Cognitive Schema Mediates between Gratitude and Life Satisfaction among Indian Adults

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Abstract

Background: The study examines relationships amidst gratitude and life satisfaction and how schematic processing interacts with those relationship. Mediational analysis was used to explore the mechanisms.

Method: The study comprised 711 respondents (Mean age 34.13; 379 Females and 332 Males; Aged 18-45 yrs.) from the educated urban population residing in the National Capital Region (NCR). The participants completed measures, namely Gratitude Questionnaire-6 (GQ-6), Brief Core Schema Scale (BCSS) and Satisfaction With Life Scale (SWLS),

Result: The correlation results indicate that GQ-5 is positively and significantly correlated with SWLS (ρ=0.46, p<.001). Structural equation modelling (SEM) showed a good fit [Chi-Square/degree of freedom (χ^2)/df=3.07; Goodness of Fit Index (GFI)=.88; Comparative Fit Index (CFI)=.91; Root Mean Square Error of Approximation (RMSEA)=.054. The relationship between gratitude (GQ-5) and life satisfaction (SWLS) was significant (total effect, B = 0.66 r2 = 0.266, p<0.001). The overall indirect effect for the mediator model was B = .16 (95% CI = .010 to .20). The direct effect is 75% (.50/.66). Indirect effect is 25% (0.16/0.66).

Conclusion: The interconnection of gratitude and life satisfaction is basic in gratitude literature, and the present study tries to explain an understanding of the same in the middle-aged urban-class Indian population. The study contributes to gratitude literature, where life satisfaction is paramount. We quantified the interconnection of gratitude and life satisfaction via schematic processing.

Keywords: life satisfaction, gratitude, schema, mediation, structural equation model

1. INTRODUCTION

Several observational as well as experimental studies have shown a correlation between gratitude and life satisfaction (Chang, 2013; Emmons & McCullough, 2003; Seligman et al., 2005; Wood et al., 2010; Emmons & Mishra, 2011; Jans-Beken et al., 2018). The main purpose of research on gratitude is to study association of self-esteem and gratitude (Kashdan et al., 2006). Still, exploring the linking of cognition with gratitude and life satisfaction is equally important. Research shows that more grateful people view others' help as more rewarding because of their characteristic schemas (McCullough et al., 2001). However, till now, no previous study has specifically explored whether schema about self or others plays a part in the link between gratitude and satisfaction with life (SWL). For addressing this highlighted gap, we employed an empirical study to examine the link between gratitude and SWL and whether schematic processing mediates the association.

1.1 Gratitude

Gratitude is seen as being thankful and aware of all the good happenings (Park & Peterson, 2006). Gratitude, generally, is speculated as emotions, attitudes, virtues, coping responses, or personality traits (Emmons & McCollough, 2003). Several experimental researches have shown an association between gratitude and adult positive functioning (Peterson & Seligman, 2004). Further, researchers and theorists have formulated that

gratitude consists of helpful psychological strength (Weiner, 1985; Mayer et al., 1991; Lazarus & Lazarus, 1994). A multitude of positive consequences have been correlated with gratitude, which includes altruism (Wood et al., 2008), appreciation (McCullough et al., 2001), positive affect (Froh et al.,2009), life satisfaction (Peterson et al.,2007), acceptance of self, personal growth, life's purpose, mastery of the environment, autonomy (Wood et al., 2009), and prosocial behaviour (McCullough et al., 2001). Hence, experiencing gratitude can build valuable resources such as enduring and lasting social friendships and connections (Fredrickson, 2004).

1.2 Life Satisfaction

Seligman (2002) has considered satisfaction with life as the rational element of personal well-being. Pavot and Diener (1993) have explained satisfaction with life as an evaluating system in which a person assesses their standards of life based on distinctive criteria sets. Satisfaction with life has been identified as an overall cognitive component of a person's contentment with living. Since gratitude is a positive emotion, it could enhance positive experiences, leading to higher satisfaction with life (Diener et al., 1984).

