

# Using an Education Intervention to Increase Preparedness Among Pet Owners: Results of a Pilot Study

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## ABSTRACT

**Objectives:** Households with pets are considered a high-risk population, presenting many challenges to response and recovery efforts. Research indicates that households with pets are less likely to evacuate during disasters, and pets left behind pose a health risk to relief workers and the general public. This pilot study explores a brief education intervention targeting households with pets as a method of increasing general household preparedness, with the purpose of facilitating evacuation and protective behaviors in this population.

**Methods:** A convenience sample of households with pets was recruited to participate in a one-group pre- and post-survey design evaluating the impact of a brief education intervention on increasing pet-specific and general household preparedness levels.

**Results:** Results suggest that the sample population was below national estimates in basic household preparedness before the intervention. Post-survey results indicate an increase in completion of some preparedness tasks after the intervention. There was a statistically significant increase in overall pet preparedness at the  $P = 0.10$  level; however, that difference did not translate into general household preparedness.

**Conclusion:** The findings from this study are consistent with those from previous literature suggesting that persons often place the needs of their pets above their own; however, the use of a brief education intervention may be successful in increasing pet-specific preparedness levels, which may be useful in successful evacuation and pet well-being. (*Disaster Med Public Health Preparedness*. 2018;12:441-445)

**Key Words:** disaster, household preparedness, pets

One of the key reasons that people disobey directions to evacuate during a disaster is concern over pets; however, little empirical information is available concerning preparedness or ways to intervene with this population. Although pet ownership is not always the primary cause for evacuation failure, researchers in this arena have called for improved efforts to assist persons with pets.<sup>1</sup> The numbers of this population are significant. Over 60% of US households have pets, primarily dogs or cats, exceeding the percentage of households with children.<sup>2</sup> Owners share close bonds with pets and, likewise, pets provide emotional and physical security, especially in the case of service pets. Subsequently, persons who lose their pets during a disaster demonstrate high levels of post-traumatic stress disorder, depression, and grief.<sup>3</sup> As such, the animal-human bond can be considered a protective factor and used as a catalyst to encourage preparedness and reach vulnerable populations.<sup>4,5</sup>

Consequently, persons are not always willing to evacuate without their pets. An American Kennel

Society (AKS) survey found that 62% of respondents admitted that they would disobey mandatory evacuation orders to remain with their pets.<sup>6</sup> Similarly, a study of Yuba County, CA residents affected by the 1997 floods found that 20.9% of residents with pets failed to evacuate compared with 16.3% of households without pets.<sup>7</sup>

Concern about pets is also a mitigating factor with responders. A meta-analysis of 27 studies involving health-care workers found that the need to care for pets was one of the main barriers preventing personnel from reporting to work.<sup>8</sup> In addition, relief and recovery efforts after disasters can be seriously impeded by displaced pets. Frightened and wounded pets can pose health risks to relief workers. During Hurricane Ike in Texas, deep wounds caused by bites from dogs and cats were one of the top 3 trauma complaints among Disaster Medical Assistance Team workers.<sup>9</sup> Responders may not be able to effectively deal with behavioral and medical concerns of pets after a disaster, jeopardizing responder safety.

## Pet Preparedness

As such, preparing for pets is a critical component of comprehensive planning.

Once a disaster occurs, evacuating pets is not always easily achieved. With the exception of service animals, federal disaster relief organizations prohibit pets from being transported in rescue vehicles and the American Red Cross (ARC) will not allow pets in shelters.<sup>10,11</sup> Therefore, it is important to make arrangements for pets before a disaster strikes. Local and state emergency management efforts need to develop inclusive plans for animal control during disasters that address personal preparedness and adequate community resourcing.<sup>12</sup>

Although current literature discusses the problems related to pets and disasters, it provides little empirical evidence on how to intervene with this population. As such, the purposes of this pilot study were as follows: first, to determine baseline preparedness levels within the population; and, second, to evaluate the effectiveness of an education intervention similar to ones completed with other high-risk populations. The authors hypothesized that baseline preparedness levels would be similar to general population estimates – which, in fact, are generally low – and, second, that the brief education intervention would result in increased levels of pet and, subsequently, household preparedness.

