

Research Paper

## Cultural Dimensions of Emotion Recognition: Navarasa Theory and the Reading the Mind Eye Test (RMET) in Indian Samples

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### ABSTRACT

**Background:** A core requirement for social interaction and theory of mind is the identification of emotions. Created with the use of Western psychology, RMET has been widely used for assessing this skill. The concept of Navarasa Theory was articulated by Bharata Muni in his work the Nāṭyaśāstra. The aim of the study was to explore how Indian participants employed RMET to identify emotions and further analyse their response using the Navarasa theory. **Method:** Data collected from 40 Indian samples (8 women and 12 men; aged between 24 and 35 years) through the online survey using Google Forms. Participants completed a 36-item form of the original RMET. In this study, frequency analysis was conducted to determine recognition. **Results:** Emotions belong to the category of Śṛṅgāra (love/affection) scored highest, followed by Raudra (anger/irritation) and Bhayānka (fear/anxiety; e.g., Hostile, Tentative, Cautious). Static images may be more difficult to interpret since, in the case of moderately familiar emotions, there would also be a reason to consider that states are less clear or easier to confuse for unknown feelings.

**Keywords:** Cultural Dimensions, Emotion Recognition, Navarasa Theory, Reading the Mind Eye Test (RMET), Indian Samples

Emotion Recognition is one of the fundamental aspects to navigate complex social scenario successfully. It is described as the ability to accurately identify the correct emotions of other individuals' facial region. This is considered one of the core components of the theory of mind. The Reading the Mind in the Eye Test's main intent was to measure emotional recognition, developed by Simon Baron-Cohen and colleagues in 1997. Each item in this test is a photograph of a static eye region on a face, and participants are given a forced-choice option to select which best describes the emotion in the given items of the test.

In Indian philosophy, one of the indigenous frameworks of emotion is the Navarasa theory. This theory was introduced in Nāṭyaśāstra by Bharata Muni, which explains the holistic aspect of emotional states in Indian aesthetics. The theory identifies eight primary emotions and later added the ninth emotion by a Kashmiri Shaivist, Abhinavagupta. The emotions are Sringara (love, attraction), Hasya (amusement, joy), Karuna (sadness, compassion), Raudra

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(anger, irritation), Vira (heroic, determination), Bhayanaka (anxiety, fear), Bibhatsa (disgust), Adbhuta (curiosity), and Santa (calm) (Mukhopadhyay, 2021).

The aim of this paper was to investigate how Indian samples recognise emotion using the original Reading the Mind Eye Test (RMET) through the lens of Navarasa theory and to analyse the emotion recognition pattern in Indian samples. One of the social norms that exist in collectivist culture is exhibiting positive emotion, which would please other individuals. The previous study shows that the pattern of identifying affiliative and positive emotions that facilitate group harmony is more accurate compared to recognizing self-focused and negative emotions, which would act as an obstacle to developing group harmony in collectivist culture (Fang et al., 2022). Moreover, one study highlights item-level differences in identifying subtle emotions; therefore, there exists confusion in Indian samples and misclassification of negative emotions with neutral expressions (Mishra et al., 2018). The cultural orientation in Indian society would have an influence on how samples will perform in the Reading the Mind Eye test (RMET). Through the Navarasa theory framework, the difference in the recognition of emotion could be focused on, and interpreting findings by using the Western standardised RMET test would highlight cultural emotional recognition patterns.

### **METHODOLOGY**

#### ***Participants***

An online Google Form link sent to 40 Indian participants for the study. 28 Females and 12 males, aged 24 to 35 years, completed the RMET. The Reading the Mind in the Eyes Test (RMET) is administered in its original version of English.

#### ***Measures***

The RMET, i.e., Reading the Mind in the Eyes Test, Baron-Cohen et al. (1997) developed the RMET to measure capacities for recognizing emotions. Each of the 36 images in the test shows a person's eye region on an individual face, as represented in a black and white photo. Participants were prompted to select the alternative that best described the mental state portrayed by each of the four emotion labels they were presented with. Responses that were correct received a score of 1, and responses that were incorrect received a score of 0. Total scores could range from 0 to 36.

#### ***Procedure***

The RMET online version was implemented using Google Forms. The first page of the questionnaire provided an overview of the study, and all the participants provided informed consent. They were instructed to attempt each question on their own.

#### ***Ethical Consideration***

The study met ethical guidelines, which are comparable to those that apply to psychological research. Maintenance of data confidentiality was assured, consent informed selected to be an electronic request, allowing anonymity.

#### ***Data Analysis***

Frequency analysis was done to examine the distribution of responses for each RMET item. The number of correct responses for each emotion was calculated to identify recognition patterns in the Indian sample.

