

Communicating Warnings with Aged Population:

Lessons and Challenges from Hurricanes Katrina and Rita Evacuations

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Introduction

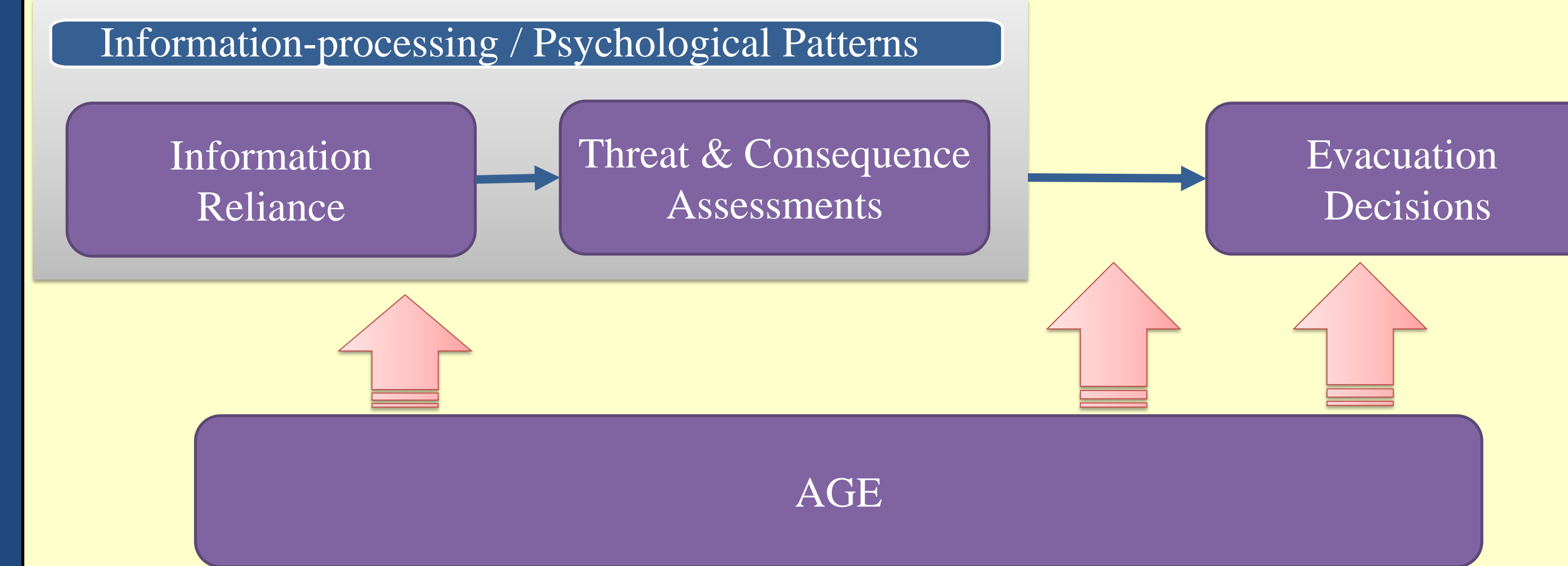
Research Contexts and Gaps

- Prior research has underlined even though aged populations are physically and cognitively dissimilar than younger age groups, they are just as likely as their younger counterparts to disregard disaster warnings and not comply with official pleas to evacuate.
- Other studies have reported conflicting findings regarding elders' emergency responses during an extreme situation (e.g., rapid onset), which raises concerns about the need to modulate risk communication strategies for aged populations.
- There is a pressing need to enhance our understanding of whether age plays a significant role in the risk communication process, and if so, how it specifically influences decision-making.

Research Objectives

- Re-analyze the Hurricanes Katrina and Rita survey data collected from a survey of 1,277 households from coastal areas throughout Louisiana and Texas in the aftermath of the events by the Hazard Reduction and Recovery Center (HRRC), TAMU.
- Distinguish the age groups by their risk perceptions and assessments of hurricanes.
- Examine the direct effect of age on evacuation decisions.
- Examine the functional effects of psychological patterns among different age groups on information-processing and decision-making.

