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Research Paper

Deciphering Decision Making: The Interplay of Mood States and Decision Styles

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ABSTRACT

Recent theories of Decision- Making have advocated the role of emotions in the cognitive processes of decisions. One such approach is the EIC model (Lerner et al., 2015) which posits – mood to indirectly affect decision making by impacting current emotions, indicating individual's overall emotional states to indirectly influence cognitive decision processes. The study aimed to understand the role of emotions on decision making and the nuances that underlie it. The 6 main **hypothesis** of the paper focused on evaluating whether incidental emotions via current emotions affect decision making significantly or do decision styles have a stronger significant effect on decision making. The paper used a **mixed method design** where the qualitative data was collected via interviews and thematic analysis and labels were attuned via open coding that helped in triangulation and pattern generation. **Tools** used were the YDMC, Mood induction videos of OPENLAV Database, Decision Style questionnaire (DSQ), Ryff's well-being scale and an Interview schedule. A **purposive sampling** was done to obtain the sample (N=29) for the pre-test post-test design. **Results** for the quantitative data concluded that sad and angry incidental mood had significant effects on FR1 and FR2 (Resistance to Framing and Sunken costs) of YDMC and, that happy mood had no significant effect on risk perception. The decision styles that have been seen to dominate were Vigilant followed by Dependent and Spontaneous style. For qualitative data, based on the dominant responses for the entire sample an Interactive Hexagonal map was constructed. **STB** (Self -thoughts & Beliefs), **FP** (Futuristic perspective), **CE (**Current experiences), **EE** (Environmental effects)**, and PEx (**Past experiences) were the dominant pattern connections found for the current sample. Thus, Incidental Mood had a significant effect on Resistance to Framing and Sunken costs whereas had no significant effect on Consistency with Risk Perception. **Future work** on the nuances of mood on decision-making can help determine the affective, cognitive, and neuropsychological models of decision-making where neural correlates could help delve deeper in these higher cognitive and emotional processes.

Keywords: *Mood, Decision- Making, Decision-Styles, Risk Perception*

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In the course of daily life, individuals encounter numerous situations that demand emotional and cognitive engagement. For instance, witnessing a hungry beggar on the roadside prompt's cognitive considerations—rather than merely providing money, one might seek ways to offer opportunities for sustainable living. Yet, emotional responses encourage empathy and a desire to alleviate immediate suffering, leading to the dilemma of whether to give money. This exemplifies the intricate interplay between emotions, moods & cognition, consequently influencing behaviour, judgment, and decision-making process. As dynamic phenomena, emotions are influenced by external stimuli and internal states, making it essential to discern whether decisions stem from immediate emotions or the lingering impact of incidental moods. Understanding whether incidental emotions extend to affect choices and decision outcomes, as well as their interactive effects on decision-making styles, forms the bedrock of effective decision-making analysis.

To probe the role of incidental mood, current emotions, and decision-making styles, it becomes imperative to untangle the nuances of these terms and their similarities or distinctions. These constructs exist along a continuum, making it challenging to establish a universally agreed-upon definition (Fiedler &Forgas, 1988; Forgas, 1991a, 1991b; Frijda, 1986). Previous research attempts have aimed to delineate these concepts in a sparse manner; therefore, a closer examination of these concepts is imperative to gain a deeper understanding of the nuances.

Mood

Mood, as defined by Forgas (1992), is an affective state characterized by low intensity, diffuse nature, and relative endurance. Moods lack a salient antecedent cause and possess minimal cognitive content. They don't directly drive motivation; rather, they provide fundamental inputs to predict motivational implications (Martin et al., 1993, p. 317). Feelings such as contentment or sadness illustrate mood's enduring impact, influencing cognitive processes. Consequently, mood forms a bridge between affect and cognition, acting as the foundation for affect infusion (Forgas, 1992b, 1993a, 1993b; Mayer, 1986; Mayer et al., 1992; Sedikides, 1992a). Mood induction procedures can easily evoke moods, as their threshold for activation is lower than that of emotions. While moods may last for minutes to hours, their induction lacks outward physical expressions, making identification challenging (Paul Ekman, 1984).

Emotions

In contrast, emotions entail more intense affective experiences with distinct causes and cognitive content, albeit being transient (Forgas, 1992). Strongman (1987) defines emotions as complex states with physiological expressions, Behavioural tendencies, and subjective valence. Cognitive appraisal of emotional objects or situations determines emotions, influenced by their value and significance to well-being (Lazarus, 1991). Integral emotions arise in response to the target object, while incidental emotions are unrelated to the object of judgment or decision. Researchers have explored the carryover effect of incidental emotions extensively (Han et al., 2007; Keltner & Lerner, 2010; Lerner & Tiedens, 2006; Loewenstein & Lerner, 2003; Pham, 2007; Vohs et al., 2007; Yates, 2007). Incidental mood, in this context, refers to mood induction unrelated to the judgment object, such as inducing euphoric, depressed, or angry moods for experimentation.

Affect

Affect has commonly encompassed both emotions and moods in existing literature. While distinctions between mood and emotions can vary based on linguistic, psycholinguistic, or psychophysiological perspectives, three primary differentiating factors guide discussions:

1. **Cause:** Moods stem from minor incidents, persistent conditions, or cognitive activities, while emotions result from specific events occurring at distinct times.
2. **Control:** Emotions are often less controllable due to their event-driven nature, whereas moods can be manipulated to some extent.
3. **Consequence:** The relationship between mood and emotion can be transactional, with mood sometimes arising as a consequence of emotions.

These constructs distinctly influence cognition, with moods influencing cognition broadly and emotions guiding Behaviours based on action readiness.

Decision Making

Decision making involves selecting among various options to achieve desired outcomes (Eisenfuhr, 2011). It's a multi-step process that requires careful consideration. The rational model breaks it down into six steps: identifying an issue, developing alternative solutions, evaluating alternatives, selecting the best option, implementing the chosen option, and evaluating its effectiveness. Key skills for decision making include evaluating beliefs, values, integrating beliefs and values to make choices, and having a metacognitive awareness of one's capacities (Edwards, 1954; Raiffa, 1968). These skills can be measured for accuracy and internal consistency, contributing to decision-making competence (Parker & Fischhoff, 2005).

Belief Assessment and Value Assessment

Belief assessment involves accurately estimating the probability of events (Edwards et al., 1963; Fischhoff & Beyth-Marom, 1983). Consistency in risk perception, a mechanism of belief assessment, gauges the coherence of judgments by assessing an individual's grasp of probability rules. Value assessment, on the other hand, deals with consistent and relevant value systems (Fischhoff, 1991). It examines deviations from rationality and assesses preferences for equivalent choices, considering inconsistent preferences for the same choices in various contexts (Kahneman & Tversky, 1979). This includes resistance to sunk costs and resistance to framing—two measures of value assessment. Resistance to sunk costs involves disregarding past investments when making decisions, while resistance to framing assesses susceptibility to irrelevant differences in problem descriptions, affecting choice outcomes.

Decision Styles

Decision-making styles, influenced by personality traits, cognitive processes, life experiences, and environmental factors, shape how individuals approach decisions (Driver, 1979; Harren, 1979). Styles like spontaneity, vigilance, and dependency offer distinct ways of making choices. Spontaneity involves intuitive decision-making, while vigilance balances pros and cons for informed decisions. Dependency reflects seeking guidance, potentially hindering autonomy. These styles can interact with emotions, influencing decision outcomes.

Models of Decision Making

Various models explain decision-making processes and the interplay of emotions. The Bounded Rationality Model, proposed by Simon (1957), introduced situational and cognitive constraints into rational choices. The Valence-Based Approach classified emotions based on their valence, assuming similar valence emotions lead to analogous outcomes (Schwarz &

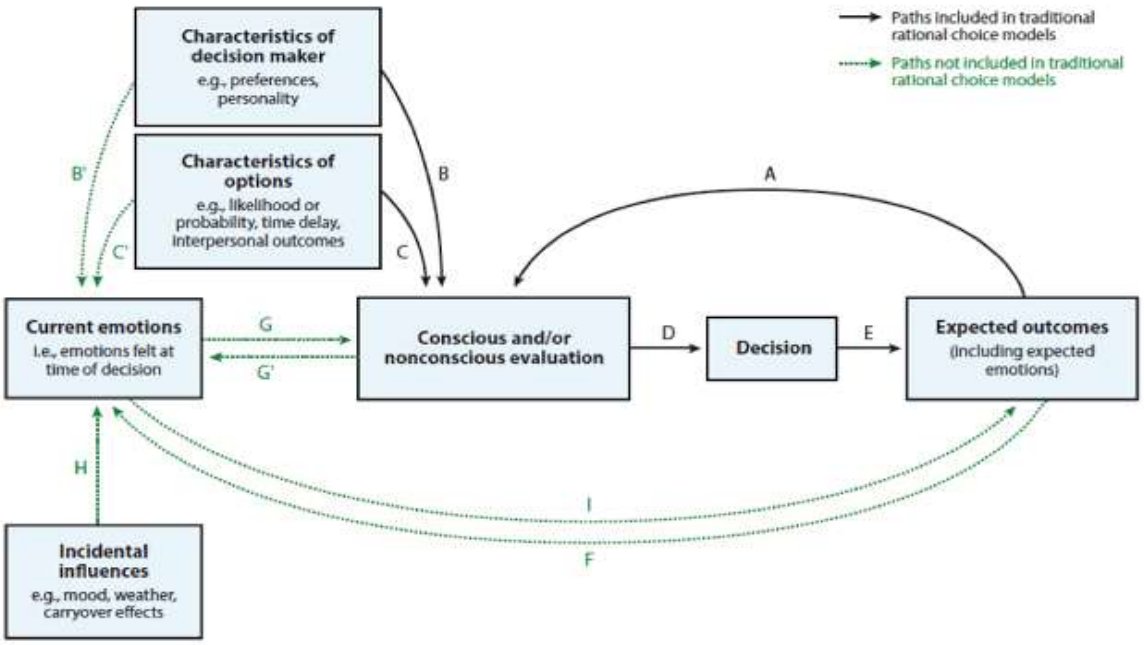
Clore, 1983). The Appraisal Tendency Framework (ATF) Model (Lerner & Keltner, 2000, 2001) linked emotions' appraisal tendencies to judgments. The following two models form the basis of the research work in emotions and decision making:

AIM: Affect Infusion Model (Forgas, 1995)

The process of emotionally charged information influencing and becoming a part of the decision-making process, altering the outcome, is known as affect infusion. When one's feelings regarding one item influence their opinions on a completely different target, it becomes very interesting. This happens most when people transform existing thoughts, search for new information openly, and elaborate on details. Four judging techniques are identified by the AIM model, the first two of which use preset patterns and little emotional involvement. However, when constructive processing is involved, especially with heuristic and substantive procedures, emotional impacts take place. Mood-congruent effects are more likely during these types of processing. The AIM model presents two mechanisms for affect infusion: affect-priming and affect-as-information. Affect-priming operates during substantive processing, indirectly influencing judgments through attention, encoding, retrieval, and associations (Bower, 1981, 1991; Clark & Waddell, 1983; Forgas & Bower, 1987, 1988; Isen, 1984, 1987; Singer & Salovey, 1988). Affect-as-information works during fast, heuristic processing, where feelings directly inform judgments as a shortcut for evaluative reactions. Thus, with the emphasis on the processing style to be the critical factor for emotional influence on judgement, Lerner reconstructed an entire model that could identify different factors involved to reach decision outcomes and how are they related to each other.

