Influences on Emergency Preparedness Behaviors: A Systematic Review

Cyrina Allen

BS, Iowa State University, 2006

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Abstract

Emergency preparedness is a necessary action that should be taken by all. Disasters and emergencies happen without warning. The United States is plagued with the mentality that “it won’t happen to me,” and this disbelief leads many individuals and communities to unnecessary sadness, grief, tragedy, and loss. The importance of being prepared needs to be better understood so that society becomes more involved in disaster preparedness. This research identifies the factors that influence emergency preparedness, and evaluates why people do not engage in this behavior. The Theory of Planned Behavior was used to evaluate the factors and perceptions associated with emergency preparedness. Quantitative and qualitative research methods were utilized to fully capture the deficiency of emergency preparedness in the United States, and to identify and evaluate the factors associated. The results of this systematic review support a lack of participation in emergency preparedness by individuals, communities, and health care facilities, and show gaps in the research and knowledge surrounding emergency preparedness measures. The data found in this research could ultimately benefit public health and society by contributing to the literature for the development of recommendations and new strategies to help improve involvement in emergency preparedness actions.

Keywords: emergency preparedness, disaster preparedness, emergency communication systems, public health, disaster readiness, emergency response, health care workers, health care professionals, volunteers, managers, and health threats.
Introduction

Problem Statement

When a disaster strikes, emergency preparedness measures and communication systems are vital elements of effective and life-saving actions taken by individuals, communities, and health care professionals. The United States Department of Homeland Security (n.d.) stated that thousands of people are affected by disasters and emergencies every year, all of which are unpredictable, unplanned, tragic, and mostly capable of preparing for. Since 2013 there has been a 35% increase in worldwide terrorist attacks, along with an increase of 81% of fatalities due to these attacks (Williams, 2015). Not only is bioterrorism a factor to consider, but also natural disasters that occur without much warning, such as earthquakes, tornadoes, and hurricanes. Disease outbreaks happen rapidly, spreading from individual to individual, and community to community. The entire world was sitting on edge when the Ebola outbreak occurred in 2014, affecting countries like Sierra Leone, Liberia, Spain, and the United States (Centers for Disease Control and Prevention, 2015). Communication systems were used to pass on health messages, educate health workers, and advise people how to protect themselves, yet the disease still made its way to several regions.

A common mentality held by people that “it won’t happen to me” or “I will be able to foresee if an event poses harm” is unfortunate and leads to much belief that disaster preparedness is non-essential. Being able to recognize danger of a disaster or emergency is vital in the successful response, and ultimately the recovery (United States Department of Homeland Security, n.d.). This takes preparedness and planning measures to help sustain a positive outcome. There is a shared responsibility in disaster preparedness and recovery, meaning that
individuals need to take the basic precautions as local, state, and federal authorities may not be available for assistance immediately (Federal Emergency Management Agency [FEMA], n.d.). As disasters continue to occur and take the world by surprise, emergency preparedness measures should be adopted, and public health emergency messages need to be taken seriously. Engaging in disaster preparation is simple, effective, and can lessen sadness, grief, tragedy, harm, even the loss of valuable items and loved ones.

**Purpose Statement**

Using both quantitative and qualitative evidence, this study intends to identify what factors are involved in preventing individuals, communities, and health care providers from taking the recommended measures in becoming disaster ready, and to evaluate why communication systems are not successful in reaching out to their targeted audiences. Many individuals, communities, and health care workers are aware of emergency preparedness and the resources available to them to prepare for disaster events, yet only 48% of America is disaster ready (Quadir, 2012). Determining why emergency preparedness is not accepted and adopted by more Americans can help to develop new plans and programs focused on engaging individuals, communities, and even health care workers. Effective methods of public health emergency response systems can be determined and used to develop new and improved communications.

**Research Questions and Associated Hypotheses**

What are the perceptions related to individuals, communities, and health care professionals in why they do not engage in emergency preparedness measures? What are the reasons that public health emergency messages are not communicated effectively?
H1: There is an association between individuals’, communities’, and health care professionals’ perceptions of emergency preparedness and whether they engage in the recommended methods.

H0: There is no association between individuals’, communities’, and health care professionals’ perceptions of emergency preparedness and whether they engage in the recommended methods.

**Potential Significance**

The findings of this research are pertinent to improving the health of society by evaluating why emergency preparedness measures are surpassed and communication messages are ignored. Disasters and emergencies have tragic effects on thousands of people each year, yet taking the precautions to prevent, prepare for, and respond successfully to disastrous situations seem to be low on the priority list for most. Identifying what factors keep people from developing emergency plans, and from storing extra water, food, and supplies needed to survive if a disaster were to occur can help to develop strategies that may entice individuals to take part in emergency preparedness. This initially could help families have peace of mind that if a disaster were to occur, their family would know how to respond and be able to recover successfully. Ultimately, this research can help to improve methods in engaging individuals to become prepared, thus increasing the numbers of those who are actually prepared and able to appropriately respond. Evaluating past and present public health emergency response systems is essential to understanding what strategies have been successful in portraying emergency messages to their intended audience. Determining what elements of emergency response systems are effective will help to improve current response methods, and develop new strategies
that can help to increase communication, along with overall response from the target audience these messages are aimed for.


