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Citizen Corps Personal Behavior Change Model for Disaster Preparedness



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Submitted by:

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This document introduces the CITIZEN CORPS PERSONAL BEHAVIOR CHANGE MODEL for DISASTER PREPAREDNESS. Based on social science theory that has been applied and tested in other related risk assessment areas, this model describes the various factors that might influence whether or not a person engages in disaster preparedness activities. This first iteration of a model to address behavior change issues for personal disaster preparedness will be validated through surveys and focus groups.

This model is intended to serve as a tool to help design successful outreach/social marketing approaches and as a framework to conduct further research into the motivating factors and barriers to personal preparedness.

BACKGROUND

Throughout our Nation's history there have been prominent, large-scale incidents that have galvanized the public's attention to the terrible impact that disasters have on those affected—from loss of routine and social networks to loss of property and, worst of all, loss of life. In addition to the national sympathy and mourning after the tragic events of September 11, 2001 and Hurricanes Katrina and Rita, national media attention briefly promoted preparedness measures that everyone should take to lessen the impact of such events.

There have also been periods of a heightened perception of imminent threats or system failures, such as during WWII, the cold war, the millennium transition known as Y2K, and now, the war on terrorism. These periods of alert have also focused attention on preparedness. In the fall of 2005, the World Health Organization and other health agencies began warning that a pandemic flu, potentially one caused by the H5N1 avian flu virus, presents a real and present threat to global health and global economies. The most common projections

predict that 30% of America's workforce will be compromised by the impending pandemic. With an increased estimated likelihood of an outbreak, discussions of pandemic preparedness have recently escalated.

Despite the imminent threats and the increased media attention, however, personal disaster preparedness among the U.S. population has not sufficiently improved since 2001. A comparison of national survey results obtained before and after Hurricane Katrina^{1,2}, reveals the lack of improved preparedness. Americans today are no more prepared for a natural disaster or terrorist attack than they were in 2003.

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The Department of Homeland Security (DHS) Office of Community Preparedness has tasked Macro International Inc., an Opinion Research Corporation company (ORC Macro), to research, track, and cross-analyze household-level surveys related to individual citizen preparedness. The *Citizen Preparedness Review* (CPR), which is prepared and distributed several times during the year, summarizes these findings.

¹ORC Macro. 2006. A post-Katrina assessment. *Citizen Preparedness Review*, 2. Available at <http://www.citizencorps.gov/ready/research.shtm>.

²National Center for Disaster Preparedness (NCDP). 2005. *Snapshot 2005: Where the American public stands on terrorism and preparedness four years after September 11*. New York: NCDP. Available at http://www.ncdp.mailman.columbia.edu/files/NCDP_2005_Annual_Survey_Overview.pdf.

“ To achieve higher levels of personal disaster preparedness throughout the country, government officials, emergency responders, nonprofit organizations, educators, and community leaders must gain a better understanding of the motivating factors and barriers to personal preparedness. ”

In fact, ORC Macro measured a decline in both those who indicate that they have a disaster plan and those who indicate that they have an emergency supply kit. In 2005, 46% of Americans indicated that they had an emergency supply kit, a decrease from 50% in 2003. The Columbia University National Center for Disaster Preparedness Post-Katrina Survey indicated that only 31% of respondents have a complete family emergency preparedness plan: A minimal one percentage point improvement from their survey conducted before Katrina.

To achieve higher levels of personal disaster preparedness throughout the country, government officials, emergency responders, nonprofit organizations, educators, and community leaders must gain a better understanding of the motivating factors and barriers to personal preparedness. A greater range of personal factors that might correlate with these motivators and barriers must also be examined, including basic demographic variables, such as age, education, and income, but also factors that cut *across* levels of socioeconomic status and geographic location. By understanding these issues, the preparedness community will be able to design targeted social marketing and outreach programs to increase awareness of the need for individual preparedness and to motivate behavior change.

The Citizen Corps Personal Behavior Change Model for Disaster Preparedness (PDP Model) explores personal motivation factors and identifies ways to target individuals based on their motivation for or perceived barriers to preparedness.

