

# Complex Model of Emergency Preparedness: Psychological, Attitudinal, and Cognitive Covariates

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# Acknowledgments

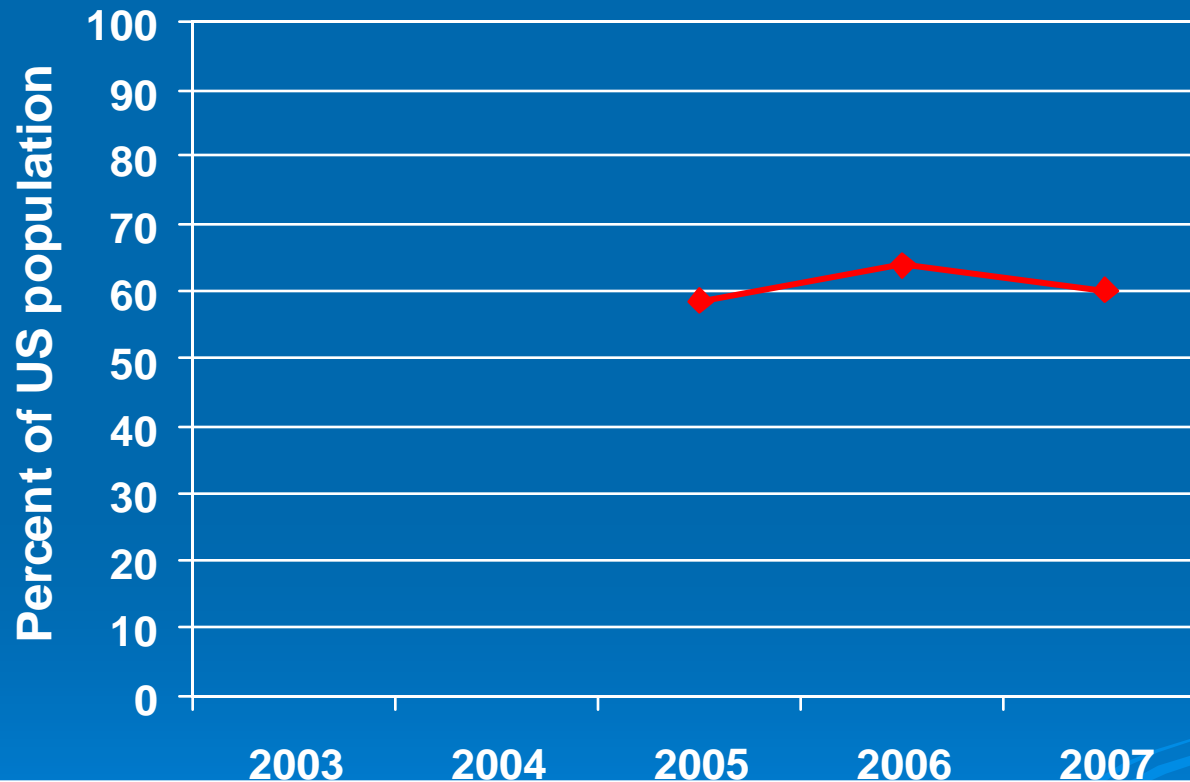
- National Center for Disaster Preparedness
  - Irwin Redlener, MD
  - Tasha Stehling-Ariza, MPH
  - Andrew Garrett, MD MPH
- The Children's Health Fund
  - Roy Grant
- Marist College Institute for Public Opinion
  - Kathleen Tobin-Flusser, MS
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# Tracking US Preparedness Behavior

- National RDD survey data, English + Spanish
- Collaboration of NCDP and The Children's Health Fund
- Conducted by Marist College Institute for Public Opinion
- Multiple waves
  - August 2002 (n=1,215)
  - August 2003 (n=1,373)
  - July 2004 (n=1,234)
  - July 2005 (n=1,315)
  - Oct 2005 (n=1,052)
  - August 2006 (n=1,207)
  - July 2007 (n=1,352)