**Theoretical Foundation**

The Theory of Planned Behavior (TPB) was used for this systematic review. TPB is derived from the Theory of Reasoned Action, which was developed by Icek Ajzen in 1980 (Boston University School of Public Health, 2013). The TPB was developed in addition to the Theory of Reasoned Action to fully address behavior intentions. As the Theory of Reasoned Action focuses on attitudes towards a behavior and the subjective norms associated with that same behavior, the TPB adds in the concepts that are related to perceived control, thus focusing on three types of beliefs: 1) behavioral, 2) normative, and 3) control (Ajzen, 2006). According to Boston University School of Public Health (2013), the TPB addresses six concepts of an individual’s control over behavior:

- Attitudes,
- Behavior intentions,
- Subjective norms,
- Social norms,
- Perceived power, and
- Perceived behavioral control.

This theory suggests that human actions can be explained or justified based on their attitudes, and that behavioral achievement is dependent on intention and ability (Boston University School of Public Health, 2013). The TPB proposes that if an individual believes an outcome of a certain behavior is positive they will most likely see that behavior as positive; then if an outcome is viewed as negative, that behavior will be seen as negative. Individuals consider the
consequences of their actions prior to deciding whether they will engage in a specific behavior (Ajzen, 2006). The TPB can be used to help understand the adoption of both healthy and unhealthy behaviors, and what factors influence the behavior involvement. Figure 1 represents the Theory of Planned Behavior.

Figure 1. Theory of Planned Behavior. Source: Bird & McClelland, (2010).

How people perceive disaster response systems and emergency preparedness measures can be evaluated using the TPB. It is stated above that 48% of America is not prepared for disasters or emergencies, showing a need to identify methods in changing this behavior. Douglas Paton (2003) used the TPB to help develop a complete social-cognitive model that addresses disaster preparedness. Ejeta, Ardalan, and Paton (2015) completed a systematic review to search and evaluate theories that are applied to disaster and emergency response, including the Theory of Planned Behavior. The TBP evaluates how social and environmental factors, the attitudes and beliefs of others, along with an individual’s perception of control and personal ability affect whether they engage in disaster preparedness. This theory evaluates both past behavioral intents and the more current views, thus giving an idea of how to approach changing behaviors, along
with evaluating individual and community perceptions of local, state, and federal levels involvement in emergency preparedness.

**Key Concepts and Variables**

Several emergency response plans are available from all levels of government to assist in protecting ourselves from disasters and emergencies. FEMA (2014) has developed a guide called “Are You Ready?” that offers information and instructions on how to be prepared. This guide is available online for reference and download, and gives contact information for several other available resources. The American Red Cross is another agency that offers guidance in emergency preparedness. On their website there are links to information specific to preparing schools, workplaces, families, children and young adults, seniors, people with disabilities, and even pets (American Red Cross, 2015). Disasters can have both short-term and long-term effects, disrupting the lives of numerous people every year. Utilizing the resources given by agencies such as FEMA and the Red Cross can help to ensure proper preparation and increase positive outcomes.

Statistics show the need for all to use preparedness methods, and how crucial this behavior can be in bringing out the best possible outcome of a disaster or emergency. The American Red Cross (2015) recommends purchasing supplies and kits to have set aside for an emergency. The supplies listed for basic preparedness are non-perishable food items, drinking water, a flashlight, batteries, multipurpose tool, personal hygiene items, a first aid kit, prescription medications, copies of personal documents (social security card, birth certificate), emergency contact information, and extra cash (American Red Cross, 2015). These are just the basic preparedness recommendations. The American Red Cross (2015), states the importance in
considering the members of your family or those in the workplace, and it may be necessary to include items such as bottles, medical supplies, or items for animals.

Every region poses the risk of different types of disasters. FEMA offers resources on how to follow basic preparation, along with details for more specific events like that of floods, tornadoes, hurricanes, and winter storms. FEMA (2014) states that everyone should prepare for unplanned events as it can help to lessen the impact of disasters, and possibly avoid them. Even though local, state, and federal agencies can provide assistance in a disaster or emergency, it is also the responsibility of individuals to participate (FEMA, 2014). Taking the basic preparedness recommendations and building upon them the added precautions specific to each region is necessary for effective response and recovery. The simple actions recommended by emergency preparedness organizations can help reduce the burden that unplanned events often bring.