1.3 Gratitude, Cognitive Schema and Life Satisfaction

Cognitive schemas are information structures stored in memory about self, objects, and connections with objects (Fowler et al., 2006; Young et al., 2003). They can determine an individual's self-perceptions, responses to sensory inputs and life satisfaction (Thimm & Holland, 2017). The findings of Wood et al. (2008) show that individuals filled with grateful emotions possess a definitive composition that affects how an individual interprets incidents that provide support. This theory aligns with people's biases towards interpreting others' behaviours and intentions (Markus et al., 1985). A model suggested by Wood et al. (2008) shows that a grateful person views the world with an interpretive lens, making the help-giving behaviour more valuable, costly and altruistic. Conversely, ungrateful people will view helpful behaviour as lower on these factors. This implies an interrelationship among gratitude and satisfaction with life via schemas. A group of cognitive schemas assumed to be associated with wise thinking was prepared by Basseches (1980). It includes an appreciation of contexts broader than immediate effects and acknowledging others' points of view. While these points to the expression of thankfulness, no study has directly tested the association among cognitive schema, life satisfaction and gratitude.

Most earlier research on the correlation among satisfaction with life has concentrated on students and adolescents population, who are in the midst of changing life scenarios. (Davis et al., 2016). Despite enormous research on gratitude in different cultures, specifically in Western cultures, empirical studies on the mentioned variables are sparse in India. The present study aimed to explore a sample of educated English-speaking adults (more than 200 million in India) in NCR. The result of the study can be extrapolated to this large urban adult population of India.

1.4 Objective

The current study was based on prior literature on the relationship among gratitude and satisfaction with life. Also, the mediating results of schemas upon the association of gratitude and satisfaction with life were tested on a cross-section of Indian adults.

The proposed hypotheses are:

1.   Gratitude, life satisfaction, and positive evaluation of self/others are positively and significantly correlated.

2.   There are negative and significant correlations among gratitude, life satisfaction, and negative evaluation of self/others.

3.   Positive evaluation of self/others mediates the relationship between gratitude and life satisfaction.

2 METHOD

2.1 Participants

IRB approval was obtained from the institution before the conduct of the study. A Google form containing the questionnaire link was created and shared online with all participants. Purposive sampling was

used. They were followed up for responses. Of 900 Google Forms sent in NCR, 767 responses were received, making the response rate 85.22%. Out of these, 56 responses were discarded owing to duplicity or incompleteness. A total of 711 responses were analysed (Mean age (SD) = 34.13(7.67); age range = 18–45 years). The final sample comprises 379 (53.3%) females and 332 (46.7%) males. Most participants were post-graduates (n=446) and graduates (n=227). Participants' names were not asked in the scales to ensure the confidentiality of responses. The participants took about half an hour to complete all the measures.

2.2 Measures

2.2.1 Gratitude

The Gratitude Questionnaire-6 by McCullough et al.(2002) is a self-reporting tool. There are six sentences to measure trait gratitude experienced by an individual in daily life. The tool consists of six statements measured in a 7-point range. Coding is reversed for two items to avoid response bias. The minimum and maximum score for GQ-6 is 6 and 42, respectively. The internal reliability for the scale ranges between 0.76 to 0.84. It has been proven that GQ-6 positively relates to satisfaction with life, spirituality, hope, pardoning, prosocial behaviour, religiousness, and compassion. It is negatively related to depression, anxiety, envy and materialism. After removing question 6, the Cronbach alpha for the current study is 0.74. The CFA featured a good fit of the acquired model: $\chi^2/df=2.92$; GFI=.99; CFI=.99; RMSEA=.052 (CI 90% 0.019-0.088); Standardized Root Mean Square Residual (SRMR) =.026

2.2.2 Life Satisfaction

The Satisfaction with Life Scale (SWLS) (Diener et al., 1985) evaluates an individual's global judgment of satisfaction with life. The scale contains five statements; choices are recorded on a seven-point Likert scale. Reverse coding is not done for any item. The participants' responses are added up to derive a total score. The range of results can be from 5–35, and better scores suggest greater satisfaction with life. Pavot and Diener (1993) analysed data from six studies using the SWLS scale and found the coefficient alpha ranging from 0.79 to 0.89, indicating high internal consistency for the scale. The current study displays a Cronbach alpha score for the SWLS scale as 0.76. The CFA showed: $\chi^2/df=3.90$; CFI=.98; GFI=.99; RMSEA=.064 (CI 90% 0.036-0.095); SRMR=.024.

