UNDERSTANDING HUMAN BEHAVIORAL RESPONSE DURING NATURAL DISASTERS

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ABSTRACT

A natural disaster is inevitable, and how an individual reacts to a situation is a crucial sequence in disaster response and management, as this may generate psychological and social implications. Thus, there is a need to understand these behaviors as they may provide a domino effect in the context of disaster response, disaster management, and overall public safety. Secondary data sources to collect relevant information, a deeper analysis of the topic was developed using existing evidence sources from other authors and identified the different behaviors that usually arise during and after disasters. The result of this study will be helpful in the development of additional strategies for efficient disaster response and successful disaster management that would result in safe and secure communities.

Chapter I: INTRODUCTION

Background of the Study

Human behavior is one of the most challenging aspects to deal with during disasters. It is something uncontrollable but is an important component in the success of disaster management. Human behavior during disaster is how a person reacts or responses to a certain calamity caused by a hazard.

Natural Disasters can happen anytime and anywhere. This will occur without warning. Disaster, as defined by the United Nations Office for Disaster Risk Reduction (UNDRR) (Disaster, n.d), is a significant interference with a community's or society's ability to function at any scale as a result of hazardous occurrences interacting with exposure, susceptibility, and capacity conditions, which may result in human, material, economic, and environmental losses. As to natural disasters,

these can be caused by natural hazards such as flooding, mass movements, earthquakes, many others. The occurrence of these natural disaster brings immense effect on an individual's behavior.

Disaster rescuers are exposed to (directly or indirectly) real or imminent death, significant injury, sexual violence, and/or serious unpleasant aspects of those occurrences that go along with physical, psychological, and emotional stress.

Despite the numerous studies on handling human behaviors, the creation of several strategies in disaster response and management, and the continuous efforts to focus on the implementation of such strategies, human behavior has become one of the challenges associated with disaster deployments that brings immense impact on the mental and physical well-being of military, medical and public safety personnel (Ein et al., 2023). Whether appropriate or inappropriate, these behaviors must be deeply understood in the context of disaster response and in the context of public safety and security.

Statement of the Problem

Specifically, this study aims to explore the following:

1. What are the different human behavioral response to natural disasters?
2. What are the impacts of the behavioral response to the rescuers, to the institutions related to disaster response, and to overall success of disaster response and management?
3. What is the importance of understanding human behaviors in the context of Public Safety?
4. What are some ways forward that can be drawn from understanding human behavioral response during disaster in the disaster management?

Objectives of the Study

The following are the important goals of the study:

1. To describe the different human behavioral response to natural disasters;

2. To realize the effects of the known human behavioral response to the disaster response operations management;

3. To realize the importance of understanding the human behavioral responses to disasters and its implication in the context of Public Safety.

4. To provide ways forward to improve strategies on dealing with human behavior in disaster preparedness.

Significance of the Study

The output of this study can provide meaningful insights relevant to the development of strategies in the improvement of disaster response and management. With the presented goals of the study, the human behaviors during disasters and their effects to the overall public safety could be realized.

It is anticipated that the result of this study will provide additional recommendations as to handling behavioral issues most especially those that create additional risks not only to the affected individuals but also to public servants deployed to respond during disasters. This will also somehow stress out that these behavioral problems give additional dilemma to the psychological aspects of public safety servants, thus, it is hoped to provide ways forward not only to address the trauma to victims but also for the benefit of those working to protect lives.

Scope and Limitation of the Study

This research focuses on the identification of the most common behaviors of human during and after natural disasters occur. This covers existing studies that are available online which provide ready results on behavioral response of natural disaster victims in the Philippines, as well as to the people working in the disaster response sectors.

One limitation of this study is the time to conduct an actual assessment of human behaviors, thus, the result of this study does not represent any specific area or persons but entails a more generalized information. Also, this provides

information that does not considered any cultural practices in connection to current disaster response and management norms.

Definition of Terms

Human behavioral response – it is how an individual deliberately respond during disasters.

Disaster - a unexpected occurrence that results in deaths and/or damage to properties and/or environment.

Disaster Management - preparation for potential disasters and efficient response. This frequently requires following the basic disaster management cycle, which has five crucial components.

Disaster Response – actions undertaken immediately after a devastating event takes place.

Natural Disaster - Any type of extreme weather that has the potential to seriously endanger property and essential infrastructure, both seasonally and ad hoc, and that can cause periods of instability, disruption, and financial loss for the nation.

