



## CONCEPTUAL FRAMEWORK

- In France, smoking prevalence remains high among young people: 32% of 18-24 year olds smoke daily (Pasquereau et al., 2018).
- In health communication, Dillard et al. (1996) found that fear appeals could induce other emotions in addition to fear and that these emotions could influence message acceptance. Besides, several authors have observed that fear appeals can aroused anger in addition to fear. However, in these studies, anger arose unforeseen and had a negative impact on persuasion which may reflect the rejection of the message (Dillard and Peck, 2001). In this research we seek to evoke anger against tobacco companies for the purpose of increasing fear appeal message effectiveness. Fear and anger are two compatible, even synergetic emotions. Fear enhances risk perception, encourages individuals to avoid health dangerous behaviors and prepares for flight, especially because individuals do not feel able to mitigate the danger. Conversely, anger reduces risk perception, encourages individuals to eliminate the source of danger preventing them from being in good health and prepares behaviors to regain control of the situation (Frijda, 1987; Lerner and Keltner, 2001; Smith et Ellsworth, 1985). Therefore, we suggest that:
 

**H1** : A message appealing to fear and anger, compared to a message appealing to fear, leads to (a) a more negative attitude towards smoking and (b) a stronger intention to not start smoking.

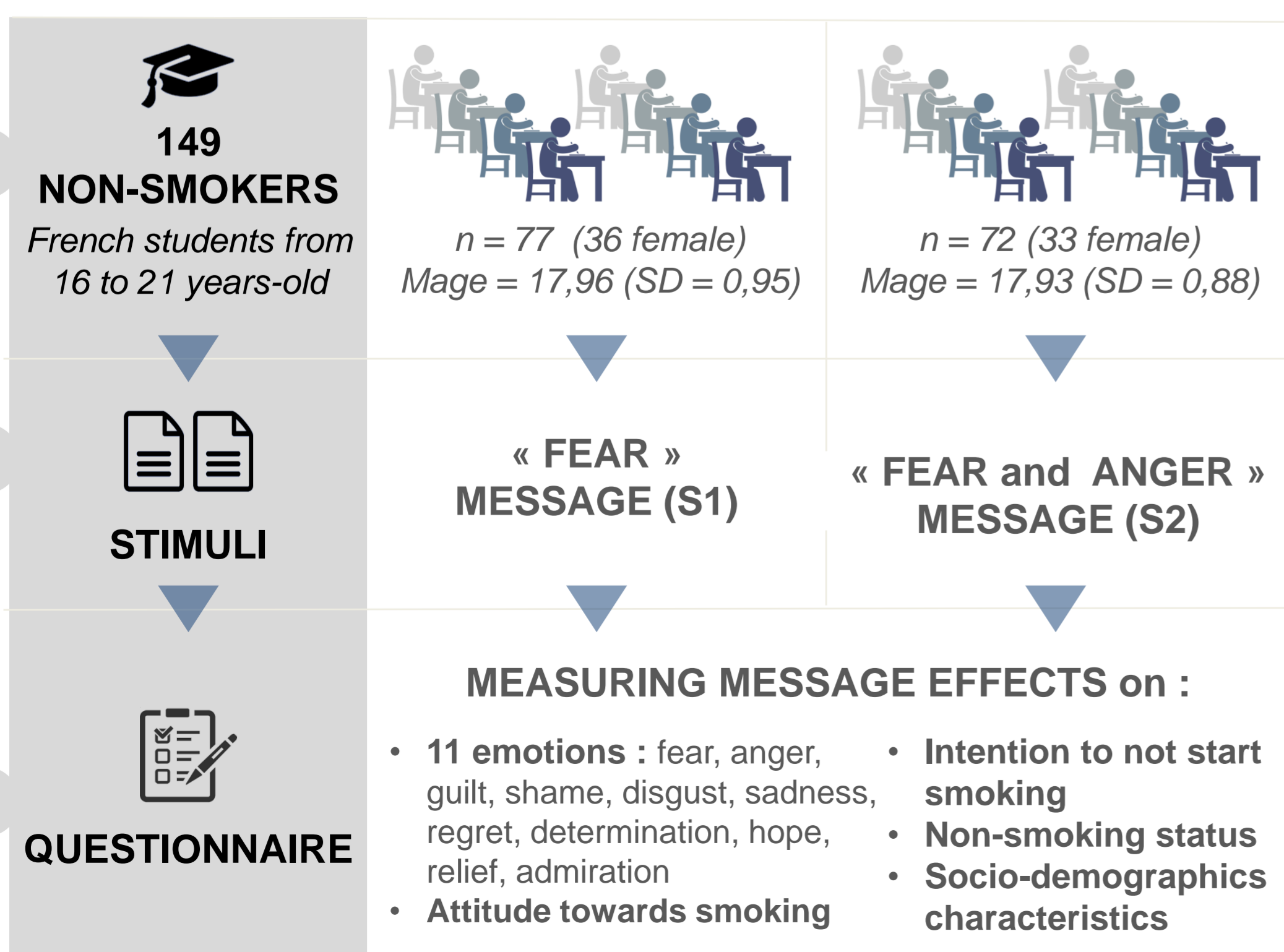
**H2** : Anger mediates the relationship between emotional content (fear and anger versus fear) and (a) attitude towards smoking/(b) intention to not start smoking.
- As we have already said, fear appeals can also induce others emotions in addition to fear. Therefore, we also propose the following research question.
 

