

Positive Mood Enhancement among Persons with Varied Affect States

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Abstract

Positive and Negative affect states are critical in the development of the human psychological mind and adaptation. For many decades, researchers and practitioners have been trying to induce emotions through various mood induction methods among the clinical and non-clinical populations. Subjective mood ratings are affected when experimental conditions are being applied with the help of mood induction methods. A sample of 300 college-going students from the Delhi-NCR region was categorized into three groups on the basis of PANAS-SF scale. The present study has been conducted to observe the effect of different mood induction methods (autobiographical recall method, mood self-referencing statements method and video induction method) to enhance the positive affect. The mean age of the research subjects was 22.28 years and the standard deviation was 2.89. A 3*3 factorial design repeated measure on the second factor was used. ANCOVA suitable to the design was applied to analyse the scores of subjective mood ratings. Subject mood ratings before the induction were taken as a covariate, hence adjusted. The results indicated that all mood induction methods were effective and enhanced positive affect among the research subjects. However, the persons with different affect states were affected differently i.e., the group effect was significant. Subjects having a negative affect on PANAS were benefited the most.

Introduction

Human behaviour has different facets of human behaviour such as cognitive behaviour (memory), social behaviour (socialization) and affective behaviour (emotions and mood). The human mind experiences feelings and displays them in terms of facial expressions and gestures around their conscious world¹. The affective behaviour includes affect that generally encompasses feelings, emotions, experiences,

mood, and emotionality as a trait as well as a state. Some people always stay happy, and jolly, while others stay sad and repulsive. Such a person has a pre-ponderance to be triggered by slight stimulation quickly². Affect (Emotion and Mood) are marked biologically in the activation of brain areas at different intensities. Brain structures like the brain stem, amygdala, insula, anterior cingulate, and orbitofrontal cortices are involved in the activity modulated by the autonomic nervous system³.

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Emotions and mood are different concepts that come as a collective term named affect. It refers to psychological constructs of mental states that evaluate feelings, emotions, mood, preferences and affective states⁴. Emotions are the conscious aspect and last longer for a brief duration. They are also intense but changes depend upon the degree of pleasure and displeasure^{5 6}. The mood is the conscious state of mind which is predominant, less intense than affect and lasts long till few hours or days. Hence, mood is a more stable subjective feeling than emotions⁷. Noyes and Kolb defined mood as “a sustained, constant affective state of a considerable situation”⁸.

Positive emotions such as interest, joy, appreciation, and achievements and negative emotions such as sadness, anger, fear, envy, and disgust are subjected to the development of the human mind mentality and adaptation through conscious attention in the stimulus world⁹. These positive and negative emotions if persistent to a brief duration, then lead to the formation of a mental state (affect). Affect is continuously interacting and using the cognitive component of the mind to utilise and regulate positive-negative emotions¹⁰. As poor cognition leads to disruptive affective states¹¹ and people who don't know how to control their affective states result in outbursts of emotions that directly impact their personal-social life^{12 13}.

Earlier studies have been conducted on brain stimulation techniques to observe the psychological behaviour of the person^{14 15}. After much research, different mood induction methods have been formulated by inducing them among the clinical and non clinical populations¹⁶. Later on, the focus shifted to the non-clinical population only, and experimented with different mood induction methods¹⁷.

Mood induction methods such as music induction, mental imagery techniques, autobiographical recalling of past emotional events, film clips video induction, and self-referencing statements are being used to induce

positive, negative, and balanced affect states^{18 19 20}. With the help of mood induction procedures under experimental settings, the subjects experienced mood states with great intensity with direct-personal involvement²¹. The present work focuses on mood states as defined operationally by Krafft-Ebing, Bleuler and Noyes through which it identifies and categorized people in positive, negative and balanced affect that can be measured by a week's overall subjective assessment of mood (example, PANAS by Watson, Clark and Tellegan²²). Few studies took PANAS as a screening measurement²³ to segregate extreme positive affect and extreme negative affect subjects and conducted their research on those who were balanced on PANAS affect state scores²⁴. This concludes that no research study was conducted to carry out the effect of different mood induction methods on the subjects with different affect states. Also, there is a lack of research in terms of positive enhancement on different affect states (positive affect state, balanced affect state, and negative affect state).