## METHODS

A convenience sample of persons in households with pets was recruited during the summer of 2015. Researchers implemented a one-group pretest-posttest design  $O_1 X_1 O_2$  with a 1-month follow-up period to evaluate the effectiveness of the brief intervention. Previous studies using a similar education intervention model suggest that participants are most motivated by the intervention in the weeks immediately following the interaction.<sup>13</sup> Therefore, a 30-day follow-up period was deemed sufficient to capture change while minimizing time for a history confounder such as the occurrence of a disaster event. This design is commonly utilized in social science research when a control group is not available or is not deemed to be necessary.

As the study targeted households with pets, researchers selected 2 pet-friendly events as field sites to recruit participants. These sites allowed space for recruitment and intervention delivery. Recruitment was carried out at Do Dah Day, a local outdoor social event for pet owners that includes vendors, activities, and educational displays, as well as at the Pepper Place Farmer's Market, a weekly seasonal event that draws a high percentage of pet owners who attend with their pets. Display tents advertising the study were assembled on site at the events. Persons who approached the tents were provided with an overview of the study and study protocols and asked to participate.

Persons who agreed to participate completed a survey including questions on general household preparedness and

pet preparedness. Participants received a brief, on-site educational intervention providing information about pet and household preparedness as well as a basic pet preparedness kit for participation. Researchers contacted participants by phone or e-mail 35-45 days after the initial survey to re-assess preparedness levels. Although the pre-survey was conducted in person, participants were asked to complete the follow-up survey online via SurveyMonkey. The follow-up survey included the same preparedness items as the post-survey as well as additional demographic questions. This study received approval from the Institutional Review Board at the University of Alabama at Birmingham.

## Measurement

Data collection was completed by utilizing a survey developed by the authors. The survey included the following: (1) demographic questionnaire, (2) household preparedness survey, and (3) pet preparedness survey. The household preparedness survey was adapted from a previous survey used to assess household preparedness by Blessman et al.<sup>14</sup> Additional items were added that captured preparedness information specific to pets, developed from recommendations from the ARC, The Federal Emergency Management Agency, The American Kennel Club, and the Humane Society of the United States.

## Intervention

The intervention consisted of a one-to-one education model that involved distribution and discussion of information on preparing households and pets for disasters. Graduate and undergraduate students were recruited through the College of Arts and Sciences and trained as community educators to deliver the intervention. Student training was conducted by the Project Directors and included information on disaster preparedness, conducting on-site interviews, human subject protocols, and delivering education in the field. The education and protocol review were carried out informally in seating areas around the display tent, or in open seating areas around the venues. Take-home materials outlining the content were provided along with a small incentive item that related to preparedness (ie, small bag that could be used to assemble the disaster kit, a pet identification card, etc). The education included a synthesis of preparedness tips and facts from the ARC, The Federal Emergency Management Agency, The American Kennel Club, and the Humane Society of the United States, as well as instructions for preparing pet-specific disaster kits and plans. The learning goals included discussing recommendations on pet and household preparedness, highlighting the 3 preparedness domains of staying informed, making a plan, and assembling a preparedness kit. Community educators spent an average of 15-20 minutes with each participant, including time to review the protocol, complete the assessment, review education materials, and answer questions.

## Research Questions and Data Analysis

The first research question was to determine whether or not households with pets had higher levels of preparedness than general population estimates. General population estimates from the 2012 FEMA National Survey and the 2013 American Housing Survey from the U.S. Census Bureau were used as comparison statistics.<sup>15,16</sup> Descriptive analysis was performed to calculate completion rates in percentages for the following 3 tenets of preparedness guidelines: Being Aware, Making a Plan, and Building a Kit. All statistics were computed using SPSS version 22.