# Trends 2003 - 2007

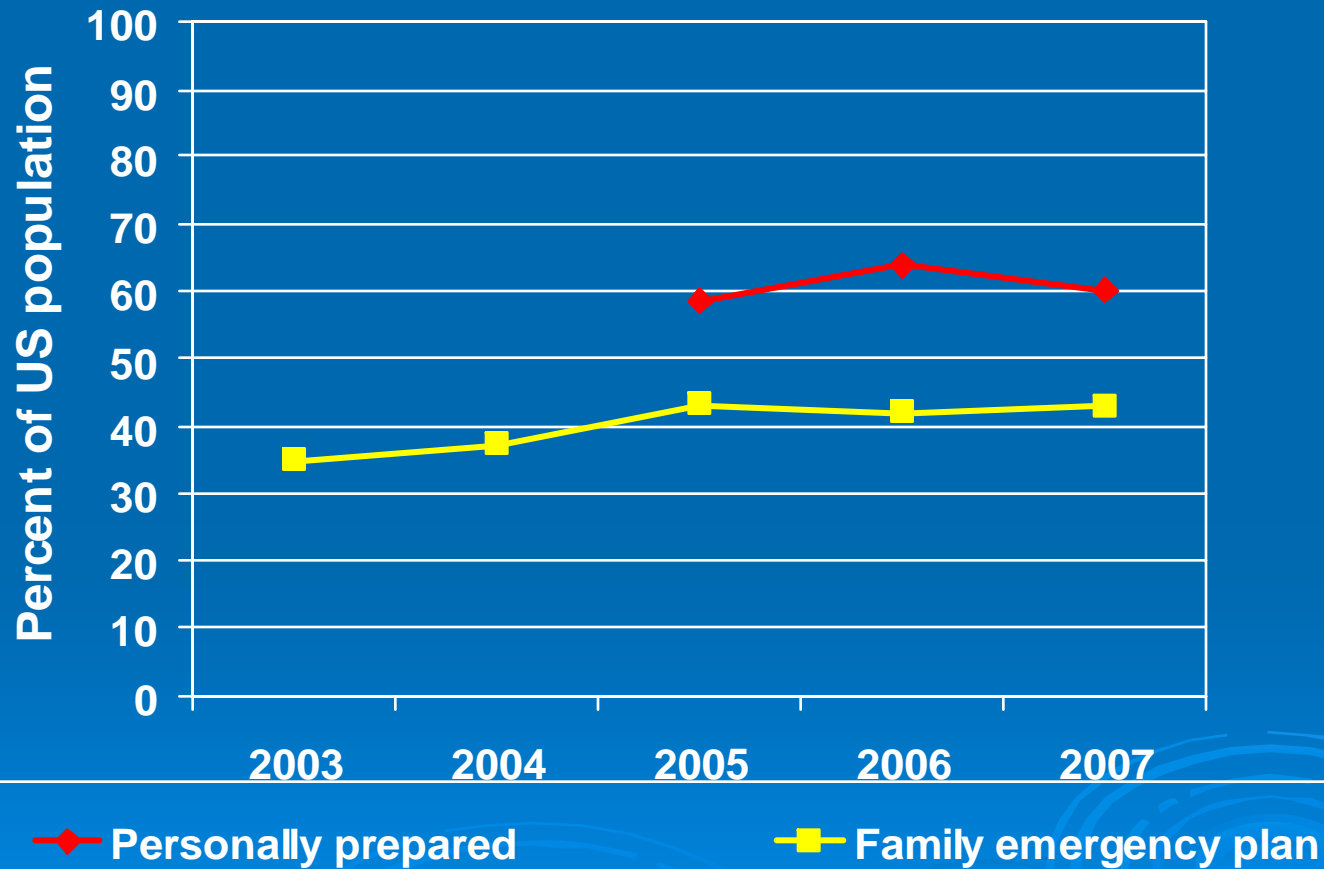
Q: Do you personally feel prepared or very prepared for a major disaster with warning such as a hurricane, flood, or wildfire in your community?



