

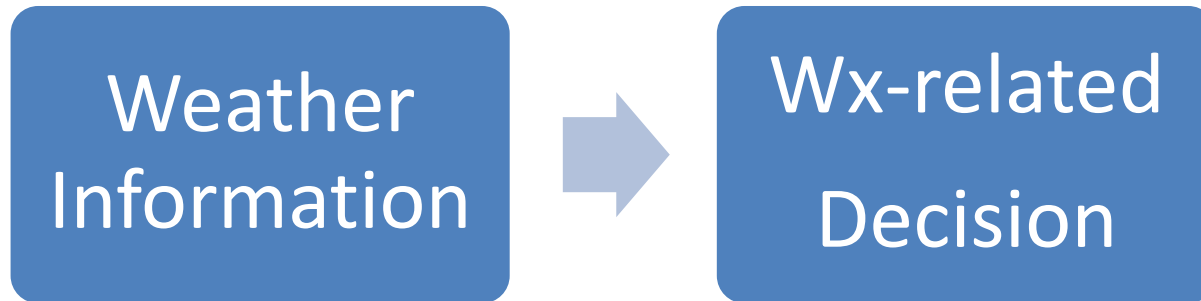


The General Public's Weather Information-Seeking and Decision-Making Behavior during Tornado Outbreaks in the Oklahoma City Metroplex in May 2013

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Research Questions



During the tornado outbreaks of
May 19th, May 20th, and May 31st, 2014

RQ1. How did people get information about the severe weather?

RQ2. How did people use weather information to make Wx-related decisions?

Background Knowledge

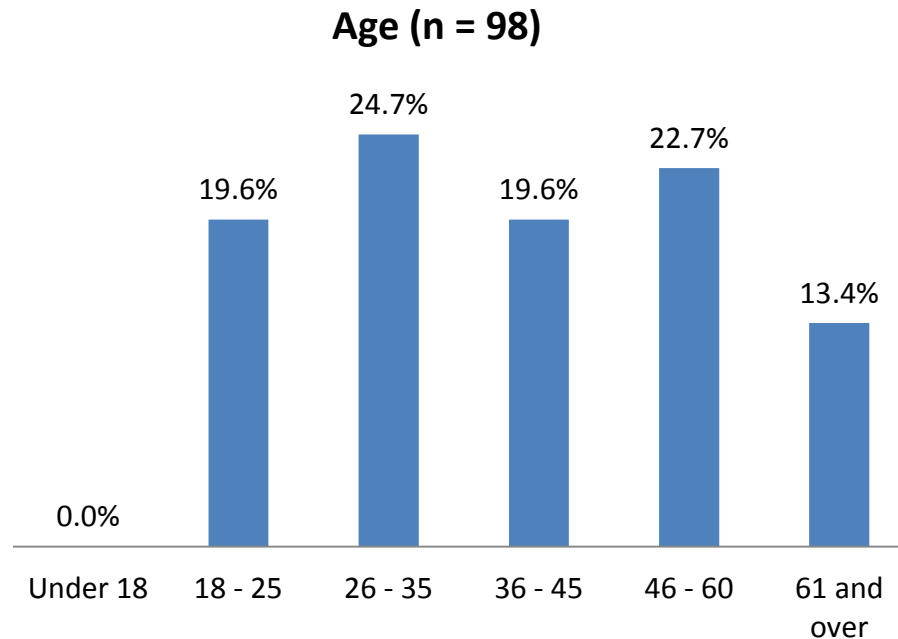
- Sorenson (2000):
 - The public receives severe weather information from many different media
 - Warning presentation style influences responses
- Hammer & Schmidlin (2002):
 - Recommends the use of a behavioral response survey over a behavioral intent survey
 - May 3, 1999 tornado responses:
 - 47% left their home
 - 65% fled to a storm shelter
- Mullins, Schultz, Knupp, & Klockow (2012): television was a primary information source for Alabama 2011 tornado responses

Survey Design

- Sections
 - Participant's weather background(Q1-10)
 - Sources of information and responses to severe weather (Q11-27)
 - Open-ended responses about experiences (Q28-31)
 - Demographics (Q32-39)
- Administration Method
 - Online and in person at public locations in the Oklahoma City area
 - Some participants consented to face-to-face interviews

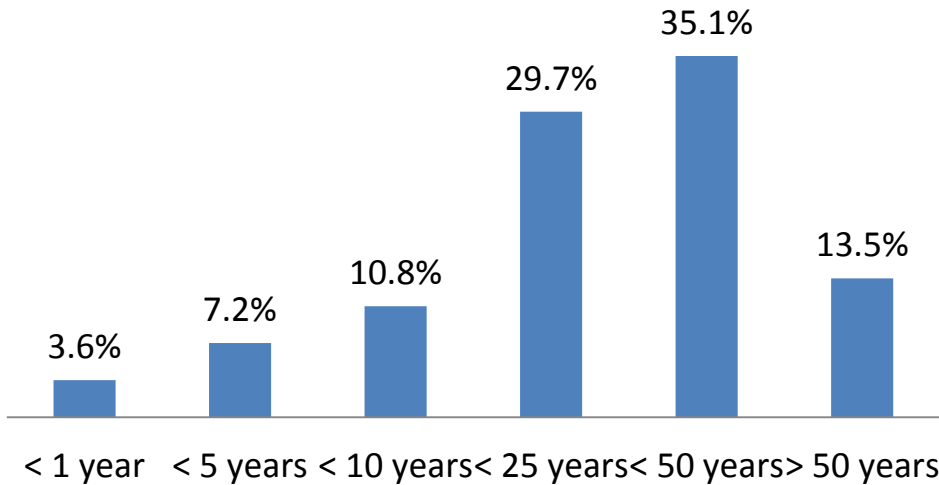
Participants

- 124 participants (some partial responses)
- 86% of respondents were within 5 miles of at least one tornado
- All age groups represented