THEORETICAL UNDERPINNINGS

Program theory has been defined as “the process through which program components are presumed to affect outcomes and the conditions under which these processes are believed to operate.”³ Program theories can be used to depict the process of change in a framework or model to help guide the way specific programs are implemented and expected to bring about change.⁴

The PDP Model identifies segments of the population based on their perceptions of threat and efficacy and provides associated areas of focus for outreach and social marketing that target specific barriers and motivations. The PDP Model is based on two theoretical models that are common to the social science field and have been applied and tested in other content areas related to risk assessment and protection motivation: 1) the Extended Parallel Process Model (EPPM)⁵ and 2) the Stages of Change/Transtheoretical Model.⁶

³Donaldson, S. I. 2001. Mediator and moderator analysis in program development. In S. Sussman (ed.) *Handbook of program development for health behavior research*. Newbury Park, CA: Sage, pp. 470–496.

⁴Lipsey, M. W. 1993. Theory as method: Small theories of treatments. *New Directions for Program Evaluation*, 57, 5–38.

⁵Witte, K. 1998. Fear as motivator, fear as inhibitor: Using the extended parallel process models to explain fear appeal successes and failures. In P. A. Andersen and L. K. Guerrero (eds.), *The handbook of communication and emotion: Research, theory, applications, and contexts*. New York: Academic Press, pp. 423–450.

⁶Prochaska, J. O., and C. C. DiClemente. 1982. Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice*, 20, 161–173.

Extended Parallel Process Model

The EPPM was chosen because it addresses how individuals process a threat as well as their ability to take protective action—which is particularly relevant in this situation. The PDP Model applies the EPPM’s descriptions of factors that influence two types of responses to threats (i.e., danger control or fear control processes).

1. A person’s perception of a threat is composed of two components:
 - 1) *threat severity* (e.g., *How severe will the effects of a disaster be?*) and
 - 2) *threat susceptibility* (e.g., *How likely is it that the disaster will happen to me?*)
2. A person’s assessment of the value of a recommended protective action is also composed of two components:
 - 1) *self-efficacy* (e.g., *Am I able to protect myself from a disaster?*) and
 - 2) *response efficacy* (e.g., *Will the recommended preparedness actions help me in the event of a disaster?*)

The EPPM theory suggests that people who feel threatened (i.e., they recognize a threat that is somewhat severe and to which they are personally susceptible) will take one of two courses of action: danger control or fear control.

1. *Danger control* focuses on a solution to the threat (e.g., preparedness or protection). For danger control to be selected, a person needs to believe that an effective response is available (response efficacy) and that he or she is capable of using this response to reduce the risk (self-efficacy).
2. *Fear control* is not solution-oriented and can be represented by denial, rationalization, and escapism.

Applying the EPPM to personal preparedness for a particular threat, such as a terrorist attack, yields the following four categories and illustrations of an individual’s lack of motivation to take action:

- a. Person does not believe that he or she is susceptible to the threat (e.g., *It is unlikely that a terrorist attack will happen where I live*).
- b. Person does not believe that he or she is presented with a severe threat (e.g., *I don’t feel like my life would really be in danger if a terrorist attack occurred in my city*).
- c. Person either does not know what the recommended actions are or does not believe that he or she can perform the recommended protective actions (e.g., *I don’t know how to protect myself from a dirty bomb*).
- d. Person does not believe that the recommended protective action will be effective (e.g., *Nothing I do will help me survive a terrorist attack with a dirty bomb*).

“The PDP Model defines groups of individuals who are unmotivated to engage in sustained preparedness activities.”

Building on the EPPM, the PDP Model defines groups of individuals who are unmotivated to engage in sustained preparedness activities by one of three “Threat/Efficacy Profiles.” The Threat/Efficacy Profiles include 1) Unaware or dismissive of threat because of perceived low susceptibility, urgency, and/or severity: Is unreceptive to preparedness messages; 2) Understands susceptibility to, and severity of, threat, yet perceives varied barriers to preparedness behaviors: Is unprepared; and 3) Understands threat and has high belief in self-efficacy and response efficacy: Is prepared. These Threat/Efficacy Profiles are explained in greater detail later in this narrative.

“Belief in response efficacy is an indicator of taking action for personal preparedness.”

Current research supports this segmentation to explain the lack of motivation to prepare. In its 2005 national survey on citizen preparedness, ORC Macro asked respondents to rate their agreement with the following statement: “In a disaster, [the] events will likely overtake any preparations you and your household have made.” Nearly a third of Americans (31%) agreed with this statement. Of that 31%, more than half had done nothing to prepare and only 11% had a basic plan and emergency supply kit. This shows that the belief in response efficacy is an indicator of taking action for personal preparedness.