The second research question evaluated whether or not the intervention increased general and pet-specific preparedness. To evaluate general household preparedness, 16 indicators representing the 3 tenets of preparedness were explored. Answers were scored as either “yes” (completed the task) or “no” (task not completed) resulting in a total preparedness score. The score ranged from 0 to 16 with higher numbers indicating completion of more preparedness tasks. Frequencies were computed to determine whether or not there was a difference in the pre- and post-survey results for the indicators of completion of preparedness tasks and paired samples *t*-tests were performed to determine whether or not those differences were statistically significant based on total scores.

The second part of the research question sought to determine whether or not there was a difference in pre- and post-survey results related to pet preparedness. A total of 10 indicators of pet preparedness were explored mirroring the tenet of preparedness as outlined by FEMA, The ARC, and the Humane Society of the United States. Answers were scored according to a “yes” or “no” response culminating in a pet preparedness score that ranged from 0 to 10. Higher scores indicate completion of pet-specific preparedness tasks. Completion percentages were compared and a paired sample *t*-test was performed to determine whether there were significant differences from pre- to post-survey.

## RESULTS

### Participants

The initial survey was completed by 345 households, with 109 completing both the pre- and post-survey for a response rate of 32%. Findings are reported for the proportion of the sample completing both the pre- and post-survey ( $N = 109$ ). Women comprised 76.4% of the participants, with a sample mean age of 38.8 years. The majority of the sample (56.4%) designated themselves as being the primary homeowner or head of household. Participants mostly owned a single-family detached home (73.4%) and a large percentage of participants were married (46.8%) or single (30.3%). The sample population was highly educated with 73.4% completing college or post-graduate work, and many with annual incomes of over \$100,000 (38%).

## TABLE 1

Levels of Basic Preparedness (N = 109)			
Preparedness Indicators	Present Study (% completed)	FNS (2012)	AHS (2013)
Awareness of potential disasters	74.5	46	Not available
Written communication plan	12.7	43	33
Emergency supply kit	32.7	52	52

Abbreviations: FNS, FEMA National Survey (2012); AHS, American Housing Survey (2013).

The number of household pets ranged from 1 to 49, with a mean of 3.3. In particular, 2 homeowners cared for a large number of pets; 1 homeowner had 49 pets in total, including many dogs, cats, birds, and several horses. Another homeowner with 20 pets had a similar mix of pets, including dogs and cats. These participants served as providers of foster homes for pets awaiting adoption and had larger than expected numbers of pets.

### General Preparedness

The first research question explored whether or not households with pets had higher levels of preparedness than general population estimates. Participants were above the national average on being aware of potential disasters; they were, however, significantly below the general population for having a written emergency communication plan and having an emergency supply kit (Table 1).

### Intervention Effectiveness

The second research question evaluated whether or not the intervention increased general household as well as pet-specific preparedness. Of the 16 indicators, 10 exhibited an increase in completion rates in the post-survey (Table 2). However, when exploring differences in total scores from pre-survey to post-survey there was no statistically significant difference between pre- ( $N = 109$ ,  $M = 6.51$ ,  $SD = 2.09$ ) and post-survey scores ( $N = 109$ ,  $M = 6.86$ ,  $SD = 2.43$ ,  $t(108) = 0.372$ ,  $P = 0.711$ ).

The second part of the research question sought to determine differences in completion of preparedness tasks directly related to pet preparedness. Of the 10 indicators of pet preparedness, 6 demonstrated an increase in completion rates from pre- to post-survey (Table 2). A paired sample *t*-test was computed to explore total score differences from pre- to post-survey. In contrast to general household preparedness, the difference between pre-survey scores ( $N = 109$ ,  $M = 6.51$ ,  $SD = 2.089$ ) and post-survey scores ( $N = 109$ ,  $M = 8.86$ ,  $SD = 2.432$ ,  $t(108) = 0.372$ ,  $P = 0.075$ ) was approaching significance at the  $P = 0.05$  level and achieved significance at the  $P = 0.10$  level.