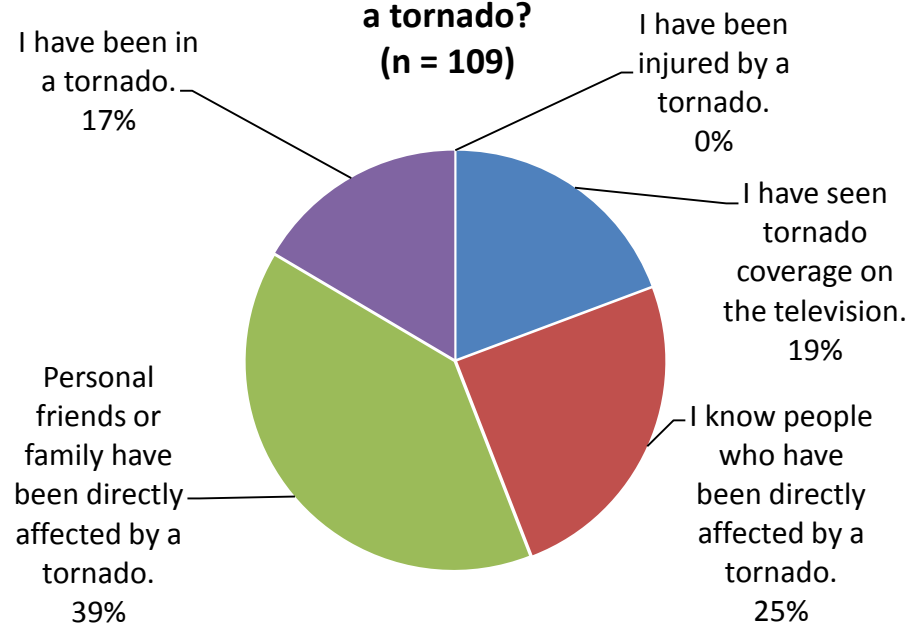


Participant's Weather Background

How long have you lived in a tornado prone area?
(n = 111)

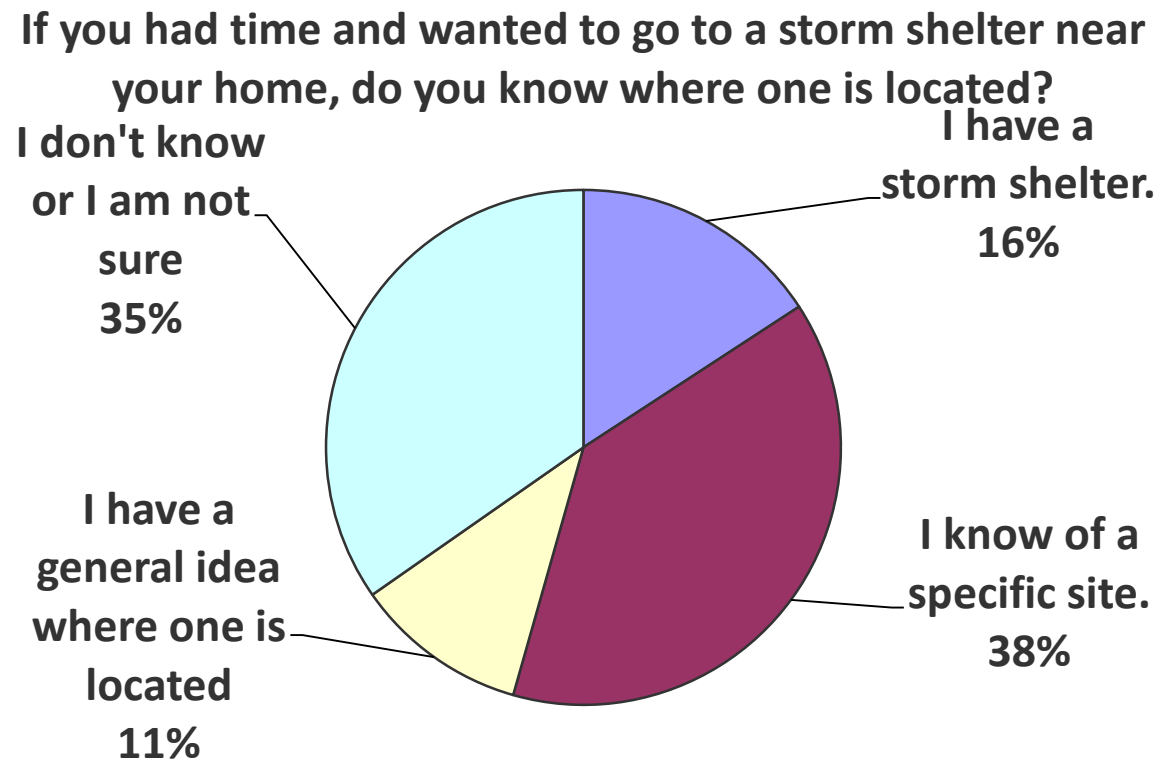


Prior to the May 2013 tornadoes within the last 15 years, what is the closest you have been affected by a tornado?
(n = 109)



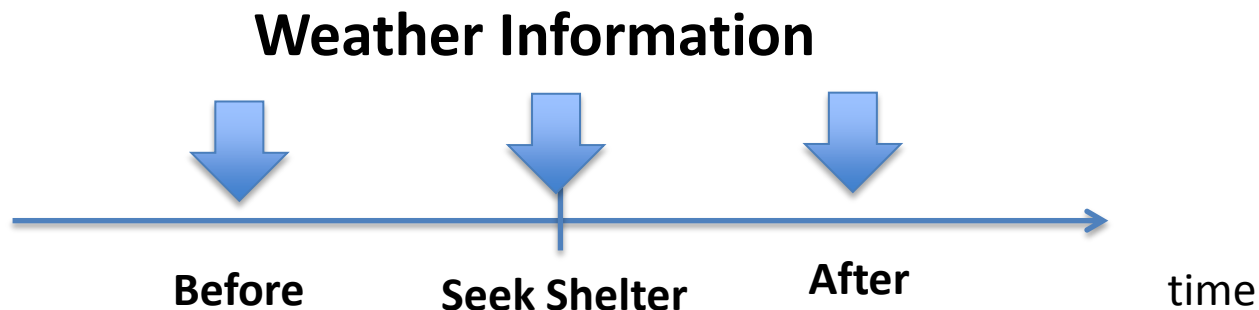
Weather Preparedness

- One third of people do not know where a storm shelter is.