Stages of Change Model

Preparedness behavior was also examined using the Transtheoretical Model of Behavior Change, also known as the Stages of Change Model. According to the Stages of Change Model, people demonstrate varying degrees of readiness to change or varying levels of actual activity. The model places individuals in five stages that indicate their readiness to attempt, make, or sustain behavior change. The five stages are *precontemplation*, *contemplation*, *preparation*, *action*, and *maintenance* (see Table 1).

National data also supports this segmentation of stages of preparedness thought and action—even though some people indicate that they have not taken action, they may indicate that they have considered taking action. For example, in a survey conducted by The Center for Excellence in Government, researchers found that those who considered assembling a disaster kit increased slightly post-Katrina (24% to 31%).⁷ Those considering taking preparedness action would fall into the contemplation stage. The goal would be to target those individuals and move them through the remaining stages: to *preparation* and then to *action* and finally to the *maintenance* stage. The importance of maintenance is particularly relevant to personal disaster preparedness, as individuals need to periodically update their kits, review plans, and recertify their safety trainings (CERT, first aid, etc).

As discussed, the EPPM and the Stages of Change Model were used as a starting point to examine behavior change for disaster preparedness and to develop a new model. In the next section, the PDP Model’s components are described in detail.

Table 1: Stages of Change Model

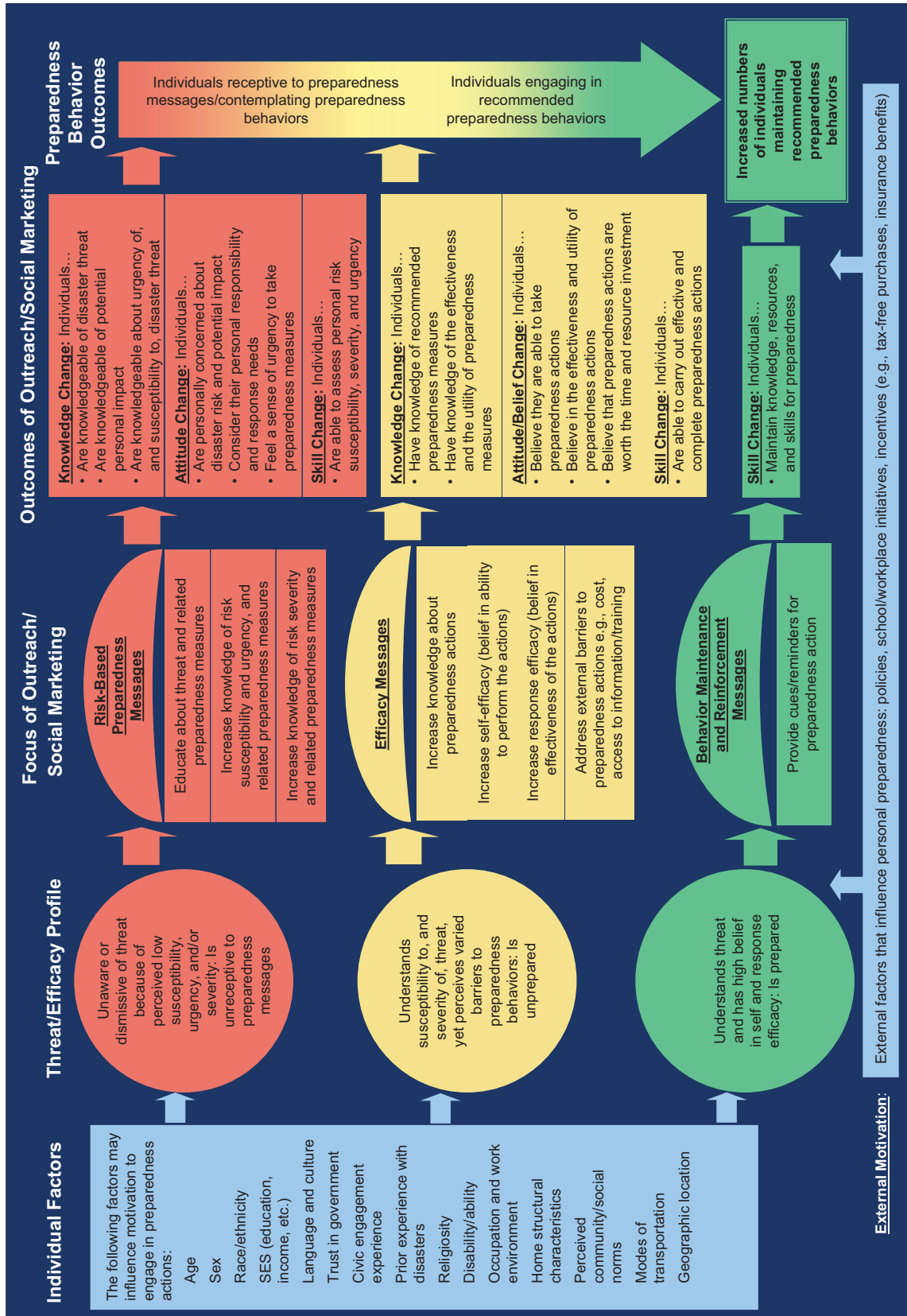
STAGE	DESCRIPTION
Precontemplation	The individual is not intending to change or even thinking about change in the near future (usually measured as the next 6 months).
Contemplation	The individual is not prepared to take action at present, but is intending to take action within the next 6 months.
Preparation	The individual is actively considering changing his or her behavior in the immediate future (e.g., within the next month).
Action	The individual has actually made an overt behavior change in the recent past, but the changes are not well established (maintained for 6 months or less).
Maintenance	The individual has changed his or her behavior, maintained the change for more than 6 months, and is working to sustain the change.