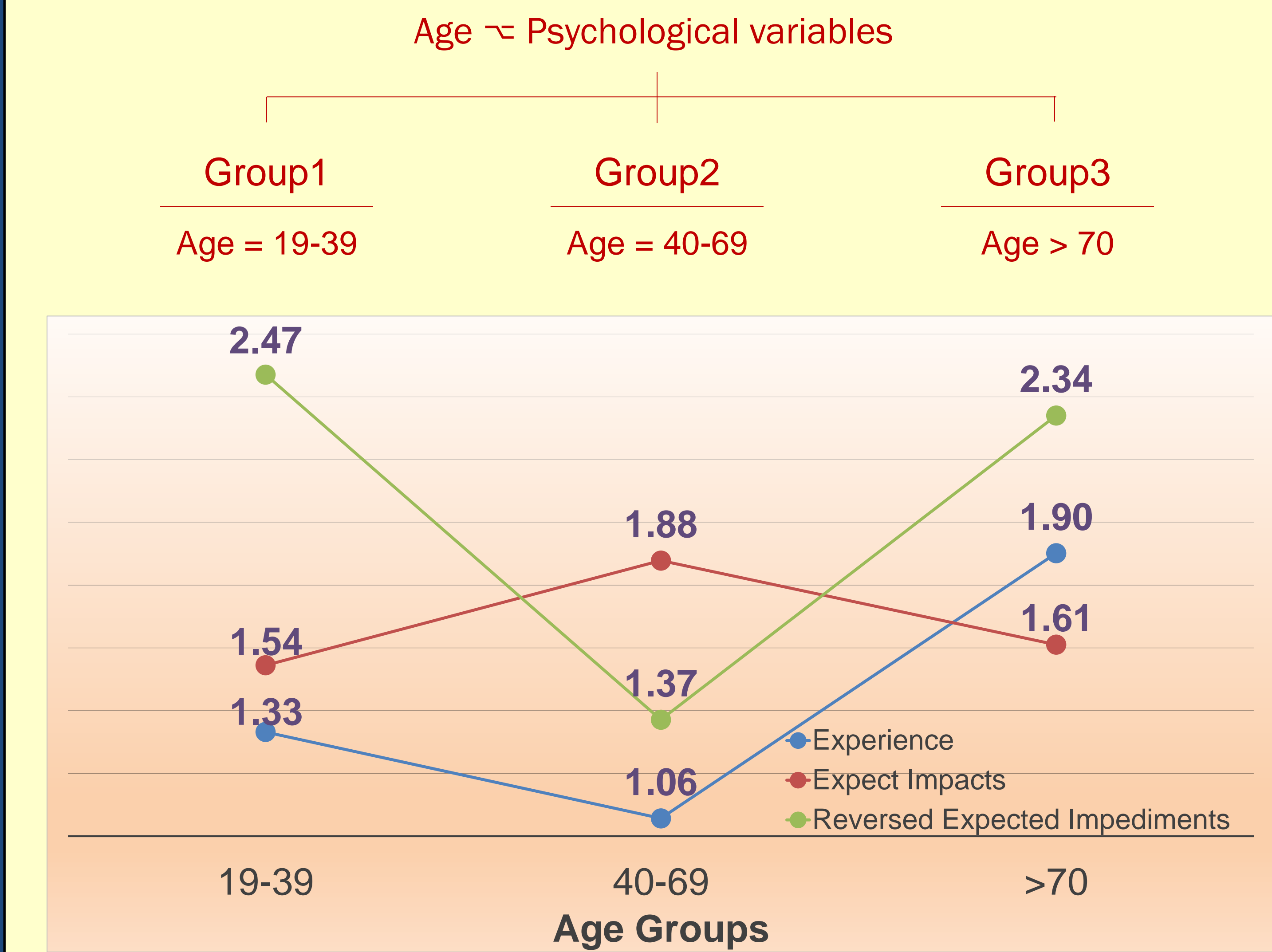
Research Framework