RQ1. Information Source

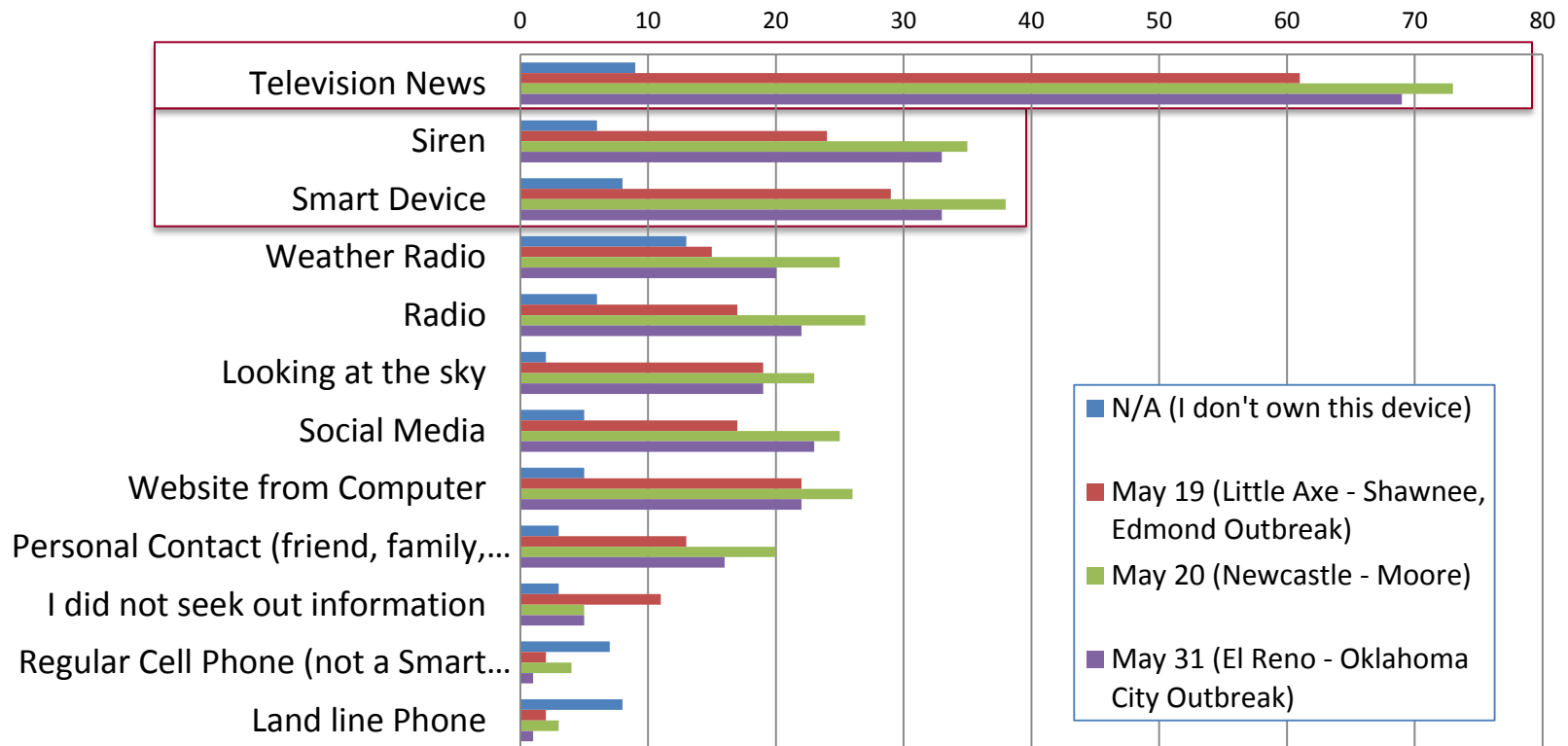
- How did people get information about the severe weather?
 - Before seeking shelter (Q22)
 - What cause them to take shelter? (Q23)
 - Trust in the information source? (Q11)