⁷Hart, P. D. 2005. The aftershock of Katrina and Rita: Public not moved to prepare. Washington, DC: The Council for Excellence in Government. Available at <http://www.excelgov.org/UserFiles/File/America%20Get%20Prepared%20report.pdf>.

Submitted To:


CITIZEN CORPS PERSONAL BEHAVIOR CHANGE MODEL FOR DISASTER PREPAREDNESS
 Addressing motivation, knowledge, attitudes, & skills

Submitted By:

COMPONENTS OF THE PERSONAL BEHAVIOR CHANGE MODEL FOR DISASTER PREPAREDNESS

Individual Factors

Various factors influence a person’s motivation to behave a certain way. Individual or personal factors are listed in the far left box within the PDP Model. The model includes factors that go beyond demographic characteristics and includes such things as “trust in government,” household or occupational characteristics that may impact a person’s real or perceived risk, his or her access or receptivity to information, and his or her ability to carry out preparedness actions. Testing the Model through quantitative surveys will provide a greater understanding of how these individual factors relate to individual preparedness.

Threat/Efficacy Profiles and Related Focus of Outreach and Social Marketing

The Threat/Efficacy Profiles build on applying the EPPM model to disaster preparedness and describe three broad categories of awareness and motivation related to threats and efficacy of preparedness measures. The PDP Model then identifies related messages for each Profile to reduce barriers and increase motivation to take action. The focus and outcomes of the targeted outreach and social marketing approaches are color-coded to match the designated Profiles to which each applies.

Low Perceived Threat Profile

The factors that lead to active preparedness include an assessment of the threat. According to the EPPM, individuals consider two aspects of the threat—susceptibility (e.g., *How at risk am I of experiencing this threat?*) and severity (e.g., *How severely could I be harmed by this threat?*). Because the timing of most disasters is unpredictable, the PDP Model includes the factor of urgency (e.g., *How imminent is this threat?*). Though urgency can be included in the assessment of susceptibility, it is a useful distinction in this instance because a person might believe that a disaster will occur at some point, but might not believe that there is any urgency to the threat.

“ The PDP Model identifies messages for each Threat/Efficacy Profile to reduce barriers and increase motivation to take action. ”

Individual Factors
The following factors might influence motivation to engage in preparedness actions:

- Age
- Sex
- Race/ethnicity
- SES (education, income, etc)
- Language and culture
- Trust in government
- Civic engagement experience
- Prior experience with disasters
- Religiosity
- Disability/ability
- Occupation and work environment
- Home structural characteristics
- Perceived community/social norms
- Modes of transportation
- Geographic location

Unaware or dismissive of threat because of perceived low susceptibility, urgency, and/or severity: Is unreceptive to preparedness messages

This is particularly relevant for non-seasonal threats, such as earthquakes and terrorist attacks. Reasons for inaction for persons who fit this profile can be described by the following three scenarios:

1. If a person does not believe a threat is likely to occur (low susceptibility), then he or she might not process any further information about how to prepare for it.
2. If a person does not believe a threat will affect him or her significantly (low severity), then he or she might not process any further information about the threat.
3. If a person does not believe that the threat is imminent (low urgency), then he or she might not process any further information about the threat.

