



Household Emergency Preparedness Instrument Development: A Delphi Study



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Objective

- To generate a consensus on the concept definition of **household emergency preparedness (HEP)** from experts representing multiple disciplines & countries, along with community stakeholders, facilitating development of an all-hazards, comprehensive, easily understandable, valid & reliable **HEP** instrument.

Background

- Increased levels of **HEP** could
 - save lives
 - prevent worsening of chronic medical conditions
 - increase likelihood to report to work during disasters^{1,2}
- Currently there is no commonly used, benchmark **HEP** instrument
- Accurate assessment of preparedness levels is critical for effective planning & necessary to enhance health promotion, prevent injuries & promote disaster-related community resilience

Methods

- Instrument questions were generated via three methods:
 - Literature search
 - Using existing instruments
 - Expert panels via the Delphi technique

Acknowledgement

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References

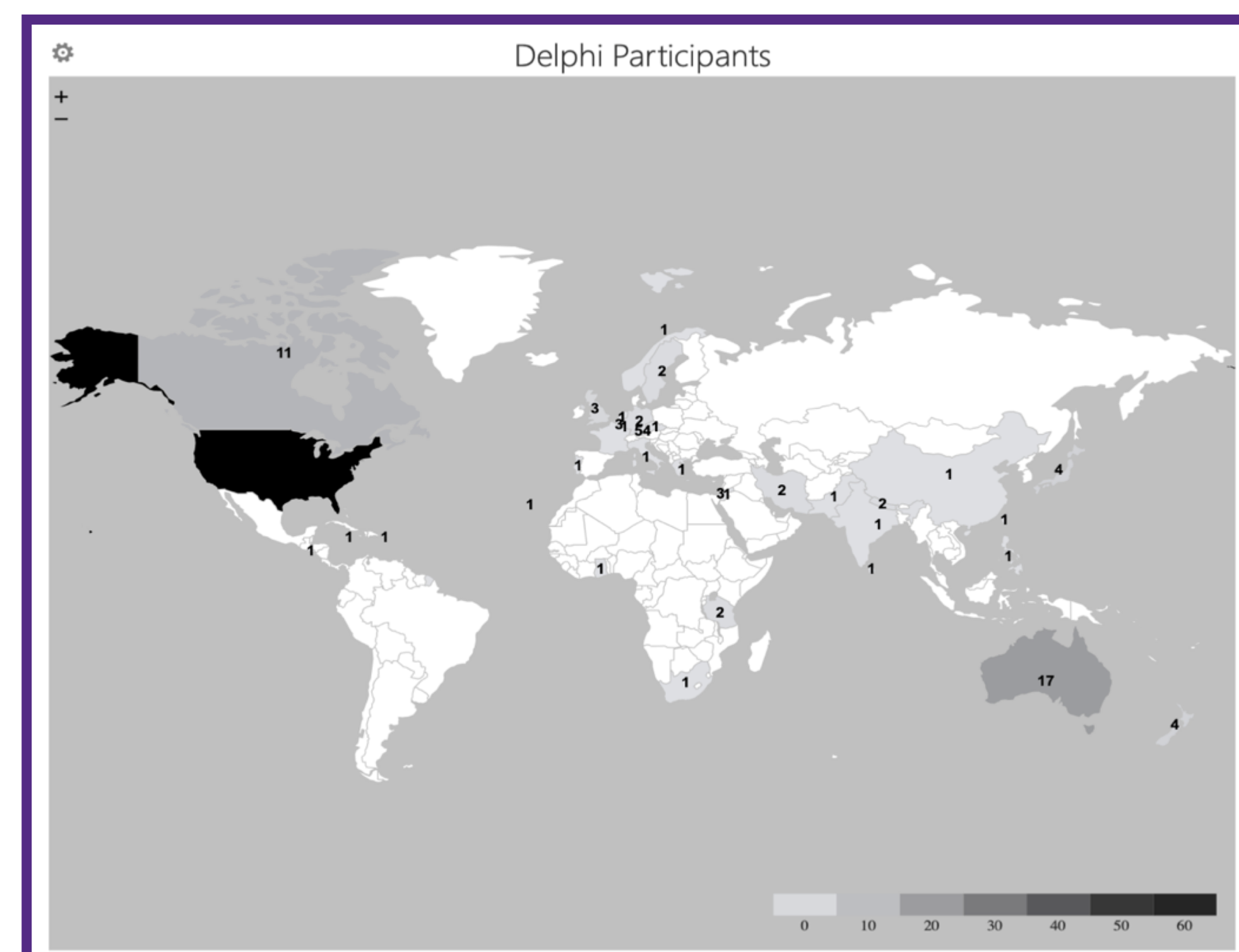
- McNeill CC, Alfred D, Mastel-Smith B, Fountain R, MacClements J. Changes in self-reported household preparedness levels among a rural population after exposure to emergency preparedness media campaign materials. *J Home Secur Emerg Manag.* 2016;13(1):1-23.
- Killian TS, Moon ZK, McNeill CC, Person-Michener J, Garrison MEB. Stories after disaster survival: Preparing, heeding warnings, and self reliance. *J Emerg Manag.* 2018;16(2):107-112.