Objective Of The Study

The present study was conducted to identify the transient effect of the positive affect induction method on different affect states i.e., positive, negative and neutral/balanced with the following objectives: inducing positive affect among people with pre-ponderance (over a past week) of positive affect state, negative affect state and balanced affect state varied on PANAS. Also, to study the effect of different mood induction methods including mood self-referencing statements method, autobiographical recall, and video induction method on persons with different affect states.

Hypotheses

- Mood induction methods shall significantly enhance subjective mood rating.
- A significant group effect will be found on subjective mood rating.

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- There shall be a significant interactive effect between the type of method and group on subjective mood rating.
- The pre-induction mood rating shall be a significant covariate.

Material And Methods

Design of the Study

A 3x3 factorial design repeated measure on the second factor was used. The between-group factor was experimental groups, namely,

positive affect, balanced affect and negative affect and the second factor was repeated. The second repeated factor was methods of mood induction- mood self-referencing statements method (MSR), autobiographical method (AR) and video induction method (VI). The dependent measure was subjective mood rating after the exposure to mood enhancement methods. It was a subjective rating 5-point Likert scale, “ranging from low to high positive affect”. The pre mood ratings were considered covariates.

Table1. A 3x3 factorial design repeated measure on the second factor for subjective mood ratings

		Methods (repeated measure)		
Groups	Covariates n	MSR	AR	VI
		Pre Mood Rating MR	Pre Mood Rating AR	Pre Mood Rating VI
Positive Affect	47	-----	-----	-----
Balanced Affect	42	-----	-----	-----
Negative Affect	37	-----	-----	-----

Sample

The initial sample of the study consisted of a total of 300 college-going students from the Delhi-NCR region. Out of these, 150 were males and 150 were females. The sample was in the age range of 20-30 years (Mean age= 22.28 years and SD= 2.89). Among the 300 subjects, 126 subjects (Mean age=21.85 years and SD= 2.67) were used for the study. The following was used to select and categorize. PANAS-SF affects state scale was given to all the research subjects so that their affective state of the mind be identified. As PANAS identified two affect states of the person- positive affect state and negative affect state over the past week. The subjects were then categorized into three groups i.e., positive affect state, balanced affect state, and negative affect state based on PANAS-SF affect state scores. Those subjects who scored more than

37(mean=33.13 + 0.5 S.D. X 7.7) on PASP (Positive Affect Schedule PANAS) and less than 18 (mean = 22.24 -0.5 S.D. X 7.49) on NASP (Negative Affect Schedule PANAS) were categorized as a person with a positive affect state. They were 47 such objects. Similarly, those subjects who were having a score of 26 or more (mean = 22.24 +0.5 S.D. X 7.49) on NASP and less than 29 (mean=33.13 - 0.5 S.D. X 7.7) on PASP were categorized as a person with a negative affect state. There were 37 such subjects. Out of the rest 216 subjects, 42 subjects were systematically randomly drawn i.e., every 1st and 10th position subject were taken.

Tools

For the present study, PANAS-SF (Positive and Negative Affect Schedule-State Factor) identified and categorized the subjects

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into positive, negative, and balanced affect states. Autobiographical Recall Method (AR)²⁵, Video Induction Method (VI), and Mood Self-Referencing Statement Method (MSR)²⁶ were also used as mood induction methods for the positive enhancement in this present experimented study. In the autobiographical method, the subjects were instructed to write down their positive experiences/events of their life on the blank A4 size sheet paper for 8 minutes without stopping, and they can elaborate on their positive experiences/events in the Hindi/English language. The Video Induction method was used to induce a positive affect among the subjects. Short film clips of different laughing babies (from 8 months to 3 years of age) played on a computer screen who were laughing at their parents off screenplay. MSR Method consisted of 25 self-referencing positive, negative and neutral mood statements cards developed with the free-association technique and for the study purpose, 25 positive affect card statements were read aloud among the college-going young adult subject.