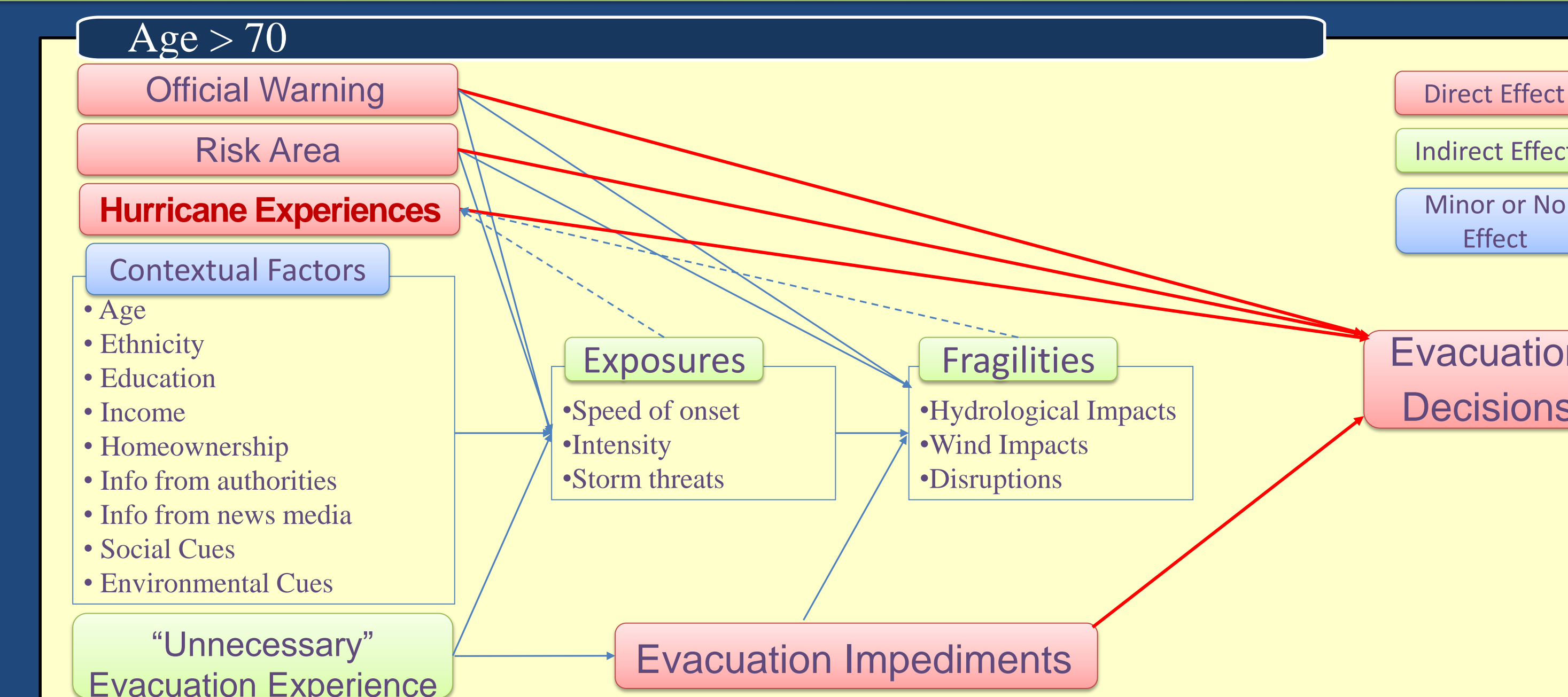
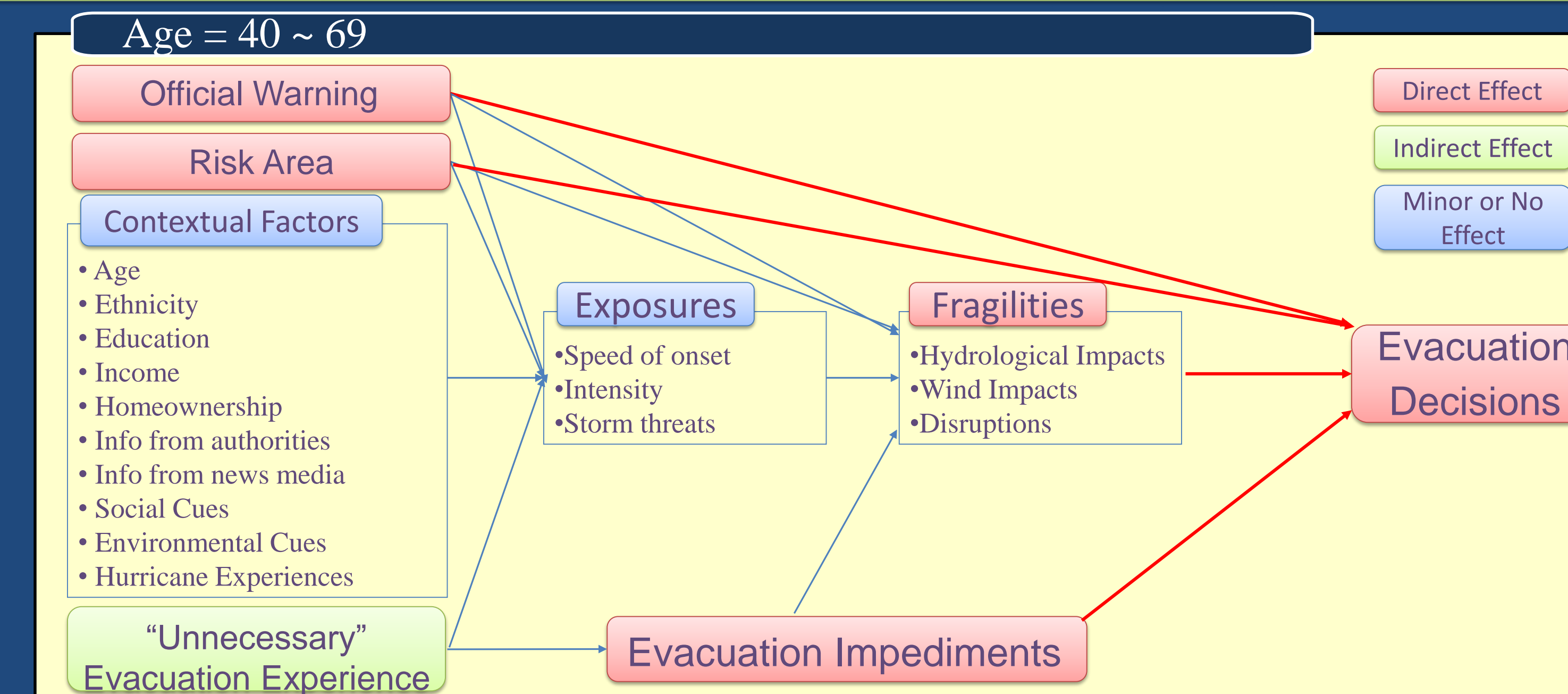