Chapter II: REVIEW OF LITERATURE AND THEORETICAL FRAMEWORK

Related Literature and Studies

Human behavior in the context of disaster response

Human behaviour is a purposive reaction of a human being to an idiosyncratic meaningful situation (Dompke U., 2003). In this study, it is how an individual deliberately respond during disasters caused by natural phenomena (natural hazards) such as flooding, mass movements, earthquakes, volcanic eruptions, and other hazards that may endanger the lives of people and their properties.

According to Gunawan et al., 2019, "Disaster response is an important factor in reducing the risk of loss due to disaster, especially death victims". As natural disasters can happen anytime and anywhere, huge effort to understand all necessary elements should be taken in order to lower the risk of disasters. Therefore, disaster risk must be reduced by appropriate prevention measures which may vary based on several factors such as an area's geography, the frequency of local catastrophes, and the social circumstances of the local population.

In the context of disaster response during natural disasters, managing human behavior is a crucial part. In the past, the scientific community's attention was too often drawn to the effects of disasters rather than human conduct in crisis conditions (Cvetković, V. M., & Jovanović, M.,2020).

Human behavioral responses to disasters are diverse. Analyzing human behavior in crisis, catastrophe, or catastrophe-like conditions over various time frames is possible (Provitolo, D., Dubos-Paillard, E., & Müller, J. (2011). and is an integral part to the success of disaster response.

Essence of understanding human behaviors towards natural disasters

People who have been through a crisis frequently suffer intense emotional responses. Understanding how you react to upsetting circumstances can help you

manage your feelings, thoughts, and behaviors successfully and guide you toward recovery (Disasters and response, n.d.).

Hence, diverse behaviors of disaster victims should be taken seriously. Understanding the different behaviors of individuals could be the key to develop psychological preparedness strategies which is essential to disaster management.

Effects of natural disasters to human behavior

The amplification effect of unreasonable human behavior on disaster losses brought on by higher degrees of risk, susceptibility, and exposure was quantitatively examined in the work of Fan et al. (2022), along with the underlying reasons of these unreasonable behaviors. Through simulations of the Wenchuan and Ludian earthquakes as well as the Zhengzhou rainfall, it was discovered that irrational human behavior significantly affects disaster losses and may even be a major contributing factor in some catastrophes. It argued that the growth in disaster losses brought on by irrational human behavior differs in dominant reasons, method, and degree of influence at different phases of societal development. The study suggested that the emphasis of international aid and governmental efforts to reduce poverty should be moved to disaster prevention and reduction in regions with relatively weak economies. The people should be made more aware of disaster prevention, and infrastructure like housing should be strengthened to better prepare the community to resist calamities. To avoid these regions from sliding into poverty as a result of a natural disaster, the emphasis should be switched from post-disaster relief to pre-disaster prevention. It is crucial to conduct multi-scale catastrophe risk assessments in less developed regions with rising urbanization in order to pinpoint risk areas and improve understanding of these dangers. In certain less developed places, there aren't enough basic scientific and technological resources, hence there aren't any trustworthy statistics to help efficient urban planning. Therefore, at this point, the primary goal of outside aid should be to increase the capability of scientific and technological catastrophe preventive support. However, in relatively developed areas, excessive investments in disaster prevention and mitigation will squander resources to some extent given the low likelihood of these extreme catastrophes. Therefore, in order to lay a strong

foundation for catastrophe avoidance, risk reduction in these sectors should concentrate on territorial space planning. The part businesses and people play in catastrophe prevention, mitigation, and relief should also be aggressively promoted, and associated policies should be strengthened with the help of society at large.

Following a disaster or other traumatic experience, emotional instability, stress reactivity, anxiety, trauma, and other psychiatric symptoms are frequently seen. These psychological consequences have a significant impact on the affected person as well as on communities (Makawana, N., 2019).

The more severely someone's life is upended, the more serious the psychological reactions will be. The sufferer may experience a range of psychological emotions, such as shock, fury, disbelief, loss of mental quiet, composure, and confidence, which has the effect of disturbing his entire personality.

According to Vujanovic, A. A., & Gallagher, M. W. (2017), people who have been directly affected by natural disasters may be experiencing intense grief, panic, loss, fear, and despair, depending on the type and severity of their losses. Sleep issues, rage, impatience, and survivor's guilt may also manifest. Common problems linked to excessive life stress and/or trauma include posttraumatic stress disorder (PTSD), depression, anxiety disorders, and substance abuse.

Natural catastrophe exposure affects children's behavior and developmental health in long-lasting ways (SAMSHA, 2018). They are more vulnerable to the damaging effects of natural disasters. Depending on the age, the common emotional and behavioral reactions that natural disasters can cause to children and youths are nervousness, anxiety about being away from parents or other primary caregivers, irritability and disobedience, school phobia, social withdrawal, irritability and disobedience, loss of interest in activities, poorer school performance, disruptive behavior, resistance of authority, increase or decrease in physical activity, depression, isolation, and antisocial behavior.