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**RESULTS**

*Frequency of Correct Responses for RMET Items*

Item No.	Target Emotion	Correct Responses (n)
1	Playful	36
2	Upset	26
3	Desire	30
4	Insisting	30
5	Worried	25
6	Fantasizing	27
8	Despondent	30
9	Preoccupied	25
10	Cautious	19
11	Regretful	24
12	Skeptical	21
13	Anticipating	29
14	Accusing	29
15	Contemplative	24
16	Thoughtful	25
17	Doubtful	20
18	Decisive	26
19	Tentative	14
20	Friendly	33
21	Fantasizing	28
22	Preoccupied	18
23	Defiant	23
24	Pensive	20
25	Interested	13
26	Hostile	16
27	Cautious	17
28	Interested	16
29	Reflective	20
30	Flirtatious	22
31	Confident	25
32	Serious	26
33	Concerned	22
34	Distrustful	22
35	Nervous	21
36	Suspicious	30

*Descriptive Statistics*

A total of  $N = 40$  participants, 8 Females and 12 males age ranges from 24 to 35 years completed the RMET. Across 36 items, the number of correct responses ranged from 13 (Interested) to 36 (Playful).

*Item-Wise Recognition*

For each of the 36 RMET items, a frequency analysis was performed to look at the number of participants who gave the right answer. There were significant differences in the recognition accuracy distribution across emotions.

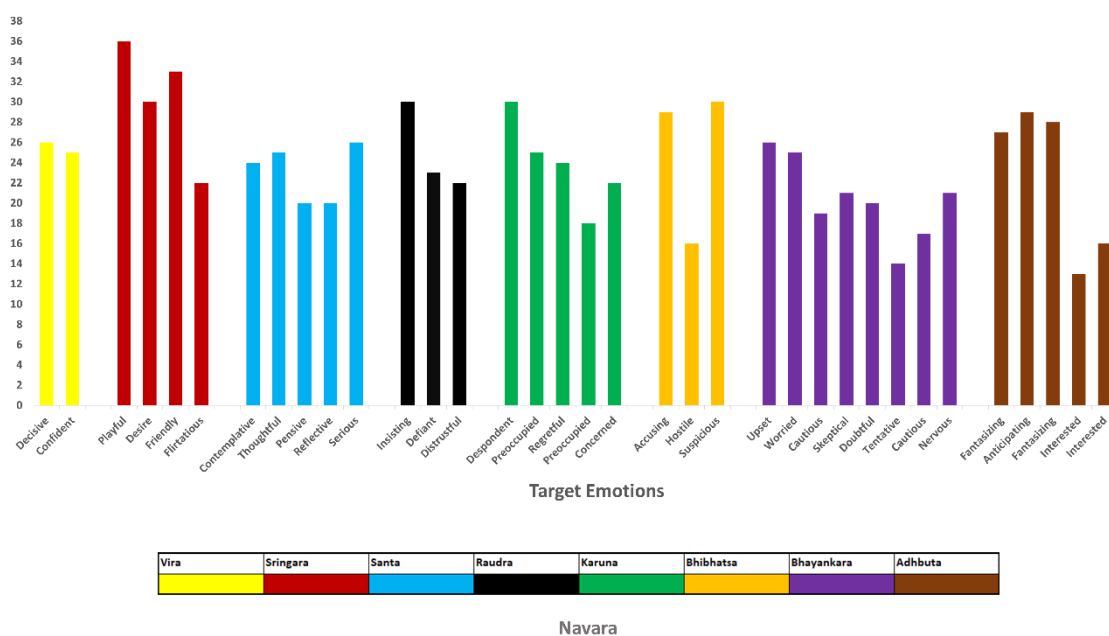
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Highest Recognition: Playful (n = 36), Friendly (n = 33), Suspicious (n = 30), Desire (n=30), Insisting (n=30), Fantasizing (n=28), and Despondent (n=30) were the emotions that were most correctly identified.

Moderate Recognition: Moderate levels of recognition were found for the following emotions: Doubtful (n=20), Pensive (n=20), Reflective(n=20), Sceptical (n=21), Nervous (n=21), Flirtatious (n=22), Concerned (n=22), Distrustful (n=22) Defiant (n=23), Regretful (n=24), Contemplative (n=24), Worried (n=25), Preoccupied (n=25), Thoughtful (n=25), Confident (n=25), Upset (n=26), Decisive (n=26), Serious (n=26), Fantasizing (n=28) Accusing (n=29) and Anticipating (n=29). Although not as strongly as more overt emotions, participants were able to identify a variety of relational, cognitive, and motivational states represented by these items.