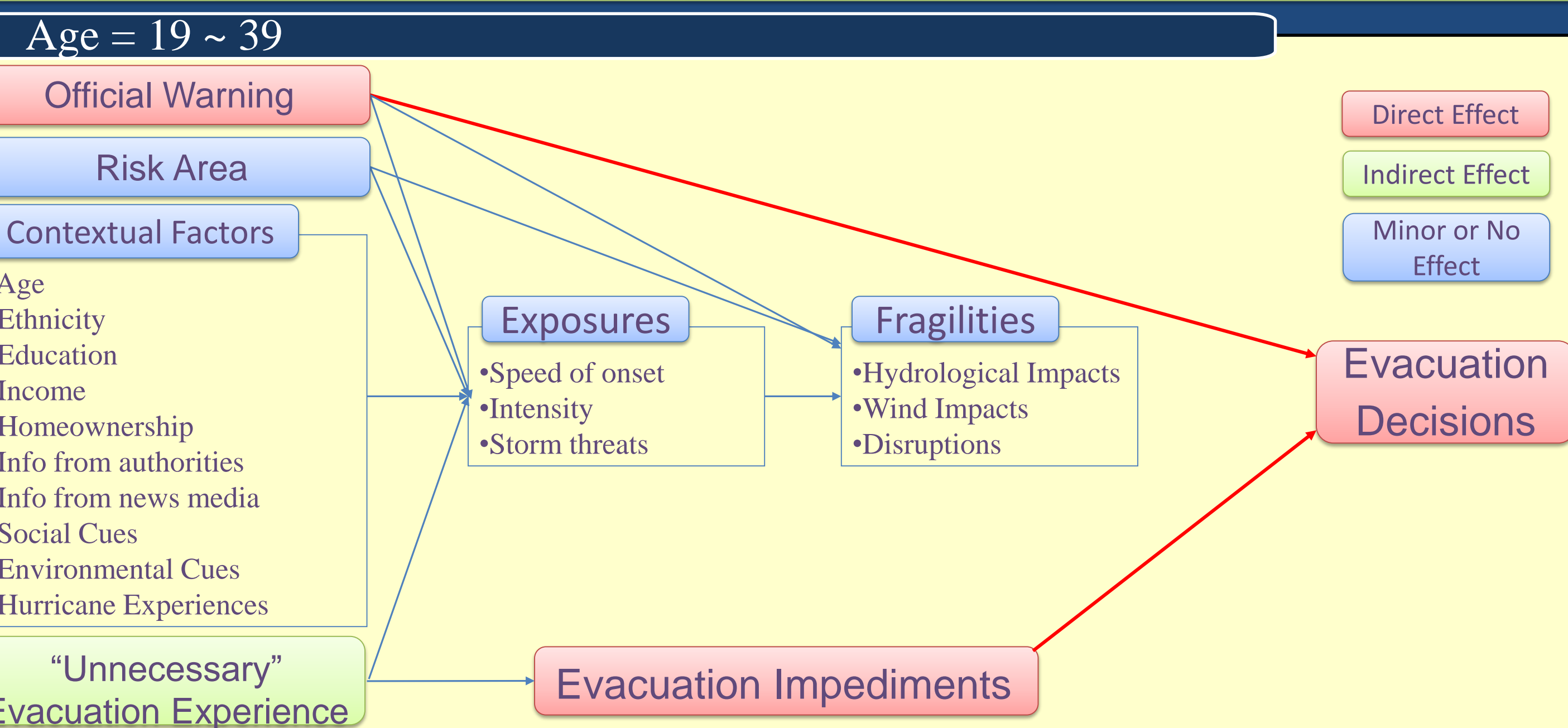
Methods