**Q1** : In the context of tobacco control, does a fear appeal message induce others emotions in addition to fear ?

## METHODOLOGY

Two anti-smoking prevention messages were created in the form of testimonials framed as first-person accounts : a "fear" message (S1) and "fear and anger" (S2) message . To induce fear, the text use the threat of cancer. The "fear and anger" message was constructed by taking the "fear" message and adding, in the middle and at the end, a text insisting on unscrupulous practices of tobacco manufacturers to induce anger.

### EXPERIMENTAL PROTOCOL



## PRELIMINARY ANALYSIS

- The two samples are comparable for all socio-demographic variables examined and non-smoking status.
- Principal component analysis shows that, attitude towards smoking has two components:
  - Attitude towards the risk of passive smoking ( $\alpha > 0.8$ )
  - Attitude towards the inconvenience caused by smoking for non-smokers ( $\alpha > 0.8$ )

## MAIN RESULTS

### EMOTIONS, ATTITUDE AND INTENTION DIFFERENCES BETWEEN THE TWO MESSAGES

#### A. Among individuals who have never smoked

Dependent variables		S1 vs. S2	
Emotions elicited	Fear	S1 ~ S2	Effective experimental manipulation
	Anger	S1 < S2***	
	Hope	S1 > S2**	
	The other 9 emotions	S1 ~ S2	
Attitude towards smoking	Risk of passive smoking	S1 < S2**	H1a is partially validated
	Inconvenience	S1 ~ S2*	
Intention to not start smoking		S1 ~ S2	H1b is not validated

Notes : S1: « FEAR » message; S2: « FEAR + ANGER » message;  
\*p < 0.10 ; \*\*p < 0.05 ; \*\*\*p < 0.01

#### B. Among individuals who have ever tried to smoke but have smoked less than 100 cigarettes and no longer smoke

No significant differences was found between the two messages.

### MEDIATING EFFECT OF ANGER AMONG INDIVIDUALS WHO HAVE NEVER SMOKED

Anger only mediates the relationship between emotional content (fear and anger versus fear) and attitude towards the risk of passive smoking (b = 0,23, 95% BCa CI [0,03 ; 0,51]). Besides there was no mediating effect of hope.

▶ H2a is partially validated, H2b is not validated

### THE « FEAR » MESSAGE AROUSES MORE THAN FEAR ONLY

« Fear » message elicited

- Fear (p < 0.01)
- Sadness (p < 0.01)
- Disgust (p < 0.01)
- Determination (p < 0.05)

## MAIN CONTRIBUTIONS OF THIS RESEARCH

- The positive influence of a message combining fear and anger.** For the first time according to our knowledge, this research shows, among individuals who have never smoked, that, when anger is deliberately induce in a fear appeal message, it leads to a more negative attitude towards smoking than a fear appeal message.
- Some emotions may be incompatible, antagonistic and others may be compatible, even synergetic.** This research shows that, if emotions of "fear and anger" can co-occur, emotions of "anger and hope" could be incompatible. Further research is needed to investigate co-occurrence relationships between emotions and their impact on persuasion.
- A fear appeal message can elicit other emotions in addition to fear.** These results show that in order to better understand the emotional processes involved in the effectiveness of fear appeals in health communication, it is necessary to measure all the emotions potentially aroused by the message.