EIC Model: Emotion Imbued Choice Model (Lerner et al., 2015)

Fig 1: EIC Model (Lerner et al., 2015).



This model is based on two important models risk-as-feelings model (Loewenstein et al. 2001, figure 3, p. 270) and the model of the determinants and consequences of emotions (Loewenstein & Lerner's, 2003, figure 31.1, p. 621). The EIC model focuses on decision-making in a one-time choice scenario, excluding ongoing information seeking. Visceral influences are included, but reflexive conduct is not. It shares similarities with anticipated utility theory and other normative rational choice models, but it also allows for built

preferences based on emotional forecasts. The model incorporates recent emotions (experienced during decision-making) that are not taken into account by traditional rational choice models. These feelings are caused by the qualities of the decision maker and the options, by expected feelings, by thinking about decisions, and by incidental feelings. Current emotions directly affect decisions and indirectly alter predicted utility for outcomes.

Interplay of Emotions, Moods, and Decision-making

The interplay between emotions, moods, and decision-making is a dynamic and intricate process. Emotions, characterized by their intensity and specific causes, have a pronounced impact on decision-making. They drive motivated processing and lead to actions consistent with the emotional context (Keltner, Locke, & Audrain, 1993). Integral emotions, directly linked to the object of judgment, play a crucial role in shaping perceptions and choices. For instance, the sadness felt in response to a real or perceived accident influences decisions related to the accident.

On the other hand, incidental emotions, stemming from sources unrelated to the judgment object, persistently influence decision-making across diverse situations (Bodenhausen, 1993). These emotions can exert carryover effects, affecting decisions even when logically unrelated. Researchers have extensively explored this phenomenon, shedding light on its mechanisms and influences (Han et al., 2007; Keltner & Lerner, 2010; Lerner & Tiedens, 2006; Loewenstein & Lerner, 2003; Pham, 2007; Vohs et al., 2007; Yates, 2007). Incidental mood, induced through procedures, serves as an interesting avenue for investigation, as it influences cognition despite being unrelated to the judgment object.

The distinction between mood and emotion lies in their cause, control, and consequences. Moods are often background feeling states lacking specific causes, while emotions arise from distinct events. Emotions can be challenging to control, while moods are more pliable. Furthermore, moods can result from emotional experiences, illustrating a transactional relationship between these constructs. Both mood and emotion impact cognition and Behaviour, albeit in different ways. While mood biases cognition through generalized cognitive consequences, emotions shape Behaviour based on action readiness (Frijda, 1994; Davidson, 1994).

Decision Styles and Their Influence

Decision-making styles provide further insights into the complex landscape of choices. Individuals approach decisions with different propensities, guided by their personalities, experiences, and cognitive processes. Spontaneity, characterized by intuitive decisions, can be advantageous in swift scenarios but may lead to impulsiveness. Vigilance, emphasizing careful evaluation, minimizes risks but can lead to overthinking. Dependency, while involving seeking guidance, may hinder autonomy.

The interaction between decision styles and emotions is noteworthy. Emotions can sway decision-making styles, shaping how individuals approach choices. For example, a spontaneous decision-maker may be more influenced by immediate emotional responses, while a vigilant decision-maker may focus on evaluating emotional consequences. The dynamic interplay between decision styles and emotional influences adds complexity to the decision-making process.

In conclusion, the intricate interplay of emotions, moods, decision styles, and their influences on decision-making shapes human Behaviours, judgments, and choices. While emotions and

moods guide cognitive processes and affective responses, decision styles offer individualized approaches to making choices. Understanding the interrelationships among these factors enhances our grasp of decision-making dynamics, contributing to more nuanced analyses of human Behaviour in various contexts. As we delve deeper into the models, mechanisms, and interactions, we gain valuable insights into the intricate world of decision-making.

REVIEW OF LITERATURE

According to the study by Luce et al. (1997), task-related emotion would cause decision-makers to evaluate information thoroughly and on the basis of attributes. Motivation would be the finest tool for deciding which specific accuracy-maximizing operations to boost, like total decision effort, and which particularly taxing operations to decrease, like alternative-based processing sequences, in order to deal with negative emotions. The goal was to determine whether people would attempt to minimize the experience of negative emotion by avoiding it or whether coping goals would interact with accuracy and effort goals to aid in the process of negatively emotion-laden decision tasks. studies suggest that affect has a powerful influence on social judgment accuracy. Sadness significantly impaired the ability to interpret brief cues to important social constructs, including job effectiveness and relationship type.

Another study by Seol et al., 2007; examined the link between emotional experience and effective decision-making. 101 individuals participated in a stock investment simulation and made daily choices while rating their emotions on a website. The study indicated that those with more powerful feelings performed better when making decisions, refuting the notion that strong emotions impair decision-making. Notably, individuals who could successfully recognize and differentiate between their emotions showed stronger decision-making performance because they were better able to reduce the biases that their sentiments had caused (Jagtap et al., 2013).

According to Tiedens et al., 2001, emotions connected to certain judgments result in heuristic processing, whereas emotions connected to uncertainty result in systematic processing. The initial experiment demonstrates that following certainties are influenced by the degree of certainty associated with an emotion. The effects of emotions are explored in later trials in increasing degrees of assurance. Comparatively to emotions with lesser certainty, higher certainty emotions are associated with greater dependence on source expertise (Experiment 2), increased stereotyping (Experiment 3), and decreased attention to argument quality (Experiment 4). These findings cast doubt on previous hypotheses linking emotional valence to processing and emphasize the importance of certainty appraisal content in deciding whether people use systematic or heuristic processing techniques.

Using hypothetical situations, the study examined how different types of sadness affect the accuracy of social judgments. Participants were divided into the happy, control, or sad conditions, and they assessed the effectiveness of the teachers' actions in brief video clips. According to findings from four studies, induced sadness makes it more difficult to accurately determine a teacher's performance and relationship type from a few nonverbal indicators. The results also suggest a relationship between higher depression ratings and more acute nonverbal sensitivity accuracy. The research also implies that sadness reduces accuracy by encouraging a more deliberate approach to information processing (Ambady et al., 2002)

Regardless of cognitive attribution, three trials show that current mood influences the intensity of feelings that are consistent with it and lessens the intensity of incongruent emotions. These results are unaffected by cognitive factors due to the novel technique used to

gently induce mood states. In contrast to a negative pre-existing mood, Experiment 1 shows that subjects exposed to positive comments feel greater pride. Experiments 2 and 3 demonstrate that, regardless of knowledge about the origins of the evoked feelings, pre-existing mood has a direct impact on those emotions. In Experiment 2, mood has an impact on subjective humor reaction but not cartoon funniness judgment, while in Experiment 3, mood's influence is still noticeable in overt laughter despite being offset by a contrast effect in cartoon funniness judgment (Neumann et al., 2010).

Happiness and anger share similarities in their effects, as both elicit an inclination among both joyful and unhappy individuals to overestimate the likelihood of positive events compared to negative ones (Garg, 2004). Research by Chuang and Kung (2006) found that people experiencing happiness tend to opt for safer choices more often than those feeling sadness in a study comparing positive and negative emotions. Conversely, sadness is associated with feelings of loss and a tendency to engage in thorough and detailed cognitive processing (Garg, 2004; Semmler & Brewer, 2002). This deliberate cognitive processing might serve as a strategy to avoid dwelling on the triggering situation (Smith & Ellsworth, 1985).

Numerous research on anger and fear have found that people who are feeling these emotions tend to judge the chance of future bad things happening differently. Participants who are fearful frequently overestimate the likelihood of risky situations, while those who are angry typically underestimate it. Furthermore, when faced with risky options, afraid people are more likely to choose safer options, whereas angry people tend to choose riskier ones. Additionally, those who are angry are more likely to stereotype, form heuristic judgments, and show automatic prejudice toward outsiders than those who are neutral or depressed. Research that differentiates rage from other emotional states by showing that it causes such Behaviours supports this information (Bodenhausen, Kramer, & Susser, 1994; Bodenhausen, Sheppard, &Kramer, 1994; DeSteno, Dasgupta, Bartlett, & Cajdric, 2004).

In order to induce positive, negative, and neutral mood states in individuals before asking them to assess a variety of risk-taking scenarios, the Velten mood induction approach was applied. The first, and most personal, scenario's evaluations revealed significant mood changes. Subjects in the positive mood were more likely than those in the negative condition to say they would be willing to take a chance on a medical procedure. Discussions of the findings focused on how mood and how information is framed while making risky decisions. Positive moods and frames result in more favourable assessments of a stimuli than do negative moods and frames (Deldin et al., 1986).

This study investigates the role of emotions in decision-making, concentrating on signals of valuation, risk perception, and strategic orientation. The impact of decision frames may be mitigated by emotions, according to existing theories, however there is little empirical support for this claim. The goal of the study was to ascertain whether artificially produced emotional states have an impact on gambling propensities and decision-making. Participants (N=91) underwent a framing task using films to elicit a mood (happy, sad, or neutral). In contrast to producing a sad mood, the results showed that inducing a cheerful mood enhanced gambling and appeared to magnify framing effects. However, this impact on framing can be explained by the increased inclination to gamble, which makes framing more powerful. When compared to producing a neutral mood, a cheerful mood increased gambling but not framing magnitude. When compared to participants in a neutral mood induction group, participants in the sad mood induction group did not behave differently. Gambling propensity and framing

size among participants who had been put in a good mood showed a positive correlation with the degree of their mood valence shift (Stanton et al., 2014).

This study extends previous research that relates particular decision-making and cognitive types to decision-making proficiency in daily life. The purpose of this article is to deepen our understanding of this phenomenon by examining two key areas: (a) the extent to which general cognitive styles contribute to explaining variation in decision-making competence beyond decision-making styles, and (b) the extent to which personality traits contribute to explaining variation in decision-making competence beyond both styles. 355 participants completed tests on the Big Five personality traits, decision styles, decision-making competence, and cognitive styles. The results show that, beyond decision-making styles, cognitive styles do not considerably improve predictive capacity for decision-making competence. However, when compared to both general cognitive styles and decision-making styles, personality traits do offer a significant amount of additional predictive value (Dewberry et al., 2013)

Thus, taken together the extensive literature suggests a combination of decision-making styles, moods, emotions and personality traits accounts for a considerable portion of the variance in everyday decision-making competence. Thus, the paper aims to study the role of incidental mood, current emotions, and decision-making styles on decision rules and risk perception for Decision making and whether incidental emotions have a carryover effect on the choices/ outcomes.

METHODOLOGY

Hypotheses:

Main Hypotheses:

H0: Current emotions do not mediate the relationship between Incidental mood and Resistance to framing and sunken costs

H1: Current emotions do mediate the relationship between Incidental mood and Resistance to framing and sunken costs.