◆ Personally prepared

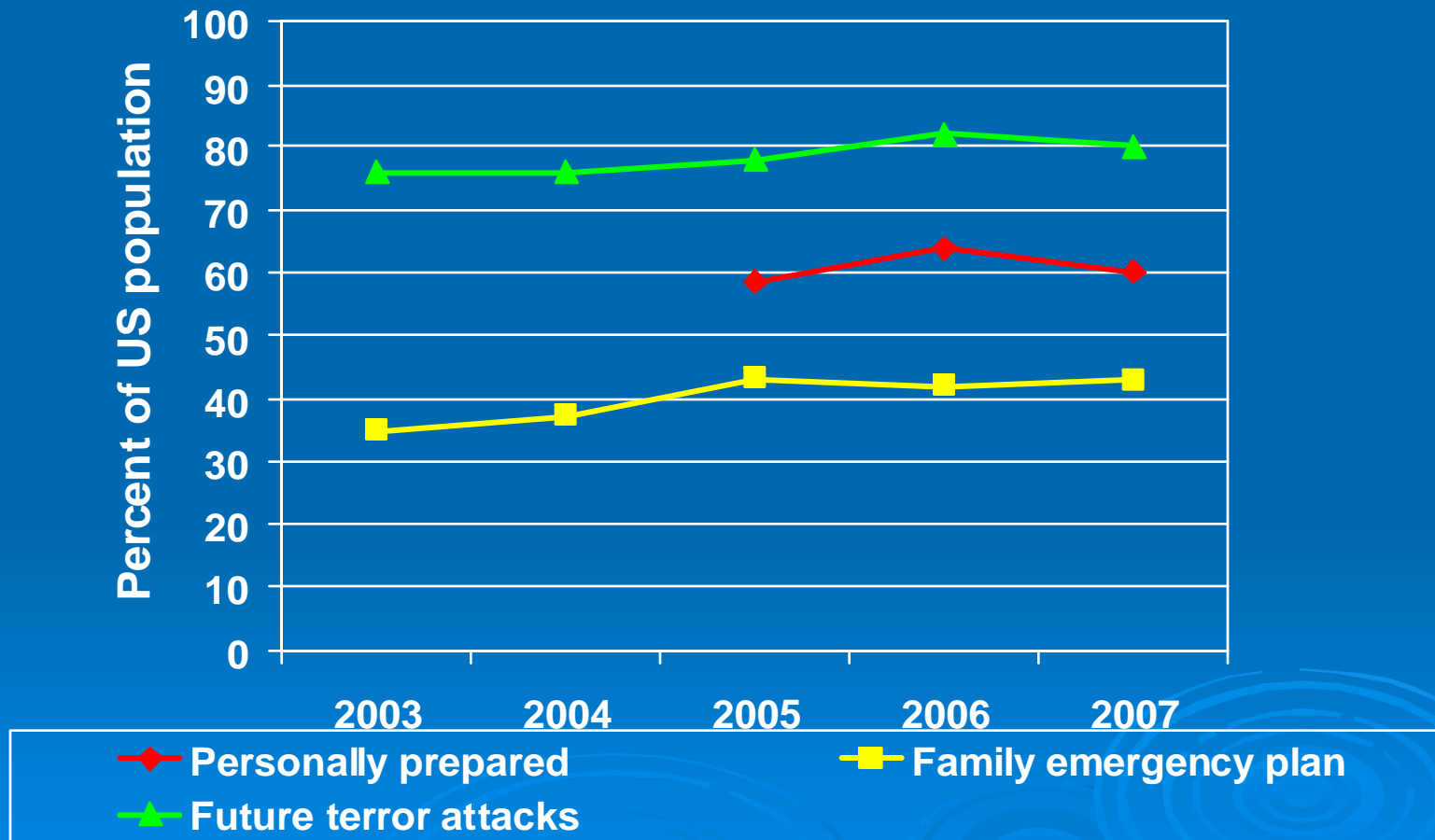
# Trends 2003 - 2007

Q: Do you have a family emergency preparedness plan that all family members know about?