TABLE 2

**Preparedness Indicators (Pre- and Post-Completion, N = 109)**

	Completed Pre-Intervention (%)	Completed Post-Intervention (%) <sup>a</sup>
<b>Household preparedness tasks</b>		
Aware of disasters	74.5	72.7
Written communication plan	12.7	<b>20.0</b>
Emergency meeting place outside of house	34.5	<b>39.8</b>
Emergency meeting place outside of neighborhood	16.4	<b>25.7</b>
Emergency supply kit	32.7	<b>36.4</b>
Fire escape plan	59.1	<b>65.5</b>
Emergency supplies in vehicle	62.7	<b>64.5</b>
3-day supply of water	20.0	<b>28.2</b>
3-day supply of food	61.8	<b>67.3</b>
Food separate from regular supply?	18.2	<b>20.0</b>
Flashlight with batteries	92.7	89.9
First aid kit	75.5	72.7
Fireproof and waterproof container	50.9	48.6
Weather radio	86.4	<b>88.1</b>
Extra medication	50.9	<b>57.8</b>
<b>Pet preparedness tasks</b>		
Aware of procedures for evacuating pets	46.4	<b>56.9</b>
3-day supply of pet food	84.5	<b>86.2</b>
3-day supply of water for pets	40.9	<b>48.6</b>
Emergency plan for pets	40.0	<b>60.6</b>
First aid kit for pets	20.0	<b>64.2</b>
Extra leash/carrier	68.2	66.1
Current pet photo	98.2	93.6
Pet Id such as microchip?	87.3	83.5
Veterinarian Info	94.5	51.4
Medical/vaccination records	74.5	<b>76.1</b>

<sup>a</sup>Bold values indicate those where there was an increase in completion from pre- to post-intervention.

**DISCUSSION**

The study results are somewhat counterintuitive. Although the pre-survey found that participants in households with pets had far better awareness of potential disasters in the area than the general population, they were less likely to have a disaster kit or plan. Awareness alone does not aid in initiating protective behaviors without a kit or a plan. In comparing results on specific tasks, the researchers were encouraged by the fact that the data indicate an appreciable increase in percentages from pre- to post-survey. These increases were evident both in general and pet-specific preparedness. Although promising, these results did not reach statistical significance for household preparedness. In addition, the significance level for pet preparedness is not as robust as the authors hoped, only reaching the  $P = 0.10$  level and not the 0.05 level. This finding was unexpected given the increases in values for individual tasks. The fact that the completion of pet preparedness tasks increased at a level closer to statistical significance seems to support that owners may be more likely to put the needs of their pets above their own.

Although the positive results in some areas should not be discounted, this study is not without limitations. A significant number of participants failed to complete the posttest even with reminders, which did not allow for comparisons of those subsets to determine whether there were variables that may have influenced the outcome of the data. Subsequently, using a larger sample size may have allowed the results to reach significance.

As a pilot study, the findings encourage replication with a larger sample and continuation of efforts to determine influencing factors, such as level of attachment. Exploration of variables such as previous disaster experience should also be included in subsequent larger-scale studies to determine whether past experience has any influence on present preparedness behaviors.

**CONCLUSION**

The results of this pilot study found that a disaster preparedness educational intervention that included pet preparedness was successful in increasing pet preparedness, but did not have a statistically significant effect on personal preparedness. Given that concern for pets is a key reason that individuals disobey emergency instructions in a disaster, an educational intervention that includes pets shows promise as a way to reduce the perception of pets as obstacles in disaster response. However, the educational intervention was not sufficient to increase personal preparedness. One potential way of optimizing concern for pets as a motivator in future interventions would be to present a stronger link between pet preparedness and household preparedness. Messages may be more effective if they emphasize that pets are safest when owners are also safe.

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