H0: Current emotions do not mediate the relationship between Incidental mood and consistency in risk perception.

H2: Current emotions do mediate the relationship between Incidental mood and consistency in risk perception.

H0: Decision style does not moderate the relationship between Current emotions and Resistance to framing and sunken costs.

H3: Decision style does moderate the relationship between Current emotions and Resistance to framing and sunken costs

H0: Decision style does not moderate the relationship between Current emotions and consistency in risk perception.

H4: Decision style does moderate the relationship between Current emotions and consistency in risk perception.

H0: Decision style does not moderate the relationship between Incidental mood and Resistance to framing and sunken costs.

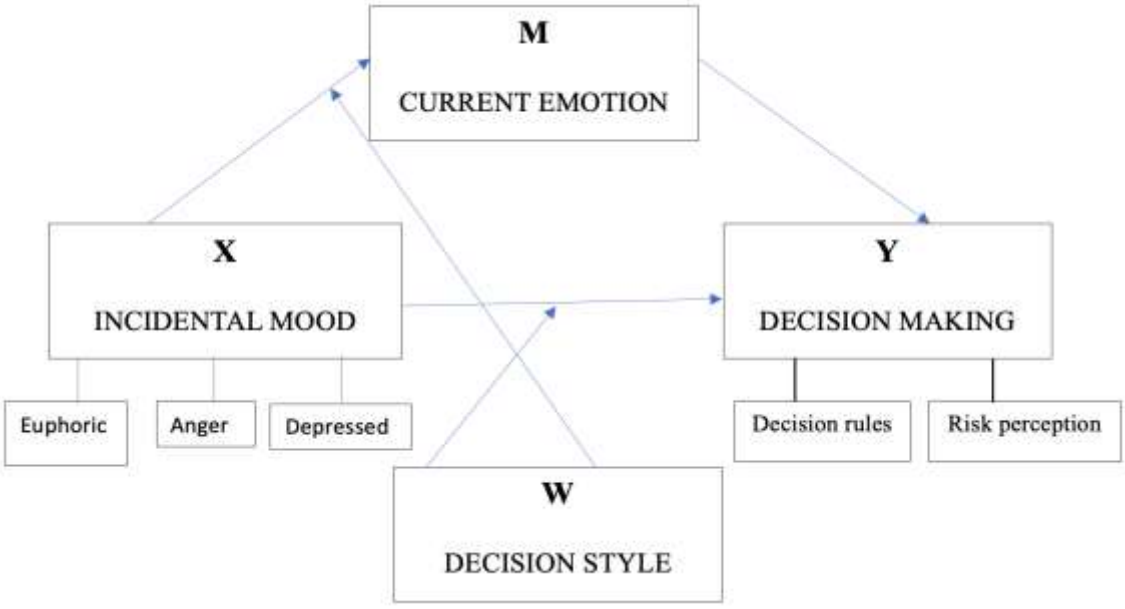
H5: Decision style does moderate the relationship between Incidental mood and Resistance to framing and sunken costs

H0: Decision style does not moderate the relationship between Incidental mood and consistency in risk perception.

H6: Decision style does moderate the relationship between Incidental mood and consistency in risk perception.

Sub-Hypotheses:
H0: Incidental mood has no significant relationship with Current emotions.
H1: Incidental mood has a significant relationship with Current emotions
H0: Current emotion has no significant relationship with Resistance to framing and sunken costs
H2: Current emotion has a significant relationship with Resistance to framing and sunken costs.
H0: Current emotion has no significant relationship with consistency in risk perception.
H3: Current emotion has a significant relationship with consistency in risk perception.
H0: Incidental mood has no significant relationship with Resistance to framing and sunken costs.
H4: Incidental mood has a significant relationship with Resistance to framing and sunken costs
H0: Incidental mood has no significant relationship with consistency in risk perception.
H5: Incidental mood has a significant relationship with consistency in risk perception.
H0: Decision style has no significant relationship with Current emotions.
H6: Decision style has a significant relationship with Current emotions
H0: Decision style has no relationship with Resistance to framing and sunken costs
H7: Decision style has a significant relationship with Resistance to framing and sunken costs
H0: Decision style has no relationship with consistency in risk perception.
H8: Decision style has a significant relationship with consistency in risk perception.
H0: Decision style has no significant relationship with Incidental mood.
H9: Decision style has a significant relationship with Incidental mood.

Figure 1 Moderated Mediation Model



Variables

- **IV (Independent)-** Incidental mood. There are **3 levels** of the IV- Euphoric, Anger and Depressed Mood.
- **DV (Dependent)-** Decision Making that varies at **two levels**: Resistance to Framing Effects and Sunken costs, and Consistency in Risk perception. The DV is Ordinal in nature.
- **M (Mediator)** - Current emotions.
- **W (Moderator) -** Decision Style- Spontaneous, Dependent and Vigilant.

Operational Definitions of the Variables

- **Mood:** Forgas, 1992 defined mood as an affective state with low intensity, and relatively enduring state that lacks a salient antecedent cause leading to very little cognitive content.
- **Incidental Mood**: Mood that is unrelated to the object of judgement or decision that influences the cognition due to any prior experience of mood induction such as euphoric, depressed or angry moods.
- **Euphoric**: A euphoric mood is a highly elevated and intense emotional state characterized by an overwhelming sense of happiness, joy, and well-being.
- **Depressed** : A depressed mood refers to a temporary emotional state characterized by feelings of sadness, low energy, and a lack of interest or pleasure in activities.
- **Anger:** An angry mood refers to an emotional state characterized by intense feelings of anger, frustration, irritability, or hostility.
- **Current emotion:** This refers to the emotional atmosphere over a period of 30 days for an individual.
- **Decision Making**: This refers to the process of selecting one of several options in order to attain a desired outcome (Eisenfuhr, 2011).
- **Consistency in Risk Perception**: This refers to assessing the probability numeracy, individual understanding of the probability rules and analyses of them.
- **Resistance to Sunk Costs**: This refers to the ability to ignore prior investments when making decisions where the accuracy of making choices is under the lens.
- **Resistance to Framing** defined as whether choices are affected by irrelevant differences in problem description, specifically framing the options in terms of gains or losses.
- **Decision Styles**: These refer to descriptions of likelihoods of Behaviour across circumstances and domains
- **Spontaneous:** This refers to the ability of individuals to rely more on their intuition, gut feelings, first impressions to make quick decisions without any in depth analysis
- **Vigilant**: The ability to weigh the pros and cons, evaluate the consequences and being cautious to minimize losses while evaluating all alternatives.
- **Dependent**: This style reflects a pattern of dependency, consulting others, seeking guidance and input before making any choices

Tools used

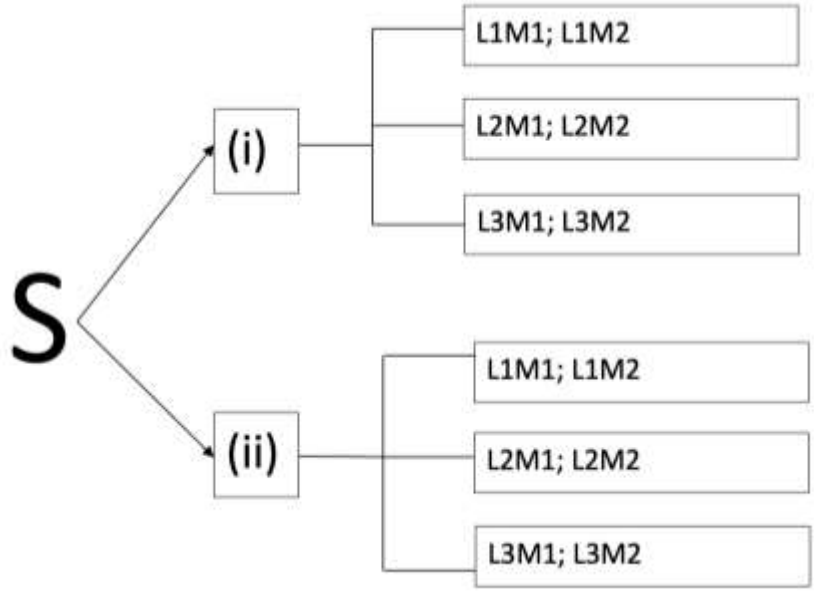
Quantitative Data:

1) Ryff Scale of Psychological well-being (Ryff, 2014)- measuring well-being over past 6 months. It is an 18-item Likert scale.
2) K10 – Kessler Psychological Distress Scale (Kessler et al., 2003)- measuring current emotional state. It is a 10-item Likert scale.
3) Decision Style Questionnaire (Leykin et al., 2010)- measuring the different individual styles. It is a 43-item Likert scale.
4) Youth Decision Making Competence Scale (YDMC) (Parker & Fischhoff, 2005)– specifically measuring Resistance to Framing effect and Sunken costs and consistency in risk perception.
5) Images for priming the moods: The Face Place dataset was used that consisted of over 200 images of different emotional reactions. The images were in JPEG format, 250*250 *72 dpi 24-bit colour collected by Tarr et al., 2012 in their research.

6) Video clips for inducing different emotions-Open LAV Database for Mood induction, 188 videos, CC-By License and 13238 affect ratings for 434 participants. Intensity of emotions by Appraisal Questionnaire.

Qualitative Data:
A semi-structured interview schedule was created to analyse the patterns and processes of decision- making engaged by the participant during the experimental task. This was followed by a content analysis.

Study Design:
Fig 2 Pre-test and Post-test design



A pre-test – post-test design was used to measure the changes in the variables. The figure above explains S- spontaneous decision style for instance to be further divided into two based on current emotion. Criteria (i) indicates scores above 14, and criteria (ii) indicates scores below 14. The two groups are further exposed to the intervention. L1- Angry mood stimulus, L2- Euphoric mood stimulus, L3- Depressed mood stimulus. The M1 stands for Resistance to Framing and Sinken costs and M2 stands for Conisitency in Risk Perception.

- **For Quantitative method**: An experimental design was used.
- **For Qualitative method:** A content analysis design was used.

Mixed- Method Design:
In order to thoroughly analyze the research aims, this study used a mixed-method research design that integrated quantitative experimental approaches with qualitative content analysis. By triangulating data from many angles, the combination of these two methodologies aims to offer a broader insight of the topic under inquiry.

Quantitative Design
This study's quantitative component used an experimental design to examine how moods affected decision-making. A controlled laboratory setting was employed, ensuring rigorous control over extraneous variables that could impact the results. Three distinct mood inductions were used on the experimental group. The significance of observed differences between groups was assessed statistically.

Qualitative Design

The study's qualitative component used a content analysis methodology to investigate the complex themes, trends, and conclusions pertaining to decision- making. Identification, coding, and analysis of qualitative data from the interviews were done using a methodical methodology. Both close and open-ended interviews were gathered and verbatim transcribed. Data were divided into themes and subthemes through iterative coding, which allowed for the creation of common patterns and variations. The rigor and reliability of the results were improved by using the EIC model as a guide during this process. The organizing and retrieval of data during analysis were made easier by the use of software for qualitative analysis.