Lowest Recognition: Interested (n=13), Tentative (n=14), Uneasy (n=14), Hostile (n=16), Interested (n=16), Cautious (n=17), Preoccupied (n=18), Cautious (n=19) were the items with the lowest scores. Participants seem to have had a harder time correctly decoding these emotions, which typically involve subtle or ambiguous mental states (uncertainty, curiosity, restrained aggression).

### Navarasa Grouping



Emotions which belong to the category of Śrīngāra (e.g., playful, desire, friendly, flirtatious ) had greater emotion recognition when categorised in the RMET items into Navarasa categories. Emotions belonging to the Raudra (Hostile, Defiant) and Bhayānaka (Nervous, Suspicious) were even less accurate than emotional recognition carried out by samples.

## DISCUSSION

The present study shows Indian samples had scored relatively high in identifying emotional states such as Friendly, Desire, Insisting, Despondent, and Suspicious, while identifying emotions such as Interested, Tentative, Uneasy, Hostile, Cautious, and Preoccupied were

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lowest among Indian samples in the RMET test. The difference in emotional identification pattern is due to cultural influences, and previous studies rejected the concept of ‘universality of emotions’ and showed that cultural “display rule” would influence identification and interpretation of different emotions from facial cues (Matsumoto, 1990). India has a collectivist cultural pattern that gives importance to social harmony and interdependence rather than focusing on individualistic needs or direct confrontation. The collectivist cultural pattern influences Indian samples to identify affiliative emotions such as ‘friendly’, ‘playful’ more accurately, rather than ambiguous conflict-influencing emotions such as ‘hostile’, ‘uneasy.’

The Indian indigenous theory of emotion is the Rasa Theory, which identifies nine rasas known as Navarasa (Pollock, 2016). The samples have scored highest in Śṛṅgāra (love/affection), which is essential to Indian collectivist cultural expression, and resonate with the higher recognition of emotions. Rather than affiliative emotions such as friendliness and desire, Bhayānaka (fear/irritation) is also associated with emotions like cautiousness and tentativeness, while Raudra (anger) is associated with hostile emotions, both of which are less highly valued in regular social interactions.

Several moderately scored emotions, such as Pensive, Reflective, Sceptical, Nervous, Flirtatious, Concerned, Distrustful, Defiant, Regretful, Contemplative, Worried, Preoccupied, Thoughtful, Confident, Upset, Decisive, Serious, and Fantasizing are much salient in Indian social communication through using different modalities such as body language, voice modulation, and not just from static eye region. In the RMET test, the focus is on understanding emotions from static eye images, which makes it harder for participants to correctly mark the corresponding emotions from the given photographs in the test. Other limitation of RMET test is that it shows only eye region of the face, the laughter expression is not visible and hence the emotion to include in Hasya category in Navarasa theory from RMET test was not possible.

As RMET is a Western-designed test, the classification of each emotion into categories of different rasas available in the Navarasa theory is interpretive. Some of the emotional states belong to the characteristics of more than one rasa, and this introduces subjectivity in classification. The pattern of results in the RMET test reveals that the most accurately selected emotions by participants were culturally dominant and widely accepted emotions, which could align with emotions given in rasa theory, such as Śṛṅgāra (love/affection), whereas subjects had the least accurate scoring for items that show subtle or indirect states.

The total scores for Indian participants in the RMET test were lower than the already established norms, which indicates the cultural bias in the RMET test. In the Indian scenario, the Navarasa theory of emotion explained the holistic recognition of emotion rather than recognizing emotion from a static eye region, and this may have an influence on final scores.

### ***Limitation***

The sample size in the study is limited, and there is a lack of direct cross-cultural comparison. The classification of different emotions into the navarasa category would bring subjectivity in classification, as there are no formal classification guidelines available.

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### ***Future Directions***

Future researchers must increase the sample size and incorporate a direct cross-cultural comparison. To increase the ecological validity, rather than focusing on static emotional recognition tests such as RMET, multimodal stimuli for emotion recognition must be used. Moreover, incorporating indigenous theories into the Western framework would give a better understanding of the cultural variation in behavioural patterns.

### **CONCLUSION**

This investigation reveals that the indigenous framework of Navarasa theory is congruent with the Indian people's emotions measured by RMET. As opposed to negative and distancing emotions (Raudra, Bhayankara), a better recognition of positive and affiliative expressions (Sringara, Hasya) indicates cultural trends, especially in harmony and relationship sensitivity. Results from this study have implications for the promising role of incorporating indigenous concepts in cross-cultural psychology to gain a more complete understanding of emotional recognition by correlating Navarasa with a widely used Western measure.

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### ***Conflict of Interest***

The author(s) declared no conflict of interest.

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