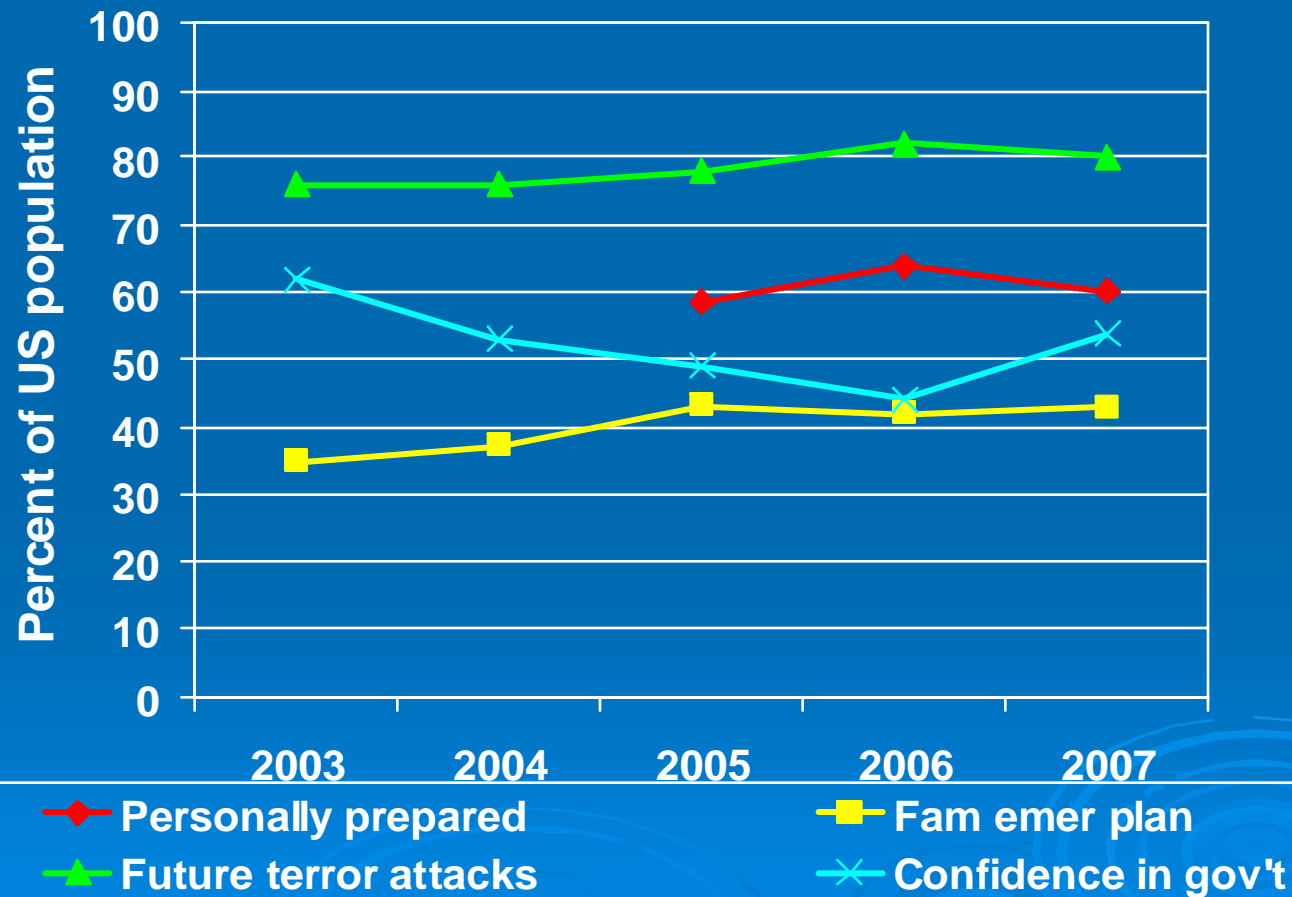
# Trends 2003 - 2007

Q: Are you concerned or very concerned about the possibility there will be more terror attacks in the US?



# Trends 2003 - 2007

Q: Are you confident or very confident in the government to protect the area where you live from a terrorist attack?



# Psychosocial Model of Emergency Preparedness

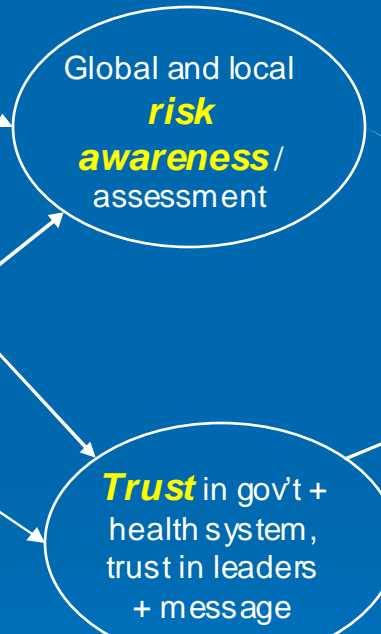
## Socio-demographics

- Age
- Gender
- Race/ethnicity
- Income
- Education
- Geo-setting (city, suburb, rural)
- Geo-region (east, west, etc)
- Political leaning
- Children in household

