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ORIGINAL ARTICLE

The mediating role of emotion regulation in the emotional complexity and subjective well-being relationship

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BACKGROUND
Emotional complexity involves greater emotional awareness and understanding and associates strongly with adaptive emotion regulation. Similarly, regulation of emotion is vital for achieving, restoring, and sustaining subjective well-being. The present study, therefore, tested the mediatory role of emotion regulatory processes in the relationship between emotional complexity and subjective well-being.

PARTICIPANTS AND PROCEDURE
A total of 285 participants completed self-report measures of emotional complexity, emotion regulation, positive/negative affect, and life satisfaction, and the data were analyzed using correlations and structural equation modelling.

RESULTS
Findings indicated that individuals high in emotional complexity experience greater subjective well-being. Moreover, the results revealed that reappraisal mediated the relationship of emotion differentiation with positive affect and life satisfaction whereas suppression mediated the relationship between the range of emotions and life satisfaction.

CONCLUSIONS
These findings underscore the significance of emotion regulation in mediating the relationship between emotional complexity and subjective well-being.

KEY WORDS
emotional complexity; reappraisal; suppression; subjective well-being

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BACKGROUND

Emotional complexity (EC) and its relationship with well-being have always been a topic of considerable academic interest. EC is essentially described as one's propositional knowledge about emotions (Lindquist & Barrett, 2008) and experience of an extensive range of emotions with precision (Kang & Shaver, 2004). In earlier theories, people's ability to recognize and verbalize their emotional experiences with accuracy was thought to make them less vulnerable to stressful situations (Lane & Schwartz, 1987; Lindquist & Barrett, 2008). Kashdan et al. (2010b) described the relationship between emotional labeling/differentiation and well-being with a four staged sequence – labelling and differentiating felt emotions, accessing and utilizing emotional cues, regulating the differentiated emotions based on those cues, and enhancing well-being by adaptively regulating emotions. Additionally, a growing body of research demonstrated a strong association between EC and decreased depressive symptoms (Lennarz et al., 2018) as well as better psychological adjustment (Boden et al., 2013). Unfortunately, the mediating mechanism between EC and well-being has not been appropriately empirically investigated. In the present study, we assumed emotion regulation (ER) as the potential mediator between EC and different components of subjective well-being (SWB). This speculation was based on the documented relationships between EC and ER as well as ER and various well-being measures.

BACKGROUND OF EMOTIONAL COMPLEXITY

People differ greatly in their experience and appreciation of various emotions (Kang & Shaver, 2004). Especially the reported cases of alexithymia (extreme inability to differentiate among emotional states) raised a serious question of whether the ability to differentiate among emotional experiences is a trait-like quality that varies across individuals. Kang and Shaver (2004) gave an affirmative answer to that question and asserted that people differ mainly in (a) range of emotional experiences and (b) tendency to differentiate among felt emotional categories (grossly defined as EC). This account of trait-like variations in range and differentiation of emotional experiences (EC) owes its origin to the path-breaking study of Wessman and Ricks (1966). They observed that individuals varied in richness and subjective feelings of emotions. Since then, a proliferation of research has investigated the individual differences in emotional insights and emotion differentiation (Barrett et al., 2001).

IMPLICATIONS OF EMOTIONAL COMPLEXITY

The psychological implications of EC have been broadly discussed. As emotion provides dense information about interpersonal situations, people with enriched emotional experience display greater empathic understanding, and hence they are more adaptable to social situations (De Rivera, 1984). In the same line, Lane and Schwartz (1992) presumed that greater awareness of emotions is associated with greater flexibility in interpersonal interactions and effective social adaptation. Also, emotion differentiation induces greater self-control, especially in adverse situations. Evidence suggests that people high on EC can effectively control their alcohol consumption and negative emotions (Kashdan et al., 2010a). They tend to use many regulation strategies to minimize negative emotions (Barrett et al., 2001; Kang & Shaver, 2004). Emotion differentiation is helpful in stressful and negative emotional situations as it promotes ER by providing critical information about ongoing emotional states (Barrett et al., 2001; Gohm, 2003).

