentive and sense of guilt (from not putting in full effort) that would motivate them to maintain focus throughout the experiment. We predict that better effort by the subjects along with stronger manipulation of responsibility will lead to a successful manipulation in High 1 treatment as well.

Second, our current study design does not fully remove confounding variables, such as influence of one dependent variable over the other. As we explained in the previous section, we measured three different dependent variables in an order that minimize such confounding effects. We note that an ideal design would conduct three different experiments, each pertaining to measuring one specific dependent variable, as other researchers did in a similar experiment (Erlandsson et al., 2016).

### Conclusion

Our study design tests whether a successful manipulation of the degree of responsibility to help leads to a meaningful difference in the anticipated warm-glow from an imagined donation. More specifically, we hypothesize that when the responsibility to help is higher, people would give more frequently but would anticipate less warm-glow from an imagined donation. This is because we observe people value an altruistic action more highly if they act over and beyond their responsibility.

Our preliminary data suggests that there is a potential for a strong case for our hypothesis. Under successful manipulation of responsibility (High 2 treatment), the data showed strong support for our hypothesis. The preliminary data has several limits of its own, but we believe those limits could be addressed in the real experiment to provide a meaningful result.

We believe our study would provide significant insight about people's real-life altruistic actions, specifically how perceived responsibility to help plays a part in donation decisions. To many charities that use various techniques to make people feel responsible to give, our study suggests that such a tactic may elicit more short-term donations but may decrease the warm-glow feeling that donors experience. This could potentially hamper a serious, long-term engagement of donors who are often driven by strong warm-glow feelings.

### Appendix A: Distractor Task

#### Script

The participants coming into the experiment will read the following script on an online page, then will proceed to the next page to start the experiment.

You will be asked to complete a short-IQ test for the next 20 minutes. The goal of this experiment is to measure IQ test score spreads. A simple after-experiment survey will be followed at the end. All of your responses will be kept anonymous.

#### Questions

The questions for the distractor task came from [www.free-iqtest.net](http://www.free-iqtest.net), the website where it provides free IQ test questions.

Question Number	Question	Answer Choices
1	Which one of the five is least like the other four?	<ul style="list-style-type: none"> <li>- Dog</li> <li>- Mouse</li> <li>- Lion</li> <li>- Snake</li> <li>- Elephant</li> </ul>
2	Which one of the five choices makes the best comparison? PEACH is to HCAEP as 46251 is to:	<ul style="list-style-type: none"> <li>- 25641</li> <li>- 26451</li> <li>- 12654</li> <li>- 51462</li> <li>- 15264</li> </ul>
3	Which one of the numbers does not belong in the following series? 2 - 3 - 6 - 7 - 8 - 14 - 15 - 30	<ul style="list-style-type: none"> <li>- Three</li> <li>- Seven</li> <li>- Eight</li> <li>- Fifteen</li> <li>- Thirty</li> </ul>
4	Which one of the five choices makes the best comparison? Finger is to Hand as leaf is to:	<ul style="list-style-type: none"> <li>- Twig</li> <li>- Tree</li> <li>- Branch</li> <li>- Blossom</li> <li>- Bark</li> </ul>
5	Choose the number that is $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{1}{5}$ of 200:	<ul style="list-style-type: none"> <li>- 2</li> <li>- 5</li> <li>- 10</li> <li>- 25</li> <li>- 50</li> </ul>
6	John needs 13 bottles of water from the store. John can only carry 3 at a time. What's the minimum number of trips John needs to make to the store?	<ul style="list-style-type: none"> <li>- 3</li> <li>- 4</li> <li>- 4.5</li> <li>- 5</li> <li>- 6</li> </ul>
7	Choose the word most similar to "Trustworthy":	<ul style="list-style-type: none"> <li>- Resolute</li> <li>- Tenacity</li> <li>- Relevant</li> <li>- Insolent</li> <li>- Reliable</li> </ul>

8	If you rearrange the letters “LNGEDNA” you have the name of a(n):	<ul style="list-style-type: none"> <li>- Animal</li> <li>- Country</li> <li>- State</li> <li>- City</li> <li>- Ocean</li> </ul>
9	If all Bloops are Razzies and all Razzies are Lazzies, then all Bloops are definitely Lazzies?	<ul style="list-style-type: none"> <li>- True</li> <li>- False</li> </ul>
10	Which one of the numbers does not belong in the following series? 1 - 2 - 5 - 10 - 13 - 26 - 29 - 48	<ul style="list-style-type: none"> <li>- 1</li> <li>- 5</li> <li>- 26</li> <li>- 29</li> <li>- 48</li> </ul>
11	Ralph likes 25 but not 24; he likes 400 but not 300; he likes 144 but not 145. Which does he like?	<ul style="list-style-type: none"> <li>- 10</li> <li>- 50</li> <li>- 124</li> <li>- 200</li> <li>- 1600</li> </ul>
12	What is the missing number in the sequence shown below? 1 - 8 - 27 - ? - 125 - 216	<ul style="list-style-type: none"> <li>- 36</li> <li>- 45</li> <li>- 46</li> <li>- 64</li> <li>- 99</li> </ul>
13	Which one of the following things is list is the least like the others?	<ul style="list-style-type: none"> <li>- poem</li> <li>- novel</li> <li>- painting</li> <li>- statue</li> <li>- flower</li> </ul>
14	Which number should come next in the series? 1 - 1 - 2 - 3 - 5 - 8 - 13	<ul style="list-style-type: none"> <li>- 8</li> <li>- 13</li> <li>- 21</li> <li>- 26</li> <li>- 31</li> </ul>
15	Mary, who is sixteen years old, is four times as old as her brother. How old will Mary be when she is twice as old as her brother?	<ul style="list-style-type: none"> <li>- 20</li> <li>- 24</li> <li>- 25</li> <li>- 26</li> <li>- 28</li> </ul>

16	If you rearrange the letters "CIFAIPC" you would have the name of a(n):	<ul style="list-style-type: none"> <li>- city</li> <li>- animal</li> <li>- ocean</li> <li>- river</li> <li>-country</li> </ul>
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**Appendix B: Procedure questions**

1. The procedures followed in this experiment protected your anonymity (0: not at all 5: definitely yes)
2. The money you passed to UNICEF will be sent to UNICEF (0: not at all 5: definitely yes)
3. The instructions for the experiment were clear and easy to understand (0: not at all 5: definitely yes)
4. The recipients of your donation to UNICEF are deserving of support (0: not at all 5: definitely yes)

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