Triangulation and Coding

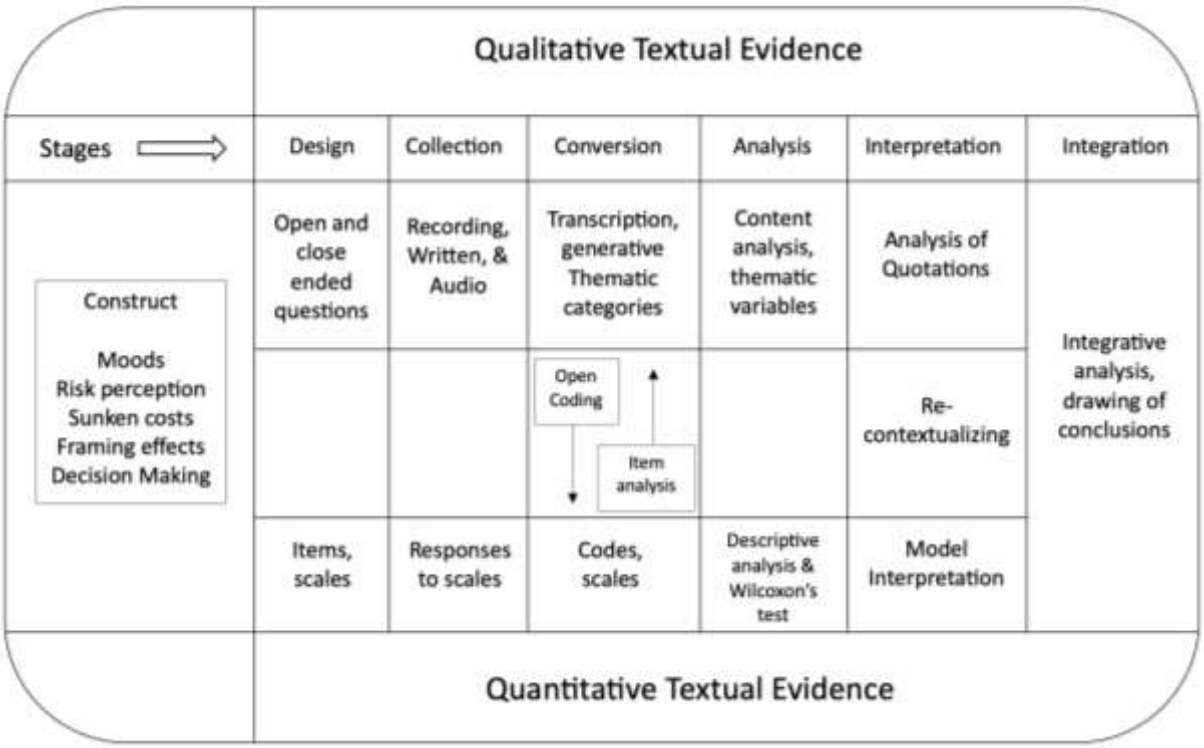
A comparative analysis method was used to integrate the quantitative and qualitative data. Qualitative research enhanced awareness of underlying mechanisms, personal experiences, and contextual elements while quantitative research offered statistical insights into the correlations between variables. A more thorough and reliable interpretation of the research phenomenon was made possible by the triangulation of several complementary data sources.

Ethical considerations

The study was conducted under careful adherence to ethical standards. All participants provided informed consent, guaranteeing their voluntary participation and anonymity. The ethical review board of Jain University gave their seal of approval.

To provide a comprehensive examination of effect of mood on decision-making, the mixed-method approach successfully merged experimental quantitative methodologies with qualitative content analysis. The combination of these methods produced a deeper and more complex understanding of the phenomenon, which helped to interpret the research findings in a way that was comprehensive.

Fig 3 Mixed Method Design



Sample:
Sampling style: A purposive sampling design was used to select the participants.

Sample Size: For the quantitative approach, a sample of 28 persons was used; for the qualitative methods, a sample of 19 people was used.

Inclusion criteria: Participants between the ages of 17years –50 years. Knowledge of English language and a reading level of 6th grade is essential. Fluency and Mastery in Hindi language. All participants should be from urban region of Bangalore.

Exclusion criteria: Neurodivergent population will be excluded.

Screening rules for Sample: Individuals scoring on the Ryff's well-being scale will be a screening tool. The highest possible score is 21 and the lowest possible score is 3. The midpoint of the score is 13.5 thus a range of 13-14 fall as the median score range. Thus, individuals scoring above 13 will be included for the experiment and those scoring below 13 will be excluded.

Sample characteristics: The sample included participants between 18 to 35 years of age, where majority were 19 years old. Out of 28 participants, 78% of the sample were female, 18.4% were male and 2.6% were non-binary. The socioeconomic status of the participants was between lower to upper middle class according to the Indian standards. The sample was fluent in Hindi and English languages.

Procedure
Posters explaining the experiment were circulated and participants were recruited via the registrations process. Post this for all registered participants a screening was performed that included a well-being form, a current emotion scale and the Decision style questionnaire to analyse their decision styles. All participants who cleared the screening were then allowed to participate in the pre-test. All procedures including the pre-test was done online. A gap of 3-8 days was given between the pre-test and post-test. The post-test included the participants to watch few images used as priming mechanisms followed by the videos for inducing three moods and they filled the scales after each video for the three moods. Neutral videos were played after every questionnaire to nullify any mood effects from the previous induction if any. This was followed by an extensive debriefing and doubt solving session.

For the qualitative analysis the participants were asked if they would partake in semi-structured interviews. Out of 28, 19 interviews were undertaken based on videocalls where the audios were recorded and written transcripts were generated via the Transcriptor tool. Furthermore, the transcripts helped generate thematic labels that led to axial codes and a thorough content analysis. These aided to construct the interactive hexagonal map of patterns of decision making observed for the sample where points of convergence and divergence were mapped carefully. Finally in the discussion the integrative analysis of the qualitative and quantitative data was recorded.

Statistical Analysis
The Shapiro-Wilk normality test was used to assess the absence or presence of normal distribution within the sample. Wilcoxon's Signed Rank Test was used to analyse the statistical data.

RESULTS

Quantitative Analysis:

Descriptive Statistics

Table 1. Descriptive statics for YDMC pre and post-test.

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TOTAL PRE-TEST	28	0	1	.96	.189	.036	-5.292	.441	28.000	.858
RP PRE-TEST	28	0	1	.71	.460	.212	-1.003	.441	-1.076	.858
TOTAL POST TEST	28	0	1	.82	.390	.152	-1.775	.441	1.234	.858
RP POST TEST	28	0	1	.57	.504	.254	-.305	.441	-2.060	.858
Valid N (listwise)	28									

In **Table 1,** the mean (average) score on the total Pre-Test was approximately 0.96. The data points show a relatively low spread or variability, as indicated by a small standard deviation of approximately 0.189. The minimum score was 0, and the maximum score is 1, suggesting that the data is bounded between 0 and 1. The skewness value of -5.292 indicates that the data is highly negatively skewed, meaning there are more high scores in the distribution and fewer low scores. The kurtosis value of 28.000 indicates a very high peak in the distribution, suggesting that the data is heavily concentrated around the mean. For RP Pre-Test, the mean (average) score was approximately 0.71. The data points have a larger spread or variability compared to the Total Pre-Test, as indicated by a higher standard deviation of approximately 0.460. The minimum score is 0, and the maximum score is 1, again suggesting that the data is bounded between 0 and 1. The skewness value of -1.003 indicates a mild negative skewness, implying a slightly greater number of high scores in the distribution. The kurtosis value of -1.076 indicates a relatively flat distribution with less extreme tails compared to a normal distribution.

For the total post-test, the mean (average) score was approximately 0.82. The data points have moderate variability, as indicated by a standard deviation of approximately 0.390. The minimum score was 0, and the maximum score was 1, once again indicating data bounded between 0 and 1. The skewness value of -1.775 suggests a moderate negative skewness, indicating a slightly greater number of high scores in the distribution. The kurtosis value of 1.234 indicates a distribution with relatively heavier tails compared to a normal distribution. For RP post-test, the mean (average) score on was approximately 0.57. The data points have the largest variability among all variables, with a higher standard deviation of approximately 0.504. The minimum score was 0, and the maximum score was 1, showing that the data is bounded between 0 and 1. The skewness value of -0.305 indicates a slightly negative skewness, implying a slightly greater number of high scores in the distribution. The kurtosis value of -2.060 suggests a distribution with relatively lighter tails compared to a normal distribution.

In summary, these statistics provide insights into the distribution and characteristics of the data for each variable. The skewness and kurtosis values can help identify departures from a

normal distribution, and the mean and standard deviation provide measures of central tendency and variability. This indicates that the data set in the study is not normally distributed.

Table 2. Hypothesis test summary for FR1 and FR2 Pre and Post-test.

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The median of differences between TOTAL PRE-TEST and TOTAL POST TEST equals 0.	Related-Samples Wilcoxon Signed Rank Test	.046	Reject the null hypothesis.

Table 3. Related-Samples Wilcoxon Signed Rank Test for FR1 and FR2 Pre and Post-test.

Related-Samples Wilcoxon Signed Rank Test Summary	
Total N	28
Test Statistic	.000
Standard Error	2.500
Standardized Test Statistic	-2.000
Asymptotic Sig. (2-sided test)	.046

Table 3, indicates **Related-Samples Wilcoxon Signed Rank Test Summary.** Total N is the number of paired observations in the test which was 28. The test statistic was 0.000. It reflects the sum of the ranks of the positive differences between the paired samples. The standard error was 2.500. It measures the uncertainty in the test statistic. The standardized test statistic was -2.000. It is the test statistic divided by the standard error and provides a measure of how many standard errors the observed test statistic deviates from the expected value under the null hypothesis. The asymptotic significance (two-sided) was 0.046. It is the same as the significance level mentioned earlier and indicates the p-value.

Table 2, reflects the **Hypothesis Test Summary.** The test used to evaluate this hypothesis is the Related-Samples Wilcoxon Signed Rank Test. The null hypothesis states that the median of differences between Total Pre-Test and Total Post Test scores equals 0. In other words, there is no significant difference between the pre-test and post-test scores for FR1 and FR2. The significance level, also denoted as p-value, was 0.046. It represents the probability of obtaining the observed results if the null hypothesis is true. It indicates the strength of evidence against the null hypothesis. Based on the significance level, the decision was to reject the null hypothesis. Therefore, there is a significant difference between the Total Pre-Test and Total post test scores for FR1 and FR2.

Interpretation

The results of the Related-Samples Wilcoxon Signed Rank Test show that there was a significant difference between the Total Pre-Test and Total Post Test scores for FR1 and FR2. The p-value of 0.046 was less than the conventional significance level of 0.05, which means there was sufficient evidence to reject the null hypothesis. This suggests that the videos eliciting the moods depression and anger (Intervention) induced between the pre-test and post-test for FR1 and FR2 has led to a statistically significant change in their scores. The negative value of the standardized test statistic indicates that the median difference was less than 0, meaning that the scores tend to decrease from pre-test to post-test. This highlights that there was lesser inconsistency in Resistance to Framing and Sunk cost aspects of decision making when the participants are experiencing Sadness and Anger moods. However, it is to

be noted that these findings are based on the specific sample analysed, and caution is to be emphasised before generalizing the findings to a broader population, as the sample size for this study was only 28.