EC also correlates with adaptive psychological resources and well-being (Erbas et al., 2013). Studies showed that people who effectively differentiate among emotions tend to have greater self-esteem and low neuroticism (Erbas et al., 2014). Similarly, lack of emotional richness and constricted ability to identify/differentiate emotions may lead to maladaptive emotional control such as substance abuse (Taylor et al., 1997).

Earlier research suggests that different domains of EC correlated with reduced mental illness symptoms and greater emotional self-regulation and well-being. However, there is still a lack of direct studies on EC and its relation to cognitive and affective evaluations of life (SWB). As SWB is popularly defined as cognitive and affective evaluation life (Diener et al., 2003), which comprises satisfaction with life and experience of increased positive affect/reduced negative affect (Diener, 1984), we assumed that EC correlates positively with it (based on aforementioned secondary evidence). We further assumed that ER (reappraisal and suppression) plays a significant mediating role in the relationship of EC with SWB. This assumption was made after observing a strong semblance of ER with EC and its association with various well-being parameters.

EMOTIONAL COMPLEXITY AND EMOTION REGULATION

Barret et al. (2001) explained that people high on EC tend to have sufficient conceptual understanding and awareness over their felt emotional states, which enables them to possess adequate information for deal-

ing with emotional experiences and handling complex situations. As EC reflects a rich understanding of emotional states, it strongly associates with adaptive ER (Barret et al., 2001) and decreases depression (Demiralp et al., 2012). Arguably, individuals with complex emotional experiences are mindful of their own feelings and feelings of others, show openness to experience, and have greater interpersonal skills (Kang & Shaver, 2004) that make them more emotionally regulated. Earlier studies also showed that emotion differentiation (the core ingredient of EC) is a good predictor of ER (Barret et al., 2001; Hay & Diehl, 2011; Tottenham et al., 2011).

EMOTION REGULATION AND WELL-BEING

Besides its strong relation with EC, different strategies of ER have differential impacts on human health. Healthy ER is a key factor in promoting mental health and well-being, while unhealthy ER may lead to psychosomatic disorders (Kokkonen & Kinnunen, 2006; Vingerhoets et al., 2008). John and Gross (2004) mentioned that the most commonly used ER strategies are reappraisal (altering the way one perceives emotion eliciting cues) and suppression (forceful inhibition of the authentic behavioral expression). Reappraisal correlated positively with enhanced working memory capacity and abstract reasoning as well as various measures of health/well-being under normal stresses (McRae et al., 2012). On the other hand, suppression impairs the memory for social information (Richards & Gross, 1999, 2000), induces self-experience discrepancies and adjustment problems (Higgins et al., 1986), and increases levels of depressive symptoms (John & Gross, 2004). Therefore high reappraisal/low suppression constellation of emotion regulating tendencies can provide maximum protection from the distress symptoms and leads to more adaptive psychological functioning (Eftekhari et al., 2009).

PRESENT STUDY

Previous studies demonstrated that EC is a strong predictor of ER. Further, the studies also suggested that both EC and ER are associated with different components of SWB, viz., satisfaction with life, the experience of positive and negative affect (based on secondary evidence). These observations led us to assume that ER may mediate the relationship between EC and SWB. However, this possibility has not been empirically confirmed so far. The present study is a modest attempt in the said direction and aims to examine the mediating role of the reappraisal and suppression in the relationship of EC and SWB using the path analytic technique.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

We used the incidental (convenient) sampling method to recruit our participants. The participants were primarily students, and they were enrolled in different courses such as Ph.D., post-graduation, graduation, and several diploma courses in many academic institutions of Varanasi city, India. We contacted our known faculty members of various educational institutes conveniently and approached the students of respective institutes with their help. We visited five colleges and two universities located in Varanasi city and surveyed 322 participants.

