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Occupational Therapists in Disaster Preparedness, Response, and Recovery:
A Survey of Knowledge and Attitudes

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This scholarly project reflects individualized, original research conducted in partial fulfillment of the requirements for the Occupational Therapy Doctorate Program, The University of Toledo.

Abstract

Objective: The purpose of this study was to assess the level of knowledge among occupational therapists in disaster terminology and their attitudes toward a more prominent role in disaster preparedness, response, and recovery.

Method: A three part questionnaire was distributed electronically to 4,578 licensed occupational therapists in the state of Ohio.

Results: A total of 601 questionnaires were obtained with a 13% response rate. Of the 601 participants, the majority (90.5%) were female. The greatest proportion of participants (54.7%) achieved a bachelor's level of education. A total of sixty five participants indicated involvement during a disastrous event while only 16.6 % have taken a course in disaster preparedness and response. Despite the lack of formal training and experience in disaster situations, nearly 58% of the participants reported feeling capable of providing professional occupational therapy services during a disaster. Analysis of the knowledge portion of the questionnaire revealed 23% of respondents achieved a passing score with no statistically significant difference in the percentage of correct responses among the types of entry-level education. A positive response was indicated by the majority of participants for each of the eight questions within the attitude section of the questionnaire.

Conclusion: The current study illustrated the limited exposure of the profession to disaster management and the need for an increase in research and education in this specialized area of practice. However, assessment of the majority of occupational therapists attitudes toward disaster training and involvement in the future was positive for each of the phases of disaster management.

**Occupational Therapists in Disaster Preparedness, Response, and Recovery:
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Introduction

Disasters are common worldwide occurrences that can have both short and long-term negative effects on the quality of life of families, communities, and society as a whole. These natural and technological disabling events not only create physical damage to individuals and communities but also widespread disruption of social roles, economic balance, and daily-life routines. Equally troubling, the Centre for Research on the Epidemiology of Disasters confirmed that the incidences of both natural and man-made disasters are increasing globally. In fact, the year 2010 was identified as the deadliest year in the last two decades as a result of the 385 natural disasters that killed more than 297,000 people worldwide and affected over 217 million others (Guha-Sapir, Vos, Below and Ponserre, 2011). Considering the devastating effects of disasters, efforts to better prepare populations and reduce mortality rates have become a primary concern. Therefore, current disaster planning and mitigation procedures and expansion of qualified healthcare professionals on response teams should be reconsidered to help manage the effects of a disaster. More specifically, occupational therapists, with their holistic training, humanistic approaches, and technical skills can and should provide their services throughout all phases of disaster management to help individuals and communities prepare for, respond to, and recover from a disaster (American Occupational Therapy Association [AOTA], 2006). Despite the unique skill-set that occupational therapists possess and the recent advocacy efforts by AOTA for a more prominent role in disaster preparedness, response, and recovery, no research has been conducted to assess occupational therapists knowledge and attitudes toward their

involvement in this novel area of practice. The present study represents an initial step toward filling this gap of knowledge.

Disaster overview

Disasters occur daily, affecting the quality of life of individuals, families, and communities, cause insurmountable economic losses, and deprive persons of engagement in meaningful activities (Brumbaugh Keeney, 2004; Daily, 2010; AOTA, 2006). Furthermore, a disaster is said to occur when there is “serious disruption of the functioning of a society, with widespread human, material, and/or environmental losses that exceed the ability of an affected society to cope using its own resources”(Daily, 2010). Underlying causes of disasters fall within two generic categories: 1) natural and 2) technological. The natural disaster category is further divided into five sub-groups including biological, geophysical, hydrological, meteorological, and climatological. Natural disasters encompass events such as earthquakes, floods, tornadoes, hurricanes, tsunamis, volcanic eruptions, fires, heat waves, and ice storms (Goodwin Veenema, 2006). Disasters can also be caused through human error, neglect, or intentional harm. More specifically, technological disasters include biological threats, chemical emergencies/threats, radiological (nuclear) events, mass transportation accidents, armed conflicts, and terrorism (Rogers and Lawhorn, 2007).