Fig 1 Pre-Test FR

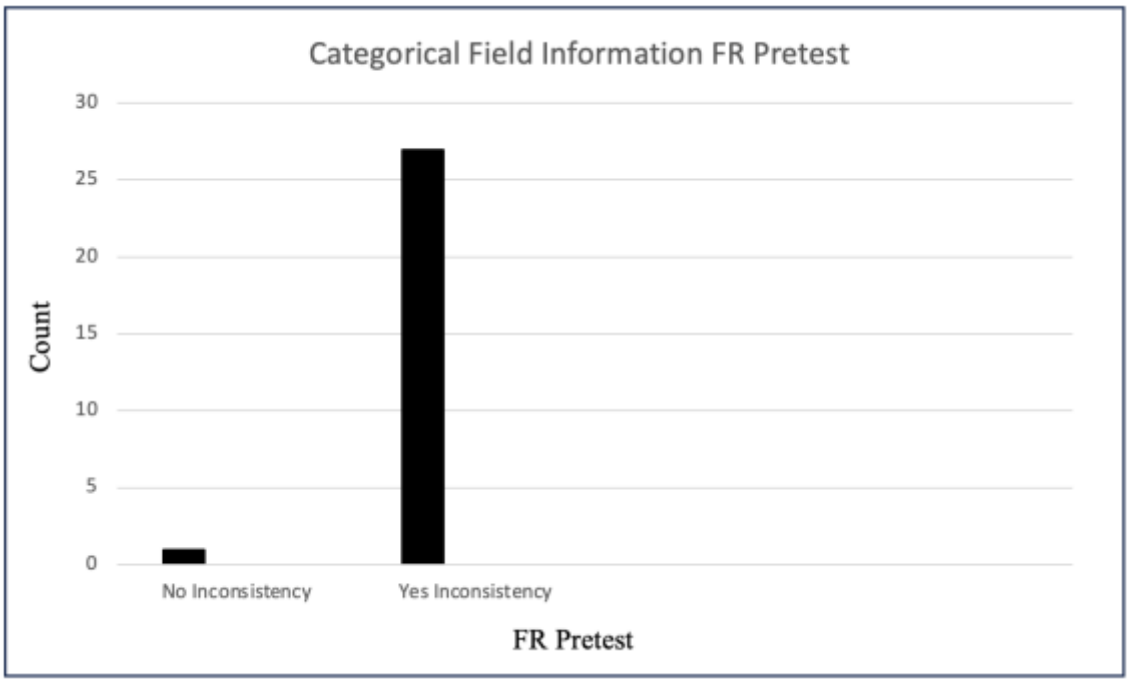


Fig 2 Post-Test FR

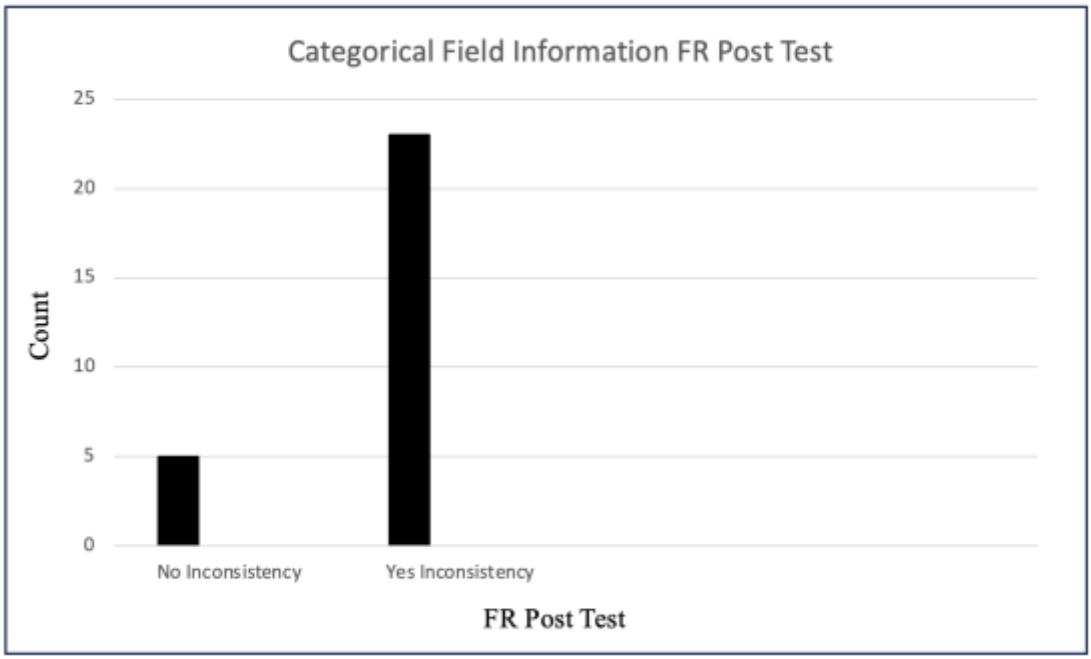


Fig 3 Wilcoxon's Statistical Analysis Graph

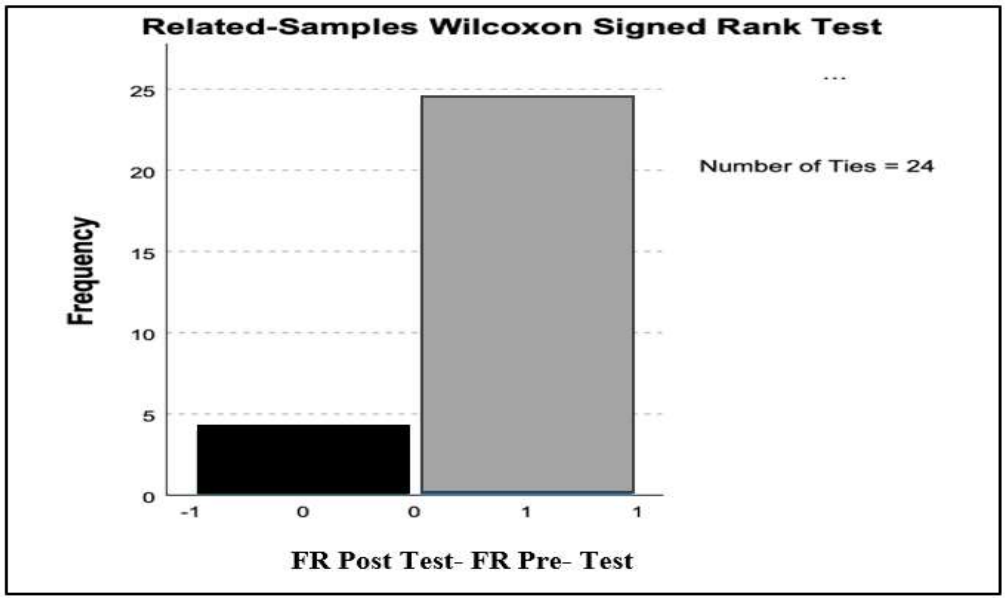


Table 3. Hypothesis test summary for RP Pre and Post-test.

Hypothesis Test Summary			
Null Hypothesis	**Test**	**Sig.**	**Decision**
The median of differences between RP PRE-TEST and RP POST TEST equals 0.	Related-Samples Wilcoxon Signed Rank Test	.157	Retain the null hypothesis.

Table 4. Related-Samples Wilcoxon Signed Rank Test for RP Pre and Post-test

Related-Samples Wilcoxon Signed Rank Test Summary	
Total N	28
Test Statistic	9.000
Standard Error	6.364
Standardized Test Statistic	-1.414
Asymptotic Sig.(2-sided test)	.157

The hypothesis test summary and related statistics indicate the results of a Related-Samples Wilcoxon Signed Rank Test comparing the Total pre-test and Total post test scores.

Table 4, reflects the **Related-Samples Wilcoxon Signed Rank Test Summary**. The number of paired observations in the test was 28. The test statistic was 9.000. It reflects the sum of the ranks of the positive differences between the paired samples. The standard error was 6.364. It measures the uncertainty in the test statistic. The standardized test statistic was -1.414. It is the test statistic divided by the standard error and provides a measure of how many standard errors the observed test statistic deviates from the expected value under the null hypothesis. The asymptotic significance (two-sided) was 0.157. It is the same as the significance level mentioned earlier and indicates the p-value.

Table 3, reflects the Hypothesis Test Summary. The test used to evaluate this hypothesis was the Related-Samples Wilcoxon Signed Rank Test. The null hypothesis states that the median of differences between RP pre-test and RP post test scores equals 0. In other words, there is no significant difference between the pre-test and post-test scores for RP. The

significance level (alpha) was 0.050. It represents the critical value used to determine statistical significance. The asymptotic significance (two-sided) was 0.157. It is the p-value obtained from the test and represents the probability of observing the results if the null hypothesis is true. Based on the significance level, the decision was to retain the null hypothesis. Therefore, there is no sufficient evidence to claim a significant difference between the RP Pre-test and RP Post test scores.

Interpretation:

The results of the Related-Samples Wilcoxon Signed Rank Test suggest that there was no statistically significant difference between the RP Pre-Test and RP Post Test scores. The p-value of 0.157 was greater than the significance level of 0.050, indicating that the observed difference was not strong enough to reject the null hypothesis. This suggests that the videos eliciting the mood happiness (Intervention) induced between the pre-test and post-test for RP did not lead to a statistically significant change in their scores. However, it was to be noted that these findings are based on the specific sample analysed, and caution is to be emphasised before generalizing the findings to a broader population, as the sample size for this study was only 28.

