The Effect of Disasters on Altruistic Behavior and its Mechanisms

Yuqing Yang
The high School Affiliated to Renmin University, Beijing, China
lin@yunxintech.com

Abstract. Disasters, characterized by sudden and catastrophic events causing extensive damage to communities, come in various forms, including natural and human-made catastrophes. Disasters can change people's behavior. The present study explores the relationship between disasters and altruistic behavior and its mechanism. It delves into how disasters evoke altruistic responses in individuals, examining mechanisms including heightened empathy, the influence of the public atmosphere, group selection tendencies, and the impact of positive prior experiences. The study draws upon research studies that illuminate the connection between disasters and increased altruism, shedding light on the psychological and social factors that drive people to selflessly assist others during times of crisis. Understanding the relationship between disasters and altruistic behavior is critical to enhancing disaster response and fostering a sense of solidarity within communities. The results of this study promote people's understanding of how disasters affect people's altruistic behavior, and deepen people's understanding of people's altruistic behavior in disaster situations.

Keywords: Disaster, altruistic behavior, empathy, social atmosphere, group selection, positive experience.

1. Introduction

Disasters are capable to spread a massive devastation towards human society in a powerful way, whether originating from nature or human. When disasters exist, it becomes apparent that chaos, turmoil, and panic are brought to human society, changing people’s life by bringing unstableness. The suddenness of disasters forces people to react immediately to the threatening of death and departure. Earthquake, hurricanes, tornados, and various kinds of natural disasters are happening around the world every year. Terrorist incursions, murders, and crimes also appear in human society frequently. Each of the disasters not only bring physical destructions, such as the collapse of the public constructions or injuries of individuals living around, but also lead to mental changes. How disasters effect altruistic behavior? What are the mechanisms behind their relationship?

The harm of victimizing other human getting injured or even dead, the harm of separating with own family and becoming alone, the despair of losing a stable and safe life, and the deep fear of death, may all lead to a shift of the individuals’ mind. During the damaging disasters, through all the disruptions, altruistic behaviors of individuals increase instead of being suppressed [1], according to the research done by Rao. The harsh environment and living condition actually stimulate the willing of reach out for others in human’s minds, and go against the selfishness and fear in their natures.

Previous researches show that disaster triggers individuals’ empathy according to a survey [2]. The enhancement of empathy then contributes to the increase of altruistic behavior [3]. People became highly united during disasters, which promote their ability to empathize. This ability is highly related to people’s altruistic behavior according to Batson’s experiment [3]. Another study proposes the connection between public atmosphere and altruistic actions. Disasters create a negative atmosphere for people staying in the effected regions and spread this feeling to the public through internet [4]. When people are scanning through the information about disasters on medias, the victimization brings depressive senses to them, which actually triggers their altruism [5]. Moreover, a study suggests that people will evoke their awareness of group selection during disasters [4]. The willing of getting supports from others bring people together to be more united, which results in the increase of altruistic behavior [4]. Positive experiences are also considered highly connected to

people's altruistic behavior in disasters. People who have received assistance from others are more likely to act altruistically to others [6].

Through the research towards altruistic behavior which evoked by disasters, the intricate psychological mechanism behind this phenomenon can be revealed. The exploration of the motivation of these behaviors during the extreme condition reveals the complex interrelationship between human's adversity and altruism, which carry out a neglected part in human's nature that are borne by catastrophes. During the research, the innate instincts that drive individuals to assist others while facing the disruption brought by disasters are well explored.

2. The impact of disasters on altruistic behavior

A disaster describes an event that happens sudden and causes a catastrophic massive widespread damage to a community. There are varies forms of disasters, including natural disasters and disasters that are manufactured by human. Natural disasters, such as earthquake, tsunamis, hurricanes, or tornados, cause intensive harms to human society. Human-made disasters, such as terrorist attacks or crimes, also cause chaos and disruption to the whole community, which are hard to recover same as natural disasters. Disasters are capable to bring long persisted consequences and impacts to the whole society from economic, environmental, or social aspects. These effects need long-term recovery strategies and continues efforts to eliminate.