2.2.3 Schema

The Brief Core Schema Scale (BCSS) (Fowler et al., 2006) is a self-reporting scale for measuring schemata relating to oneself and others. The tool has four aspects that measure oneself and others: positive self/others and negative self /others. The 24 items of the scale deal with the beliefs about oneself and others measured on a five-point Likert scale. The scale gives four outcomes that are procured by adding up the six items of each score. The scale is highly reliable, and the coefficients are positive-self (0.75), negative-self (0.74), positive-others (0.70), and negative-others (0.61) (Fowler et al., 2006). In this study, the Cronbach alpha scores of BCSS were computed as 0.75 for the overall scale, 0.89 for positive self, 0.78 for negative self, 0.90 for positive others and 0.88 for negative others. The CFA featured a good fit of the acquired model: $\chi^2/df=2.83$; GFI=.92; CFI=.95; RMSEA=.051 (CI 90% 0.046-0.055); SRMR =.044

2.3 Data Analysis

The collected data was cleaned and numbered before feeding into the SPSS for statistical analysis. The data were tested for normality, following which a Spearman rank correlation was carried out for finding the correlation amongst all the study variables. Strongly correlated variables that showed multicollinearity (r > 0.90) or were not correlated with either gratitude or SWLS were removed from mediation analyses.

3 RESULTS

3.1 Measurement Model

The measurement model comprised gratitude, positive self, negative self, positive others, negative others and life satisfaction as latent variables. The bootstrapping technique is considered appropriate (Byrne, 2010). Hence, bootstrapping was done on 2000 samples. In the scale measuring gratitude, GQ6, we deleted item 6, as it

has a very low loading (.19). Five-item variant of the scale has been found to have improved psychometric measurements than the actual 6-item version in Chinese, Spanish, Indian, and Turkish adaptation (Chen et al., 2009; Dixit & Sinha, 2021; Langer et al., 2016;; Yuksel & Duran, 2012)So, GQ6 will be referred to as GQ5, henceforth. After obtaining the first structural equation model, the segment on the modification of indexes was examined. This led to the correlation of errors in the subscale Positive self for items 7 ('I am respected') and 8 ('I am valuable'). In the case of Positive Others for items 7 ('Other people are fair') and 8 ('Other people are good') and for Negative Others for items 1 ? ('Other people are hostile') and 2 ('Other people are harsh').

Again, the CFA was repeated. The outcome exhibited a satisfactory fit to data(table 4): χ^2=1583.14, df= 515, CMIN/df=3.07, GFI=.88, CFI=.91, RMSEA=.054 (CI 90% 0.051 - .057), p<.001. The factor loading of the latent variable was significant (p<.001). Also, the GFI and CFI are moderate compared to benchmark demands (GFI>.95; CFI>.95; Byrne, 2010). The parsimonious fit measures, PNFI (.80) and PCFI (.84) are more than the standard value of .50. This implies that the model is acceptable based on the analysis of the measures of the model fit (Table 1).

Table 1. Summary of fit indices for path analysis (default model)

Model	χ^2	df	CMIN/df	GFI	CFI	PNFI	PCFI	RMSEA (CI 90%)
Default Model	1583.14	515	3.07	.88	.91	.80	.84	.054 (.051 - .057)

3.2 Sample Characteristics

The sample for the study comprised 711 participants living in the NCR. The age range of respondents was from 18 to 45 years (Mean=38.31 years; SD=7.35 years), with 332 (46.7%) males and 379 (53.3%) females. Five hundred thirty-six (75.4%) were married, with 606 (85.2%) participants being Hindu. The sample had different levels of education. Four Hundred forty-six (62.7%) participants had a post-graduate degree, 227(31.9%) had a graduate degree, and 38 (5.3%) attended only high school (Table 2).