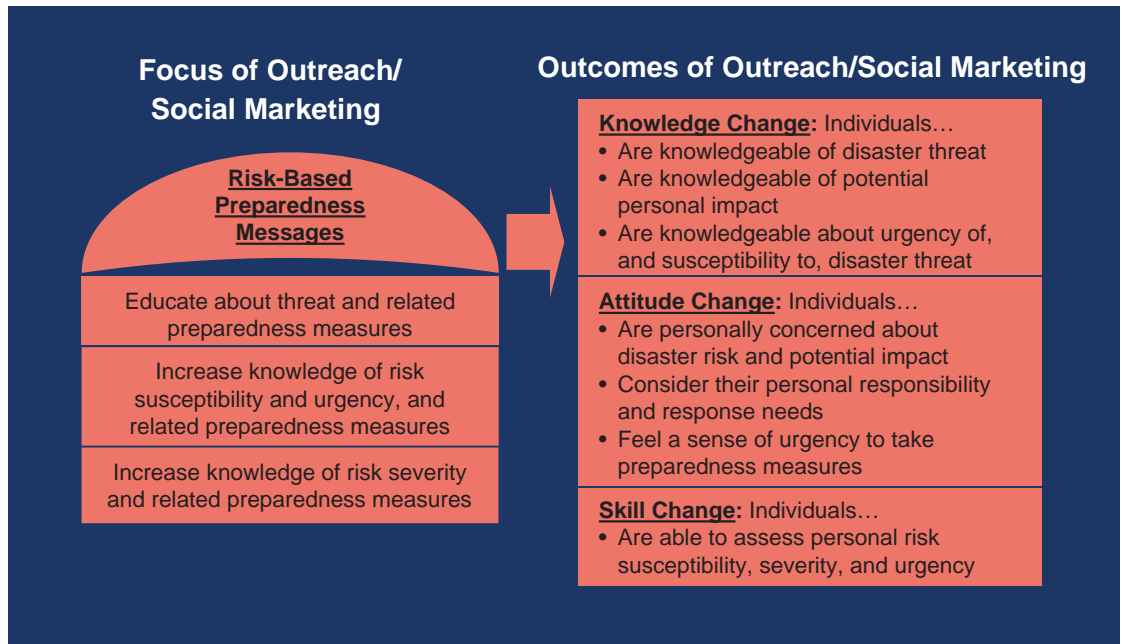
Conversely, if a person thinks that he or she *is* at risk or susceptible to a threat and the threat *could* cause serious harm in the relatively near future, he or she will seek or be receptive to information about preparedness. In short, the perception of a threat (likely to occur, severe, and imminent) contributes to a person's motivation to be prepared: The greater the perception of susceptibility, severity, or urgency, the stronger the motivation to take action.

Outreach and Social Marketing to Address Low Perceived Threat

If an individual's perceived threat is low, it will be important to increase the individual's understanding of actual threat susceptibility, severity, or urgency.

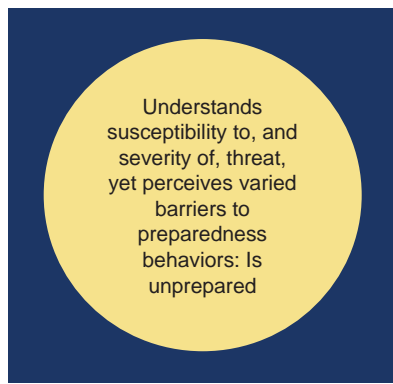
Outreach and marketing efforts to motivate individuals with this profile should focus on risk-based preparedness messages. Messages with this focus would educate individuals about the threats in their area, including the likelihood of the disaster occurring, the severity of the disaster's consequences, and the likelihood of the disaster occurring in the near future. These types of messages are specifically intended to increase people's knowledge about the chances of the disaster happening and its potential impact on health, well-being, and quality of life (knowledge change); to change people's attitudes so that they feel concerned and feel a sense of urgency and personal responsibility associated with protecting themselves (attitude change); and to equip people with the skills they need to assess their own personal risk (skill change). To avoid panic or anxiety, risk-based messages should be paired with messages describing actions that can be taken to mitigate the negative consequences of the threat (e.g., appropriate preparedness information and positive encouragement to take action).