After primary data screening, we identified 22 cases with missing data/incomplete responses and subsequently dropped such cases from the final analyses. We also identified 15 cases as multivariate outliers and decided to drop them too. Thus we finally conducted this study on a sample of 285 young adults. The final sample included 154 males and 131 females. Their age ranged from 18 to 26 years (M = 22.41, SD = 2.15), and they all belonged to middle-class socioeconomic status. Only 4.3% of participants were married. The detailed demographic characteristics of the sample are presented in Table 1.

MEASURES

Emotional complexity. The Hindi adaptation of the Range and Differentiation of Emotional Experience Scale (RDEES-H; adapted by Mandal et al., 2016) was

Table 1

Characteristics of sample

	Female	Male	Total
Educational qualification			
Graduate	35 (12.28%)	45 (15.79%)	80
Postgraduate	56 (19.65%)	59 (20.70%)	115
Diploma	17 (5.96%)	19 (6.67%)	36
Ph.D.	23 (8.07%)	31 (10.87%)	54
Type of family			
Joint	58 (20.35%)	74 (25.96%)	132
Nuclear	73 (25.61%)	80 (28.07%)	153
Marital status			
Married	7 (2.45%)	5 (1.75%)	12
Unmarried	124 (43.50%)	149 (52.28%)	273

used to explore the individual differences in two correlated aspects of EC: (1) a broad range of emotional experiences and (2) a propensity to make subtle distinctions within emotion categories. It was originally developed by Kang and Shaver (2004), who conceptualized EC as a dispositional trait. The RDEES-H is a 14-item self-report measure. It has two dimensions: range (the ability to experience a wide range of emotions) and differentiation (the capacity to draw subtle distinctions among the felt emotional experiences). Each dimension comprises seven items that are responded to on a 7-point Likert type scale ranging from 1 (*not at all characteristic*) to 7 (*extremely characteristic*). People who score high on the RDEES-H are likely to experience more varied and diverse emotions than those who score low on it (Kang & Shaver, 2004). The adequate internal consistency of the scale was reflected in the Cronbach's α coefficient, which was found to be .81, and the α coefficients of the two dimensions were also found to be moderate to good (α coefficient .67 for range and .82 for differentiation).

Emotion regulation. The Hindi version of the ER Questionnaire (ERQ; Gross & John, 2003), adapted by Khetrapal et al. (2007), was used to assess the individual differences in using two ER strategies: reappraisal and suppression. The reappraisal subscale consists of 6 items whereas the suppression subscale consists of 4 items. They showed moderate internal consistency with α coefficients of .70 (reappraisal) and .71 (suppression).

Positive and negative affectivity. Positive and negative affectivity was assessed using the Hindi version of the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) adapted by Pandey and Srivastava (2008). It consists of 20 mood-related adjectives (10 positive and 10 negative) that assess two global dimensions of affect: positive and negative (Watson et al., 1988). Respondents are required to mark the level to which they experienced these mood states during a specified period on a 5-point scale. The PANAS used in the present study has been found to be reliable (internal consistency for positive affect = .81, and negative affect = .82) and valid.

Satisfaction with life. Satisfaction with life was assessed using the Hindi version of the Satisfaction with Life Scale (SWLS; Diener et al., 1985), adapted by Dubey and Pandey (2011). The SWLS is a global measure of life satisfaction and consists of 5 items. The respondents are required to respond by marking a single point on a 7-point scale of each of five items. The internal consistency of this scale with the α coefficient was moderate (.73).

PROCEDURE

We approached the participants via our known faculty members in different academic institutions of Varanasi city. The participants primarily communicated in small groups. Participation was entirely voluntary, and the participants could withdraw from the study at any time if they disliked the survey. The willing participants were invited to give their informed consent before taking the survey. After getting their informed consent, the aforementioned questionnaires were administered as per their standard instructions. All participants were requested to ensure that they had responded to each item of every questionnaire/scale.