Arousal increment (i.e. fear and tension) may arise due to recognition of the seriousness of the situation, which in turn will likely to generate internal cues such

as the consciousness that "I am fearful" (Mikami, S., & Ikeda, K., 1985). In addition, coping pattern during disaster include information gathering behavior concerning the change in one's environment, Surveillance behavior such as looking out of the window, or switching on TV to confirm a warning, and disaster prevention or protection behavior which includes preparation for evacuation.

With a better understanding of risk and protective factors, we can begin to strategize more effectively to come up with a plan for recovery for children and youth after a disaster. When planning interventions for disaster-affected communities, it is crucial to consider the unique sensitivities of children and youth, as well as their tendency toward resilience, in tailoring post-disaster response interventions to promote successful recovery and healing for the community and its young survivors (SAMSHA, 2018).
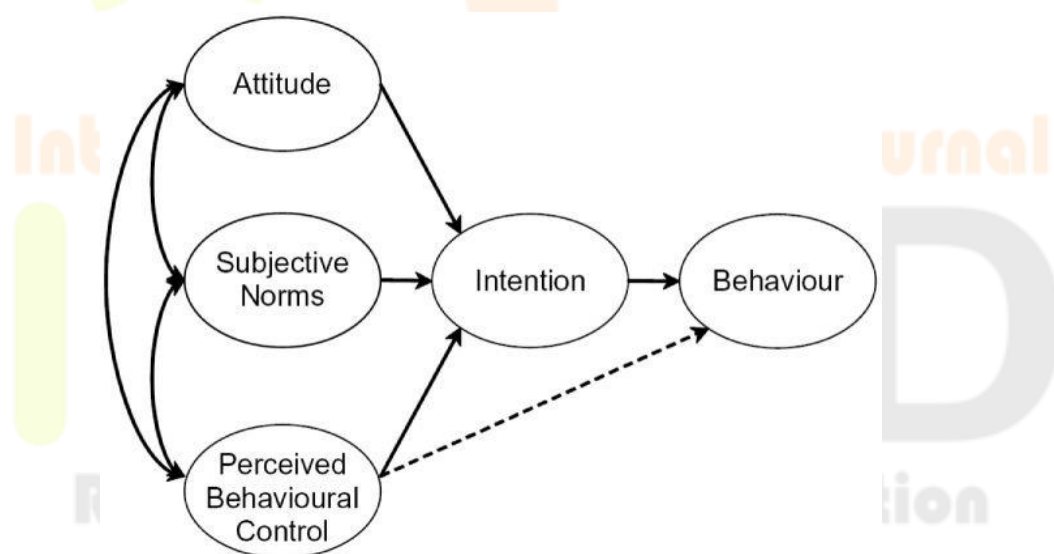
Theory Base

Theory of Planned Behavior

Figure 1. Theory of planned behavior (Ajzen, 1991)

The field of disaster risk reduction is directly applicable to the notion of planned behavior. The work of Najafi, M. et al., (2017) have utilized Disaster Preparedness Behavior (DPB). The findings of this study have significant practical ramifications for intervention tactics. First, it was discovered that DPB is affected by intentions as well as perceptions of behavioral control. Therefore, a successful intervention must not only persuade people that DPB is desirable but also give them

the tools and resources they need to carry it out. The more convincingly they can be persuaded that they have authority over DPB, the more probable it is that they will carry out their plans. To put it another way, more perceived control tends to increase people's incentive to engage in DPB.

Cognitive Theories

Cognition is a widely accepted idea in the field of human behavior that holds that an individual's thoughts, inner judgment, personal motivations, etc. determine their conduct. This particular idea emphasizes the importance of an individual's inner states and contends that how they are feeling, thinking, or struggling will eventually affect their conduct as the rest of the world observes it. Of course, psychological, mental health, and other research strongly supports cognitive theories that address human behavior. Today's tangible, exterior world contains a lot of things that were once only in someone's thoughts (BetterHelp Editorial Team, 2022).