Procedure

Subjects were contacted individually for the conduction of the experiment. The consent form and semi-demographic information sheet (including basic information about the subject's age, gender, qualification, residence and email) were given to the subject. Before starting the experiment, the subject was asked to report their subjective current mood state and rate it on a five-point Likert scale "very low (1) to very

high (5) positive affect". After rating their subjective current mood. Three mood induction methods were applied: Mood Self-Referencing Statements, Autobiographical Recall Method, and Video Induction Method. Before the experimental methods were induced, all the subjects were asked to do a brief session of "deep-breathing relaxation" for the duration of 8 minutes, to control the various experiences and states before coming to the laboratory. The experimental plan was ethically approved by the departmental ethical committee.

Data Analysis

ANCOVA suitable for 3*3 factorial design with the repeated measure on second-factor and pre-mood ratings as covariates was done by the Statistical Package for Social Science (SPSS) 24 Version. Methods (Three mood induction methods of positive enhancement: Mood Self-Referencing Statements, Autobiographical Recall Method, and Video Induction Method) were taken as a second factor. The level of significance was $p \leq 0.50$ for all effects.

Results

The ANCOVA revealed the findings in Table 3 and the descriptive on which analyses were done are given in Table 2. The mean before induction was given along with post-induction subjective mood ratings as well the adjusted means and standard deviation of three groups under the different methods.

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Table2: Mean Mood Rating and Standard Deviation along with adjusted mean and standard error of three experimental groups: positive affect, negative affect, and balanced affect with three different methods: Mood Self-Referencing Statements Method (MSR), Autobiographical Method (AR), and Video Induction Method (VI)

Experimental Group (Overall Group Mean)	n	Positive Affect Enhancement Methods					
		MSR		AR		VI	
		Pre	Post	Pre	Post	Pre	Post
Positive Affect State (4.31)	47	Mean (SD)		Mean (SD)		Mean (SD)	
		Mean (SD)		Mean (SD)		Mean (SD)	
		4.36 (.73)		4.31(.72)		4.29(.68)	
		Pre (3.06)		2.97(.76)		3.02(.87)	
		Adjusted Mean (SE)		Adjusted Mean (SE)		Adjusted Mean (SE)	
		4.353(.096)		4.299(.098)		4.272(.098)	
Balanced Affect State (4.46)	42	Mean (SD)		Mean (SD)		Mean (SD)	
		Mean (SD)		Mean (SD)		Mean (SD)	
		4.64(.61)		4.26(.76)		4.47(.63)	
		Pre (3.01)		2.95(.90)		2.83(.88)	
		Adjusted Mean (SE)		Adjusted Mean (SE)		Adjusted Mean (SE)	
		4.624(.102)		4.258(.104)		4.498(.103)	
Negative Affect State (4.51)	37	Mean (SD)		Mean (SD)		Mean (SD)	
		Mean (SD)		Mean (SD)		Mean (SD)	
		4.62(.63)		4.43(.60)		4.40(.63)	
		Pre (2.92)		2.89(.80)		2.91(.82)	
		Adjusted Mean (SE)		Adjusted Mean (SE)		Adjusted Mean (SE)	
		4.653(.109)		4.463(.111)		4.413(.110)	

The mean subjective mood ratings of various groups varied from 2.83 to 3.23 before the induction method on a five-point Likert scale. The post-induction rating rose from 4.26 to 4.64. there was a visible enhancement in the mood rating toward a positive direction.

Therefore, the post mood ratings were analysed after adjusting with pre mood ratings through ANCOVA. These ratings are also given in Table2 which shows the range restriction varying from 4.258 to 4.653 with less than 0.20 S.D. in all cases.