During a disaster, such as an earthquake, buildings and constructions may be destroyed. The strong and violent shakes from the ground which are caused by earthquake may lead to collapses and collides of buildings, skyscrapers, or other structures of the city. In addition, the city will become disorder and paralyzed. Injuries or death may also carry out by it, which may result in panics of the public and cause further chaos. The physical and mental impacts that disasters bring to people may affect people's behavior in various way. When a disaster occurs, people suddenly enter a situation full of dangers that threaten their life and push them away from their previous stable life. The unfamiliar environment, the threat of death, and the shortage of resources make it easy for people to fall in to distress. Under this circumstance, people's altruistic behavior may be triggered.

Altruistic behavior describes acts of compassion or selflessness that people carry out for the benefit of others without anticipating any personal profit or gain. It includes concerns and cares for others, which are often put above people themselves' own needs and interests. The care that these behaviors bring to others is also put above people's requirement and expectation for reward or profit, which is another essential feature of altruistic behavior. Helping family, friends, doing charity works, or volunteering can be considering as altruistic behavior. Altruistic behavior plays a necessary role in building a harmonious and interrelated society.

Rao explored the association between disasters and altruistic behaviors [1]. The research shows that people who experienced disasters show a higher rate of acting altruistic. The subjects of Rao's study were adults whose houses were most severely damaged, damaged, slightly damaged, and undamaged in the Sichuan earthquake. The subjects were being asked to give out their responses to the question "If you have 100 yuan now, how much are you willing to give to a stranger". The amount of donation increases with the rank of damage of the subject's house. Moreover, the numbers provided by participants with undamaged houses were lower than the other three groups. Therefore, people may tend to act more altruistic when they experienced disaster.

Subsequently, the researcher repeated the survey twice in the following two years. Compared with the result of the first trial, people in these two trials provided significantly low amount of donation, and no significant difference exist between the latter two. Moreover, in the last two surveys, the donated amount of the subjects who have undamaged houses was still lower than that of the other three groups. The researchers also examined the differences in the amount of donations of the subjects in Tangshan, Beijing and Fujian, which were not directly affected by the earthquake, and found that the subjects in Tangshan showed more altruism. Therefore, this research speculates that the harsh

environment created by natural disasters tends to favor altruism, and that this effect may have long-lasting effects.

3. Mechanisms

3.1. Empathy

One of the effects that disasters bring is the enhancement of people's empathy, for the special condition disasters create. Massive disaster causes strong fear to people with its suddenness, tragic destruction, and the sudden departure with many relatives and friends that it brings to people. Moreover, the damage that brought by natural disasters may cause the society to become paralyzed. Buildings, public facilities, and medical facilities will be disabled for people to use as usual. The disconnection with the previous stable life and society exacerbates the fear and trepidation people will have. At this time, people can only rely on each other's, which are relatives, friends and neighbors, thus forming informal social groups based on living area or blood relationship.

During and after the disaster, a large part of the disaster-affected people may house in gymnasiums, or tents together. A "disaster-time communism" life pattern was formed [2]. It not only temporarily provides people with food, water, and shelters to meet their basic needs, but also bring them spiritual and psychological support. The new community that forms in this harsh circumstance contributes in making people to feel the sense of being in group instead of facing dangers alone. The dangers from the outside environment foster the combination of groups among people, because people attempt to look for support from their compatriots. In other words, when disasters happen, people tend to get close to others to be safe and stable. In this special way of life, it is easy for people to share their distress for they want to get support from each other's, which results in the enhancement of people's empathy. The enhanced empathy carries out the increasing altruistic behavior subsequently.

Batson et al. discussed the hypothesis that empathy motivates altruism [3]. In this study, researchers manipulated empathic emotion by using a placebo called Millentana. The subjects had been divided into two groups. The first group was set up to feel personal distress, while the second group was set up to have empathic concern. The researchers manipulated these by telling the first group that the capsule which called Millentana could bring a sense of warmth and sensitivity, which was similar to what people might experience by reading a novel that was touching. While the second group was told that the capsule might produce a sense of unease and discomfort, which would be similar to what people might experience by reading a distressing novel. Subsequently, the two groups were asked to watch a person named Elaine having shock trials. Elaine would show the subjects the distress she had from strong to moderate and slight, and then give out her request for asking for assistance to escape. The conditions of escape were also manipulated by researchers from easy to hard. The result shows that people who were manipulated to have an empathic concern were more likely to reach out for Elaine and the rate stayed high even under an easy escape. This experiment tested the empathy-altruism hypothesis, which is that people who have the ability to empathize with others in need are capable to behave altruistically. Therefore, disasters can cause a dangerous and unstable living condition for people, which lead them to build deep connection with others in order to look for support. When people are strongly connected, they can easily share their distress with each other's and sense others suffer. This will result in an enhancement of empathy, which is related to people's altruistic behavior. Consequently, disaster fosters people's altruistic behavior.