Regardless of the type of disaster the effects can be crippling when considering the economic damages and psychosocial impacts that ensue. These effects are magnified when vulnerable populations are not appropriately prepared to deal with catastrophic events. Accordingly, the role of healthcare professionals, including occupational therapists, and the need to better prepare for these events has become more focused as a result of the recent surge in catastrophic events worldwide. Most recently, a 9.0 magnitude earthquake took place off the

coast of Japan triggering powerful tsunami waves that claimed the lives of roughly 16,000 people. On January 12th, 2010 Haiti suffered 222,570 fatalities and had over 3.9 million of its population affected following a devastating earthquake (Guha-Sapir, Vos, Below and Ponserre, 2011; Landry, O'Connell, Tardif, and Burns, 2010). In 2005, Hurricanes Katrina and Rita made landfall and left trails of physical devastation and human suffering, killing more than 1,300 people along the Gulf Coast (Rogers and Lawhorn, 2007). Finally, no one can forget the terrorist attacks of September 11, 2001 that changed the world forever and killed 2,973 people. These types of events have raised awareness of the importance of rehabilitation services in disaster response and recovery and have helped to highlight the need for occupational therapists and other healthcare professionals to acquire the knowledge, skills, and experience to develop, manage, and analyze response planning for future catastrophes (Landry, O'Connell, Tardif, and Burns, 2010; Rogers and Lawhorn, 2007).

Stages of disaster management

There are several stages of disaster response that extend beyond the initial rescue efforts of first responders. In fact, several organized actions are taken prior to a disaster that enables communities to effectively respond. Since World War II disaster management has primarily focused on the preparedness phase for the benefit of both communities and individuals (Federal Emergency Management Agency [FEMA], 2009). However, preparedness is only one of four phases of emergency management that are essential in creating an optimal response in disastrous situations. These four phases include mitigation, preparedness, response, and recovery.

Mitigation is a cornerstone of emergency management and may be defined as the effort to reduce loss of life and property by lessening the impact of disasters (FEMA, 2011). The mitigation phase can take many forms and includes any activities that prevent an emergency,

reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies (FEMA, 2009). Mitigation actions take place before and after emergencies and can involve such activities as developing and implementing plans to modify an environment in order to decrease susceptibility to hazards. Effective mitigation practices ensure safer communities, help individuals to recover more quickly from disasters, and manage the financial impact of disasters on the nation (FEMA, 2010a).

The preparedness phase also takes place before an emergency occurs but is considered a continuous cycle of planning, organizing, training, evaluating, and taking corrective action to ensure effective coordination during incident response (FEMA, 2010b). Disaster preparedness includes procedures to predict, prevent, and respond to emergency situations. Preparation for disaster during this phase includes but is not limited to, facility and community-wide planning efforts, designing special-needs shelters, training staff/volunteers, and assisting businesses and employers in developing plans for evacuating employees with disabilities. The overall goal of the preparedness phase is to reduce the adverse affects of disasters, to save lives, and minimize damage when an emergency occurs (Brumbaugh Keeney, 2004).

The response phase of emergency management takes place during the disastrous event. Response activities include putting preparedness plans into action (FEMA, 2009). The general mission of response efforts is to save lives, reduce suffering, and prevent further damage in an emergency situation (FEMA, 2011b). Recovery is the final phase of disaster management which takes place after the catastrophic event. Accordingly, the recovery phase is the longest phase of an emergency situation and may be considered a period of reconstruction (Brumbaugh Keeney, 2004). Disaster recovery efforts focus on returning communities back to a normal or safer situation following an emergency.

Role of occupational therapy

The focus of occupational therapy is to promote health, prevent disease and disability, and support participation in life through engagement in occupations. Accordingly, the profession considers an “occupation” to be anything a person does with meaning and purpose (AOTA, 2008). Following a disaster, individuals and communities experience profound occupational disruption and require adjustment and adaptive responses to role changes, balance of valued occupation, and occupational performance in daily routines (Blair, 2000; Rosenfeld, 1989). Therefore, occupations are used as an effective intervention during these stressful times to both moderate the effects of disaster and promote health and well-being (AOTA, 2008). According to McColl (2002), occupations serve as a source of healing and relief. In fact, the absence of occupational engagement is believed to compromise both physical and mental health. Occupations may also be used to divert individuals from their current difficulties as a means to find satisfaction and a sense of control (McColl, 2002). Engagement in occupation amidst a crisis reinforces normal daily habits, meaningful roles, and restores predictability in the aftermath of traumatic situations (Davis, 1999; McColl, 2002). In general, occupation is used by therapists to encourage feelings of competency, autonomy, mastery, and self-worth (Clark, 1999).