Information Sources: Before the Event

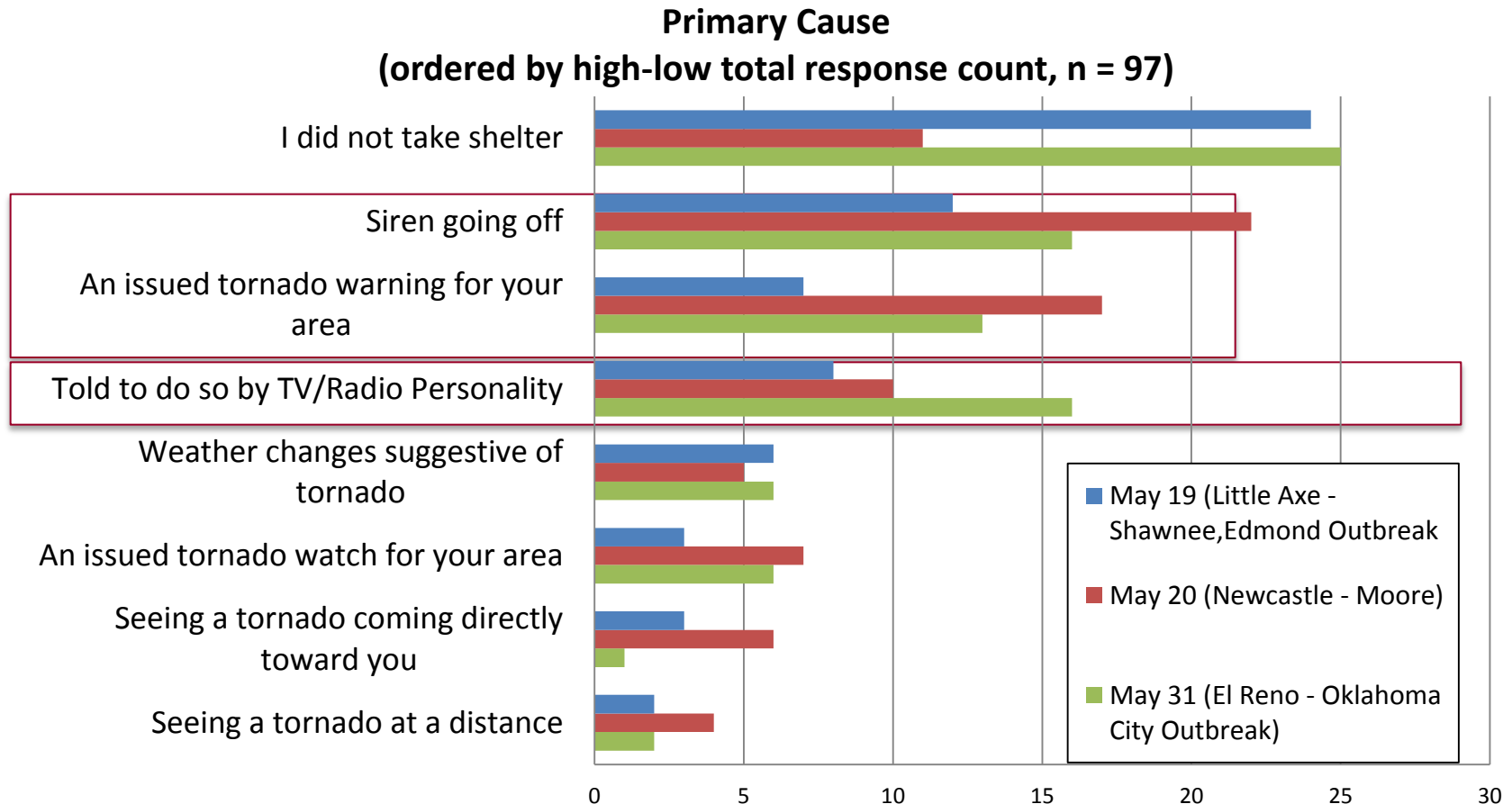
- What source(s) did you use to gather information PRIOR to seeking shelter? (Check all that apply)

Sources PRIOR to Taking Shelter
 (ordered from high-low response count)



Information to Take Shelter

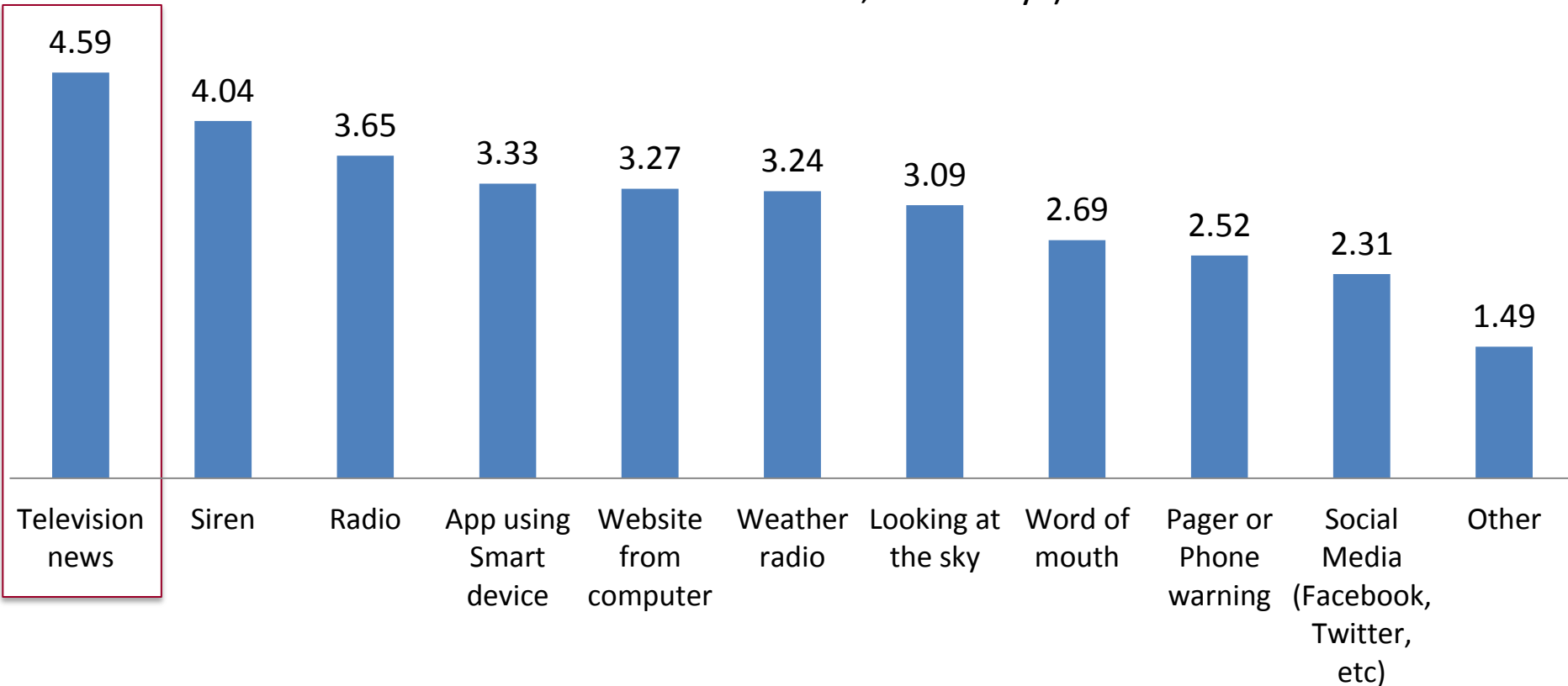
- Question #23: What was the **ONE** warning/emergency alert that caused you to TAKE SHELTER?