3.2. Social atmosphere

During disasters, people get injured and died, buildings that used to be firm suddenly crushed and collapsed. All these scenes create an atmosphere of turmoil, chaos, unsafe, anxious, and fear. When individuals get involved in this atmosphere, the strong negative emotions will be pass to them. They may feel shocked by the suddenness and destructiveness of the disaster. The feeling then transfer to fear and anxiety for people may be concern about their safety and the following damage the disaster may cause. There's also a sense of helplessness and vulnerability among individuals who witness the

devastation and deterioration brought by disasters, which often leads to sympathy towards others who suffered from it [4]. This atmosphere is not only experienced by people who face the disaster, but also spread to the public that contains people from other regions through medias. When disasters happened, there will be news on radios, television channels, and social medias. People can easily get access to various information about the recent process through internet, which makes media serves as a main source for the public to seek for updates. Medias tend to use pictures and words to fully describe the situation of the people who are facing the disaster and the damage that the disaster had caused. This news brings the atmosphere of panic and fear to people who have scanning through them [5].

When victimizing the harm that people have in disasters, the public may produce a sense of fear [6]. In medias' report, victims' distress and helpless are described vividly. Pictures of people getting hurts, losing their life, and their facial expression that shows pain and suffering are also wildly used in news reports. These will evoke negative sentiment of individuals who have seen them, and spread the atmosphere of anxiety, depression, and distress to them. However, the fear people have through witnessing actually motivates people's altruistic behavior. Research done by Zakir Shaha based on cultivation theory shows the connection between publicity of disaster, which is presented in medias' report, and altruistic behavior [7]. The researchers designed six-teen items for four factors, including the extent of the exposure to media, individual's view about media, personal fear of victimization, and personal altruistic behavior. Researchers collected data from offline investigations. The result of the first eight items, which are related to the connection between the exposure to media and individual's view about media, shows that they are extremely related. While the result of the following surveys shows the relationship between fear and altruism. Therefore, the fear that caused by the publicity of disaster contributes to people's altruistic behavior. The atmosphere that formed because of the existence of disasters can bring fear to the public through medias, which leads to an increase of altruistic behavior.

3.3. Group selection

When individuals face the suddenness and terror of the disaster, they prioritize the community they are in. Disasters change people's life by destroying their previous environment. City's constructions may be affected, leading to a scarcity of resource. Injuries and death may be brought to people, which results in widespread panic and chaos. All these impacts enhance individual's feeling of unstableness. Therefore, people then become more dependent on their group, for they realize that the survival of individual and recovery of their society rely on their unity. The awareness of groups selection activated by them is how they select their community to realize unity and collectivism with others who share the same community. The selection helps them to be stable again when facing the catastrophes.

The previous study found that after choosing their groups, people behave more altruistically to people who stay in the same community. An experiment done by Yiyuan Li shows the connection of disasters, group selection, and altruistic behavior [8]. The experiment selects nine years old children to complete it. There are two phases in the experiment. In the first phase, the subjects will complete the dictator game in two steps. First, A female experimenter told the children that there is a group of pictures, including unrelated pictures, pictures of children's country's earthquake, and foreign earthquake pictures. After the children have finished reading the pictures, ask the children to report how they feel. Then, the children will complete the dictator game. The second phase connects to the Chicago Pain Empathy Test. Children will go through an animated scenario describing various accidents that cause pain. Animated characters do not have any gender information. The researchers played these animations to children on a computer, and after each animation, combined two quantitative surfaces. The researchers then ask the children two questions: How much does it hurt? How do you feel about what this person is doing to this person at this time? The result shows that children who watched pictures of disasters happened in China act more generous than subjects who watched pictures of Japanese and Haiti.