Occupational therapists are also uniquely qualified to help with disaster response efforts due to their specialized knowledge of neuromuscular and psychosocial components of occupational performance, the ability to assess occupational performance abilities and/or deficits, and the ability to grade occupations to meet the needs of individuals (Gerardi, 1999). As healthcare providers during the stressful periods of disaster, it is important to recognize and treat the psychological effects of a crisis situation, as they are often more lasting than the temporal

physical consequences (Davis and Kutter, 1997). Conveniently, the foundations of occupational therapy are deeply rooted in the field of mental health so therapists can bring a perspective of rehabilitation to mental health services (AOTA, 2010a). Although there is overlap with other professions regarding the knowledge, skills, and attitudes regarding mental health provision, occupational therapists bring a unique approach to intervention through their belief in the use of occupation. In fact, the United States Army has incorporated occupational therapists on mental health teams for many years to assist soldiers, their families, and civilians in coping with reactions to abnormal situations (Oakley, Caswell, and Parks, 2008). Occupational therapists may also promote mental health and prevent mental health problems by providing education on stress management, coping skills, cognitive skills, relaxation training, and healthy living skills (AOTA, 2010a; Davis and Kutter, 1997; Clark, 1999).

As previously described, occupational therapists possess a unique, holistic knowledge and skill set that make them appropriate practitioners to be a part of multidisciplinary disaster teams. Occupational therapists have the opportunity to be included within every phase of disaster management and should select their involvement based on individual skill level, experience, and community need. More specifically, during the mitigation and preparedness phases of disaster management an occupational therapist could participate in both facility and community-wide planning efforts, assist in school emergency care plans, help to design special-needs shelters to decrease environmental barriers, train staff/volunteers in shelter operations, and assist businesses and employers in developing plans for evacuating employees with disabilities. During the response phase of a disaster an occupational therapy practitioner could provide mental health services to victims, their families, and first responders following a disaster. They are also qualified to set-up and manage special needs shelters and provide occupational

interventions both within the shelter or other living facilities to promote functional independence. The physical consequences of crisis situations may also permit an occupational therapist to fit and educate individuals on splint use, monitor skin conditions in patients following amputations, or introduce compensatory and energy conservation techniques for those less medically stable. Finally, in the recovery phase an occupational therapist could help to promote occupational engagement as a diversion from stressful events and to reestablish balance in activities of daily living, work, leisure, and social participation.-

The purpose of this study was to assess the level of knowledge among occupational therapists in disaster terminology and their attitudes toward a more prominent role in disaster preparedness, response, and recovery. Literature regarding the role of the profession in this specialty area of practice is limited and no current research has explored the attitudes of occupational therapists toward disaster training and involvement in each of the phases of disaster management.

Methods

Pilot study and instrument modification

Prior to UTHSC Institutional Review Board review and approval, a pilot study was conducted to finalize the survey instrument and establish face validity. A total of four occupational therapists and one physical therapist participated in the pilot study. The participants were requested to provide feedback regarding the time required to complete the survey, the clarity of the questions, and the validity of the content. The survey was then modified according to the feedback. The study was reviewed and approved by the UTHSC Institutional Review Board # 107610.

Participants

Licensed occupational therapists within the state of Ohio were solicited for this study to assess knowledge and attitudes toward their role in disaster preparedness, response, and recovery. A database of all registered, licensed occupational therapists was acquired through the Ohio Occupational Therapy Board of Licensure. All occupational therapists licensed within the state of Ohio who had valid email addresses were granted the opportunity to participate in the study. The survey was distributed electronically to occupational therapy professionals with an invitation to contribute their knowledge and attitudes for the current research study.

Research Design

A survey research design was used to systematically collect data from participating occupational therapists using a three part questionnaire.

Instruments

The knowledge and attitudes of occupational therapists questionnaire, regarding the potential role of occupational therapy in disaster preparedness, response, and recovery, was created for the current study since no present scale exists within this novel area of practice. Please see Appendix A. The questionnaire included thirty-one questions covering areas of demographic information, opinions of occupational therapists' toward their role in disaster management, and their knowledge of disaster and emergency preparedness content. The first section requested personal and professional demographic information about the individual participants. The second part of the questionnaire addressed the occupational therapists' opinion toward their role in disaster management and their experience in disaster situations. This section consists of nine yes or no responses and was utilized to assess the potential interest and / or involvement of occupational therapists in this novel area of practice. The third part of the questionnaire addressed content in disasters and emergency preparedness to assess the

practitioners' knowledge in this area. The disaster knowledge test contained eight questions with multiple choice and true or false responses and was scored according to the number of correct responses provided by the participant. The final section of the survey assessed the attitudes therapists have regarding the role of occupational therapy in an emergency or disaster situation. The participant was asked to rate his or her agreement on each of the nine statements using a four-point Likert scale ranging from strongly agree, agree, disagree, to strongly disagree.