“ If an individual's perceived threat is low, it will be important to increase the individual's understanding of actual threat susceptibility, severity, or urgency. ”



Low Perceived Efficacy Profile

The EPPM also identifies Low Perceived Efficacy as a factor that influences a person’s response to a threat. Two components make up an individual’s perceived efficacy: self-efficacy (e.g., *I am able to create a disaster preparedness kit for my home*) and response efficacy (e.g., *Having a disaster preparedness kit for my home will help me survive in the event of a hurricane*).



In addition to the efficacy factors represented in the EPPM, real and perceived external barriers can also greatly influence a person’s perceived self-efficacy or response efficacy. These include factors such as cost or access to information. For example, when individuals state that they do not have the proper preparedness materials in their home because they cannot afford to buy certain recommended products, they are revealing that their perceived ability to carry out preparedness activities is compromised because of an external barrier (external, meaning outside of their own control).

It is important to examine how external barriers might affect efficacy because, in some cases, external barriers might need to be addressed in different ways (i.e., via community-based support or policy changes). National survey data also supports this consideration.

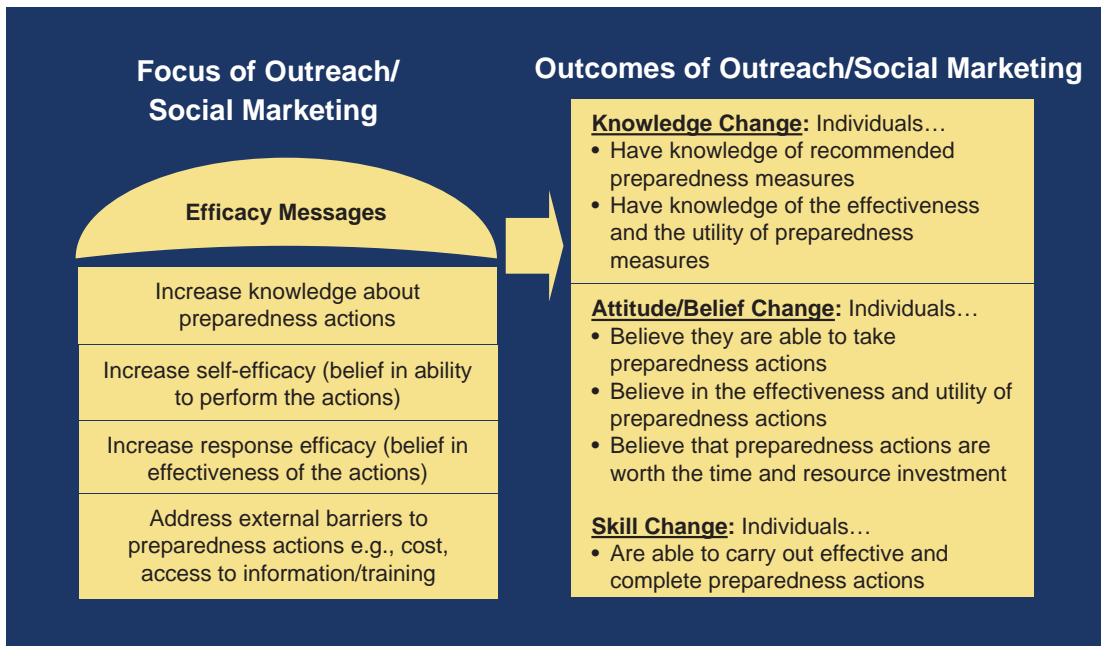
In ORC Macro’s 2005 preparedness survey, nearly a third of Americans (32%) who did not report being prepared indicated that lack of money was a cause. This response was concentrated in populations of lower income and education, those with families that include children under 18, and those who are disabled or have a member of the household who is disabled. Americans also cited time constraints (12%), lack of knowledge (10%), and cost (8%) as reasons for not having a preparedness kit. These barriers, either perceived or actual, can make a person unreceptive to messages about preparedness, unless the barriers are specifically addressed.