Disasters and emergencies are unpredictable. The TPB evaluates why there hasn’t been a large involvement in emergency preparedness actions even though disaster events continue to pose threats frequently. Completing a systematic review using both quantitative and qualitative methods may help to answer questions about the differences of theories and how their respective variables are used in developing disaster response systems. It was found that the Health Belief Model, Theory of Planned Behavior, Extended Parallel Process Model, and Social Cognitive Theories were most applied in disaster preparedness, with the TPB found as one of the most influential theories utilized in preparedness settings (Ejeta, Ardalan, and Paton, 2015). The research methods used in this study are important to consider in that they display both characteristic and numerical data that is substantial in understanding preparedness behaviors.
Qualitative evidence shows who does and doesn’t partake in emergency preparedness and response, and the reasons why. Patterns and themes to emergency preparedness behavior are shown through qualitative evidence, such as the social and environmental factors that may have effects on the chosen behavior. Quantitative evidence justifies the problem that there is a lack of engagement from individuals, communities, and health personnel. This evidence is pertinent in justifying the hypothesis, and showing that there is a need for more education, preparation, and methods of emergency communication. With the many emergency preparedness measures already in place, the Theory of Planned Behavior helps to understand an individual’s behavior intentions in adopting the behavior of preparedness.

It is known from the review of previous studies that there is a lack of engagement in emergency preparedness from individuals, communities, and those who work directly with emergency preparedness and response systems. Individual, community, and health care professional engagement can be evaluated by the TPB as it is necessary to understand why they may or may not be supportive of disaster preparedness. Revere, Nelson, Thiede, Duchin, Stergachis, & Baseman (2011) completed a systematic review of emergency preparedness and communication response systems already in place for disaster and emergency threats to see if those systems had ever been evaluated, and what was found to be effective in those systems. The literature shows that there is a lack in overall preparedness from individuals, communities, and emergency/health personnel, along with a lack in evaluations of the current emergency response systems. Although it may be controversial that emergency preparedness measures and disaster response systems are unnecessary due to the unpredictable nature, there is still a need to
study how to gain interest in becoming prepared, along with how to improve the current response systems.

While much of the focus is on individual and community participation in emergency preparedness, it is important to include health care professionals in the emergency preparedness measures used with health care systems. Qureshi, Merrill, Gershon, & Calero-Breckjeimer (2002) completed a study that found 90% of the school health nurses evaluated claimed at least one barrier in their ability to properly respond to an emergency. The ability to provide health care services during and after a disaster is pertinent to appropriate recovery, thus requiring health care professionals to be trained as necessary (Nelson, Lurie, Wasserman, Zakowski, & Leuschner, 2008). Including the influences that affect all individuals, communities, and health care professionals is necessary to develop effective methods of emergency preparedness and communication.

When looking at emergency preparedness it is important to consider not only unplanned events of nature and terrorism, but also disease outbreaks. The Office of Disease Prevention and Health Promotion (2014) write that events such as natural disasters, disease outbreaks, and terrorist attacks should be prepared for as much as possible. Niska & Shimizu (2011) evaluated hospital response to disease outbreaks, and the methods used to treat and overcome these events, including both epidemics and pandemics. Data were evaluated from 294 hospitals with results showing that 94% of them had response plans directed towards disease outbreaks (Niska & Shimizu, 2011). About 93.4% of hospitals had established communication systems to receive public health messages from local or state health departments, yet 79.4% actually participated with their local health department in disease vaccination (Niska & Shimizu, 2011). Disease
outbreaks occur quickly, filling up emergency rooms and inpatient hospital beds. Preparedness recommendations should be utilized to help ensure people get the treatment needed in a timely fashion if an outbreak were to occur, and to help decrease the spread of disease, ultimately protecting the health of society.

Education on emergency preparedness should not be left at the community or professional level. Shannon (2015) notes that most of the current preparedness programs are focused on health care and emergency personnel response. Over 420 citizens responded to a survey asking about their knowledge of local hazards, the current emergency plans, and their personal level of preparedness. It was found that 76% of these citizens had little to no familiarity with the local emergency plans, and 52% were unaware of how to find information on public health emergencies (Shannon, 2015). While it is important for all individuals, communities, and health care professionals to be educated on emergency preparedness, special attention needs to be given to individuals and families of the public. Well-informed individuals bring about a population of people that are able to give themselves the basic support to survive an emergency or disaster event.

In order to reduce morbidity and mortality from a disaster or emergency, proper communication of emergency messages is essential. When emergencies occur, public health officials and the media strive to develop effective communications methods. Lowrey et al. (2007) explained that both public health officials and the media are essential in portraying public health emergency messages, yet many media personnel lack the necessary knowledge about disasters and preparedness. This suggests they are not appropriately prepared to relay emergency messages to the public. Lowrey et al. (2007) evaluated media response to disaster events and the
problems they face in trying to portray public health messages. A lack of coordination between public health officials and the media was found, along with a deficiency in resources available for media to use in understanding the information before broadcasting it (Lowrey et al., 2007). Perception of duties between public health officials and the media was also found as a barrier that effected successful communication (Lowrey et al., 2007). Educated, coordinated, and effective response plans are pertinent to guarantee the correct information is displayed, therefore giving individuals, communities, and health care professionals the information needed to successfully prepare, respond, and recover.
Methodology

A systematic review study design was used to gather and assess research to determine the relationship between emergency preparedness, public health emergency message systems, and human behavior. The systematic review process allowed for a complete and thorough search of studies done on emergency preparedness and the factors that determine why or why not people adopt this behavior. This review method also allowed for an appropriate examination of studies focused on the public health emergency response systems and how people view the severity of the information relayed through the system. A synthesis and evaluation of this data was done to address why people do not engage in emergency preparedness, and why emergency messages are often ignored.