Procedures

The survey was distributed electronically to 4,578 licensed occupational therapists through registered email addresses obtained from the Ohio Occupational Therapy, Physical Therapy, and Athletic Trainers (OT/PT/AT) Licensure Board. Invitation emails were sent containing a cover letter (see Appendix B) explaining the purpose of the study and an active link to the survey. Informed consent was assumed with completion of the survey. A reminder email (see Appendix C) containing the link for the survey was sent to all potential participants approximately two weeks after the first email to elicit a higher response rate.

Results

Demographics

Four thousand five hundred seventy-eight surveys were distributed electronically and 601 were completed representing an overall response rate of 13 %. Of the 601 participants, 9% were male, 90.5% were female, and 3 respondents (0.5%) did not indicate their gender. The mean age of the male participants was 43.46 years ($SD = 10.66$, $range = 25-68$) while the mean age of female participants was 42.79 years ($SD = 10.32$, $range = 24-69$). Participant professional entry-level preparation varied with 329 (54.7%) of the sample being educated at the bachelor's level, while 237 (39.4%) and 21 (3.5%) held masters and doctoral degrees, respectively. The mean

years of experience for male respondents was 16.20 years ($SD = 9.68$, $range = 1-41$) and a mean of 16.19 years of professional experience was reported by female respondents ($SD = 9.96$, $range = 1-47$). Ninety-two percent of participating occupational therapists ($n = 553$) indicated that they were currently practicing within the profession and working with patients.

Perceptions of abilities and experience

The majority of respondents reported that they have not volunteered their time in response to a disaster. In fact, only 65 participants (10.9%) indicated any involvement during a disastrous event. Additionally, while 100 (16.6 %) participants have taken a course in disaster preparedness and response, 442 (73.5%) indicated they would be interested in education to further their knowledge in this specialty area. Despite the lack of formal training and experience in disaster situations, 353 participants (nearly 59%) reported feeling capable of providing professional occupational therapy services during a disaster. However, 445 (75%) respondents indicated that they felt the most prepared to provide services during the recovery phase following a disaster versus any other phases.

Knowledge of disaster related content

Participants' knowledge of disaster terminology was briefly assessed through eight true / false and multiple choice questions with a mean score of 60% or greater considered passing (see Table 1). One hundred thirty eight (23%) achieved a passing score. Analysis of variance indicated there was no statistically significant difference in the mean knowledge score based upon entry-level education of the respondents ($F=1.109$, $df=4$, $p=ns$). However, it is noteworthy that a greater proportion of passing scores were observed with male participants (47% versus 40% of females) and among those that reported taking a course in disaster preparedness and response (49% versus 39% that did not). An independent t test was performed

to compare knowledge scores between females and males. Males demonstrated significantly higher mean scores, 47.22% correct (sd 19.68) than females who had a mean of 40.58% (sd 19.45) ($t=2.391$, $df=596$, $p=0.017$). An independent t test also revealed significant differences in knowledge scores between respondents who indicated they had taken a course on disaster medicine and those who did not ($t=4.524$, $df=596$, $p<0.001$). The 100 individuals who completed the course had a mean knowledge score of 49.13% (sd 18.57) in contrast to 39.56% (sd 19.35) for those who did not take a course.

The majority of participants, ($n=287$, 47.8%), correctly identified flooding as the most common natural disaster in the world. A greater number of respondents, ($n=361$, 60.1%), were able to recognize the recovery phase as the longest phase of a disaster and 448 (74.5%) were correct in their knowledge of the purpose of special needs registries. Finally, 341 (56.7%) respondents correctly indicated that botulism is not caused by an infection and 251 (41.8%) were aware that a greater number of responders at a disaster site is not always better for overall response efforts. Conversely, only ($n=24$) 4.0% of participants knew that CBRNE is an acronym that covers all common disasters. Five hundred twenty-seven (88%) reported that they did not know the general categories of blast injuries. Lastly, 332 (55.2%) respondents did not know that a disaster of biologic origin is not well defined.