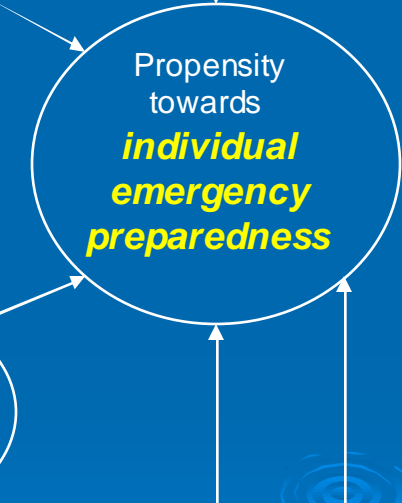
## Psychological & Cognitive



## Attitudinal



## Outcome





# Measuring Preparedness

## ➤ Salience

- Based on Prochaska's "Stages of Change"

## ➤ Instrumentality

- Strategic / Tactical preparedness

## ➤ Immediacy

- "Just-in-time" preparedness

# Saliience: Stages of Change

In thinking about preparing yourself for a major disaster, which could include gathering surplus food, medicine, or other supplies, or developing a plan such as having emergency contacts and meeting points, which of the following <b>best</b> represents your preparedness for a major disaster ...	Stage	%
<i>I am not planning to do anything about preparing</i>	Pre-contemplation	42
<i>I have not yet prepared, but I intend to in the next 6 mo.</i>	Contemplation	17
<i>I have not yet prepared, but I intend to in the next month</i>	Preparation	6
<i>I have just recently begun preparing</i>	Action	9
<i>I have been prepared for at least 6 months</i>	Maintenance	24

# Instrumentality: Strategic/Tactical Preparedness

Does your family emergency preparedness plan include all, some, or none of the following: at least 2 days of food and water, a flashlight, a portable radio and spare batteries, emergency phone numbers, and a meeting place for family members in case of evacuation ...	%
<i>All</i>	31
<i>Some</i>	12
<i>None / no plan</i>	57

# Immediacy: “Just-in-time” Preparedness

If you received warning of a major disaster, such as a hurricane, flood, or wildfire occurring in the next few days where you live, which of the following best describes your situation ...	%
<i>Completely prepared, everything you need for an emergency in the home or to evacuate</i>	11
<i>Mostly prepared, have most of what you need but still need to get or organize a few things</i>	34
<i>Partly prepared, still have to get most items</i>	26
<i>Not really prepared, not sure what you need, haven't organized for a possible evacuation</i>	27
<i>Don't know / unsure</i>	2

# Dependent variable: Salience + Instrumentality + Immediacy

Salience (Prochaska stages)	0 = not planning to, intend to in 6 months 1 = intend to next month, just began 2 = been prepared for 6 months
Instrumentality (kit)	0 = none 1 = some of the kit elements 2 = all of the elements
Immediacy (JIT)	0 = not prepared 1 = partially prepared 2 = mostly or completely prepared



# Attitudinal variables

## ➤ Risk perception

- Concern about terror attack in US
- Will personally experience disaster in next 5 years
- Rank risks of specific local disasters (0-10 scale): suicide bomb, major weather event, wildfire, industrial accident, earthquake, nuclear bomb

## ➤ Confidence

- In government to handle disaster
- In health care system to handle disaster
- Local community has adequate plan for disaster events
- Estimated time-to-arrival of first response after catastrophe

## ➤ Trust

- In officials to provide accurate and reliable information: CDC, FEMA, Mayor, Police Chief

# Psychological, Cognitive/Contextual variables

## ➤ Psychological

- Self-efficacy: can handle what comes my way, can deal with unexpected events
- Fatalism: not possible for average person to prepare
- Justice / desert: Luck is more important than preparation in order to survive a disastrous event
- Independence: Others turn to me to lead the way, or I turn to others for leadership or will wait for help to arrive

## ➤ Cognitive / Contextual

- Trained in CPR / First Aid
- Experience in uniformed service or first response
- Prior disaster exposure