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Table3 Summary table of ANCOVA for 3*3 repeated measures on the second factor for post-induction mood ratings with pre-induction ratings as covariates

	F(df)	p
Within Group Factor		
Methods	1.173(2/240)	.311
Methods*Groups	0.878(4/240)	.480
Groups (Adjusted for pre scores)	3.431(2/120)	.036*
Covariate (Pre Mood-Ratings)		
Pre-MR	6.460(1/120)	.012*
Pre-AR	4.941(1/120)	.028*
Pre-VI	8.063 (1/120)	.005**

**p-value significant at level 0.01 *p value significant at level 0.05

The findings of ANCOVA in Table 3 have been summarized. Foremost it was found that all the three covariates were significantly effecting the dependent variable with the F values of 6.46, 4.94 and 8.06 at 1 and 120 degrees of freedom being significant beyond the critical value of $p=.05$. after adjusting, it was revealed that the effect of group was significant with $F= 3.43 (2/120)$ at $p=.036$. The benefit from pre to post seems to be greatest in the negative affect state group as the pre to post mean rose from 2.93 to 4.39. on a 5 point scale. The subjective mood ratings due to induction raised to 28% from pre-induction mood.

However, the overall group effect was mainly due to the difference between positive and negative affect groups as verified by Bonferroni's test (Table-4), though other comparisons between groups didn't go beyond chance. ANCOVA further revealed that within groups factors did not significantly effected the post mood rating. Neither the methods differed among themselves nor they have varied affect in groups. They're two hypotheses that could not be verified. Subjects were benefited by all three methods equally and that too in all types of groups.

Table-4 Mean group difference among the experimental groups

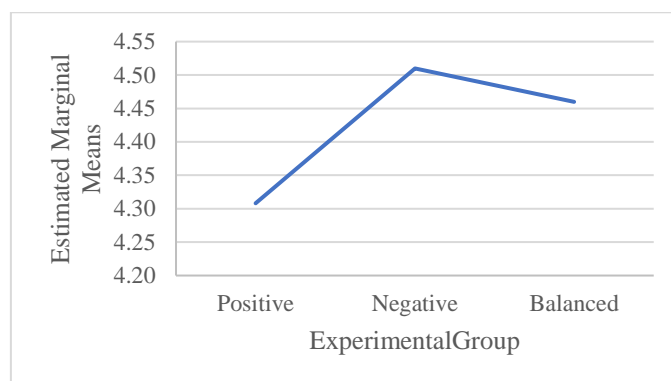
Mean of Groups		Mean Difference	p
Positive Affect 4.308	Negative Affect 4.510	.202	.046*
Positive Affect 4.308	Balanced Affect 4.460	.152	.171
Negative Affect 4.510	Balanced Affect 4.460	.084	1.00

*p-value significant at level 0.05

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Figure 1. Showing the figure of interaction between different mood induction methods (autobiographical method-1, mood self-referencing statements method-2, and

video induction method-3) and different positive, negative and balanced affect groups in relation to positive affect enhancement



Discussion

As per the results of the study, all the induction methods equally likely enhanced subjective mood rating and therefore the main affect was not significant because all the methods were equally effective in enhancing positive affect. Another reason could be as pre-mood subjective ratings were controlled statically. During the experimentation, the subject's mood gets intensified evident through their facial expressions and overt behaviour lead to crying. They reported that they felt happiness after so many days while hearing the positive statements on the cards. Many subjects were laughing during the video induction method, smiling during the autobiographical recall method and reported feelings of refreshment.

A similar finding was obtained by Dhaka and Kashyap (2017). They found no significant difference among mood regulation strategies (video induction and pictorial stimuli) on the arousal dimension in their study. However, there was a significant difference in subjective mood ratings in comparison to mood regulation strategies²⁷. Also, Uz (1997) conducted a study on positive mood induction by using mood induction methods (music induction and video induction) and have similar research findings that all mood induction

procedures produced strong positive moods but showed non-significant differences among them²⁸.