Attitudes regarding the role of the occupational therapist in a disaster

The final section of the survey was analyzed to determine general attitudes regarding the role of occupational therapy in an emergency or disaster situation. A positive response was indicated by the majority of participants for each of the eight questions within the attitude section of the questionnaire (see Table 2). More specifically, 547 (91.0%) respondents agreed and strongly agreed that occupational therapists should be included in the preparedness phase of

disaster management and 517 (86.0%) agreed and strongly agreed that occupational therapists should be included in the mitigation phase. Five hundred sixteen (85.8%) participants also agreed and strongly agreed that occupational therapists should be included in the response phase and 572 (95.2%) agreed and strongly agreed to the inclusion of occupational therapy during the recovery phase. Additionally, the majority of participants were in agreement regarding the involvement of occupational therapists in disaster preparedness. Five hundred thirty nine (89.7%) indicated they strongly agreed and agreed that OTs should take part in the planning of shelter operations and 558 (92.9%) strongly agreed and agreed that occupational therapy should play a role in the evacuation planning of healthcare facilities. A total of 586 respondents (97.5%) strongly agreed and agreed that occupational therapists can provide valuable assistance in environmental modifications within shelters and disaster situations. Finally, 563 (93.7%) agreed and strongly agreed that occupational therapy is an appropriate profession to be a part of disaster response and recovery teams.

Discussion

The purpose of the present study was to assess the level of knowledge among occupational therapists in disaster terminology and their attitudes toward a more prominent role in disaster preparedness, response, and recovery. AOTA has recognized the specialized knowledge and skills for occupational therapists in times of disaster and further supported the inclusion of the profession in disaster management (AOTA, 2006). However, no research has been conducted to assess practitioners' knowledge and attitudes toward their involvement in this novel area of practice. The present study represents an initial step toward filling this gap of knowledge. The results of the study reflect the limited exposure of the field of occupational therapy in disaster management. For example, the majority of respondents reported that they

have not volunteered their time in response to a disaster with only 11% of the sample indicating involvement during a disastrous event. The need for improved access to disaster training in both classroom and professional settings is also warranted considering only 16.6 % of participants have taken a course in disaster preparedness and response. Although respondents who took the class scored significantly higher than those who did not, neither group's mean knowledge score was above the passing 60% criterion. Similarly while males' mean scores were significantly higher than females both scored below 50% indicating a need for further education. However, there appears to be great interest in this unique area of practice and an obvious recognition of a need for specific disaster training because 73.5% indicated they would be interested in taking a course to further their knowledge.

In general, it appears that the attitudes of occupational therapists within the state of Ohio are optimistic as the majority of respondents agreed that occupational therapy is an appropriate profession to be included within all phases of disaster management. In addition to completing the survey, a few participants took the time to share their personal interest and involvement in this area of practice. In fact, one participant reported working for the Department of Health and Human Services as the Assistant Secretary for Preparedness and Response. As a result of their expertise, this individual deployed to many disasters and terrorist incidents and had the opportunity to be a member of a Disaster Medical Assistance Team (DMAT) in which they were able to use their clinical skills in wound care and physical rehabilitation. To express their interest in the current research project the participant wrote

“I just wanted to take a moment and acknowledge your efforts to validate the Occupational Therapy profession in disaster response, recovery, and mitigation.”

Similar sentiments and personal interest in the topic were expressed by additional therapists.

For example, another respondent stated

“I have been extremely interested in disaster response for years and participated in the recovery phase after Katrina. I believe that OT would be an invaluable asset to all realms of disaster response. There is definitely a need for specific training in our area of expertise and I would love to hear the results after you have gathered all the data.”

Finally, yet another participant reported

“I LOVE the research topic given my EMS and OT background. I do believe that it would be appropriate to have an OT in the planning teams regarding preparedness, possible evacuation, and follow up of disasters for those with special needs.”

Overall, the results of the survey demonstrated that occupational therapists in the state of Ohio believe in a role for the profession in disaster response as nearly 58% of the participants reported feeling capable of providing professional services during a disaster, with the majority feeling the most prepared to provide services during the recovery phase.

Implications for occupational therapy

The American Occupational Therapy Association has recently called for the involvement of occupational therapists and justified our qualifications to provide services in times of disaster (AOTA, 2006). Considering the recent rise in disaster occurrences and their paralyzing effects on societies the time has come to reconsider disaster planning and mitigation procedures and all healthcare professionals involved in order to better manage the effects of future catastrophes. Occupational therapists bring a unique knowledge base and skill set to emergency training and should be included within all phases of disaster management. The results of the present study seem to correspond with the current involvement of the profession in this specialty area of