During the months of November and December of 2015, this study focused on performing a thorough review of literature by using Academic Premier from the online library at Concordia University, Google Scholar, and PubMed search engines. Keywords used for this search included emergency preparedness, disaster preparedness, emergency communication systems, public health, disaster readiness, emergency response, health care workers, health care professionals, volunteers, managers, and health threats. Data regarding emergency preparedness measures and information related to why people have or have not chosen to utilize these recommendations were gathered, along with both current and past emergency response systems to see what strategies are effective in portraying these messages appropriately. Using a systematic review with the above search elements allowed for an evaluation of the perceptions about emergency preparedness and response by individuals, communities, and health care professionals. This method also allowed for the testing of the study hypothesis that there are
associations between these perceptions and whether engagement in emergency preparedness and response occurs.

**Inclusion and exclusion criteria**

The research was based on emergency preparedness and communication systems within the United States. To ensure proper collection and review, this study included United States-based articles that were written in the English language only, and those studies conducted from the year 2000 to present were incorporated to include the most current data. Full-text articles of peer-reviewed research were used, while excluding letters and editorials to help alleviate bias and opinions. This study also reviewed the references used in the articles conducted through the search to ensure all available data surfaced. Having reviewed all available data will help to ensure validity of this research, and allow for interpretation of these results to ultimately represent the research properly. Table 1 lists the inclusion and exclusion criteria used.

Table 1.
*Inclusion and Exclusion Criteria*

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
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</tr>
</thead>
<tbody>
<tr>
<td>-full-text articles</td>
<td>-letters and editorials</td>
</tr>
<tr>
<td>-articles in the English</td>
<td>-articles written in a non-English language</td>
</tr>
<tr>
<td>-those articles that are about United States emergency response systems</td>
<td>-articles that are based on emergency preparedness in countries other than the United States</td>
</tr>
<tr>
<td>-articles that are from the year 2000 to present-day</td>
<td>-articles prior to the year 2000</td>
</tr>
<tr>
<td>-empirical research</td>
<td>-articles that are not peer-reviewed</td>
</tr>
<tr>
<td>-peer-reviewed articles</td>
<td></td>
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</tbody>
</table>
Figure 2 portrays the systematic review protocol which identifies how the articles were selected for inclusion and final analysis.

![Flowchart of design of a systematic review](image)

- **Google Scholar**: 176
- **PubMed**: 20
- **Academic Premier**: 132

**Studies included**: 328

**Full text articles available for eligibility assessment**: 9

**Articles excluded based on review of titles and/or abstract**: 271

**Articles excluded based on unavailability of full text**: 48

**Exclusions**:
- letters and editorials
- articles in a non-English language
- not within the U.S.
- not peer-reviewed

**Final studies included**: 9

*Figure 2. Flowchart of design of a systematic review.*
Data analysis plan

The analysis reviewed what factors influence individuals, communities, and health care workers in the participation of emergency preparedness behaviors. This research will also look into what strategies have been both effective and ineffective in relaying emergency messages, and what factors have influence in response matters. The Theory of Planned Behavior will be utilized in both collecting and analyzing this data.
Results

Data Collection

In November and December 2015, Academic Premier, Google Scholar, ad PubMed databases were used for the article search. Various combinations of the keywords emergency preparedness, disaster preparedness, emergency communication systems, public health, disaster readiness, emergency response, health care workers, health care professionals, volunteers, managers, and health threats were utilized to find the most appropriate studies for analysis.

Inclusion criteria initially consisted of abstracts and full-text articles, yet to better fit the research abstracts were excluded, and peer-reviewed articles added. Table 3 shows the final inclusion and exclusion criteria utilized for this research.

Table 3.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>-empirical research</td>
<td>-articles prior to the year 2000</td>
</tr>
<tr>
<td>-peer-reviewed articles</td>
<td>-non-peer-reviewed articles</td>
</tr>
</tbody>
</table>

Figure 3 is a flow chart that displays the steps this systematic review used in the selection process of studies.
Figure 3. Process of selection for inclusion in the systematic review.