Information Sources: Trust

Average Ratings for Trust in Information Sources (n = 109)

(Measured on a 5-point scale, 1 = Not at all, 2 = Rarely, 3 = Sometimes, 4 = Most of the Time, 5 = Always)

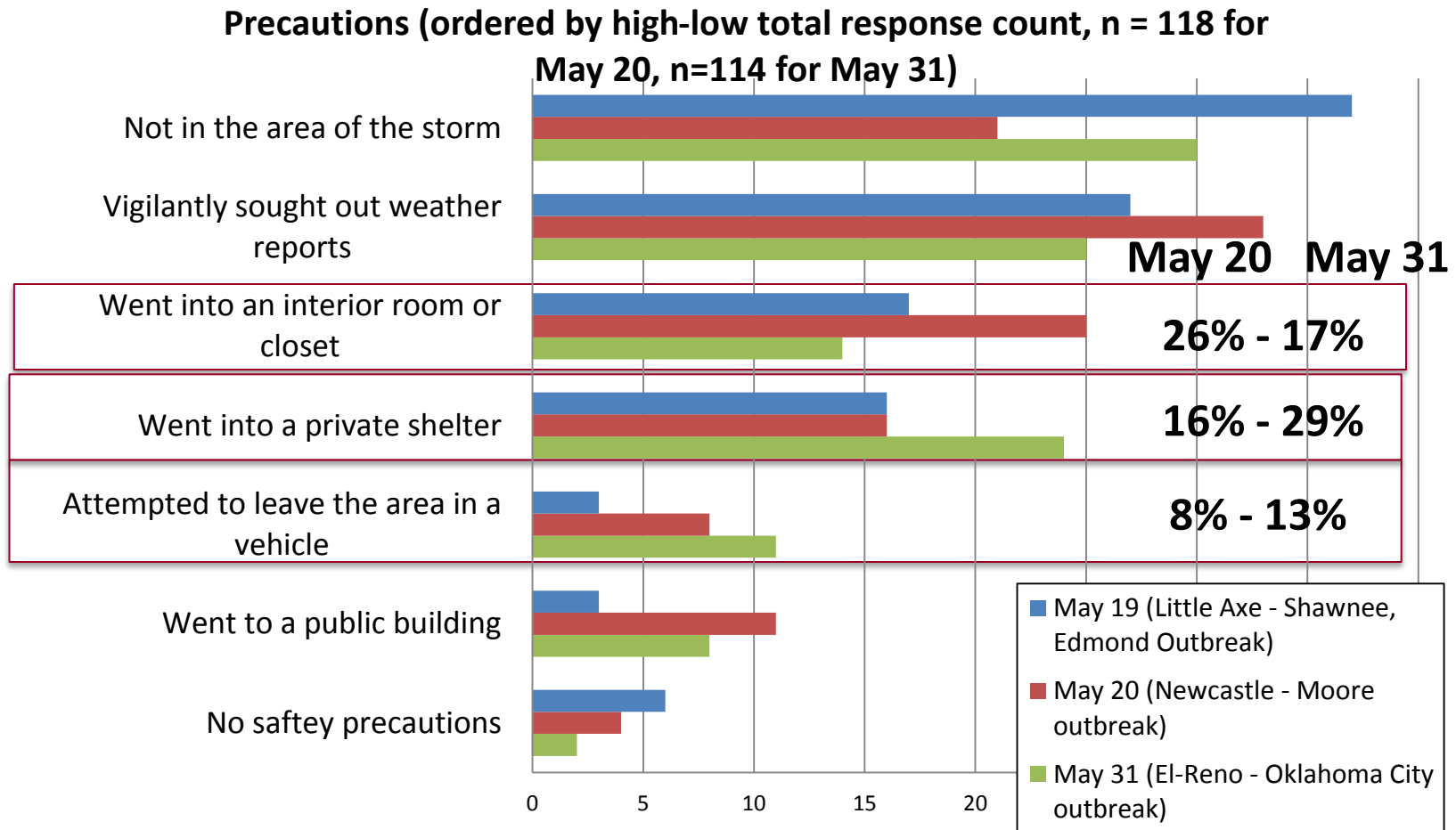


RQ2: Weather Related Decisions

- What safety precautions did people take? (Q27)
 - Did the safety precaution change?
- How did people use severe weather information to make weather related decisions?
 - Response to tornado watch (Q21)
 - Response to tornado warning (Q24)
 - Response to tornado siren (Q26)

Safety Precautionary Behavior

- What safety precautions did you take during each of the following tornadoes? (check all that apply)



Perceived Behavior Changes

Did the level of safety precaution that you took change in the three tornado events (May 19th, May 20th, May 31st)? (Open ended)

- Responses:
18 Yes and 29 No

Yes – More supplies in shelter, watched news more vigilantly, looked into buying storm shelter

No – Always took shelter anyway, reaction dependent on proximity of the storm

Reason to Leave Area in Car

If you drove out of the area, why did you choose to leave?
(open-ended, n=56)

- Believe storm is too violent (n=3)
- Do not have safe room (n=7)
- Told so by TV personality/friend (n=3)