Table 2. Demographic Characteristics (n=711)

Variables	n (%)	Mean (SD)
Gender		
Male	332(46.7)	
Female	379(53.3)	
Age in years		34.13(7.67)
18 - 30	251(35.3)	25.42(3.75)
31 - 45	460(64.7)	38.88(4.38)
Marital Status		
Single	175(24.6)	
Married	536(75.4)	
Education		
Secondary	38(5.3)	
Graduate	227(31.9)	

Post Graduate	446(62.7)

Table 3 shows the values of gratitude, positive self, positive others, negative self , negative others and life satisfaction. The GQ5 Scales show a Cronbach alpha of 0.74, with the Shapiro-Wilk test showing non-normal data (M=29.84, SD= 4.39 W= 0.96 p< 0.001). Cronbach alpha values are positive self: 0.90, negative self: 0.89, positive others: 0.78 and negative others: 0.90 with non-normal data(M=16.87, SD= 5.05, W= 0.95 p< 0.001; M=2.29, SD= 3.13, W= 0.72 p< 0.00; M=12.54, SD= 4.62, W= 0.98 p< 0.001 & M=5.03, SD= 4.21, W= 0.92 p< 0.00 respectively). The table also shows internal consistency for SWLS (α=.76), and the data appeared to be non-normally distributed (Table 3).

Table 3. Summary of Mean (M), Standard deviation (SD), Cronbach's alpha (α), Shapiro-Wilk's test value (W), Spearman's correlation coefficients and p values for the scores on the GQ5, Positive Self, Negative Self, Positive Others, Negative Others, and SWLS

	Variables	M	SD	α	W	1	2	3	4	5
1	GQ5	29.84	4.39	.74	96**	-				
2	Positive Self	16.87	5.05	.90	.95**	.31**	-			
3	Negative Self	2.29	3.13	.89	.72**	-.21**	-.35**	-		
4	Positive Others	12.54	4.62	.78	.98**	.34**	.40**	-.19**	-	
5	Negative Others	5.03	4.21	.90	.92**	-.26**	-.11**	.35**	-.31**	-
6	SWLS	27.03	4.69	.76	.96**	.46**	.43**	-.28**	.35**	-.22

**p<.01, *p<.05

Note. Means, Standard deviation, Cronbach's alpha and correlation for each measure are presented in the vertical column. GQ5= Gratitude Questionnaire 5, SWLS= Satisfaction with Life Scale

3.3 Correlation between study variables

Table 3 depicts the outcome of a Spearman rank correlation analysis which indicates that GQ5 is positively and significantly correlated with SWLS (ρ=0.46, p<.001), Positive Self (ρ=0.31, p<.001), and Positive Others (ρ=0.34, p<.001). Negative Self(ρ=-0.21, p<.001), and Negative Others(ρ=-0.26, p<.001) were found to be inversely related GQ5. Similarly, a negative correlation was found between negative self(ρ=-0.28, p<.001) and negative others(ρ=-0.22, p<.001) with SWLS.

Multicollinearity was not present (correlation coefficient < 0.90). No variables were excluded from mediation analyses as all were significantly correlated.