This systematic review examined studies completed from January 1, 2000 to December 31, 2015, which focused on emergency preparedness behaviors of individuals, communities, and health care personnel. Table 4 shows the list of quantitative studies that were included, as well as their setting, study design, the population of focus, the intervention used, the outcome of the research, along with the quality score from the Effective Public Health Practice Project (EPHPP)
or Critical Appraisal Skills Programme (CASP) Checklist. Note that there were three different types of study design for the quantitative studies, a pilot study, systematic review, and a survey.

Table 4.
Characteristics of Included Studies (Quantitative)

<table>
<thead>
<tr>
<th>Study (Authors name)</th>
<th>Setting</th>
<th>n</th>
<th>Study design</th>
<th>Population</th>
<th>Intervention</th>
<th>Primary Outcomes</th>
<th>Quality Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niska &amp; Shimizu (2011)</td>
<td>Hospital-based survey</td>
<td>294</td>
<td>Survey/two-tailed t-test</td>
<td>Hospital</td>
<td>Survey</td>
<td>Most hospitals had response plans for some of the types of disasters evaluated, yet not in all 6 areas.</td>
<td>Strong (EPHPP)</td>
</tr>
<tr>
<td>Qureshi, Merrill, Gershon, &amp; Calero-Breckjeimer (2002)</td>
<td>Hospital-based</td>
<td>53</td>
<td>Pilot study</td>
<td>Public health nurses</td>
<td>Survey and Pre/Post questionnaire</td>
<td>Training was found to be of value and helps to lessen the barriers that effect response to disasters.</td>
<td>Strong (EPHPP)</td>
</tr>
<tr>
<td>Revere, Nelson, Thiede, Duchin, Stergachis, &amp; Baseman (2011)</td>
<td>Systematic review of online articles</td>
<td>31</td>
<td>Systematic review</td>
<td>Articles that looked at public health emergency communication systems</td>
<td>Literature review</td>
<td>Little known about how effective these communication systems are. Current methods of communication are not fully understood on effectiveness.</td>
<td>Yes to 10 of 10 questions (CASP)</td>
</tr>
<tr>
<td>Shannon, C. (2015)</td>
<td>Community-based</td>
<td>423</td>
<td>Survey</td>
<td>Local community residents</td>
<td>Survey with 20 items given to the sample of local residents</td>
<td>57% limited self-preparedness, 76% no familiarity with local plans, 52% with no knowledge to find information</td>
<td>Moderate (EPHPP)</td>
</tr>
</tbody>
</table>

As the research for this systematic review proceeded it was found that not only numbers and statistics applied to emergency preparedness participation, but also attitudes, beliefs,
perceptions. Table 5 below shows the characteristics of the qualitative studies were included in this systematic review.

Table 5.
Characteristics of Included Studies (Qualitative)

<table>
<thead>
<tr>
<th>Study (Authors name)</th>
<th>Setting</th>
<th>Theory</th>
<th>Sample Procedure</th>
<th>Sample Characteristics</th>
<th>Data Analysis Approach</th>
<th>Key Themes</th>
<th>Quality Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ejeta, Ardalan, and Paton (2015)</td>
<td>Systematic review of online articles</td>
<td>TPB, HBM, MLOC, EPPM</td>
<td>33 articles were chosen for assessment</td>
<td>Articles that evaluated behavioral theories and emergency preparedness</td>
<td>CASP Checklist for Qualitative Studies</td>
<td>Different theories and models were used for specific disaster types</td>
<td>Yes to 7 of 10 questions (CASP)</td>
</tr>
<tr>
<td>Lowrey W., Evans, W., Gower, K., Robinson, J., Ginter, P., McCormick, L., &amp; Abdolrasulniam, M. (2007)</td>
<td>Interview’s via telephone and email correspondence</td>
<td>none</td>
<td>20 of the 26 participants to identify problems with media and emergency response</td>
<td>Advisory group members, such as medical directors, public information officers, scientists, and professors</td>
<td>CASP Checklist for Qualitative Studies</td>
<td>Key challenges in getting journalists and the media the appropriate training, education, and information to deliver public health emergency messages</td>
<td>Yes to 10 of 10 questions (CASP)</td>
</tr>
<tr>
<td>Revere, Nelson, Thiede, Duchin, Stergachis, &amp; Baseman (2011)</td>
<td>Systematic review of online articles</td>
<td>none</td>
<td>31</td>
<td>Articles regarding public health emergency communicaton methods.</td>
<td>CASP Checklist for Systematic Reviews</td>
<td>Not much is known about the effectiveness of public health emergency communication systems.</td>
<td>Yes to 6 of 10 questions (CASP)</td>
</tr>
<tr>
<td>Shannon, C. (2015)</td>
<td>Community-based</td>
<td>none</td>
<td>423</td>
<td>Local community residents</td>
<td>CASP Checklist for Qualitative Reviews</td>
<td>Limited personal preparedness. Limited knowledge of how to find</td>
<td>Yes to 10 of 10 questions (CASP)</td>
</tr>
</tbody>
</table>
Little knowledge on local plans/programs

<table>
<thead>
<tr>
<th>Author</th>
<th>Quality Score</th>
<th>Intervention</th>
<th>Measures</th>
<th>Results</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story, C., Sneed, J., Oakley, C. B., &amp; Stretch, T. (2007)</td>
<td>7</td>
<td>School-based</td>
<td>School-based food services</td>
<td>CASP Checklist for Qualitative Reviews</td>
<td>Yes to 8 of 10 questions (CASP)</td>
</tr>
</tbody>
</table>

This review gathered and analyzed data that focused on the numbers associated with how many individuals, communities, and those in health care partake in emergency preparedness.