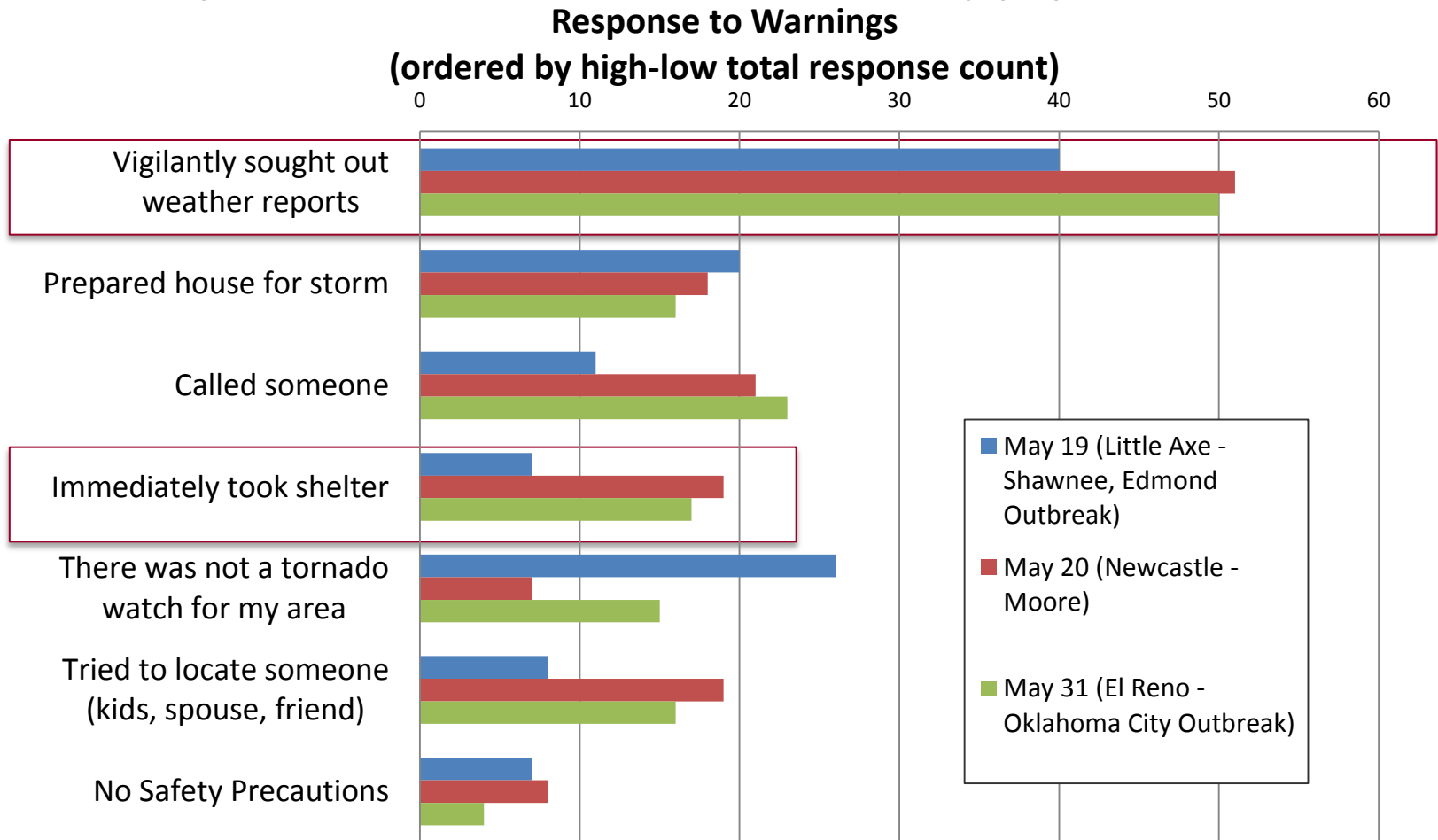
“because couldn't find a underground shelter”

Reason for not leaving

- believe it is safer to stay put
- watched the sky

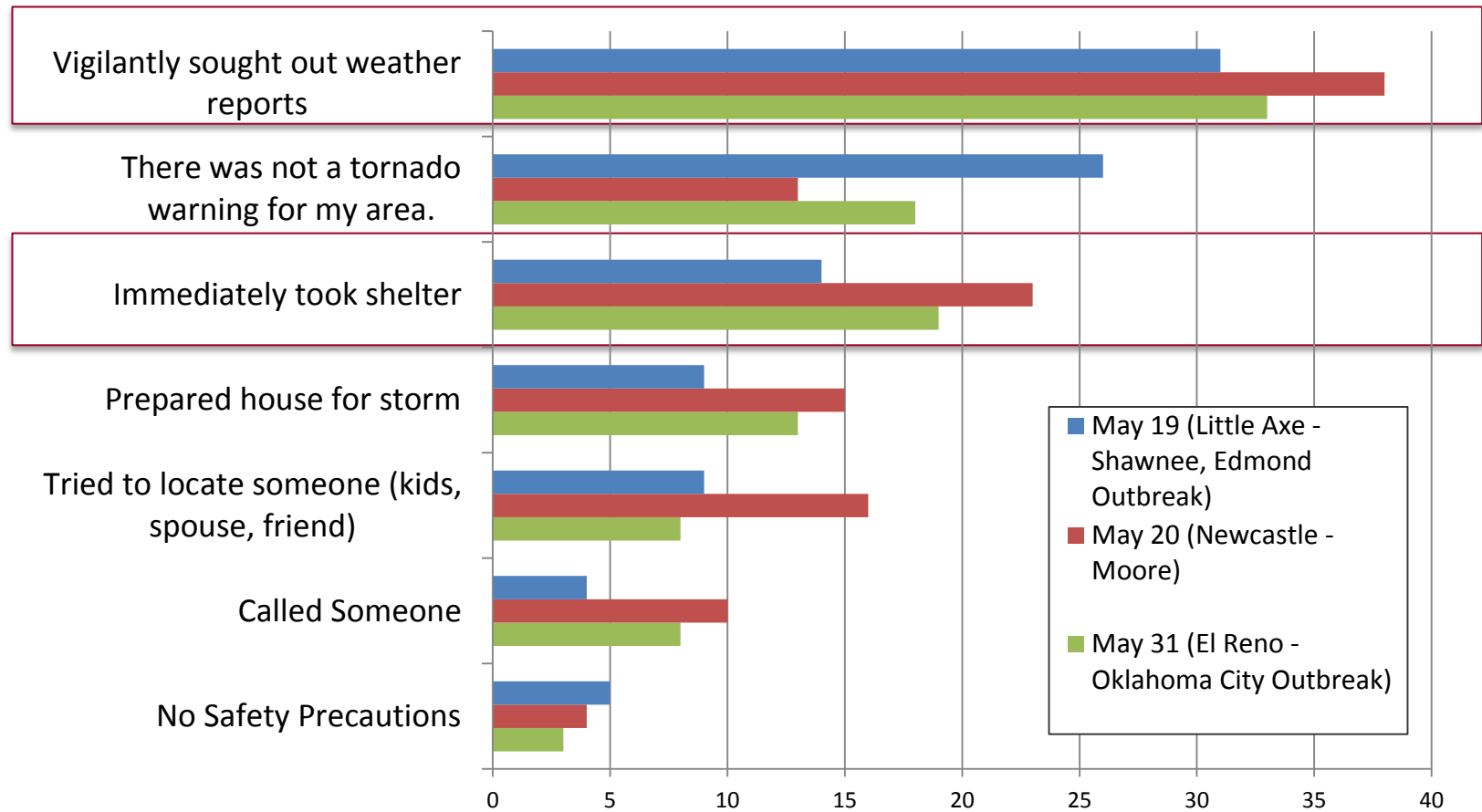
Response to a Tornado Watch

What did you do when you heard there was a Tornado Watch for your area? (Choose all that apply.)