DATA ANALYSES

We coded all the variables (EC dimensions, reappraisal and suppression, SWB components) as continuous measures. We carried out data analyses in two phases – preliminary and path analyses. In the first phase, bivariate correlations were calculated among the scores on EC (range and differentiation of emotional experiences), ER (reappraisal and suppression), and SWB components to understand the nature and extent of association among the variables. We also checked for multicollinearity issues among the predictors/mediators and found no instances (VIF < 5, and tolerance > .2 in all cases). The demographic variables were not statistically controlled because they did not correlate significantly with the outcome variables (SWB components).

We used structural equation modeling (SEM) via the AMOS software (version 20) to test the mediating role of reappraisal and suppression in the relationship between EC dimensions (range and differentiation of emotional experiences) and SWB components. We used the maximum likelihood method to assess the model's fitness and calculate the estimates of path coefficients of the model.

The fit indices used in the study included the commonly reported comparative fit index (CFI) and root mean square error of approximation (RMSEA). The CFI assesses the model's fit compared to the independence model: values greater than .95 indicate a well-fitting model (Hu & Bentler, 1999). The RMSEA compares the model's fit to an ideal (saturated) model. The more it approximates zero, the better the model (should be < .08). Another indication of the goodness of fit lies in the standardized residuals (SRMR), which should be less than .080 for a good fit of the model. The goodness of fit index (GFI, created by Jöreskog and Sorbom, 1993, acceptable value > .95) measures how effectively the model approximates the observed covariance matrix. We also incorporated the adjusted goodness-of-fit index (AGFI, acceptable value > .90) and the ratio of maximum-likelihood chi-square to the degrees of freedom (χ^2/df, acceptable value < 5) to test model fit.

The percentile bootstrap method was used for assessing the indirect (mediated) pathways. A large

number of bootstrapped samples (2000) were used to obtain the estimates of indirect pathways.

RESULTS

To examine how and to what extent EC, reappraisal, and suppression dimensions are associated with SWB components, bivariate correlations were computed. The results are displayed in Table 2.

The results revealed that both range and differentiation of emotional experiences correlated positively and significantly with positive affect. Both range and differentiation of emotional experiences correlated negatively with suppression but only differentiation correlated positively with reappraisal and satisfaction with life. However, none of these dimensions showed any significant relation with negative affect.

The reappraisal and suppression displayed a differential correlation pattern with the well-being measures. Reappraisal correlated positively and significantly with positive affect and satisfaction with life. In contrast, the use of suppression correlated positively and significantly with negative affect and negatively and significantly with satisfaction with life.

Structural equation modeling (SEM) via the AMOS software (version 20) was used to test the mediating role of ER (reappraisal and suppression) in the relationship between EC and SWB. The maximum likelihood method was used to assess the fitness of the model and to calculate the estimates of path coefficients of the model. The hypothesized model is presented in Figure 1.

However, no substantial support was found for the hypothesized model (Figure 1) with standardized coefficients. Moreover, $\chi^2(df = 5, N = 285) = 153.47$, $p < .001$ indicated that the model did not fit the present empirical data particularly well – the significance of the p-value showed that the covariance matrix estimated from the theoretical model was significantly different from that derived from the observed data.

To develop a better-fitting model, we modified our model (Figure 1). At first, the range and differentiation of emotional experiences were made correlated. Thereafter suppression was allowed to predict reappraisal and life satisfaction was allowed to predict negative affect. Moreover, some statistically insignificant pathways, such as the pathways from range to reappraisal, and negative affect, pathways from differentiation to suppression, and negative affect, were removed. These modifications produced a model with acceptable fit. The modified model is presented in Figure 2.

It was found in the path analyses of the abovementioned causal model (Figure 2) that the range of emotional experiences significantly predicted the use of suppression ($\beta = -.29$, $p = .001$). However, no substantial direct relation was found between the range dimension and the components of SWB. The differentiation dimension significantly and directly predicted positive affect and life satisfaction ($\beta = .38$ and .17 respectively, $p = .001$ and $p = .015$ respectively).