Fig 4 Pre- test RP

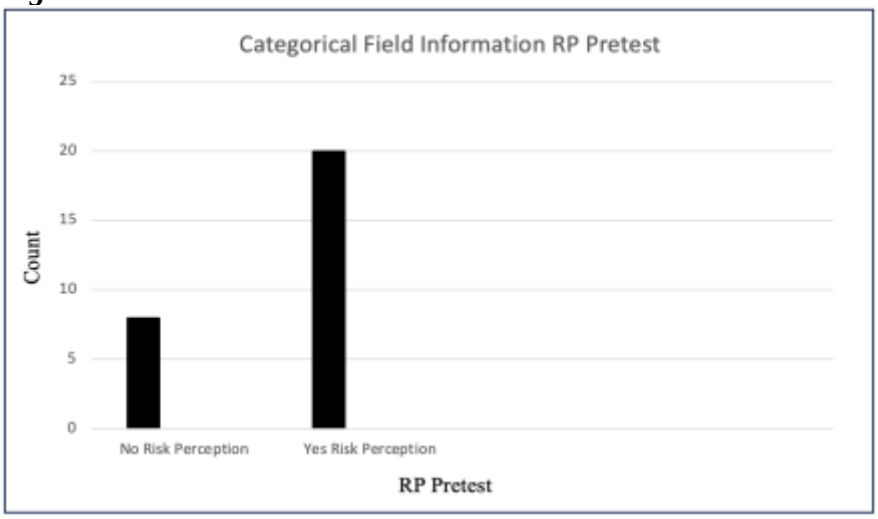


Fig 5 Post- test RP

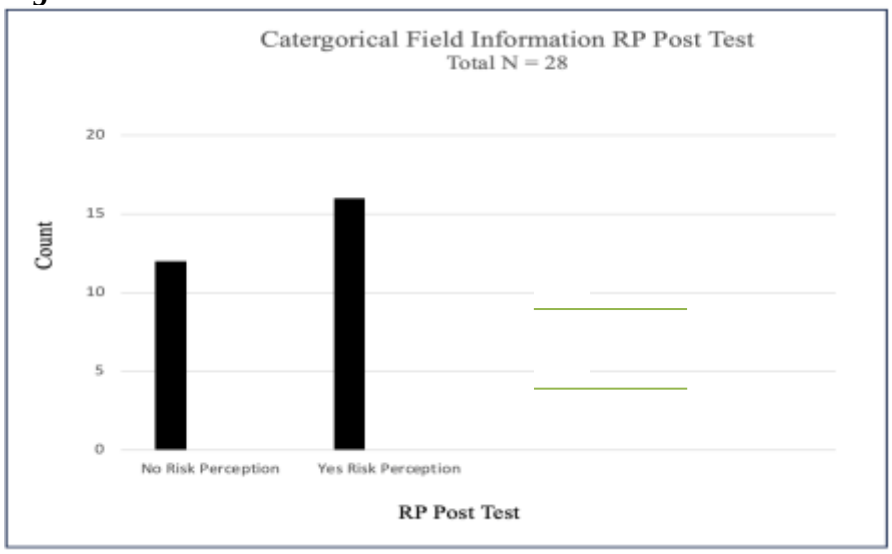


Fig 6 Wilcoxon's Statistical Analysis Graph

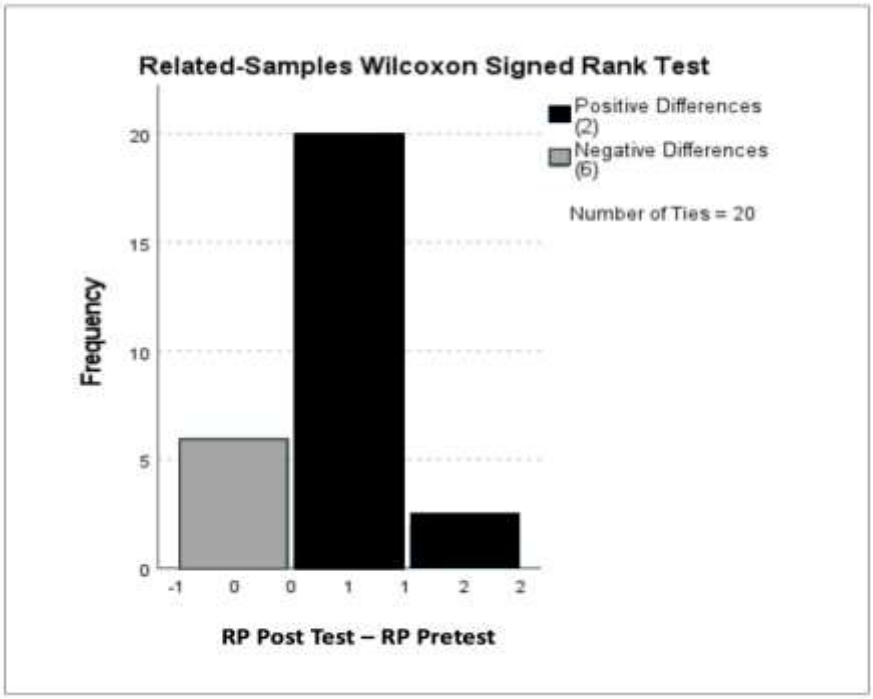


Table 5 Decision styles and Pre-Test and Post-test of RP and FR comparison

Name	Decision Style	Spontaneity	Vigilant	Dependent	FR- pre to post	RP- pre to post
BB	V-D-S	14	23	16	T	N
HC	V-D-S	16	23	21	N	T
SS	V-D-S	14	23	19	T	N
TP	V-D-S	11	26	19	T	N
H	V-D-S	10	28	20	N	T
AA	V-D-S	10	29	19	N	N
S	V-D-S	7	28	14	T	P
V	V-D-S	8	27	20	T	T
TKS	V-D-S	5	30	21	T	T
JD	V-D-S	14	25	19	N	T
DG	V-D-S	10	25	24	T	N
A	V-D-S	9	25	13	T	T
MJ	V-D-S	10	28	23	T	T
AS	V-D-S	13	24	16	T	T
ZHP	V-D-S	10	27	20	T	T
TA	V-D-S	9	26	20	T	T
NJ	V-D-S	10	23	18	T	P
Aa	D-V-S	8	21	23	T	T

In **Table 5**, the participants decision styles are formulated into patterns. V indicates Vigilant, D indicates Dependent, and S indicates Spontaneity. The order of these styles suggests the patterns. The T stands for the no of ties, N stands for negative directionality of the graph and the P stands for positive directionality of the graph.

Qualitative Analysis

A content analysis was performed on the information collected based on the participant interviews (N = 19). Domain-wise classification for thoughts as well as feelings for both the Pre-Test and post-test led to a set of Labels. The labels for thoughts consisted of comprehensive, concise, logical, incomplete, analytical, observant, relational, and superficial for Pre-Test and post-test forms. The feelings were labelled as positive, negative, and neutral for the Pre-Test and engaged, indifferent, emotional, and inquisitive for the post-test.

Thoughts: These evaluated the participants mental processes, internal conflicts, and mechanisms that aided them in making choices and determining probabilities. The labels helped identify the exact patterns and movements of thoughts.

The overarching Brain areas involved for thought processing overall are Prefrontal Cortex (PFC), and under the PFC, the regions involved are *dorsolateral* Prefrontal cortex (dlPFC) (vigilance and sustained attention; choice based decision), *ventrolateral* Prefrontal cortex (vlPFC) (semantic, linguistic, and visuo-spatial processing), *anterior* Prefrontal cortex (aPFC) (multi-tasking), Frontal pole (FP) (maintaining future intentions), *rostral* Prefrontal cortex (rPFC) (maintaining future intentions), *dorsal* anterior cingulate cortex (dACC) (response conflict and error detection), orbito-frontal cortex (OFC) (processing of emotional stimuli) (Ward, 2019).

Comprehensive:

These indicated the responses that provided thorough and detailed explanations. Out of 19 responses, 12 were comprehensive, which provided various details of the manner of mental activity taken to solve the problems, the logical formulas used, the role of past experiences, if any, and how they interlinked everything to form decisions. More than 50% of the participants were comprehensive, which suggests active judgment, thinking, and attentional capacity involvement.

The activation of the language centers, especially Broca’s and Wernicke's, with Medial temporal Lobe Memory system influence is seen in the participants ability to be comprehensive. Furthermore, as mentioned above the dlPFC plays a significant role in comprehensive thought formulation (Ward, 2019).

Concise:

These refer to responses that though brief, still address the questions adequately. Four such responses were recorded that did not provide extensive data or mental steps. They only followed one pattern that guided them throughout. For instance, they weighed past experiences, current state and possible benefits or losses for a particular decision. A minority set of people from the sample followed this pattern of thinking, reflecting the clarity of thoughts and attention processes that were streamlined accurately.

The brain areas identified for concise thinking styles are the dlPFC, which filters irrelevant information and maintains focus. The anterior cingulate cortex detects inconsistencies, while Broca's area enables clear verbal expression. These areas work together, allowing individuals to quickly process, organize, and convey information with efficiency and clarity (Ward, 2019).

Logical:
These are responses that presented a clear and logical flow of information. 13 such responses were observed, which indicates the majority of participants in the sample followed a logical approach. This further explains the use of rationality in weighing the pros and cons, the benefits and losses in economic terms, and evaluating the consequences of the decisions. For instance, while choosing in P4 whether to take 100$ tomorrow or wait for another 4 weeks to take 120 $, participants were seen analysing which would be beneficial, they considered the current scenario, the environmental factors, their self-thoughts for the same and probability of receiving the money. The entire processing units: frontal lobe activation, along with executive functioning activation, reflected such higher processing of information among the participants.

The brain areas identified for logical thinking styles are the dlPFC, which filters irrelevant information and maintains focus. The dACC monitors the situation for response conflict and error detection. while Broca's area enables clear verbal expression. These areas work together, allowing individuals to quickly process, organize, and convey information post careful consideration of the information (Ward, 2019).

Incomplete:
These are responses that lack some essential details or coherence. Two such responses were recorded, which indicates that among the sample, most of the participants had their thought processes in coherence with the situational demands, and only two lacked such processes, maybe due to attentional, relational, or other kinds of cognitive distractions. For instance, some just briefed on how they randomly selected the responses and did not put effort or they just don’t remember how they worked through those problems.

Incomplete thought processes can arise from the premature activation of the aforementioned brain regions in relation to a given task or from insufficient sustained activation of these regions to facilitate the completion of the task (Ward, 2019).

Analytical:
These are responses that present a thoughtful or insightful analysis of the presented content. 4 participants were observed to be analytical, which shows that even in the presence of logical thinking, the ability to relate and understand the nuances of the various perspectives and presenting conditions was not present amongst all who were logical and tried to be as comprehensive as possible. For instance, analysing the probabilities for death or imprisonment past 30 years as compared to currently. The participants for this showed inconsistency where they logically analysed their current state, past experiences, morals and ethics, however they did consider the two scenarios as separate entities. If analytically it was assessed there wouldn’t have been inconsistencies as they would analyse the relationship to be on a continuum thereby affecting the choice of the respondents.

The brain areas identified for analytical thought processes overlap with logical thought processes. There is a deviation in visual or auditory stimulus processing in analytical thought processing. Analytical thought processing has shown activate the Frontal eye Fields (FeF) and the sensory association areas (Auditory in this case) at a higher intensity than logical thought processing. Along with this there is difference in the wavelength of the Beta/Gamma brain wave ratio in the Prefrontal cortex regions of the brain. This could be stated as the neurological corelate for the observed difference between Logical and analytical thought process (Ward, 2019).

Observant:
These are responses that focused on particular or specific details seen in the videos, pictures, or images during the experiment. 10 participants out of 19 reflected this cognitive capacity, where attention, working memory, and information processing played a crucial role for observation among the participants. For instance, the sample suggested having flashes of Irfan Khan crying with the bag and shoes in the sad videos, the memory of the sudden death of the child in the story , and the characters acting where fathers emotions were displayed accurately to affect decision making and elicit emotions.

The brain areas involved for perception and vision in the parietal lobe and occipital lobes, and the audio centers in the temporal lobe, along with association cortices and dLPFC, were seen to be activated, along with the frontal eye fields (Ward, 2019).