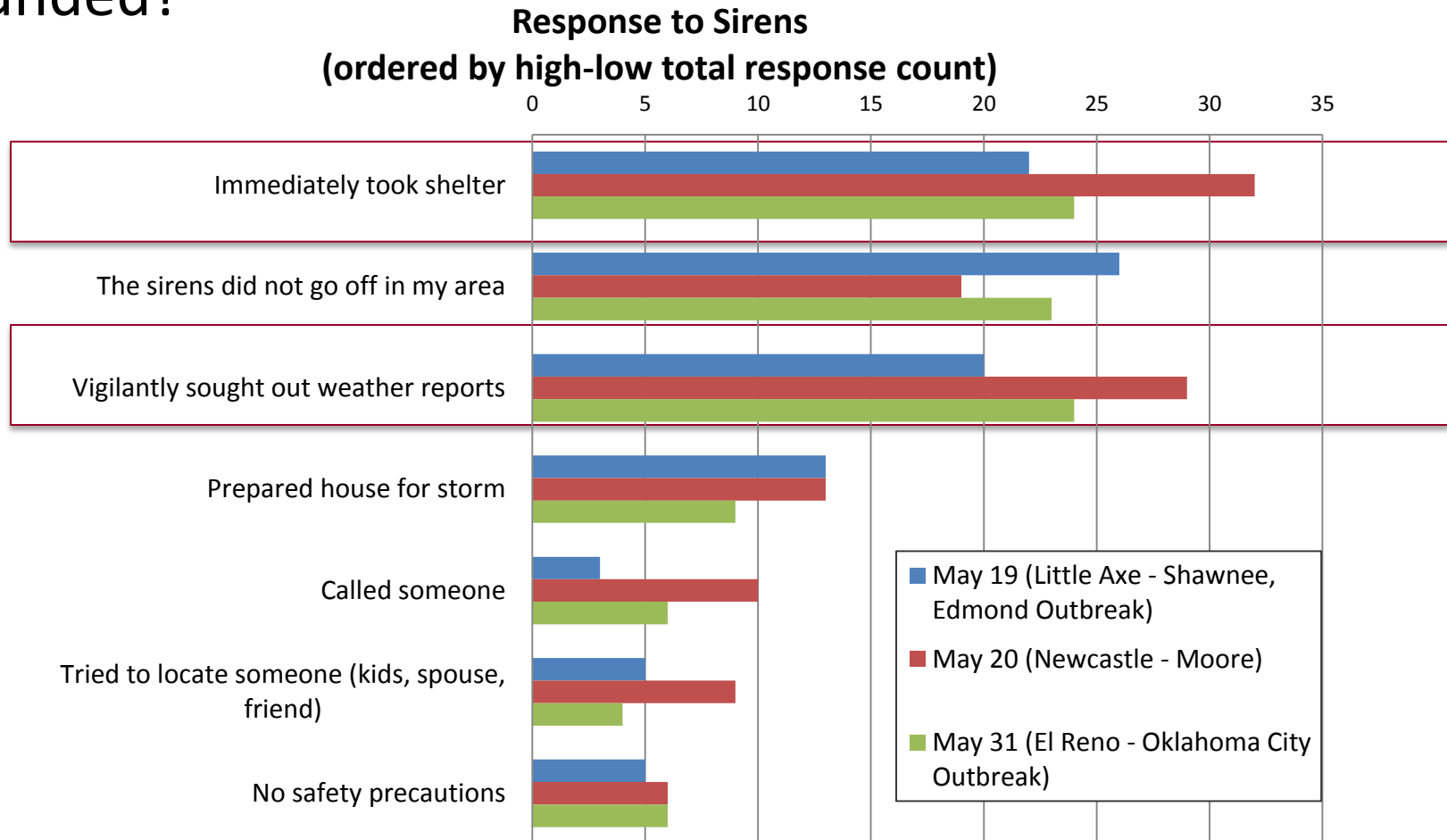
Response to a Tornado Warning

What is the **first thing** you did when a Tornado Warning was issued by the National Weather Service for your area?



Response to Sirens

What was the **first thing** you did AFTER the tornado siren sounded?



Conclusion

RQ1-Information Source

- Most common

- TV news

- Siren

- Smart device

- Wx radio

- Radio

Most Trusted:

- TV news

- Siren

- Radio

- Smart device

- Website

Television news is the by-far the most used and trusted source of information during tornado event.

Smart device is becoming the new common channel.




Conclusion

RQ1-Information Source

- One thing that caused you to take shelter
 - Siren
 - Tornado warning
 - Told by TV/radio personality

Conclusions

RQ2: Weather related decisions

- Safety precautions during May tornado events (May 20; May 31)
 - Vigilantly sought information (34%; 30%)
 - Went in interior room (26%; 17%) 
 - Went in private shelter (16%; 29%) 
 - Went in public building (11%; 9%)
 - Leave the area in vehicle (8%; 13%) 
- Through the May 2013 outbreak, behavior changed
 - For better: More people sought shelter in later event
 - However: more people fled in a vehicle in later event

Conclusion

RQ2- Response to Wx Information

- Response to tornado watch:
 - Vigilantly sought out information
 - Prepare house for storm
 - Call someone
- Response to Tornado warning/Siren
 - Immediately take shelter (most common to siren)
 - Vigilantly sought out information (most common for warning)
 - Prepare house for storm

Conclusion

- Overall, our results highlight the importance of communicating weather information to general public, especially via TV
 - Provide accurate weather information
 - Severity
 - Path
 - Provide appropriate guidance