- Variables in this study included *official warning*, *risk area*, 9 *social and demographic* variables, 2 *experience-related* variables, 3 *perceived risk exposure* variables, 3 *expected fragility* variables, *perceived evacuation impediments*, and *evacuation decision*.
- A clustering analysis calculating the minimum within group dispersions of the psychological variables had been hired to distinguish the age groups.
- Descriptive and comparative analyses had been adopted to indicate the differences of mental and behavioral differences alongside the age groups.
- Regressions had been employed to further examine the functional mechanism for each age group.

Distinction of Age Groups



Cognitive Differences in Processing Warning and Decision-Making Alongside Each Age Group



Findings

- According to the results of the clustering analysis, this study distinguished respondents' mental processes with two age thresholds at 40 and 70.
- Even though the statistical results revealed respondents over 70 years of age were less likely to comply with evacuation orders than the other age groups, it should not be overlooked that the evacuation rate of elders was still high (> 80%).
- In general, aged population revealed higher within-group inconsistency, specifically on their peer information reliance, perceived social and environmental cues, and expected consequences. Follow-up analyses indicated this might be a result from the different level of their hurricane experiences.
- Despite the within-group inconsistency, aged population rated lower on peer information reliance and expected consequences than other age groups.

- The mechanical model of evacuation decision generated by the mid-age group was generally consistent with previous hurricane evacuation literature.
- The evacuation decisions of the 40 and under age group were more like youths' trade-off between received warnings and perceived difficulties. Even though warning message would trigger their systematical assessments, given limited experience, such efforts did not affect the evacuation decisions.
- The 70 and over age group relied more on personal experience, self-interpreted information, and perceived impediments (difficulties) than a systematic assessment in their decision-making processes. Particularly, the mediating effect of *hurricane experience* between *psychological variables* and *evacuation decisions* should be known as a spurious effect as risk perceptions won't cause experience. A more reasonable explanation is that hurricane experience is a common cause of elders' risk perceptions and evacuation decisions.

Takeaways

- The results, on the one hand, implied aged population could be more resilient due to the plentiful hurricane experiences that allow them to interpret warning messages more accurately and make appropriate protective actions.
- On the other hand, aged adults' behavioral responses might be vulnerable due to their self-confidence and self-explanation of perceived threats. Particularly, the results also indicated aged people were less likely to access supplemental information from peers or other information sources—implying an isolated flow in the risk communication network. Hence, customized risk communication strategies are required to accommodate this age group to enhance their understanding of potential threats in order to recognize the need for evacuation.
- More studies from different hurricane cases and areas or other disasters are required to verify the external validity of this study.