Compared to other affect groups the negative group was benefited the most in terms of positive affect enhancement. This means if there is a person with negative affect, any type of mood induction method can be applied and all induction methods will work but the most effective method for the person with negative affect will be the mood self-referencing statement method (MSR). However, past researchers found that the best method was video induction method and autobiographical method among the different affect states subjects^{29 30 31}. Even in the present research post-induction mood was the best under MSR.

Conclusion

It can be concluded that there are two things important when introducing mood induction methods among persons with varied affect first, the person's affective state and second before applying the mood induction method the affect state of the person from the past one week should be observed. Hence, positive affect can be induced among people of varied affect by the mood induction methods but the intensity of positive affect enhancement depends upon the type of induction method.

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Also, a negative affect state person will get more positive induction rather than the people who are already in a positive affect state or balanced affect state.

Implication, Limitation and Future Direction

Negative affective states may adversely affect the rational thinking process and are generally associated with poor adaptation. The results of the study imply that mood enhancement e-resources have the potential to improve subjective affective states. This can act as a buffer to various stressful situations and may be associated with emotional well-being. But to conclude this effectively more research should be done only among the person with the negative affect state. This study has limitations such as only three mood induction methods were experimentally induced among the sample of 20-30 years age, college-going students which may limit the generalization to the selected age group and selected mood induction method. These methods can be tried in various working upon since positive moods correlate well with high productivity, even in the marketing field as positive mood enhanced persons may be considered more acceptable and approachable by the clients. Further research can be done with more mood induction methods on different age groups subjects with a follow-up plan of positive affect duration to find out the carry-over effect of mood induction methods.

References

- [1] Krafft-Ebing, R. (1905). *Von: Text-Book of Insanity*. Philadelphia, FA Davis
- [2] Richard, K.M.D. (1975). Affect, mood, emotion, and feeling: semantic consideration. *American Journal of Psychiatry*, **132** (11), 1215-1217. Doi: 10.1176/ajp.132.11.1215
- [3] Panksepp, J. (2003). At the interface of the affective, behavioural, and cognitive neurosciences: decoding the emotional feelings of the brain. *Brain Cognition*, **52**,4-14
- [4] Rosenberg E. L. (1998). Levels of analysis and the organization of affect. *Review of General Psychology*, **2**(3), 247-70
- [5] Bleuler, E. (1924). *Textbook of Psychiatry*. New York, Macmillan Publishing Corporation, pp 32-35
- [6] Damasio, A.R. (1998). Emotion in the perspective of an integrated nervous system. *Brain Research. Brain Research Reviews*, **26** (2-3),83-86. doi:10.1016/s0165-0173(97)00064
- [7] Edelman G. M. (2006). Second nature: the transformation of knowledge. *Second Nature: Brain Science and Human Knowledge*. New Haven, **4**, 142-157
- [8] Noyes, A.P, Kolb, L.C (1963). *Modern Clinical Psychiatry*. Philadelphia, WB Saunders, p 79
- [9] Izard, C.E. (2007). Basic emotions, natural kinds, emotion schemas, and a new paradigm. *Personal. Psychological Science*, **2**, 260-280
- [10] Dunn, B.D. Opportunities and Challenges for the Emerging Field of Positive Emotion Regulation: A Commentary on the Special Edition on Positive Emotions and Cognitions in Clinical Psychology. *Cognition Ther Res* **41**, 469-478 (2017). <https://doi.org/10.1007/s10608-017-9831-3>
- [11] Ellis, H.C., & Hunt, R.R. (1989). Fundamentals of human memory and cognition. *Dubuque, IA: W. C. Brown*, **4**
- [12] Fredrickson, B. L. (2002). Positive emotions. In C. R. Snyder and S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 120-134). New York: Oxford University Press
- [13] Isen, A. M. (2002). A role for neuropsychology in understanding the facilitating effects of positive affect on social behaviour and cognitive processes.