practice. For instance, the majority of participants have not taken a course in disaster training or volunteered their time in a catastrophic event. However, the majority of respondents did express interest in becoming more knowledgeable in this area in preparation of future events and did recognize a role for occupational therapists in every phase of disaster management. These results provide an optimistic view and hope for an increased role in disaster preparedness, response, and recovery with time. In order for the profession to have a stronger presence in this novel area of practice, occupational therapists need to take the initiative to get involved at the local level to obtain both didactic and experiential education. For instance, courses offered by the American Red Cross, Community Emergency Response Team (CERT) and Basic Disaster Life Support (BDLS) are intended to help prepare community members and health professionals in the management of hazards, injuries, and illnesses caused by disasters. Additionally, occupational therapists should join local Medical Reserve Corps and participate in full-scale exercises that simulate disasters. Ultimately, this type of autonomous involvement will help occupational therapists gain the necessary skills and background in disaster response. Moreover, occupational therapists need to be advocates for the profession and become more visible to other responders to demonstrate their unique knowledge base and skill set as an untapped asset within disaster management.

Limitations and future research

Several limitations in the current study deserve consideration when interpreting the results. The most significant limitation was the low response rate (13%) among occupational therapists in the state of Ohio making it difficult to generalize the findings. It is therefore unclear whether potential participants did not respond due to lack of interest, complications with accessing the survey, or the time of year that the survey was distributed. Another limitation to

consider is the use of survey research as a method of inquiry. Survey research has the potential for response bias and non-response bias that can influence the results of the study. Also, it is important to recognize that the use of a valid, reliable questionnaire greatly impacts the quality of a study. In the present study, a questionnaire was created since no instrument exists within this novel area of practice, making it difficult to determine whether the survey was an effective tool.

Additionally, the sample was limited to registered, licensed occupational therapists in the state of Ohio and therefore may not be representative of all practitioners in the United States. However, the diversity of the subject pool was similar to national trends as the majority (90.5%) of participants were female and 92% of occupational therapy practitioners are female (AOTA, 2010b). Future studies in disaster preparedness, response, and recovery should be conducted to determine whether increased knowledge in this unique area of practice will lead to more favorable attitudes and increased participation by the profession. The present study could be repeated to include a larger geographic region to increase the diversity of the sample. The knowledge portion of the current survey may also be revised to increase the reliability of the items. It should also be recognized that survey research cannot be used to assess an individual's performance in an actual or simulated disaster.

Conclusion

As a global community we are constantly reminded of the widespread and damaging effects of both natural and technological disasters. Furthermore, these disabling events have both long and short term negative impacts on the occupational performance of communities and individuals. Occupational therapists, with their holistic, humanistic, and scientific training have the opportunity to play a strategic role in the promotion of health and participation in life across the spectrum of disaster preparedness, response, and recovery. The current study has highlighted the

limited exposure of the profession within disaster management. However, the results also indicate that the majority of occupational therapists recognize and have a positive attitude toward disaster training and involvement in each of the phases of disaster management. Knowledge scores regarding disaster terminology also support the need for increased research and education among occupational therapists in this novel area of practice to become effective members of multidisciplinary disaster response teams. As the results imply, education in this area of practice is both warranted and essential for involvement by the profession. Moreover, courses should be available to students through their occupational therapy curricula and practitioners through continuing education classes. Occupational therapists may increase knowledge, training, and further establish a role for OT in disaster management, by volunteering for the American Red Cross and /or completing a Basic Disaster Life Support course. Occupational therapists need to take the initiative to join local Medical Reserve Corps and participate in full-scale exercises that simulate disasters. Involvement at this level will help occupational therapists gain the necessary skills and background in disaster response and make a strong presence among other responders. Likewise, for occupational therapy practitioners to become a part of the solution we must continue to be advocates for the profession and for the use of occupation to decrease the effects of disasters and improve the quality of life for all involved. To expand the role of occupational therapy we need to be bold and create opportunities to meet societies' occupational needs. We must continue to educate others about our profession through courage, leadership, and by emulating the efforts of previous leaders in the field that helped to open many doors. We have to seek this opportunity as a viable profession in disaster management to rebuild communities, promote independence, facilitate recovery from mental illness, or rehabilitate the wounded. Therefore, as leaders in occupational therapy we need to reinforce and articulate the values of the

profession, be knowledgeable about private agencies and national, state, and local governments involved in disaster management, and develop skills and train for a role in disaster response and recovery.

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Appendix A
A Survey of Knowledge and Attitudes

1. Age: _____
2. Gender: _____
3. What is your entry level preparation to provide Occupational Therapy services?
Associates Bachelors Masters Doctorate Other _____
4. Are you a practicing Occupational Therapist currently working with clients/patients?
Yes No
5. How many years have you practiced as an Occupational Therapist? _____

When answering the following questions please consider that the term *disaster* may be defined as “an event that exceeds the capabilities of the response; a disaster is present when need exceeds resources. Disaster = Need > Resources” (American Medical Assoc., 2007).