3.4 The analysis of the direct and indirect effects

Subsequently, the direct effects, as well as the indirect effects, were examined. The direct effects of all variables were found to be significant. The values of the direct effects of gratitude on positive self, negative self, positive others, negative others, and life satisfaction were β=.41, β=-.35, β=.40 β=-.29 and β=.50, p<.001, respectively. The values of the total effect of gratitude on positive self, negative self, positive others, negative others, and life satisfaction were β=.41, β=-.35, β=.40 β=-.29 and β=.66, p<.001, respectively. The values of the indirect effect of gratitude on satisfaction with life were β=.16 [.010 -.20], p<.001. This confirms the third hypothesis. Hence, schema partly mediates the link from gratitude to life satisfaction. The salient values are shown in Figure 1.
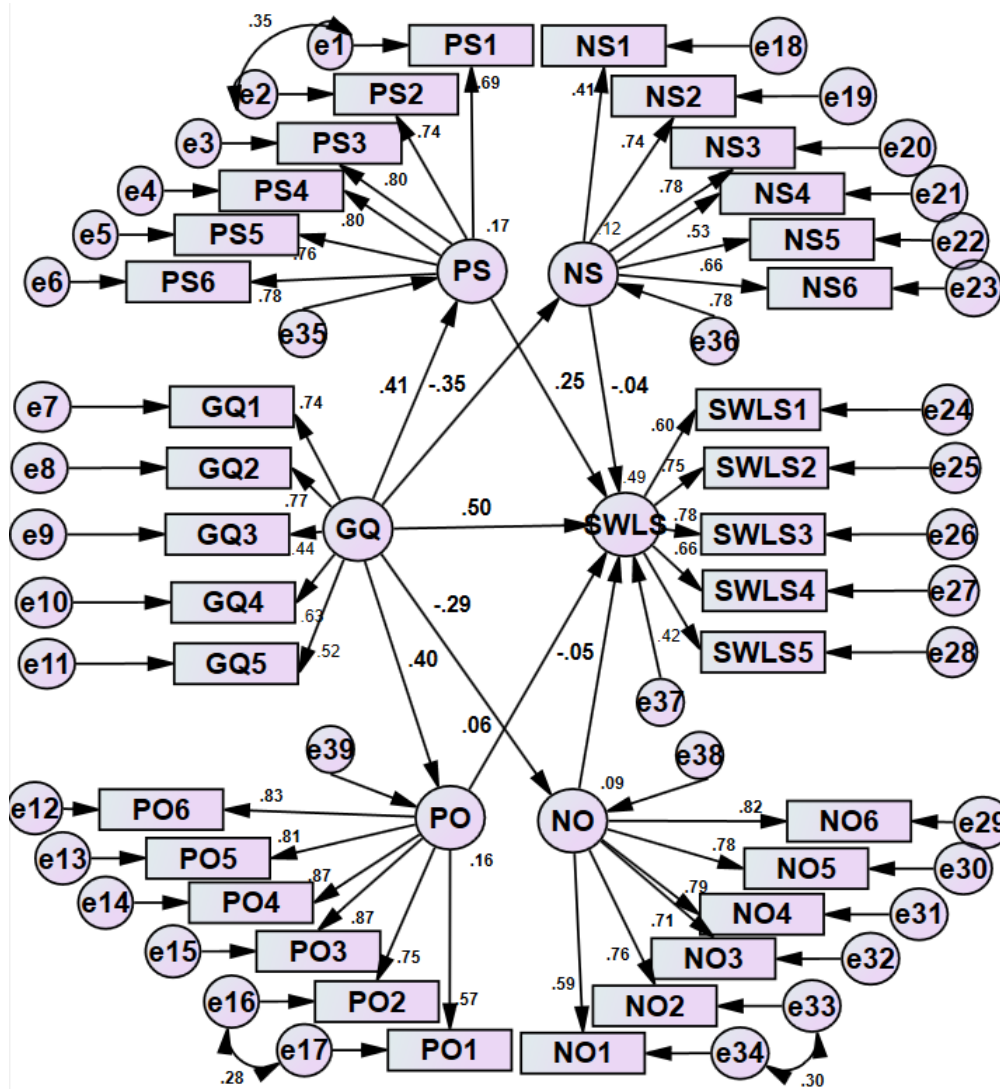
Figure 1. AMOS mediation analysis

4 DISCUSSION

In the current study, the correlational analyses confirmed that gratitude shows a significant positive association with life satisfaction(Adler & Fagley, 2005; Emmons & Seligman, 2004; Froh et al., 2009; Lambert et al., 2010; McCullough et al., 2002; Watkins et al., 2009; Wood et al., 2009). The outcomes of the mediational analyses show that gratitude, directly and indirectly, affects life satisfaction, as evidenced by various empirical studies. The total effect of gratitude on life satisfaction was found to be significant (β=.66, p<.001), with the direct effect being (β=.50, p<.001) and the indirect effect being (β=.16, p<.001). As hypothesised, the positive self and positive others mediate the link between gratitude and satisfaction with life. However, all the variables were inversely correlated with negative self/others. Negative evaluations of self as well as others are believed to be the feature of individuals with grandiosity, materialism and entitlement symptoms in non-clinical samples. However, BCSS may better measure cognitive schema about self/others compared to the traditional measures of self-esteem (Fowler et al., 2006). To the best of knowledge, no study has explored negative self/negative others schema in non-clinical populations. Some studies have explored the association of gratitude with negative affect (Mezielis, 2022; Sun & Kong, 2013; Garg & Katiyar, 2021; Ramzan & Rana, 2014). This research is the first one to test the association of gratitude with negative self and others among a non-clinical population.