## Logistic regression: Odds Ratio Predicting Being Fully/Mostly Prepared

Factor	Unadjusted OR	Adjusted OR
(Psych) <i>Dependence: I will turn to others for leadership</i>	0.44**	0.51*
(Psych) <i>I am confident I can deal with unexpected events</i>	4.48***	3.38**
(Psych) <i>Luck more important than preparedness to survive disaster</i>	0.44***	0.50***
(Psych) <i>The average person can't prepare for a disaster</i>	0.60***	0.92
(Att) <i>I am confident in community to handle disasters</i>	1.58**	1.70**
(Cog) <i>Trained in CPR or First Aid</i>	2.28***	1.49*
(Cog) <i>Experience in first response or uniformed service</i>	2.31***	2.12***
(Cog) <i>Prior disaster experience or exposure</i>	2.75***	1.57*
(Risk) <i>I will experience major disaster in next 5 years</i>	2.50***	2.07***
(Risk) <i>Perceived risk of local terror attack</i>	1.07**	1.03
(Risk) <i>Perceived risk of local weather event</i>	1.12***	1.00
(Risk) <i>Perceived risk of local wildfire</i>	1.09***	1.05
(Risk) <i>Perceived risk of local industrial accident</i>	1.06*	1.00
(Risk) <i>Perceived risk of local earthquake</i>	1.06**	1.00
(Risk) <i>Perceived risk of nuclear bomb</i>	1.06*	1.01
(Risk) <i>Concerned about terror attack in US</i>	1.58*	1.11

Notes: (1) Controlled for socio-demographic characteristics: gender, age, race/ethnicity\*, income, geographical setting, geographical region\*;  
 (2) only significant variables displayed; (3) Pseudo R<sup>2</sup> of adjusted model is .1617; (4) significance levels are: \* p<.05, \*\* p<.01, \*\*\* p<.001



# Predictors of full preparedness

- Psychological
  - Self-efficacy
  - Independence
  - Justice / desert (deservedness)
- Attitudinal
  - Belief in local community disaster capacity
- Cognitive
  - Past training or experience in CPR or uniformed service
  - Past disaster exposure or experience
- Risk
  - Directly perceived proximal disaster risk

## Multinomial regression: Threshold test of Somewhat vs. Fully/Mostly Prepared

Factor	Somewhat (coefficients)	Fully (coefficients)
(Psych) <i>Dependence: I will turn to others for leadership</i>	-0.78**	-0.97**
(Psych) <i>I am confident I can deal with unexpected events</i>	0.38	1.35**
(Psych) <i>Luck more important than preparedness to survive disaster</i>	-0.18	-0.78***
(Psych) <i>The average person can't prepare for a disaster</i>	-0.33*	-0.23
(Att) <i>I am confident in community to handle disasters</i>	0.50**	0.75***
(Cog) <i>Trained in CPR or First Aid</i>	0.62***	0.63**
(Cog) <i>Experience in first response or uniformed service</i>	0.27	0.59**
(Cog) <i>Prior disaster experience or exposure</i>	0.63***	1.03***
(Risk) <i>I will experience major disaster in next 5 years</i>	0.33	0.86***
(Risk) <i>Perceived risk of local terror attack</i>	0.01	0.04
(Risk) <i>Perceived risk of local weather event</i>	0.02	0.01
(Risk) <i>Perceived risk of local wildfire</i>	0.004	0.05
(Risk) <i>Perceived risk of local industrial accident</i>	-0.04	-0.01
(Risk) <i>Perceived risk of local earthquake</i>	0.03	0.01
(Risk) <i>Perceived risk of nuclear bomb</i>	0.03	0.06
(Risk) <i>Concerned about terror attack in US</i>	0.03	0.12

Notes: (1) Controlled for socio-demographic characteristics: gender, age, race/ethnicity\*, income, geographical setting, geographical region\*;  
 (2) only significant variables displayed; (3) significance levels are: \* p<.05, \*\* p<.01, \*\*\* p<.001; (4) both columns are compared to NOT PREPARED

# Threshold effects

	Factors sufficient for association with partial preparedness	Factors sufficient for association with complete preparedness
Psychological	<ul style="list-style-type: none"> <li>-- Independence</li> <li>-- Fatalism</li> </ul>	<ul style="list-style-type: none"> <li>-- Independence</li> <li>-- Self-efficacy</li> <li>-- Justice / desert</li> </ul>
Attitudinal	<ul style="list-style-type: none"> <li>-- Belief in local capacity</li> </ul>	<ul style="list-style-type: none"> <li>-- Belief in local capacity</li> </ul>
Cognitive	<ul style="list-style-type: none"> <li>-- Trained in CPR</li> <li>-- Prior disaster history</li> </ul>	<ul style="list-style-type: none"> <li>-- Trained in CPR</li> <li>-- Prior disaster history</li> <li>-- Uniformed service</li> </ul>
Risk		<ul style="list-style-type: none"> <li>-- Personal proximal disaster risk</li> </ul>

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