Relational:
These are responses that establish connections between the presented data and past experiences or the broader picture. There were 8 such responses, showing their relational memory, attention capacity, and relational logics to be working to aid the process. Participants reported instances where they had gone to buy a gift from a shop and how they were in conflict as to whether continue to buy from the shop and value loyalty vs go in for a discounted deal. (P3 from FR1 in Pre-Test and Post Test form). The instances of having to decide which treatment procedure for their relatives suffering from cancer, whether they should choose radiation or surgery. Some agreed with radiation as they remembered their relatives to have recovered soon and some chose surgery because they saw their loved ones suffer and die during radiation (P5, FR1, FR2).

The brain areas involved are the vLPFC region, VACC, OFC, Hippocampus, medial Temporal memory lobe Systems along with the perisylvian language zone for emotional processing, memory, relating current to past memories and understanding the nuances with focused attention (Ward, 2019).

Superficial:
These are responses that provide brief and surface-level observations There were 6 responses that reflect insufficient effort and thought process to be used by participants during the evaluation, and they took a casual approach, which may be due to their nature, the content in the forms, or the fear of their thoughts being revealed or kind of exposed.

The brain areas that lead to such a processing are the impairments in attention and working memory in the temporal lobe, the PFC region hyper or hypoactivation patterns and a well-formed network of connection of the association areas with the specialised functional cortices (Ward, 2019).

Feelings:
The feelings provide insight into the emotional atmosphere that the individuals experienced during, before, and after the Pre-Test and post-test and their emotional quotient levels and activation patterns for the presented content. For the pre-test, the feelings were categorized as neutral, negative, and positive.

Feelings during the pre-test
13 participants reported feeling neutral, 1 felt positive, and 4 felt negative emotions throughout the Pre-Test. Some suggested being influenced by the previous activity, whereas

others felt these were due to the content of the form. Three participants were facing some problems due to which the dominant emotional state for them was sadness, whereas one person was happy and elated due to the upcoming special event in her life, and all others felt neutral.

Feelings during the post-test

The feelings during the post-test reflect both the emotional atmosphere due to the content in the form as well as the mood induction procedures that included different images and videos eliciting different emotional effects.

Engaged:

There were nine responses that indicated interest and captivation while watching the videos and pictures. Participants reported being caught by the storylines, resonating with the emotions, and being drawn by the acting. For instance, being nostalgic while seeing Roadrunner video, feeling happy seeing the chase, and feeling bad for the coyote in the euphoric mood video. This further elaborates on their quick perceptual abilities and working memory capacities.

Indifferent:

These are responses that do not show strong emotional reactions to the content reflecting that participants have reached a stage of desensitization from the media. Six such cases were reported by the interview data. Another observation was that participants felt the emotions, accepted and rationalised stating it's just a video and not a real scenario. This makes us question or doubt the ecological validity of the entire construct.

Emotional:

These are responses that convey strong emotions like happiness, sadness, surprise, or fear. 10 out of 19 participants felt the emotions at different intensities; the most intense was the depressed mood, followed by euphoria and the angry emotion that only elicited neutrality, sadness, and disgust. The fact that the emotions were felt, accepted, and rationalized, cancelled of any effects of emotion/ mood on the decision making ability of participants.

Inquisitive:

These are responses that expressed curiosity or raised questions about the presented content. There were 3 such responses. These participants reported pondering whether there were any grammatical changes or minor changes in questions; some wondered why the questions were the same and what was the purpose of using questions such as alcohol use, drug use, sexual relationship, death, pregnancy, and imprisonment.

Table 1: Qualitative analysis of Labels.

Name	STB	SE	SSR	PU	PE	PEx	MV	SN	CN	PI	LE	EE	CE	FP	LP	PIn	EM
BB	1	0	1	0	0	1	0	0	0	0	0	1	1	1	0	0	5
HC	1	0	0	1	0	1	1	1	1	0	1	1	1	0	1	1	5
SS	1	0	1	0	0	1	1	0	0	0	0	1	1	0	1	0	5
TP	1	0	0	0	0	1	0	0	0	0	0	1	1	1	1	0	5
H	1	1	0	1	1	1	1	0	0	0	0	0	1	1	1	0	0
AA	1	0	0	0	0	1	1	0	0	0	1	0	1	0	1	0	0
S	1	1	1	0	0	1	0	0	0	0	0	0	1	1	1	0	5
V	1	0	1	0	0	1	1	0	0	0	0	1	1	0	1	0	0
TKS	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
JD	0	0	0	1	1	1	0	1	1	0	0	0	1	1	0	1	1
DG	1	0	0	1	0	1	0	1	1	0	0	1	1	1	1	1	0
A	1	0	0	0	0	0	1	1	0	0	1	0	1	0	1	0	5
MJ	1	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	1
AS	1	0	0	1	0	1	0	0	0	0	0	0	1	1	1	0	5
ZHP	0	0	0	0	0	1	0	1	1	0	0	0	1	1	1	0	5
TA	1	0	0	0	0	1	0	0	1	0	1	1	1	0	1	1	5
NJ	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	5
Aa	1	0	1	1	1	1	1	0	0	1	1	1	1	1	0	0	5
SP	1	1	1	0	1	1	0	0	0	0	0	1	1	0	0	0	1
Total	**15**	**3**	**7**	**7**	**5**	**18**	**8**	**6**	**6**	**1**	**5**	**10**	**18**	**9**	**14**	**4**	**3**

Table 2: Codes for Interactive hexagon of patterns of Decision Making

STB	Self- Thoughts & Beliefs
SE	Self-Expectation
SSR	Self- Set Rules
PU	Parental Upbringing
PE	Parental Expectation
PEx	Past Experiences
MV	Morals and Values
SN	Social Norms
CN	Cultural Norms
PI	Political Influence
LE	Legality and Ethics
EE	Environmental Effects
CE	Current Experiences
FP	Futuristic Perspective
LP	Logical Perspective
PIn	Peer Influence
EM	Emotion & Mood

Table 1, indicates the labels used for the qualitative analysis of the rational decision-making patterns and emotional decision-making patterns that were observed during the interviews. Yes, response for the particular label has been coded as 1, and No for the response has been coded as 0. Number 5 indicates 50% chances of using the label depending on situations.

Table 2, represents the codes used for the different criteria's of qualitative analysis used in Table 1 as well as for the Interactive Hexagon Map of patterns of Decision- Making.

Fig 1 Map of Decision-making Model

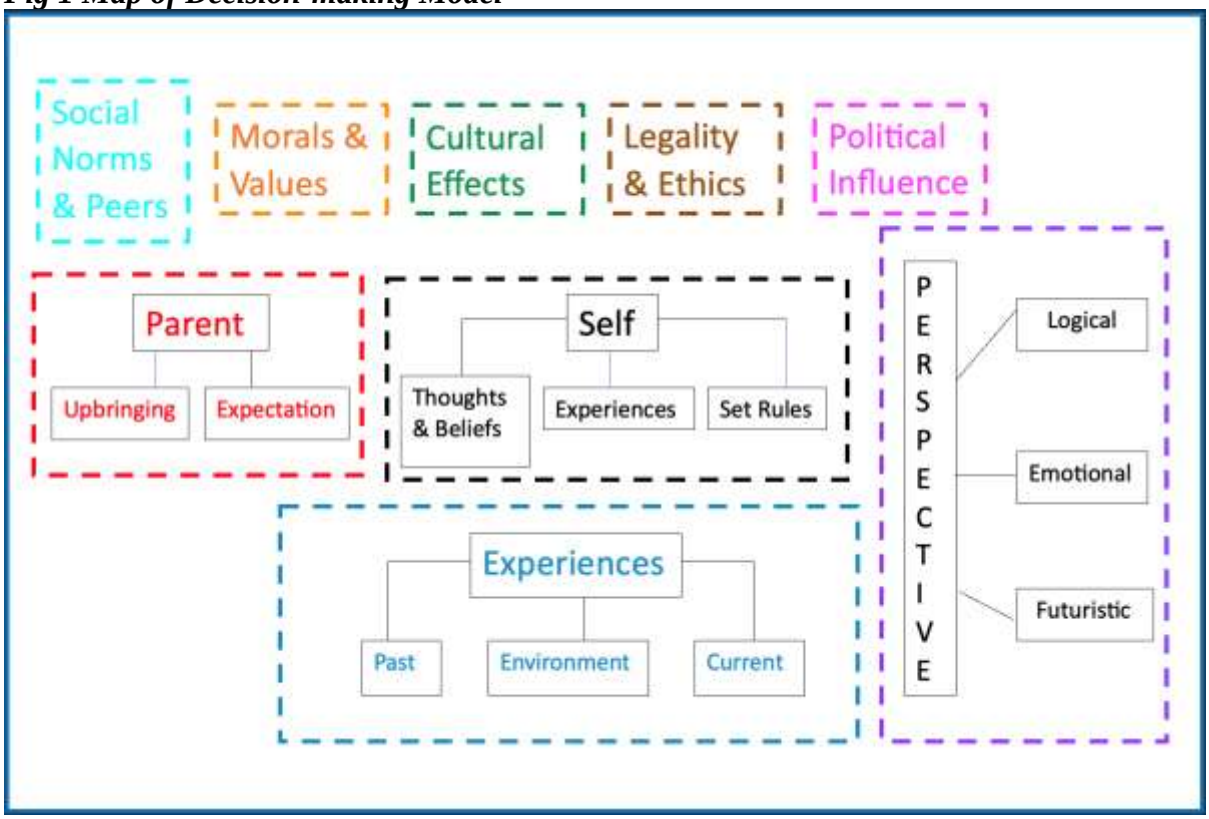


Figure 1, is a diagrammatic representation of the seventeen criteria that were used to analyze the content of the qualitative data and enable participants develop their patterns of logical and irrational decision-making. Nine broad areas were combined from these 17 criteria that were based on commonalities. The Self domain has three criteria: one's own thoughts and views; one's own expectations of oneself; and one's own self-established regulations that act as healthy boundaries to promote personal growth. The cognitive process for logical reasoning is determined by the second domain of experiences, which consists of past experiences, environmental experiences, and current experiences. The third category, Parent, includes parental upbringing and expectations, which may have a good or negative impact on how people develop and adapt. The individual's particular style of decision-making is determined by the fourth category, Perspectives, which includes a futuristic perspective, an emotional and mood perspective, and a logical approach. The other five areas include political influence, cultural effects, morals and values, legality and ethics, and social norms and peer influence. These 5 are shaped by the connections between the previously described 4 domains.

Fig 2 Interactive Hexagon of Patterns of Decision making.