The mediating (indirect) relations of range and differentiation of emotional experiences with the components of SWB were calculated and checked for statistical significance by using a bootstrap confidence interval. The significant mediating paths are presented in Table 3.

It was found that suppression significantly mediated the relationship between range and life satisfaction (indirect path coefficients .06, $p = .001$). Therefore, the relationship of a range of emotional experiences and life satisfaction was fully mediated as the range of emotional experiences did not have a significant and direct positive association with life satisfaction. Moreover, the reappraisal mediated the relationship between differentiation and positive affect as well as between differentiation and life satisfaction (indirect

Table 2

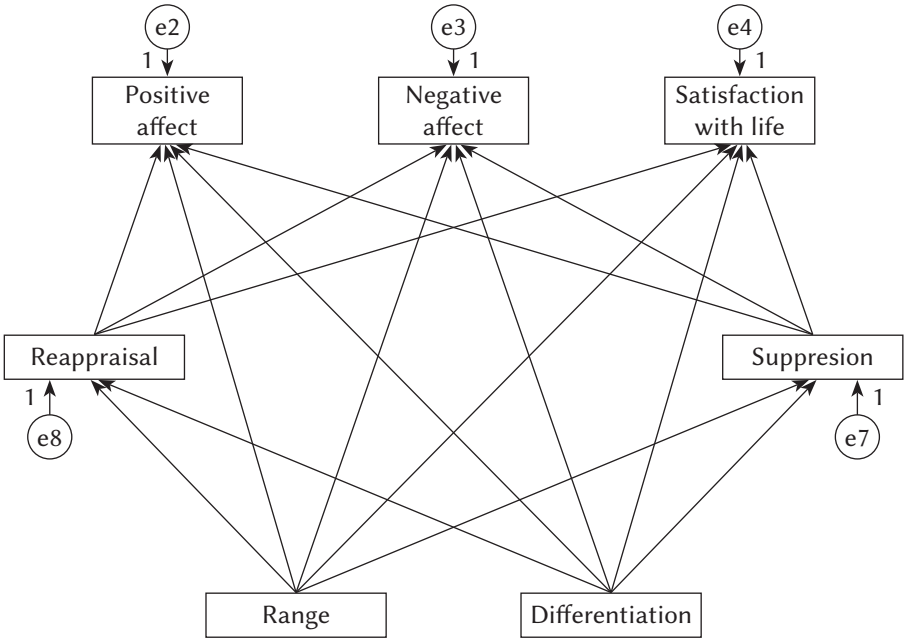
Mean, standard deviation and correlations among emotional complexity (range and differentiation), reappraisal, suppression, positive and negative affect, and satisfaction with life

	M	*SD*	1	2	3	4	5	6	7
1. Range	31.15	5.89	1						
2. Differentiation	31.65	7.15	.47**	1					
3. Reappraisal	27.56	6.57	.08	.22**	1				
4. Suppression	15.61	5.42	−.29**	−.14*	.18**	1			
5. Positive affect	36.57	6.21	.16**	.39**	.19**	−.11	1		
6. Negative affect	21.54	6.68	−.07	−.09	−.05	.20**	−.22**	1	
7. Satisfaction with life	24.58	5.30	.06	.19**	.12*	−.19**	.30**	−.43**	1

Note. *$p < .05$, **$p < .01$.