Attitudes, personal beliefs, and perceptions were also examined in hopes to help interpret those numbers. Table 6 describes this data and the significance they have on emergency preparedness.
<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Strength of Design</th>
<th>Methodology</th>
<th>Findings</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowrey W., Evans, W., Gower, K., Robinson, J., Ginter, P., McCormick, L., &amp; Abdolrasulniam, M. (2007)</td>
<td>10</td>
<td>Interviews to advisory board members, then a collaboration for determining problems that need to be addressed.</td>
<td>Determine areas in need of improvement for communicating emergency messages. Knowledge and training. Problems were established as related to media work practices, news content, withholding information, education and training in emergency preparedness, and lack of resources for health-related emergencies.</td>
<td>Yes. The article addresses why emergency response plans and policies are not communicated.</td>
</tr>
<tr>
<td>Niska &amp; Shimizu (2011)</td>
<td>Strong</td>
<td>Survey on hospitals regarding emergency plan</td>
<td>Determine readiness of hospitals for their response to mass casualty events and pandemics.</td>
<td>Many hospitals were prepared on some of the 6 types of disasters evaluated, but not all. Yes. 99% of hospitals prepared for at least one of the 6 disaster categories, but not all. About 94% were involved in cooperative planning with local and state public health offices.</td>
</tr>
<tr>
<td>Qureshi, Merrill, Gershon, &amp; Calero-Breckheimer (2002)</td>
<td>Strong</td>
<td>Survey and Pre/Post questionnaire with training in between.</td>
<td>Changes in behaviors, knowledge, and barriers. It was found that 90% of the nurses identified at least one barrier to their ability of reporting to emergencies. Training was found of value.</td>
<td>Yes. This study shows the importance of training and education, along with addressing the barriers most commonly found. Significance was noted in this study with a P-value of &lt;0.05 for nurses knowledgeable</td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Type</td>
<td>Methodology</td>
<td>Key Findings</td>
<td>Conclusion</td>
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<tr>
<td>-------------------------------</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Revere, Nelson, Thiede, Duchin, Stergachi s, &amp; Baseman (2011)</td>
<td>Systematic review</td>
<td>What systems are available, if their effectiveness has been evaluated, and if evaluated what seems to be working.</td>
<td>25 systems were found to be in use, yet their effectiveness not evaluated.</td>
<td>Yes. This study shows that more attention needs to be given to the evaluation of these communication systems to ensure they fit the needs of today’s emergency preparedness needs.</td>
</tr>
<tr>
<td>Shannon, C (2015)</td>
<td>Survey/questionnaire</td>
<td>Self-preparedness, knowledge</td>
<td>57% limited self-preparedness, 76% no familiarity with local plans, 52% with no knowledge to find information</td>
<td>Yes. This supports the lack of preparedness and knowledge of disaster readiness.</td>
</tr>
<tr>
<td>Story, C., Sneed, J., Oakley, C. B., &amp; Stretch,</td>
<td>Needs assessment/survey</td>
<td>Established emergency plans, barriers</td>
<td>72 had an emergency response team, 37 had protocols for natural disasters,</td>
<td>Yes. This supports the need for emergency preparedness.</td>
</tr>
</tbody>
</table>
This research was intended to evaluate if perceptions, beliefs, and attitudes influenced the behavior of emergency preparedness within individuals, communities, and health care systems. The articles used showed that there is a lack of participation in emergency preparedness, communication is not a main priority, and that awareness is minimal. Education, training, along with stronger plans and programs focused on disaster readiness was mentioned as a necessity. Lowrey et.al (2007) was separated from the rest in that it showed significant support that emergency preparedness communication is deficient, yet it was set aside in that the article focused on communication from the media which turned out to not be a main focus in this search. Figure 4 displays the highlights of the studies from the systematic analysis.
**Figure 4.** Results of systematic analysis.