The following are three explanations for inaction among individuals who understand their susceptibility to and the severity of a threat, but who are unprepared:

1. If the person does not believe that he or she can carry out the recommended behavior (because of lack of knowledge or skill), then he or she might not be motivated to engage in the behavior (Self-efficacy).
2. If a person does not believe that the recommended strategy will be effective in helping him or her survive or manage a disaster, then he or she might not be motivated to engage in the behavior (Response Efficacy).
3. If a person believes that there is a barrier to him or her successfully carrying out the recommended strategy, then he or she might not be motivated to engage in the behavior (External Barriers).

Understanding and addressing the elements that influence Low Perceived Efficacy is critical to increasing personal preparedness.

“ It is important to examine how external barriers may affect efficacy because, in some cases, external barriers may need to be addressed via community-based support and policy changes. ”



Outreach and Social Marketing to Address Low Perceived Efficacy

Social marketing and outreach efforts designed for those individuals who know they are at risk, but who are still not engaging in preparedness activities must focus on increasing people’s knowledge of recommended preparedness actions, describing the simplicity of completing the actions (self-efficacy), and explaining why the recommended measures will make a difference in a disaster situation (response efficacy).

Outreach and public information efforts should also address the external barriers that might affect self-efficacy or response efficacy. External barriers might be a genuine barrier to efficacy and might need to be removed through policy or structural changes. When these external barriers are removed, public outreach is critical to educate and convince individuals that the barrier no longer exists.

Lessons learned from Hurricane Katrina (2005) highlight the importance of this type of outreach. Before landfall, some residents who had their own vehicles followed evacuation recommendations only to experience depleted gasoline supplies along the emergency evacuation routes. The site of stranded cars along the highway affected perceived self-efficacy (e.g., *If I don’t have enough gasoline to get to my final destination, I will not be able to get more gas along the way and I will be stranded*). The external barrier of unavailable gas supplies affected individuals’ perceived ability to evacuate safely. In preparation for the following hurricane season, measures were taken to overcome this barrier by providing backup supplies of gasoline along the routes and encouraging individuals to maintain their own backup supplies as well.

“ Outreach efforts designed for those individuals who know they are at risk, but who are still not engaging in preparedness activities must focus on...describing the simplicity of completing the actions (self-efficacy), and explaining why the recommended measures will make a difference in a disaster situation (response efficacy). ”

“ *Preparedness is not a one-time occurrence. In fact, an integral characteristic of preparedness is its ongoing nature.* ”

Unless citizens are aware that corrective measures have been taken, the previous real barrier of no available gas can easily affect individuals’ perception of the efficacy of their actions (e.g., *I won’t be able to reach safety*) and can become a future perceived barrier to carrying out evacuation plans. Thus, communicating that barriers have been addressed is a critical component to efficacy-focused preparedness communication strategies.

Behavior Maintenance Profile

Preparedness is not a one-time occurrence. In fact, an integral characteristic of preparedness is its ongoing nature. Just as batteries in a smoke detector need to be maintained in working order, personal disaster preparedness knowledge, skills, and supplies need to be revisited, revised, and maintained.

Outreach and Social Marketing to Support Behavior Maintenance

For those who understand the threats, have knowledge of preparedness actions, and believe in the efficacy of their actions and the measures themselves, social marketing messages should serve as reminders and cues to action that prompt people to reassess and update their preparedness measures. These maintenance messages are also required to create a true sustained culture of preparedness throughout the country.

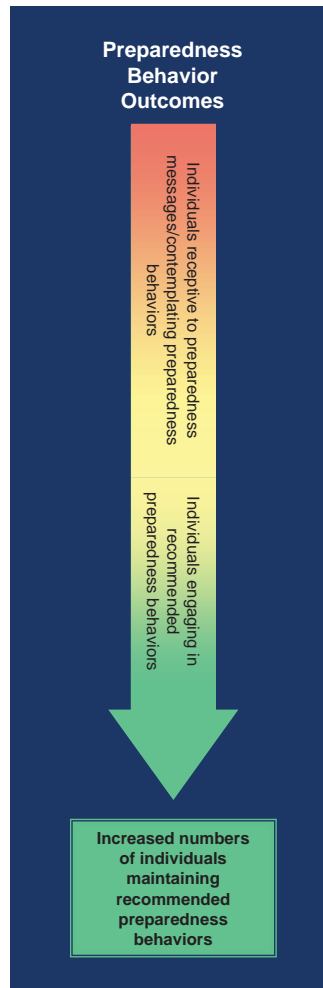


Preparedness Behavior Outcomes

The Preparedness Behavior Outcomes identified in the PDP Model are depicted in the vertical arrow on the far right of the Model. The arrow shows a progressive movement from *contemplation*, when the individual is fully aware of the threat and considering taking action, to *preparation*, when the individual understands both the threat and the self-efficacy/response efficacy of preparedness measures and is ready to take action, to action and engaging in preparedness activities, and finally to *maintenance*, at which point, on a population level, the ultimate outcome will be achieved: Increased numbers of individuals maintaining recommended preparedness behaviors.