6. Do you feel capable of providing professional occupational therapy services during a disaster?
Yes No
7. Have you ever volunteered your time in response to a disaster?
Yes No
8. Have you taken a course in disaster preparedness and response?
Yes No
9. Would you be interested in taking a course on disaster preparedness and response?
Yes No
10. Do you feel prepared to provide occupational therapy services during the mitigation phase, following a disaster?
(The mitigation phase includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies. Mitigation activities take place before and after an emergency occurs.

During the mitigation phase an occupational therapy practitioner could identify strategies for providing services to special needs populations.)

Yes No

11. Do you feel prepared to provide occupational therapy services during the preparedness phase?

(The preparedness phase includes plans or preparations made to save lives and to help response and rescue operations. Preparedness activities take place before an emergency occurs. In preparation for disaster occupational therapists could participate in both facility and community-wide planning efforts, help to design special-needs shelters and train staff/volunteers, and assist businesses and employers in developing plans for evacuating employees with disabilities.)

Yes No

12. Do you feel prepared to provide occupational therapy services during the response phase following a disaster?

(The response phase includes actions taken to save lives and prevent further property damage in an emergency situation by putting preparedness plans in action. Response activities take place during an emergency. An occupational therapy practitioner could provide mental health services to victims, their families, and first responders during the response phase following a disaster. They may also set-up and manage special needs shelters and provide occupational interventions within shelters.)

Yes No

13. Do you feel prepared to provide occupational therapy services during the recovery phase, following a disaster?

(The recovery phase includes actions taken to return to a normal or more safe situation following an emergency. Recovery activities take place after an emergency. During the recovery phase an occupational therapist could help to promote occupational engagement as a diversion from stressful events and to reestablish balance in activities of daily living, work, leisure, and social participation.)

Yes No

14. Do you have a personal emergency plan?

Yes No

The following questions address content in disasters and emergency preparedness. Please provide an answer for each item and do not guess.

15. CBRNE is an acronym that covers all common disasters.

True False Don't Know

16. The most common natural disaster in the world is.

Tornado Flood Earthquake Wildfire Don't Know

17. The longest phase of a disaster is?

Mitigation Preparedness Response Recovery Don't Know

18. The more people that respond to a disaster the better.

True False Don't Know

19. A disaster of biologic origin is well defined.

True False Don't Know

20. Botulism is caused by an infection.

True False Don't Know

21. There are ____ general categories of blast injuries.

One Two Three Four Don't Know

22. Special needs registries (SNRs) have been developed in communities to help with early identification, evacuation information, and to assist with sheltering needs.

True False Don't Know

Now, please share your opinion regarding the role of the occupational therapist in an emergency or disaster.

23. Occupational therapists should be included in the preparedness phase of disaster management.

Strongly Agree Agree Disagree Strongly Disagree

24. Occupational therapists should be included in the mitigation phases of disaster management.

Strongly Agree Agree Disagree Strongly Disagree

25. Occupational therapists should be included in the response phase following a disaster.

Strongly Agree Agree Disagree Strongly Disagree

26. Occupational therapists should be included in the recovery phase following a disaster.

Strongly Agree Agree Disagree Strongly Disagree

27. Occupational therapists should be involved in the planning of shelter operations.

Strongly Agree Agree Disagree Strongly Disagree

28. Occupational therapists should be involved in the evacuation planning process for special needs populations.

Strongly Agree Agree Disagree Strongly Disagree

29. Occupational therapists should be involved in the evacuation planning of healthcare facilities.

Strongly Agree Agree Disagree Strongly Disagree

30. Occupational therapists can provide valuable assistance in environmental modifications within shelters and disaster situations.

Strongly Agree Agree Disagree Strongly Disagree

31. Occupational therapy is an appropriate profession to be a part of disaster response and recovery teams.

Strongly Agree Agree Disagree Strongly Disagree

Thank you for your time and participation!