3.4. Positive experience

During disasters, the sudden terror people experienced bring fear and distress to them. People may be separated with their family and friends or loose the stable connection with people around them [8]. Loneliness and suffer then appear. Moreover, the scarcity of resources brings people to a situation of helpless and isolated. All these factors add up and cause people to hope to get back to their previous life. In this situation, people who have received help before show more altruism toward others. The helpless mood they sense from others evokes their memories of how weak they were before. It reminds them the time they were assisted by someone generously, which triggers their gratitude toward these people and produces positive feedback of being helped by others. Subsequently, they express their gratitude by doing the same thing, which is to behave altruistically to others. Also, the positive feeling they gain from the experience of getting help from others make them consider this action as a standard for them to follow. People learn how to behave from their own experience. If people get helped from others when they are helpless, when the same situation occurs, the memories of these people may be stimulated, which evokes their gratitude and react as generous as their model. However, if a person acts selfishly when they need a help, they may probably act selfishly to others when they face the same condition [9, 10].

Li's study found that positive experience was related to altruistic behavior. The experiment was carried out in the children's school. Each child was individually tested in two studies, the first study used the form of dictator game. There were three groups needed to be tested. In the first control group, children played the dictator game directly. In the second control group, children would first see through twenty pictures that were took at the moments that the earthquake had just started, and then played the dictator game. In the test group, children would see through twenty pictures that were took after the reconstruction and then played the dictator game. The second study is connected to Chicago pain empathy test can also provide evidence for the role of positive experience in the association between disasters on altruistic behavior. Two control groups followed the same procedure as the first study. For the test group, the experiment was carried out in two steps. First, a female experimenter told the children that after the Wenchuan earthquake, the disaster area received massive public attention and people all over the world had provided them assistance. After three years of aid and construction, the people in the disaster-stricken area have new homes. Children were asked if they would like to watch through a set of pictures on the computer about the new look of the disaster area with the researcher. After the children finished watching the pictures, the children completed the same task as in the dictator game in the first study. In the next phase, the researchers would done the Chicago pain empathy test with the children. The result shows that the children who had received assistance acted more altruistic than kids who haven't experienced it before, which proves that people who have experienced being help by others will behave more altruistic than the people who haven't when disasters occur.

4. Conclusion

In the face of catastrophic events, such as natural disasters or human-made crises, the remarkable capacity for altruism within humanity becomes a beacon of hope, uniting people in the darkest of hours. Disasters, be they of nature's unforgiving hand or the consequences of human actions, awaken a profound sense of empathy, foster unique communal atmospheres, activate our innate instincts for group survival, and are influenced by the reservoir of prior positive experiences. These intricate mechanisms underscore the profound interconnectedness of human responses to crisis situations. Numerous research studies have provided compelling evidence that the crucible of disaster can indeed elevate altruistic behavior, placing a spotlight on the paramount importance of empathy and mutual support during these tumultuous times. Thus, understanding the profound impact that disasters have on individual behavior not only illuminates the resilience inherent to human nature but also underscores the indispensable role of altruism in forging cohesive, compassionate societies that stand resolute in the face of adversity. Human has a remarkable capacity is the enhancement of empathy

when facing disasters. During these catastrophic events, people become close with each other's for the same suffer they shared. Under this extreme circumstance, people are more likely to sense others feelings, which cultivates their empathy. This empathy then becomes a motivation of behaving altruistically, which is to assist others without expecting for returns. Disasters effect people both physically and mentally. Disasters bring negative feelings such as fear, disgust, or anxiety may be passed to individuals who face the disaster directly. These feeling can also spread to the publics by internet and medias, which creates a negative social atmosphere. However, this atmosphere actually triggers people's altruistic behavior for bringing them pressures. In the existence of disaster, unique groups will form. People's awareness of group selection is activated under the harsh condition. People choose their own groups based on their own preferences. Individuals form these groups in order to seek for support and stableness, which enhance their unity and increase their willing of acting altruistically. Moreover, previous positive experiences influent people's way of behaving during disasters. People who have received assistance from others before may tend to act in a altruistic way in disasters. These positive experiences help people to stimulate their positive feelings such as gratitude or appreciation when they meet the same situation. This research focus on the relationship between disasters and altruistic behavior and the mechanism s of it. The result reveals the relationship between altruism and disasters, which explores one of the aspects of how altruism is shown in society. However, there are limitation in this research. Specific cauterization of people is not included in this research, which can be discover in further studies.

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