Results

- After three rounds of the Delphi study, panelists (N=177) representing 36 countries came to a consensus that **HEP** is defined as
 - completion of several preparedness actions
 - assembling a disaster supply kit that can be readily transported in a precipitous evacuation
- A 42-question **HEP** instrument, with an optional 9-question subscale for respondents with health conditions was created
- Instrument demonstrates face, content & criterion validity & internal consistency reliability ($\alpha=.96$)
 - preparedness actions ($\alpha=.79$)
 - communication plans ($\alpha=.74$)
 - evacuation plans ($\alpha=.90$)
 - disaster supplies ($\alpha=.92$)
 - access & functional needs ($\alpha=.91$)

Summary and Conclusions

- Next steps
 - Pilot test the instrument
 - Evaluate the performance of each question
 - Determine which questions to keep on the final instrument
- Use the instrument to assess preparedness levels of vulnerable populations & provide evidence to support interventions addressing health needs of community members following a disaster



Concept Definition of Household Emergency Preparedness

Preparedness Actions

- Prepared & discussed a family emergency plan
- Practiced or drilled on what to do in an emergency at home
- Taken first aid training
- Has working smoke detectors
- Has a fire escape plan for the home
- Knows the types of disasters that are most likely to occur in their community
- Has signed up for a community emergency alert system
- Has important family documents in a waterproof, portable container or stored on a flash drive or cloud storage server
- Has supplies set aside in the home in a kit to use in case of disaster
- Checks the supplies regularly for expired items
- Knows how to turn off the utilities

Communication Plans

- Planned for how the family would contact each other in an emergency if they were separated
- Has written contact information of family & friends
- Has a way to receive information about disasters if there were no power or telephones (such as with a solar, hand-crank or battery-operated radio)

Evacuation Plans

- Has considered safe & unsafe places in the community
- Knows if the home is in an evacuation zone
- Has a plan on where to go
- Has planned which routes to take
- Has a source of transportation to leave the neighborhood quickly
- Has a family meeting place in case of separation
- Everyone in the home is aware of the evacuation plans
- Has family or friends that they could stay with
- Knows where the local emergency shelter is located
- Has a plan for what to take if they had to leave the home quickly
- Has prepared a small kit with emergency supplies to take with them
- If applicable, has an evacuation plan for the pets

Disaster Supplies

- 3.8 liters (1 gallon) of water per person per day for each person in the home for 1 week
- 1-week supply of ready-to-eat food that will not spoil for all those living in the home
- Moist wipes, hand sanitizer, soap & other personal hygiene supplies
- Non-electric portable lighting
- First aid kit
- Sleeping bag or warm blanket for each person
- Cash
- Batteries
- Matches
- Fire extinguisher
- Wrench, pliers, or multi-tool
- Other supplies if applicable (e.g., extra glasses/contact lenses, baby supplies, pet supplies)

Access & Functional Needs

- Has medical history, list of healthcare providers & advanced directives/provider's order for life-sustaining treatment form written on paper or stored on a flash drive or cloud storage server
- Has asked family or friends if they will be able to help in a disaster
- If applicable:
 - Has a written list of medications including dose
 - Has a 2-week supply of extra medications
 - Has a 2-week supply of special diet food, syringes, blood sugar monitoring strips, oxygen cylinders, or other needed medical supplies
 - Has a plan for an alternate power source for medical equipment or refrigerated medication in the event of a power outage
 - Has a cooler & cold packs for refrigerated medications