Appendix B
Survey Cover Letter and Informed Consent

Approved by University of Toledo IRB # 107610

Dear Occupational Therapist:

We are constantly reminded how vulnerable we are as a society to both man-made and natural disasters. In fact, in 2010, a total of 385 natural disasters killed more than 297,000 people worldwide and affected over 217.0 million others. Additionally, the year 2011 brings about the 10 year anniversary of the terrorist attacks on the World Trade Center. As expected, these types of disasters have had both short and long term negative impacts on the occupational performance of individuals and communities. Occupational therapists help to facilitate engagement in meaningful occupations to support participation in valued life roles and quality of life and therefore should have a role in responding to disasters. However, it is unknown whether occupational therapists feel they should play a role in disaster preparedness, response, and recovery.

You have been selected as part of a random sample of occupational therapists to participate in a survey regarding your knowledge about disasters, feelings toward your role in disaster management, and your willingness to get involved. This is an area that we feel is important to occupational therapy and yet it is relatively unexplored. This study is being conducted in partial fulfillment of the requirements for Mrs. Baker's doctoral degree in Occupational Therapy at the University of Toledo, Health Sciences Campus. The results from this study will be used for research purposes only.

The following questionnaire will take approximately 10 minutes of your time. Your participation in this study is voluntary and anonymous. By completing this survey you are giving your consent to participate in this study. The information you provide will be held in the strictest confidence. The questionnaire may be accessed at <https://vovici.com/wsb.dll/s/15b20g4d83c>. Please complete the questionnaire by December 30th, 2011. If you should have any questions or concerns regarding this survey or its contents, please do not hesitate to contact us. Dr. Christopher Bork from the Department of Public Health & Preventive Medicine at the University of Toledo can be reached at 419-383-6301. We may also be reached via email at Christopher.Bork@utoledo.edu or Sarah.Baker@rockets.utoledo.edu.

Your time and assistance is greatly appreciated,

Sincerely,

Sarah Baker, B.S., OTS
Student Investigator

Christopher Bork, Ph.D., EMT-B
Faculty Research Advisor and Principal Investigator

Appendix C
Survey Cover Letter and Informed Consent

Approved by University of Toledo IRB # 107610

Dear Participant:

Approximately two weeks ago you should have received an invitation to complete a survey regarding your knowledge and attitudes toward disaster preparedness, response, and recovery. This email is a reminder that if you wish to participate in this study the survey must be completed as soon as possible. The questionnaire may be accessed at <https://vovici.com/wsb.dll/s/15b20g4d83c> and will take approximately 10 minutes of your time. Your participation in this study is voluntary and anonymous. Your reply will be held in the strictest confidence. By completing this survey you are providing your consent to participate in this study. If you should have any questions or concerns regarding this survey or its contents, please do not hesitate to contact us. Dr. Christopher Bork from the Department of Public Health & Preventive Medicine at the University of Toledo can be reached at 419-383-6301. We may also be reached via email at Christopher.Bork@utoledo.edu or Sarah.Baker@rockets.utoledo.edu.

If you have already completed the survey, please disregard this email and I thank you for your participation.

Your time and assistance is greatly appreciated.

Sincerely,

Sarah Baker, B.S., OTS
Student Investigator

Christopher Bork, Ph.D., EMT-B
Faculty Research Advisor and Principal Investigator

Table 1

Survey of Knowledge Results – 8 Items

Questions	Percent Correct
Knowledge of disaster related content	
CBRNE is an acronym that covers all common disasters (<i>True</i>).	4.0%
The most common natural disaster in the world is (<i>Flood</i>).	47.8%
The longest phase of a disaster is (<i>Recovery</i>).	60.1%
The more people that respond to a disaster the better (<i>False</i>).	41.8%
A disaster of biologic origin is well defined (<i>False</i>).	39.1%
Botulism is caused by an infection (<i>False</i>).	56.7%
There are (<i>Four</i>) general categories of blast injuries.	5.8%
Special needs registries have been developed in communities to help early identification, evacuation information, and to assist with sheltering(<i>True</i>)	74.5%

Table 2

Attitudes Survey – 8 Items

Questions	Percent of participants who strongly agreed / agreed
Attitudes regarding the role of OT in a disaster	
Occupational therapists should be included in the preparedness phase of disaster management.	91%
Occupational therapists should be included in the mitigation phase of disaster management.	86%
Occupational therapists should be included in the response phase following a disaster.	85.8%
Occupational therapists should be included in the recovery phase following a disaster.	95.2%
Occupational therapists should be involved in the planning of shelter operations.	89.7%
Occupational therapists should be involved in the evacuation planning of healthcare facilities.	92.9%
Occupational therapists can provide valuable assistance in environmental modifications within shelters and disaster situations.	97.5%
Occupational therapy is an appropriate profession to be a part of disaster response and recovery teams.	93.7%