Stimulus response theory

The notion that behavior develops as a result of the interaction between stimulus and reaction is known in psychology as the stimulus response theory. The idea is that a subject is exposed to a stimulus and then reacts to it, resulting in "behavior" (the subject of psychology as a field's study). In other words, at least from this viewpoint, conduct cannot occur without some kind of stimulation (*Stimulus-Response Theory: The "carrot On A Stick" Explanation Of Behavior*, 2015).
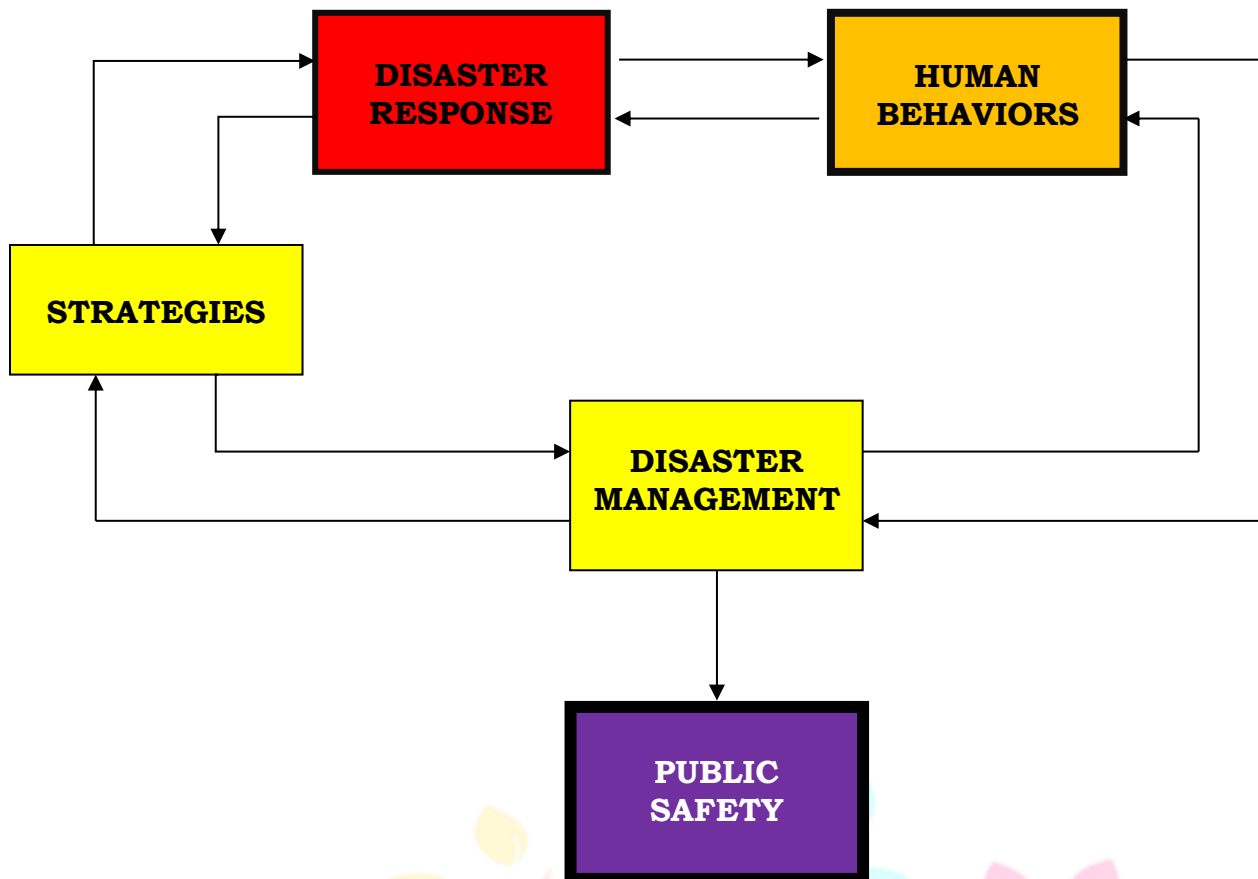
Conceptual Framework

Figure 2. Conceptual Framework

In disaster management, several strategies are put in place to be followed during disaster response. These strategies could be key factors to handle unexpected behaviors during and after response, which might be key elements to the implementation and success of disaster management. Vice versa, human behaviors could greatly affect the implementation of disaster response strategies, which, in the same manner could also affect the disaster management. Finally, the success and failure of the disaster management has a huge impact to the overall public safety.

Research Assumptions /Research Hypothesis(es)

Alternative Hypothesis: Human behavioral response during disaster has a significant impact to the disaster management and overall public safety

Null Hypothesis: Human behavioral response during disaster has no significant impact to the disaster management and overall public safety

Chapter III: METHODOLOGY

Method Used

Using qualitative literature, the paper attempt to understand the human behavioral response during natural disaster and its impacts on the disaster management. In this study, human behavior, natural disaster, and disaster management have been used in holistic sense. For this review, different permutation and combinations of certain keywords such as 'disaster management', 'disaster effects', 'natural disasters', 'human behaviors', 'human behavioral response', etc., have been used to identify the relevant literature. Since the study employs a narrative review methodology, no standard inclusion and exclusion criteria have been established in advance. A few ideas were established and explored in accordance with a literature review.