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- In C. R. Snyder and S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 528-540). Oxford: Oxford University press
- [14] Gilet, A.L. (2006). Laboratory humor induction procedures: a critical review. *Journal of Encephale*, 34(3), 233-239. Doi: 10.1016/j.encep.2006.08.003
- [15] Thagard, P. (2018). *Brain-mind: From neurons to consciousness and creativity*. Oxford: Oxford University Press. Fall publication
- [16] Hsieh, S., & Lin, S.J. (2019). The Dissociable Effects of Induced Positive and Negative Moods on Cognitive Flexibility. *Scientific Reports* 9, 1126. <https://doi.org/10.1038/s41598-018-37683-4>
- [17] Westermann, R., Spies, K., Stahl, G., & Hesse, F. W. (1996). Relative effectiveness and validity of mood induction procedures: a meta-analysis. *European Journal of Social Psychology*, 26(4), 557-580. doi:10.1002/(sici)1099-0992(199607)26:4<557::aid-ejsp769>3.0.co;2-4
- [18] Aguilar, L. F., Bravo, B. N., Ricarte, J., Ros, L., & Latorre, J. M. (2019). How effective are films in inducing positive and negative emotional states? A meta-analysis. *PLoS ONE*, 14 (11): e0225040. doi: 10.1371/journal.pone.022504
- [19] Dennis, T.A., & Solomon, B. (2010). Frontal EEG and emotion regulation: Electrocortical activity in response to emotional film clips is associated with reduced mood induction and attention interference effects. *Journal of Biological Psychology*, 85(3), 0-464. <https://doi.org/10.1016/j.biopsycho.2010.09.008>
- [20] Jallais, C., & Gilet, A. L. (2010). Inducing changes in arousal and valence: Comparison of two mood induction procedures. *Behavior Research Methods*, 42(1), 318-325. doi:10.3758/brm.42.1.318
- [21] Ellis, H.C., & Seibert, P.S. (1991). A convenient self-referencing mood induction procedure. *Bulletin of the Psychonomic Society*, 29 (2), 121-124
- [22] Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology*, 54(6), 1063. doi: 10.1037/0022-3514.54.6.1063
- [23] Yin J. (2019). Study on the Progress of Neural Mechanism off Positive Emotions. *Translational Neurosciences*, 10, 93-98
- [24] Dhaka, S., & Kashyap, N. (2017). Explicit Emotion Regulation: Comparing Emotion Inducing Stimuli. *Journal of Psychological Thought*: 10(2), 2193-7281
- [25] Gruber, S., & Ric, F. (2000). Affect and stereotypic thinking: A test of the mood-and-general-knowledge model. *Personality & Social Psychology Bulletin*, 26, 1587-1597. doi:10.1177/ 01461672002612012
- [26] Seibert, P.S., & Ellis, H.C. (1991). A convenient self-referencing mood induction procedure. *Bulletin of the Psychonomic Society*, 29(2), 121-124
- [27] Dhaka, S., & Kashyap, N. (2017). Explicit Emotion Regulation: Comparing Emotion Inducing Stimuli. *Journal of Psychological Thought*, 10(2), 2193-7281
- [28] Uz, L.M.D.L. (1997). Mood induction in the laboratory: a comparative study of mood induction procedures and their effects on memory. *Graduate Theses and Dissertation*, 6086. https://ecommons.udayton.edu/graduate_theses/608
- [29] Saxena, A., Pagliaccio, D., Luking, K.R., & Barch, D. (2014). Efficacy of films in guided mood induction. *Journal of Washington University*. Doi: 10.13140/2.1.4720.3524
- [30] Hsieh, S., & Lin, S.J. (2019). The Dissociable Effects of Induced Positive and

Negative Moods on Cognitive Flexibility. *Scientific Reports* 9, 1126. <https://doi.org/10.1038/s41598-018-37683-4>

- [31] Jallais, C., & Gilet, A. L. (2010). Inducing changes in arousal and valence: Comparison of two mood induction procedures. *Behaviour Research Methods*, **42**(1), 318–325. doi:10.3758/brm.42.1.318

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