Topic

- Discrete Emotion and Motivation: Relative activation in Appetitive and Aversive Motivational System as a Function of Anger, Sadness, Fear, and Joy embedded in the Content of Televised Information Campaigns.
Goal of the Study

- Whether predictable motivational activation in the appetitive and aversive systems underlies the production and experience of discrete emotions experienced when viewing televised PSAs.
Two general theoretical approaches to study emotion

- **(1)** A system of discrete categories
  - Research in this approach focuses on primary emotional states such as anger, fear, sadness, and joy and examines the appraisal elements of these discrete states.
  - Universal existence of them.
Limitation of categorical approach

- Pecchinenda (2001): most of the physiological research for discrete emotions was not conducted in response to a set of theory-based predictions.
- Ekman, Levenson, & Friesen (1983): “the fact that emotion-specific autonomic activity occurred is of fundamental theoretical importance, no matter what the underlying mechanisms may turn out to be” (p1210)
Two general theoretical approaches to study emotion

- (2) The underlying dimensions associated with the generation of emotions.

- In the dimensional approach, emotional experience is seen as composed of primarily two factors, one of direction (i.e., towards or away) and the other of intensity (i.e., calm or aroused).

- Underlying mechanisms.
Dimension of Emotion

- **Valence**: an organism’s disposition to approach (positive) or avoid (negative)
- **Arousal**: an organism’s responses with varying degrees of activation.
- **Dominance**: feeling of controlling or controlled.
Bipolar Dimension?

- Unpleasant ----- Pleasant
Fundamental Mechanism of Valence

- Avoid (Aversive system)
- Approach (Appetitive system)
- Independent.
Bivariate function of Valence and Arousal
Bivariate function of Valence

- **Reciprocal**: if one system activates, the other is inhibited
- **Uncoupled**: activation in one system is not affecting activation in the other system
- **Coactivation**: both systems are activated in concert
JOY

- Experiencing the context of obtaining considerable progress toward a desirable goal
- Joy is often used interchangeably with happiness or regarded as a strongly happy emotion
- From dimensional approach (LC4MP), joy can be thought of a positive emotional state with a highly activated appetitive system. In joy the aversive system should be inactive or even inhibited
SADNESS

- Produced contextually from loss of objects of interest.
- Sadness has been described as an ‘absence of interest’ or as a ‘null state’. Some theorists argue that feeling sad leads the person focus on self.
- From dimensional approach (LC4MP), sadness can be thought as being a moderately to weakly activated aversive motivational state. The appetitive system is likely to be inactive or activated at a low level.
FEAR

- Fear has been described as experienced in the context of imminently upcoming danger or harm
- From dimensional approach (LC4MP), fear is thought of an emotional state associated with a highly activated aversive system. In fear the appetitive system may be inactive or even inhibited.
Anger has generally been considered to be an emotional state in which the innate action disposition is to attack the blameworthy object.

Rhetoric (Aristotle), cites a phrase from the *Iliad* in which he describes anger as “sweeter it is by far than the honeycomb dripping with sweetness, and spreads through the hearts of men” (p92)
ANGER

- Anger can be thought of as an emotional state associated with activation of both the appetitive and aversive systems.
- The level of the activation in the appetitive system during anger is likely to be lower than that experienced during joy because anger is not an obviously pleasant emotion.
- The level of activation in the aversive system during anger is likely lower than that experienced during fear because anger requires approach.
Method

- Discrete Emotion (5) X Positivity Offset (2) X Negativity Bias (2) X Message (4) X Order of Presentation (4) mixed factorial design
- Dependent Variables
  - **Self report**: Positivity, negativity, arousal, dominance
  - **Pysiological response**: Orbicularis oculi, corrugator supercilii, eyeblink startle reflex
  - **Activity Level**: Skin conductance
  - **Cognitive effort**: Heart rate
  - Recognition
Method

- **Eye blink startle reflex**
- startle reflex $\uparrow$ in amplitude with the aversive system being activated and $\downarrow$ with the appetitive system being activated showing motivational modulation.
Method

- **Eye blink startle reflex**
- An acoustic startle probe, is a 100-decibel white noise, was administered.
- Contraction in the orbicularis oculi muscle group.
Method

- **Eye blink startle reflex**
- The startle reflex occurs around 45-50ms after the probe.
- Activity was sampled at 50 Hz until 50ms before the startle probe at which time sampling was increased to 1,000 Hz for 300 milliseconds.
Method

- The participants ($N = 80$)
- The data for the first six seconds out of the best estimated eight seconds most representative of each condition were analyzed.
Method

- Stimuli: Public Service Announcements (PSAs).
- Joy, Sadness, Fear: Anti-drug PSAs.
- Anger: Child-abuse PSAs.
- Neutral: Library use, etc.
$H1$. Self-reported positivity: joyful > angry > neutral and sad > fearful messages.

The main effect of Discrete Emotion on self-reported positivity ($F(4, 316) = 214.634, p < .001$, partial $\eta^2 = .73$)
H2. Self-reported negativity: fearful > angry and sad > neutral > joyful messages.

The main effect of the Discrete Emotion on self reported negativity ($F(4, 316) = 374.439, p < .001$, partial $\eta = .82$)
**H3. Orbicularis oculi activation: joyful > angry > neutral and sad > fearful messages.**

The main effect of Discrete Emotion on the orbicularis oculi data approached significance ($F(4, 304) = 1.715, p = .15$).
H4. corrugator activation: fearful > angry and sad > neutral > joyful messages.

The main effect of the Discrete Emotions on the corrugator supercilii data ($F(4, 304) = 17.310, p < .001$, partial $\eta = .18$)
H4. Startle response: fearful > angry and sad > neutral > joyful messages.

The main effect of the Discrete Emotion on the startle data \((F(4, 96) = 42.088, p < .001, \text{ partial } \eta^2 = .35)\)
Conclusion

- Research in the discrete emotion domain can benefit from using the findings of the dimensional approach to provide a systematic tool to reveal subjective and physiological patterns of discrete emotional experience.
- The results also suggest that considering the findings of research on discrete emotion domain would be helpful to interpret more clearly the results of the studies based on the dimensional approach.
Conclusion

- This work contributes to providing theory based knowledge about how the experience of discrete emotions is related to motivational activation while processing television PSAs which, in turn, will provide guidelines on the use of emotional appeals to achieve specific cognition (attention, awareness, memory), attitudinal, and behavioral changes.