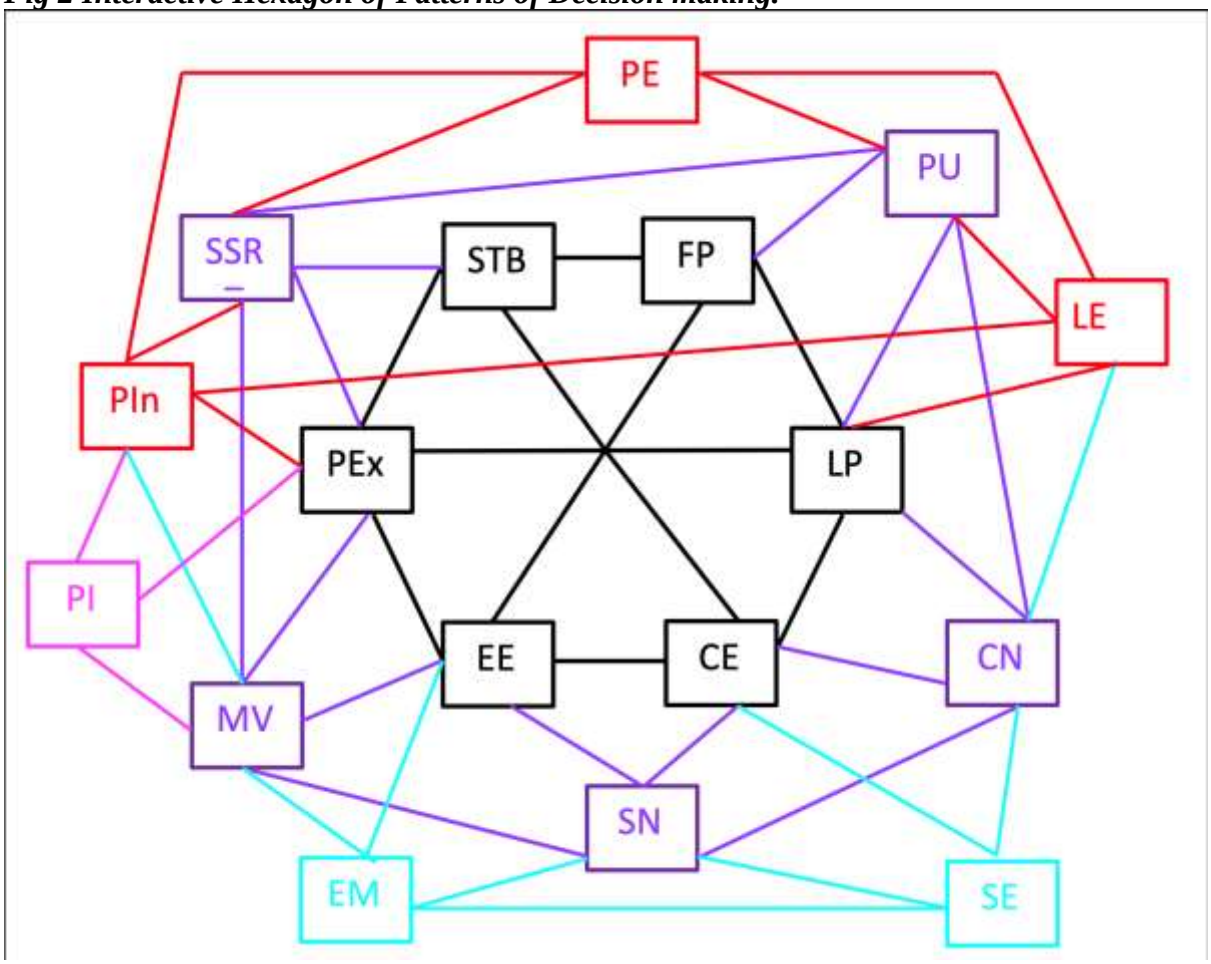


Table 3: Legend for Fig 8

Symbol	Label
	Primary recurring relationships
	Second order relationships
	Third order relationships
	Fourth order relationships – distant effects
	Fifth order relationships- very distant effects if any

Fig 2, represents the **Interactive Hexagon Map of Patterns of Decision- Making** followed by the sample (n=19). In Fig 2, the black lines indicated the most recurring relationships, where STB, FP, CE, EE and PEx, factors have been seen in majority of the patterns of decision making among the sample. These factors highly influence the mental activity for choosing and solving problems in the current dataset. The purple lines are the secondary relationship patterns that are seen, where these reflect the next set of dominant factors that possibly interact in unique ways with the primary factors to lead to decision making capabilities and outcomes. The red lines are the third order relationships that interact amongst themselves as well the primary and secondary factors to aid the process. The blue lines indicate fourth order relationship that are distant and do not occur frequently they are based more on the combination of the primary and secondary factors that further could be connected to the tertiary ones. Finally, depending on exposure and connections to other factors, the pink lines represent the factor that is least engaged in the current dataset and has only been observed in 1-2 occurrences. The characteristic feature of these interactive lines are

that they don't have a defined directionality, they interact multi diversely based on the individual's unique exhibition of patterns. All of these interact at the same factor level with one another and also interact at other levels with other factors.

DISCUSSION

The results of pre-test and post-test comparisons for FR1 and FR2 revealed fewer inconsistencies in the post-test, indicating participants-maintained focus and did not deviate from their initial responses. Particularly, greater consistency was observed in resistance to framing effects, suggesting respondents were unaffected by question framing (negative or positive). Additionally, consistency in resistance to sunken costs supported vigilance and emotional valence theories. These findings suggest individuals may over-analyze information and remain vigilant to subtle changes during depressed or angry moods.

Qualitative analysis of participants' responses in FR1 and FR2 shed light on their cognitive patterns. The labels included logical, analytical, observant, and relational, incorporating self-imagery techniques. Even in states of sadness and anger, participants maintained logical thinking, attentiveness to video details, and sensitivity to nuanced changes. For example, a video-triggered emotional response, caused them to focus on life expectancy while weighing cancer treatment alternatives like surgery or radiation, showing heightened awareness of emotional impact.

The Interactive Hexagon Map provides a glimpse into the decision-making processes that were employed, and we can see that the majority of participants combined their own thoughts and beliefs with logic, their past experiences, environmental factors, and their current mental state to solve the problems. The sequence, directionality, and intensity of the links between the labels were observed to change as a result of some unique patterns of decision-making. For three participants, overthinking was one of the key factors that influenced most of their decision-making, whereas for one participant, self-expectations and ambition were what motivated them to think things through thoroughly before making a choice. Three to four participants used cognitive techniques, particularly learning and trial-and-error, as their prior experiences and new experiences served as the foundation for their learning and deciding the way they work, which had strong linkages to their own self-set rules, self-thoughts, and beliefs. For one participant, their perspective on the present, the future, and history was shaped by empathy, which was tied to their upbringing by their parents and the morals and ideals they held dear.

RP results were suggestive for hardly any changes between the pre-test and post test scores under the influence of euphoric mood induction. Happy moods in general are considered to be dominated by impulsive decision-making competence due to the reduced processing of information and lowered vigilance. Th sample showed that there was no increase or decrease in the no of inconsistencies in RP for both the pre-test and post-test, depicting no changes in the outlook towards perceiving risks or threats in the environment.

Further proof for such a pattern of outcomes was offered by the qualitative analysis. Participants were able to maintain consistency by using a logical approach to estimate future possibilities based on their consequences and weigh past probabilities based on their past experiences, current situation, and self-set rules. Their genius lay in the labels, which were relational, extremely thorough in their discussion of the selection process, analytical, and tying all the data together. The Interactive hexagon map of patterns for RP specifically showed elaborate connection to the morals and values, social norms, cultural norms, legality

and ethics along with the parental upbringing and expectations that acted as the deterministic elements.

The EIC model was used to evaluate the results, and the results were indicative of both the existing pathways and some potential paths the model suggested. However, we discovered several departures from the model that provided other channels and influences that potentially impact the decision-making process. In contrast to the effects of incidental emotions and current emotions operating jointly as the second entity, the decision-maker's attributes and the features of the options given together act as one entity. Together, these established the pattern based on the degree to which the decision-maker used conscious or non-conscious assessments.

It was found that individuals would engage in conscious evaluations if the decision maker's characteristics and the characteristics of the options had a greater impact, whereas if the decision maker's emotions and mood had a greater influence, they would engage in a non-conscious style of information evaluation. The parameters STB, SE, SSR, PU, PE, LP, PI, and LE were found to influence decision-maker characteristics and options to suppress emotions. In contrast to the emotions domain, where PEx and EE were found to have similar impacts, this domain was found to be significantly influenced by MV, SN, and CN. It was discovered that CE and FP had less of an impact on decision-maker traits and options. The main influencing elements for non-conscious judgments were EM, PI, and PE.

Limitations

Designing an experiment where mood induction is used to determine changes in decision-making involves manipulating participants' emotional states to observe how these states influence their choices. Although this method provides insightful information about how emotions and judgment interact, there are a number of drawbacks to take into account:

- Ethical Considerations: It might be morally problematic to induce certain feelings, especially bad ones. The mood manipulation may cause participants to feel uncomfortable, distressed, or to have negative emotional reactions, which could have an impact on their wellbeing.

- Generalizability: Real-world emotional experiences might not be perfectly replicated by the feelings created in a controlled laboratory environment. The comments given by participants may not have been representative of how they make decisions in real life.

- Complexity of Emotions: Emotions have many facets and are linked. It can be difficult to pinpoint the precise emotional influence on decision-making because to mood induction's potential to elicit a variety of feelings aside from the one intended.

- Interindividual Validity: Individual differences in emotional regulation and susceptibility to mood influences can cause diversity in decision-making responses. People respond to mood induction in different ways.

- Participant’s Bias: It's possible for participants to infer the study's goal and make adjustments to their decisions as a result (demand characteristics), which could result in biased or altered decision-making behaviour.

- Sample Related issues: The sample size was too small and skewed. It lacked diversity, variability and was not normally distributed. It was not representative of the general population, only students from Jain University consisted of the sample.

- Short-term effects: Mood induction frequently produces fleeting emotional states that may not adequately reflect long-term patterns of behaviour or decision-making.

- Limited Mood scope: The experiment may concentrate on a single emotion (such as happiness or sadness), omitting the complexity of mixed emotions or the dynamic character of emotional experiences.

- Interpretation of Causality: Although manipulating mood can show that it precedes decision-making in time, proving that it causes actual changes in decision-making is more difficult due to the possibility of other factors being involved.

- Ecological Validity: Because emotional triggers in the real world differ from laboratory-induced moods, the experiment's ecological validity and the applicability of its findings to real-life decision-making circumstances may be constrained.

- Self-Awareness of the Participant: Participants may become conscious of the mood induction and purposefully change their decision-making methods, undermining the authenticity of their responses.

- Long-Term impacts: If the mood manipulation is quick and isolated, mood induction trials may not fully capture the possible long-term impacts of mood on decision-making.

- Measurement difficulties: Accurately measuring mood and decision-making processes can be difficult. Decision-making tests may oversimplify real-world options, and self-report mood assessments may not accurately reflect emotional nuance.

- Practice effect and Time Gap: The gap between the Pre-Test and post-test could have affected the results. The use of the same form due to a pre-test, post-test design could have also induced practice effects.

- Integration Challenges: It can be difficult to combine qualitative and quantitative data. The findings must be cohesive and complementary, and the researchers might have faced challenges of efficiency and accuracy.

Future Research could focus on looking into the nuances and dealing with limitations efficiently to provide insightful and valid work. Further exploration into the neural correlates and neurotransmitter role plays for the mechanisms for decision-making could be delved into. fMRI studies, along with EEG and MRS studies, could help create a bio-psycho-social model of decision making where the neuroscience of decision-making is explored and clearly elaborated with extensive connections to cognitive, neurological, and other domains.

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