Figure 1

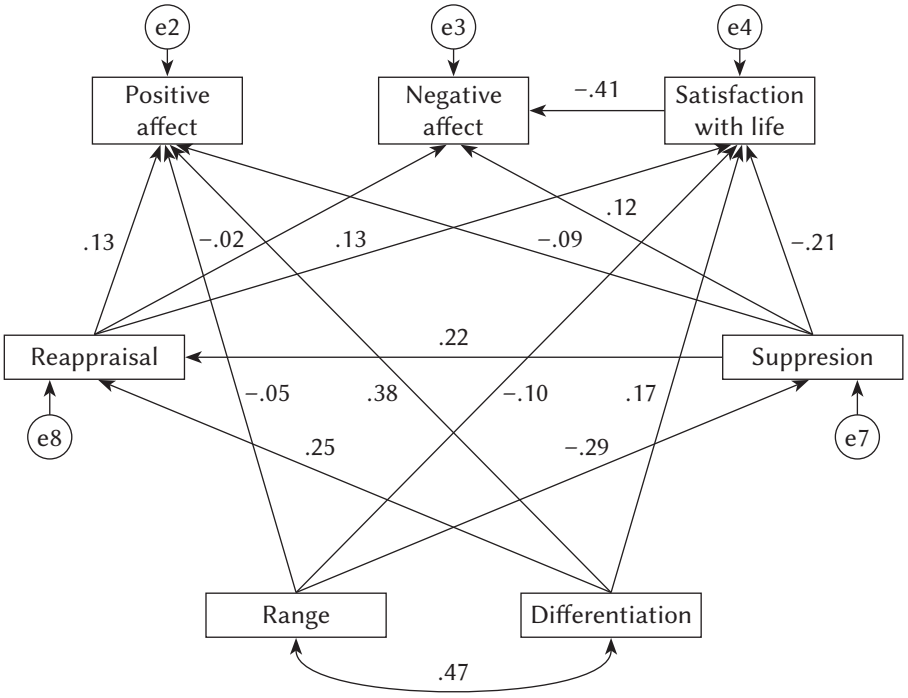
Base model representing the use of ER (reappraisal and suppression) as the mediator in the relationship between emotional complexity dimensions and SWB components



Note. ER – emotion regulation; SWB – subjective well-being; $\chi^2(df = 5) = 153.48$; $p = .001$; $\chi^2/df = 30.69$; GFI = .87; AGFI = .27; CFI = .43; RMSEA = .32; SRMR = .14.

Figure 2

Modified model representing the use of ER (reappraisal and suppression) as the mediator in the relationship between emotional complexity dimensions and SWB components



Note. ER – emotion regulation; SWB – subjective well-being; $\chi^2(df = 6) = 18.63$; CFI = .952; RMSEA = .079; SRMR = .04; $\chi^2/df = 3.11$; GFI = .982; AGFI = .917.

Table 3

Mediating paths between emotional complexity (range and differentiation of emotional experiences) and the components of subjective well-being

Between the range of emotional experiences and satisfaction with life	Estimate
Through suppression	.06**
Between differentiation of emotional experiences and positive affect	
Through reappraisal	.03**
Between differentiation of emotional experiences and life satisfaction	
Through reappraisal	−.04**

Note. **$p < .01$.

path coefficients .03 and .04 respectively, $p = .002$ and $p = .001$ respectively). Therefore the relationships of differentiation with positive affect and life satisfaction were partially mediated as differentiation had significant direct impacts on positive affect and life satisfaction (standardized direct path coefficients .38 and .17 respectively, $p = .001$ and $p = .015$ respectively).

DISCUSSION

The present study explored the mediating role of ER strategies in the EC-SWB relationship. The findings of the study underscored the effectiveness of suppression in mediating the relationship between the range of emotional experiences and satisfaction with life. In other words, the observed positive relationship between a greater range of emotional experiences and satisfaction with life was fully explained by a reduced tendency to suppress emotions. Secondly, the reappraisal dimension partially mediated the relationship between the differentiation of emotional experiences and positive affect and satisfaction with life. In line with the idea that the use of ER strategies mediates the EC-SWB relationship, our assumptions were partially substantiated because one component of SWB (negative affect) was neither directly nor indirectly predicted by EC. It was evident in the results that greater range and differentiation of emotion were associated with the components of SWB through a dual differing mechanism. The range of emotional experiences is associated with enhanced life satisfaction through the decreased use of suppression (negative health factor), whereas the differentiation of emotion is associated with positive affect and life satisfaction through concomitant positive variation in the use of reappraisal (positive health factor).