**Discussion**

This systematic review examined both quantitative and qualitative studies that consisted of surveys, previously completed systematic reviews, and pilot studies. The intention of this research was to analyze the influences that affect emergency preparedness behaviors in individuals, communities, and health care professionals and to answer the research questions:

<table>
<thead>
<tr>
<th>Studies focused on media and emergency message communication</th>
<th>Studies focused on emergency preparedness behaviors of individuals, communities, and health care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowrey et al. (2007) mentioned that there are problems with communication of emergency messages from the media.</td>
<td>Ejeta, Ardalan, and Paton (2015) showed that behaviors and perceptions are related to whether people partake in emergency preparedness.</td>
</tr>
<tr>
<td>Niska &amp; Shimizu (2008) showed that there is a lack in hospitals that do not have cooperative plans developed for disasters and emergencies.</td>
<td>Qureshi, Merrill, Gershon, &amp; Calero-Breckjeimer (2002) noted the importance of training and education for health care professionals.</td>
</tr>
<tr>
<td>Revere, Nelson, Thiede, Duchin, Stergachis, &amp; Baseman (2011) wrote of the need to evaluate the current communication systems.</td>
<td>Shannon (2015) supported that there is an overall lack of emergency preparedness engagement in the community.</td>
</tr>
<tr>
<td>Story, Sneed, Oakley, &amp; Stretch (2007) explained the need for emergency preparedness plans, programs, training, and education.</td>
<td></td>
</tr>
</tbody>
</table>
- What are the perceptions related to individuals, communities, and health care professionals regarding why they do not engage in emergency preparedness measures?
- What are the reasons that public health emergency messages are not communicated effectively?

The Theory of Planned Behavior evaluated how attitudes, beliefs, social norms, and perceived control and ability influenced emergency preparedness participation. The findings from this review suggest there is a significant relationship between these factors and whether people decide to prepare for emergencies and disasters. This is supported by Ejeta, Ardalan, and Paton (2015) who determined that the beliefs, attitudes, and perceptions of individuals have a strong association on whether they engage in emergency preparedness actions.

The quantitative and qualitative data included in this study support a lack of engagement in emergency preparedness by individuals and communities, and that many are not prepared due to social norms and an absence of knowledge about emergency preparedness. Shannon (2015), found that many people within the community do not know what is involved in being disaster ready, and several do not know how to find information on preparedness measures. The data shown by Shannon (2015) also supports that many people are unaware of local emergency preparedness programs or community plans. It was also found that schools were lacking disaster plans and programs for training and education. These findings support a need to research further strategies on how to inform and educate the public about disaster readiness.

The data suggest that health care facilities and professionals are not fully prepared for disasters and emergencies, and that overall their education, training, and policies need attention.
Qureshi, Merrill, Gershon, & Calero-Breckjeimer (2002) completed a pilot training study and found that many school health nurses acknowledged having barriers that limited their ability to report to an emergency. It was found in this research that hospitals are not taking measures to ensure they are entirely ready if a disaster were to strike. Niska & Shimizu (2011) state that although 99% of hospitals in their study were found to be prepared for at least one of six disasters they examined, only 94% were participating in cooperative planning with local and state health departments to effectively be prepared for all disasters and emergencies.

As the communication of health threats, disasters, and emergencies need be effective to successfully inform individuals, communities, and health care professionals of how to respond, the review of public health emergency communication systems were included in this research. It was found that there seems to be little known about how effective these communication systems are, and that many current strategies face challenges in getting the messages to their target audience. Revere, Nelson, Thiede, Duchin, Stergachis, & Baseman (2011) support that there is a lack of information about the current public health communications systems and that there is a need to look further into their methods and effectiveness. As the media is a well-known source of communication, this review looked into how effective they were in communicating public health disaster messages to the public. Lowrey et al. (2007) mention that not only is the media deficient in training their spokespeople to both understand and communicate public health messages appropriately, but they do not have the necessary resources that help to understand and deliver these messages. This suggests that communication of public health emergency messages lacks the essential factors to appropriately inform the public about disasters and emergencies. This
brings about a need to improve training, education, and overall knowledge to those who are involved in delivering disaster information.

Limitations

While performing the article search there was a limitation in what studies gave full access as several offered abstracts only. Although numerous search engines were used, this limitation occurred often. In relation to this, another limitation that was found was many of the articles were so new that only part of the article was available and results not yet presented. With the amount of disasters and emergencies that have been occurring there appears to be several recent studies that have yet to be fully completed. Although the abstracts and descriptions of these articles seemed relevant to this research, the information was not included as the results, discussion, and conclusions were not yet available. This limitation may impact the research in that all relevant data may not be included, therefore an appropriate sample to fully represent the target population may not be given. This could reduce the generalizability of the results of this systematic review.

Personal bias can be considered a limitation within this research as the author has several years of experience working as a health care professional, specifically in the emergency department field. This experience has led to opinions about emergency and disaster preparedness that lean towards their importance, yet there is a lack of engagement by most individuals, communities, and health care professionals. Personal bias could have an effect on this research in a way that research was steered to fit the author’s opinions.

Publication bias is another limitation that may have occurred in this research. This study includes a personal opinion that there is a lack of participation in emergency preparedness
actions. The published research may include only significant data that supports this, thus avoiding any articles and data that represent other findings. Additionally, research demonstrating statistically significant results are more likely to be published. Therefore, available research may not be entirely representative of all research that has been conducted on this topic. Utilizing positive findings only may lead to problems with validity of the research in that the results presented in this systematic review are not truly representative of the entire field of results. To present unbiased results it is necessary to include all relevant information.