Acknowledgements

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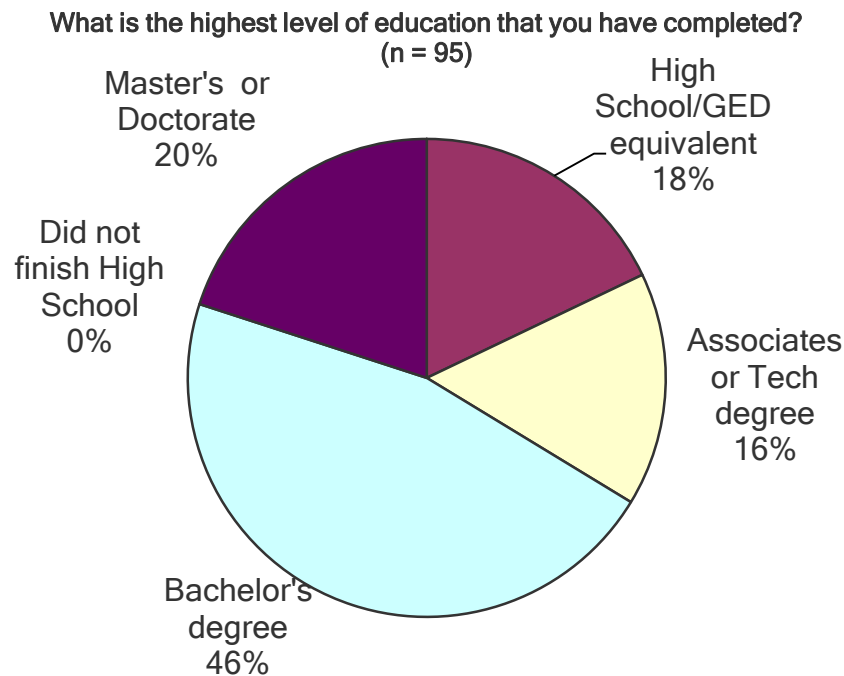


Thank you!

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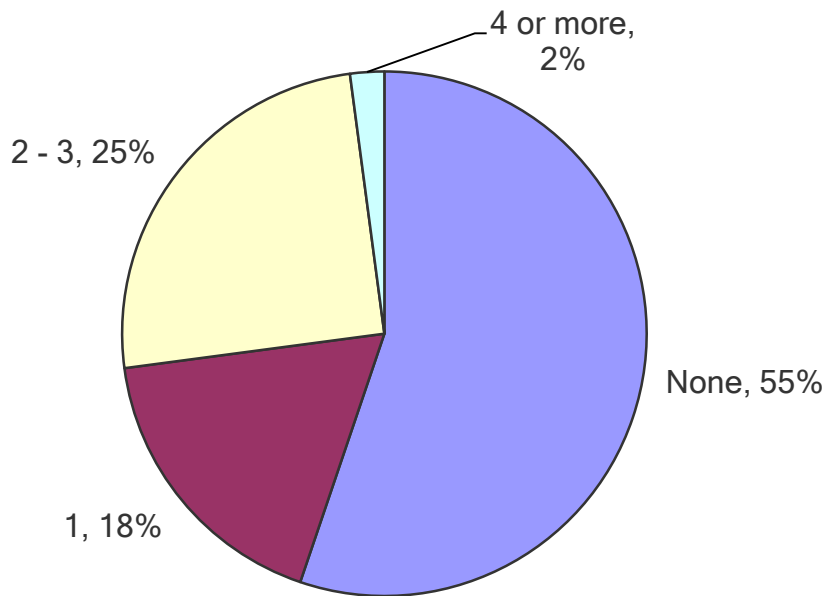
Demographic Information-Education



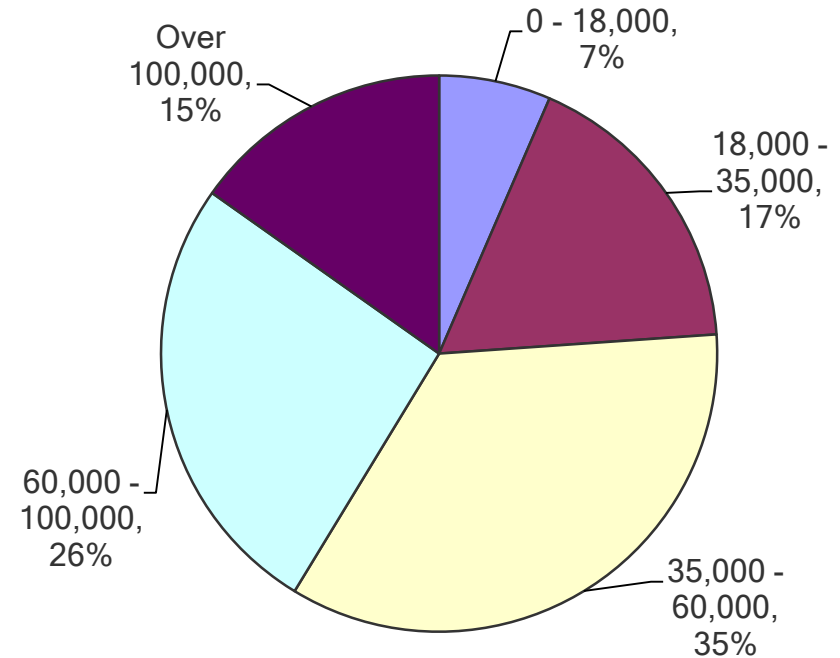
Participant Lifestyles

- 45.4% single, 54.6% married (n=97)
- 27.8% rent, 72.2% own their residence (n=97)

How many children do you have that are living at home?
(n = 98)



What is your annual household income?





Are you associated with a weather related field? (Meteorology, Weather Forecasting, Storm Chasing, etc.)	
Answer Options	Response Percent
Yes	5.5%
No	94.5%

Tornado Stories, Emotions

Describe the sequence of events to prepare for the tornado, and include what information you relied on to make each decision.(open ended; n=69)

- Get child(ren), go into shelter
- Gathered emergency kit, go to shelter
- Contacted loved ones
- Watched news, made decision based on storm path
- Emotion
 - Panic
 - Calm and prepared