External Motivation

There are unique circumstances in which an individual will engage in a protective behavior not in response to any perceived threat or fear appraisal, but because of an external motivating factor. In this case, one strategy for achieving the desired behavior change might be instituting policy changes or some other type of reward or punishment system that does not require changing a person's knowledge, attitudes, or beliefs about the threat itself or the efficacy of the recommended behavior. For example, a teacher may not perceive any threat of disaster. If, however, he or she is required to receive first aid training as part of his or her job requirement, a behavior change outcome would result even though the teacher's perceived threat and perceived efficacy were not directly addressed before taking action.



“ The ultimate outcome will be achieved: Increased numbers of individuals maintaining recommended preparedness behaviors . ”

Whether or not the teacher believes that he or she is at risk, the result is the same—in case of a disaster, he or she feels able to effectively mitigate some of the effects. This circumstance, though not often highlighted in protection motivation theories, is helpful in accounting for individuals who might carry out preparedness activities, but who do not perceive high levels of threat or efficacy.

External Motivation

External factors that influence personal preparedness: policies, school/workplace initiatives, incentives (e.g., tax-free purchases, insurance benefits)

“ By understanding and addressing individuals’ different hurdles to becoming prepared, Citizen Corps Councils and other organizations involved in increasing citizen disaster preparedness can make significant progress in achieving a true and sustained culture of preparedness. ”

Using the Personal Behavior Change Model for Disaster Preparedness

This behavior change model was developed to help answer the question—why aren’t Americans better prepared for disasters? By examining the complexities of how individual factors, perceptions of threats, and beliefs about efficacy influence personal behavior, outreach and social marketing practices can be refined to achieve greater personal preparedness. Further research through quantitative household surveys can validate these variables to help leaders understand the barriers and motivators affecting their constituencies. Targeted messages and outreach strategies can then be developed, both nationally and locally, that will move each segment of the public to action. By understanding and addressing individuals’ different hurdles to becoming prepared, Citizen Corps Councils and other organizations involved in increasing citizen disaster preparedness can make significant progress in achieving a true and sustained culture of preparedness.

DEFINITIONS

Barrier

Something that inhibits an individual from engaging in a preparedness activity. A barrier can be real or perceived. Overcoming a barrier can be “internal” (within the person’s control) or “external” (outside the person’s control).

Threat

A potential source of danger or harm.

Perceived Threat

A threat that exists only because we perceive or think that it does.

Actual Threat

An objective danger that exists, whether we know it or not.

Self-Efficacy

Belief about one’s ability to perform actions that will mitigate the effect of the threat.

Response Efficacy

Belief that recommended preparedness measures will mitigate the personal impact of a disaster.

Perceived Susceptibility

Belief about one’s risk of experiencing the threat.

Perceived Severity

Belief about the significance or magnitude of the threat.

Perceived Urgency

Belief about the likelihood of a threat occurring in the proximal future.

Threat/Efficacy Profile

PDP Model term that describes segments of the population based on their level of perceived threat and their level of perceived efficacy.

Fear

An internal emotional reaction composed of psychological and physiological dimensions that may be aroused when a serious and personally relevant threat is perceived.

Defensive Motivation

A person’s desire to control fear, usually through psychological defense strategies, such as avoidance, denial, or rationalization.

Protective Motivation

A person’s desire to control a danger by taking actions to protect him or herself from the danger.

External Motivators

Factors that influence a person’s desire to perform a behavior, such as to obtain an incentive or reward or to avoid a punishment. External motivators are generally unrelated to the perceived threat or perceived efficacy.



**The Citizen Corps mission is to bring
community and government leaders together
to involve community members in
all-hazards emergency preparedness, planning,
mitigation, response, and recovery.**

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