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HOSPITAL EMPLOYEE WILLINGNESS TO WORK DURING EARTHQUAKES VERSUS PANDEMICS

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☐ **Abstract—Background: Research indicates that licensed health care workers are less willing to work during a pandemic and that the willingness of nonlicensed staff to work has had limited assessment. Objective: We sought to assess and compare the willingness to work in all hospital workers during pandemics and earthquakes. Methods: An online survey was distributed to Missouri hospital employees. Participants were presented with 2 disaster scenarios (pandemic influenza and earthquake); willingness, ability, and barriers to work were measured. *T* tests compared willingness to work during a pandemic vs. an earthquake. Multivariate linear regression analyses were conducted to describe factors associated with a higher willingness to work. Results: One thousand eight hundred twenty-two employees participated (15% response rate). More willingness to work was reported for an earthquake than a pandemic (93.3% vs. 84.8%; $t = 17.1$; $p < 0.001$). Significantly fewer respondents reported the ability to work during a pandemic (83.5%; $t = 17.1$; $p < 0.001$) or an earthquake (89.8%; $t = 13.3$; $p < 0.001$) compared to their willingness to work. From multivariate linear regression, factors associated with pandemic willingness to work were as follows: 1) no children ≤3 years of age; 2) older children; 3) working full-time; 4) less concern for family; 5) less fear of job loss; and 6) vaccine availability. Earthquake willingness factors included: 1) not having children with special needs and 2) not working a different role. Conclusion: Improving care for dependent family members, worker protection, cross training, and job importance education may increase willingness to work during disasters.** © **2015 Elsevier Inc.**

☐ **Keywords—disaster; earthquake; pandemic; preparedness; willingness to work**

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INTRODUCTION

The willingness of hospital staff to report to work during disasters is paramount given that staff in all areas are necessary to maintain hospital functioning. Previous researchers have shown that factors affecting staff willingness to work during disasters are multidimensional, complex, and vary across occupations (1–3). In particular, previous studies have identified the following factors as having an impact on workers' ability and willingness to work during disasters: type of disaster, with workers being less willing to work during a biological or radiological event; occupation; perceived importance of job role during disaster response; concern for family; and perceived confidence that the employing hospital will provide worker protection during an event (1,2,4–13).

Some researchers, including Qureshi et al. and Garrett et al., have assessed willingness to work among health care personnel employed in urban-based hospitals, but no study has evaluated a broader sample of hospital workers spanning multiple hospital sizes and types

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(2,5). In addition, most previous research has either focused on those directly involved in patient care services or looked at ancillary staff as a group—rather than the full spectrum of ancillary staff whose absence during a disaster would significantly hamper the overall functioning of the hospital. Understanding where the largest potential absentee gaps exist within staff areas allows for more focused disaster planning and education to those areas. With this information, disaster planners may develop a greater understanding of who will actually show up for work—this in turn will allow for improved distribution of these limited staff throughout the hospital. For instance, it may be determined that staff should not work in their usual capacity but rather in staffing decontamination teams or transporting patients. The purposes of this study are as follows: 1) assess willingness (desiring to work) of hospital staff to report to work during a natural disaster (earthquake) compared to a biological event (pandemic influenza), and 2) identify factors associated with lower willingness and ability (i.e., able to get to and function at work) to work in both scenarios.

METHODS

In the fall of 2011, a link to an online survey was sent to the director of disaster preparedness of each hospital in the Missouri Hospital Association (MHA) that agreed to participate in the study. The survey was sent to all hospitals in the MHA. Directors at each facility were asked to forward the survey link to all hospital staff/employees. Reminder emails were sent to disaster preparedness directors 2 weeks later. The electronic survey was also made available to hospital staff at the annual employee disaster fair at the principal investigator's hospital. All employees/staff members were eligible to participate. However, only those hospitals where a response rate could be calculated were included in the analysis.

Survey Questionnaire

Instruments used in past willingness to work during disaster surveys were used to develop this study's questionnaire (1,2,4–13). The instrument measured staff willingness, ability, and barriers to working during both pandemic influenza and earthquake scenarios. In addition, staff were asked about personal responsibilities that may affect their ability to work during a disaster, including having children or needing to provide care for elders, disabled family members, pets, or farm animals. Finally, the survey assessed demographics and prior Incident Command System (ICS) training. Hospitals were defined as small (≤100 beds), medium (101-250 beds), or large (≥250 beds). Hospitals were also defined as being located in a major metropolitan/urban area (Saint Louis and Kansas City) or in a rural area; no participating hospitals were located in suburban areas. Nonancillary staff was further defined as administrators versus all other clinicians; all other occupations were considered ancillary.

Participants were presented with 2 disaster scenarios: an influenza pandemic in which a vaccine is not immediately available and an earthquake. These scenarios were chosen because of the relevance of these scenarios for participants—Missouri is an area where earthquakes are a known hazard, and employees had recently had experience with the 2009 H1N1 pandemic, allowing them to have some personal experience to draw on when answering survey questions. Participants were told that their employer would provide personal protective equipment in the pandemic scenario and that their home was undamaged and household members were unharmed in the earthquake scenario. In addition, both scenarios involved school and daycare closures. After each scenario was presented, participants were asked a series of attitudinal and belief questions regarding their willingness and ability to report to work. Each question was answered on a continuum of 0 to 100, indicating complete disagreement (0) to complete agreement (100) with that statement, resulting in continuous variables. The following was assessed for the pandemic and earthquake scenarios: 1) willingness to work; 2) ability to work; 3) perceived responsibility to work; 4) perceived job importance; 5) perceived barriers to working; and 6) intent to work for scheduled and unscheduled shifts. Ten perceived barriers were prospectively identified and assessed: 1) transportation; 2) childcare; 3) elder care; 4) pet care; 5) concern for family; 6) fear of personal harm; 7) fear of lawsuit; 8) different role in disaster response; 9) fear of losing job; and 10) second job responsibility (10). In addition, a follow-up question regarding willingness to work during a pandemic was asked after respondents were told that a pandemic vaccine was now available.

A group of 10 U.S. disaster preparedness researchers provided feedback on the content validity of the survey questions. The content validity index (CVI) was computed for each item (14). No items had a CVI <0.80, so none were deleted. Items were revised based on feedback from the CVI panel. The final survey contained 33 questions plus demographic items. The questionnaire was then pilot-tested using a group of 10 hospital employees from a variety of occupations. The study was considered exempt by the university's institutional review board.