The results of Wood et al. (2009) show people with grateful dispositions have definitive schemas that affect how they elucidate the situations that provide help. This aligns with people's biases towards interpreting others' behaviours and intentions (Markus et al.,1985). The findings are justified with a model suggested by Wood et al. (2009), that grateful people view the world through an interpretive lens, making the help-giving behaviour more valuable, costly and altruistic.

The Pygmalion effect, or the self-fulfilling prophecy, explains that expectation from others imposed on us impacts our behaviour. When we acknowledge others' help and look upon them as "positive others", it might positively affect them and us. Similarly, self-labels, whether positive or negative, influence the SWL scores. The brain's plasticity might reframe the negative self towards the positive self by being more compassionate and empathetic towards ourselves. (Rosenthal & Jacobson,1992).

4.1 Positive Self/ Others as Mediator

Self-esteem empirically (Kong, 2013) and theoretically (Hermans, 1992; Mack, 1983) contributes to satisfaction with life. A person's opinion of his/her worth is referred to as self-esteem, whether positive or negative. When one has confidence in his or her abilities, it can be referred to as high self-esteem or positive self. The moral affect theory of gratitude (McCullough et al., 2001) explains that gratitude could make one feel esteemed and valued, further contributing to well-being. Gratitude plays an important part in motivating people to be involved in positive behaviours, and this leads to self-improvement. Grateful individuals report higher well-being because of higher levels of self-evaluation (McCullough et al., 2002).

Gratitude is seen to have a domino effect. A person with dispositional gratitude is more likely to acknowledge the help and later reciprocate the given help (Wood et al., 2010). Individuals who accept thanks are more expected to help out others in the future. Gratitude compels individuals towards prosocial or reciprocal action (Nowak & Roch, 2007). McCullough and Tsang, 2004 indicated that friendly acts motivated by grateful thoughts strengthen and build friendships and social bonding, enhancing satisfaction with life. In this way, gratitude is likely to be related to better satisfaction with life through a higher belief in a positive self.

4.3 Negative Self/ Others

In the present study, the negative self and others are negatively associated with gratitude and life satisfaction. A plausible clarification is that people high in self-love or narcissism may fail to acknowledge others' help as they feel entitled to the benefit. Materialism, narcissism and envy may even lead to the degradation of gratitude levels over time due to brain plasticity (Solom et al., 2017). The real positive self gets buried under the expectations of others. Self-criticism leads to negative talk about self and others. Focusing on one's skills and achievements can reprogramme the brain to practice gratitude leading to better self-perceptions. A more positive self can be cultivated by absorbing and accepting the compliments given by others. Similarly, we can improve our social connections by expressing gratitude towards others. Regularly appreciating the blessings provides a sense of positive self that strengthens our overall sense of well-being.

4.4 Significance of the Study

Research shows that more grateful people view others' help as more rewarding because of their characteristic schemas (McCullough et al., 2001). The present study identified definite cognition and cognitive mechanisms explaining gratitude's operation. The results have crucial implications for practice and research on understanding the mechanism linking gratitude to life satisfaction in non-western conditions. Also, the current study is the first to explain the schema of the negative self and others in the gratitude-life satisfaction link.

4.5 Limitations

Firstly, the use of self-report scales is prone to subjectivity. Secondly, results should be seen keeping in mind the study's cross-sectional design. Next, the sample comprises educated English-speaking adults residing in the NCR, limiting the findings' generalisability. Longitudinal and experimental studies may provide a more comprehensive approach. Also, the study included schematic variables to investigate the emerging mechanism. However, many other variables may affect the relationship from gratitude to satisfaction with life. Further studies should be carried out on different age groups and different nationalities.

4.6 Conflict of interest:

The corresponding author wishes to state that there is no conflict of interest (On behalf of all the authors)

4.7 Ethical Consideration

Ethical clearance was obtained from the Institutional Review Board before the data collection commencement. All processes in the study research were in compliance with the ethical standards of the Institutional Research Committee. Participants were assured that their responses and identities would be kept confidential, and the collected data would be put to use alone for study purposes. Respondents were permitted to draw out from the study whenever they experienced discomfort of any kind.

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