Sources of Data

The author of this study looked into secondary data sources to gather information about the topic presented. A deeper analysis was developed using existing evidence sourced from other authors, such as recent researches that can be found online.

Data Gathering Instrument

Google research engine is used in finding available data online.

Google research tool is also used to gather available published journals, articles, news, and the like. Several web engines such as Google scholar is also used to search for academic resources and scholarly literature.

Sampling Technique

No sampling technique is used in this study.
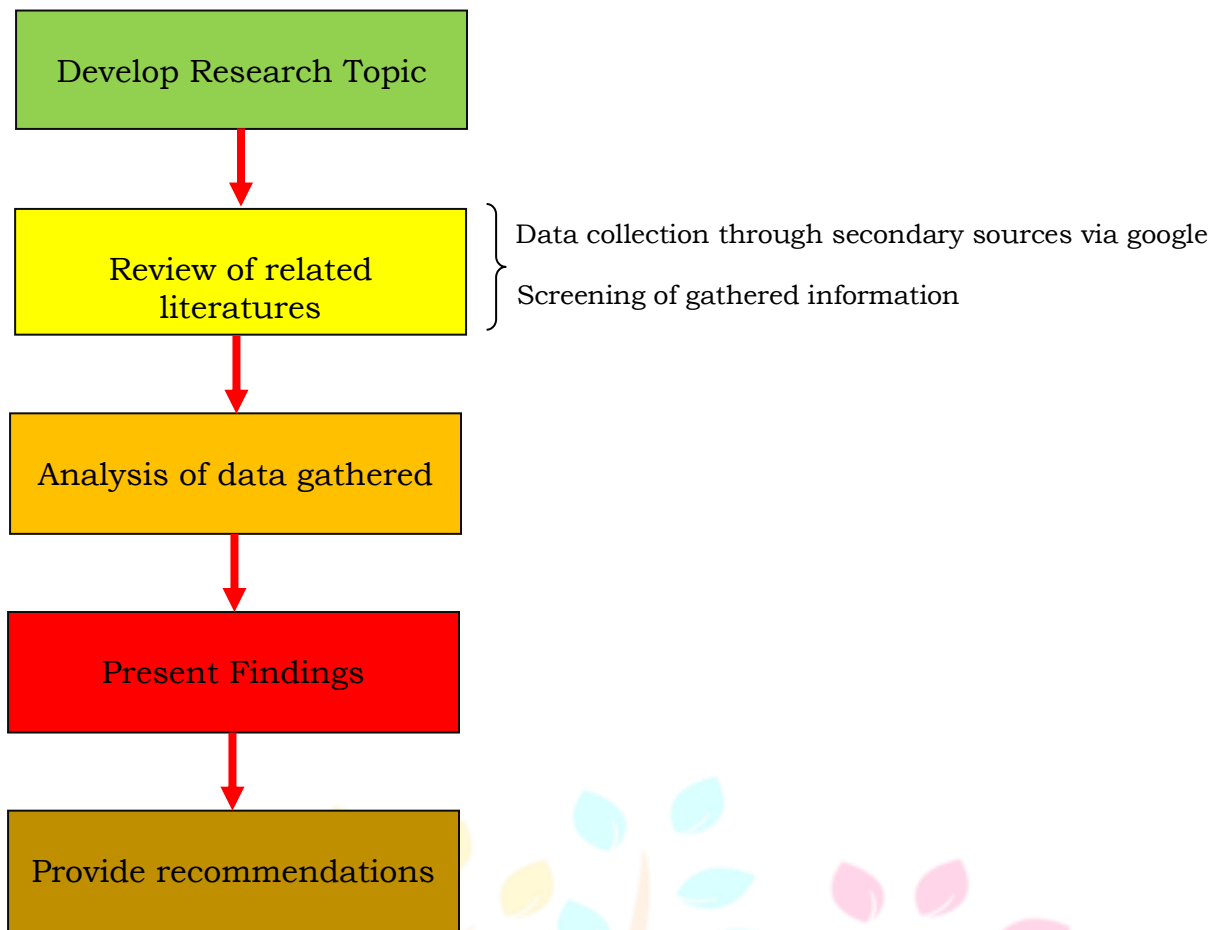
Procedure of the Study

Figure 3. Procedure of the Study

Statistical Treatment

The study's analysis and interpretation of the data and preliminary findings will be done using descriptive statistics.

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