The two measurements used in assessing the quality of data were EPHPP and CASP checklists. Moderate and strong scores were noted for the numerical data, and 6 to 10 out of 10 were found for qualitative data. With similar scoring for both the quantitative and qualitative data collected, the results of this research are considered reliable. The data gathered in this research are both reliable and accurate, offering valid results and a study that can easily be replicated. The sample populations in this research included individuals, communities, and health care professionals. Each study that was included in this research utilized appropriate sized sample groups that can certainly be representative of larger populations and their level of participation in emergency preparedness.

**Recommendations**

The results of this systematic review suggest that there is an importance in continuing the evaluation of the influences on emergency preparedness and public health communication. This research utilized the Theory of Planned Behavior to evaluate how attitudes, beliefs, social norms, and perceptions influence emergency preparedness involvement. It could be beneficial to expand on the use of the Theory of Planned Behavior to find new strategies that can help
understand why such simple behaviors are not adopted by people in protecting their homes and families. Further research could also apply other behavior theories to see how their application can bring about new understandings of emergency preparedness behaviors.

This research shows a significant lack of participation in emergency preparedness by individuals, communities, and health care professionals and the research that surrounds it. This brings about a need to increase the awareness of emergency preparedness and engage more people in participation, along with developing strategies to improve training and education. It would be worth investigating the opinions of people to see what measures could be taken to gain their attention in disaster readiness, and what actions they would like to see happen. Determining whether different levels of income affect participation in emergency preparedness could be beneficial in that some homes may not be able to afford the recommended supplies for disaster preparedness. Gaining an understanding of the needs of the audience and what people are looking for could help develop new plans and programs that can increase participation. Developing strategies to help increase awareness of emergency preparedness and its importance, along with enhancing access to tools, education, and training are all necessary for improving the overall health and protection of society.

It was found in this review that public health emergency messages are not being communicated effectively. Not only is the media not trained to communicate disaster information to the public, but they are not given the needed resources to help them inform people of how to respond. Collaboration between state and local public health officials and those involved in relaying messages to health care facilities and the public needs to be made. Future research on how these actions can be improved to ensure disaster information is relayed in a
timely and successful manner is necessary. Including this research and future research related to emergency preparedness measures could be a beneficial addition to state health improvement plans.

**Implications for Social Change**

Research on how to improve programs associated with helping individuals and communities become disaster ready is necessary for the overall well-being of society. Gaining the attention of individuals and communities in how to easily become disaster ready will help people to protect themselves, and overall make a community that is able to respond to and recover from unplanned events. Having a community that is aware and prepared with disaster plans in place can help to effectively move forward if a disaster were to strike, and even serve other communities that might be less fortunate. Health care facilities and providers are the go-to for when disasters and emergencies strike. Policies and plans should be well in place in health care facilities, and providers and staff should be well aware and capable of performing their duties. Completing this systematic review and adding it to the research that has occurred in the past will help future research to focus on increasing emergency preparedness participation in all levels of individuals, communities, and health care facilities, along with improving emergency communications among all.

**Conclusion**

The importance of engaging in emergency and disaster preparedness can be a difficult concept to understand, let alone to adopt as a behavior. With the unknown and unexpected characteristics of emergencies and disasters, all too often the thought of being disaster ready is surpassed, and not just within homes and communities, but in the hospital systems too. With
nearly half of America not participating in emergency preparedness actions, there needs to be more focus and research on why so many do not prepare, and how to improve this important and potentially life-saving behavior.

This systematic review analyzed the factors that affect why people do not engage in emergency preparedness, and why the current communication methods are not effective in reaching their target audiences. One of the major conclusions that can be made from this research are that emergency preparedness behaviors are influenced by many factors, including personal beliefs, their attitudes toward emergency preparedness, social norms, and whether they perceive that they have control over disaster situations. The Theory of Planned Behavior suggests that people will engage in a certain behavior if they feel that it will bring about a positive outcome. Knowing that something good will come out of the action will most likely get them to participate. Another conclusion found in this study was that hospitals and health care professionals are lacking in emergency preparedness. Most health care facilities can be turned into treatment areas after a disaster strikes. Policies and plans are needed to guide staff and volunteers in the even that a disaster or emergency occurs, and continued training and education are necessary to hold the skills needed to help in emergency situations.

As stated earlier, emergency preparedness is a simple and effective behavior. Following the recommendations and guidelines established on how to be disaster ready can save lives at all levels of society. Taking the precautions to establish plans and prepare are some of the simple measures that can be utilized by individuals, communities, and health care facilities. This study presented results that show a lack of emergency preparedness and the research involved around it. The results of this study can be applied to the recommendations, thus initiating future
research that can ultimately help develop methods of getting society involved in emergency preparedness.
References