Despite its demonstrated negative effects on human health/well-being, very few studies have empirically explored the antecedents of suppression. However, one possible reason for suppression is cultural value orientation, as the cultures that demand greater social order encourage suppression of emotion though it is disruptive at the individual level (Matsumoto et al., 2005). The second reason for suppression could be found in the existential analysis of human personality. The noted cultural anthropologist Dr. Ernest Becker explained that uninhibited awareness of emotions may release our primal anxiety of annihilation and death; therefore suppression helps our normal functioning by truncating such emotional reactivity (Becker, 1973). Eventually, suppression takes its toll by trimming liveliness and inducing clinical syndromes (Yalom, 1980; cf. Becker, 1973). Therefore the observed positive association between the range of emotional experiences and satisfaction with life in the present study lends support to the earlier existential theories by reaffirming the potential role of suppression in the said relationship.

Moreover, the findings also substantiated Barret and Gross's (2001) view that emotionally complex people are in the advantageous position to regulate their emotions adaptively because of their sufficient conceptual understanding of emotions and their superior access to control emotional cues (Barret & Gross, 2001). The present study also provided support to the earlier arguments and empirical evidence that greater affective awareness consequently is associated with adaptive ER (Barret et al., 2001; Swinkels & Giuliano, 1995). The well-regulated emotional states and decreased use of maladaptive regulation strategies act as the precursor of enhanced health/well-being. Moreover, emotional states provide rich information about situational necessities (Schwarz & Clore, 1996) which guide behavioral decisions of the individuals that in turn affect health/well-being (Salovey et al., 2000). However, the present findings also suggest that the dimensions of EC do not correlate with negative affectivity. Therefore, EC acts as a positive correlate of positive affect and life satisfaction only. However, it would be premature to generalize such conclusions before rigorous experimental verification on a larger group in the future.

CONCLUSIONS

This study draws attention to the relation between range and differentiation of emotional experiences and SWB through the use of ER strategies (reappraisal and suppression). The findings brought to the fore the fact that an increased range of emotional experiences is associated with increased satisfaction with life through the reduction of suppression as a regulatory strategy. The findings also underscored the mediating role of reappraisal in linking differentiated emotional experiences with positive emotions and satisfaction with life. Therefore, this study proposes a dual mechanism of the relationship between range and differentiation of emotional experiences and SWB – one by reducing maladaptive regulatory strategies such as suppression and another by promoting cognitive control over emotion (reappraisal strategy). However, no causal pattern among the said relationships could be proved because of the correlative nature of this study. Additionally, this study also reveals that the range and differentiation of emotional experiences are associated with the positive aspects of SWB only (positive affect and satisfaction with life) but not with the negative affect. Further research is required to explore the causal relationship patterns among the said variables.

IMPLICATIONS

The present study addressed a major theoretical gap in the psychological literature. It underscored the mediating role of emotion regulation in the relationship between emotion complexity and SWB. We strongly believe this study will contribute to understand how emotional complexity and adaptive regulation of emotion act in tandem to predict SWB. Very few studies have attempted to explore the relationship between rich, lucid emotional experiences and well-being. This study is a modest attempt in that direction. The findings demonstrated a new set of paths to increase SWB. We believe these findings will be useful for health professionals to construct therapies and intervention strategies.

LIMITATIONS

We followed a correlational design in this study and explored the simultaneous variations in the constructs to find the associations. However, we could not confirm any causal relationship because of the non-manipulation of independent variables and mediators (range and differentiation of emotional experiences, reappraisal and suppression). Hence, a similar study involving an experimental/quasi-experimental design is required to determine potential causal relations among the variables.

In the present study, we focused on the student population (young adults) only from a particular city in India. Owing to the homogeneity of the sample, the generalizability of the study is truncated. Hence, similar studies need to be undertaken with heterogeneous samples having participants from diverse backgrounds.

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