JOB SATISFACTION, EMOTION REGULATION, STRESS RELATIONS AND AGING

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Abstract: This study aimed to investigate the relationship between emotion regulation, perceived global stress and job satisfaction, perceived job satisfaction, emotion regulation, and stress. Two emotion regulation strategies, reappraisal (regulation of cognition) and suppression (regulation of the behavior) were considered. Data were analyzed by using structural equation modeling, and conventional statistical analysis. Findings show that emotion regulation is associated with decreased stress and increased job satisfaction, and stressors in life do not need to be work-related to decrease job satisfaction. Managerial style, job control, and job insecurity also highly influence job satisfaction. Emotion regulation increases in older age, and emotion regulation is associated with job satisfaction only in older, but not in younger adults.

Key words: job satisfaction, stress, emotion regulation, aging, structural equation modeling

Emotion-expressive behavior is at the focal point of any social interaction, including the interactions at work. The social context at work however, does not permit the expression of all emotions, but rather requires the regulation of such experiences [1, 2], and this increases perceived stress [3].

Perceived stress can be operationalized as a measure of how much stress an individual experiences as a function of a combination of factors such as stressful events, the individuals’ coping strategies, and personalities (e.g., [4]). Stress, in general can be understood as a person-environment relationship, and individuals wish to control their emotions while trying to cope with a variety of stressful events [5]. Thus, a stressful environment requires emotion regulation skills.

One aim of the present study is to look at the relationship between emotion regulation and stress. We focus on two emotion regulation strategies: Reappraisal and Suppression. Reappraisal refers to a cognitive-based strategy in which the individuals regulate their emotions before the expression stage, while they are thinking about the situation that arouses the emotion. In suppression on the other hand, the individuals regulate their emotions by preventing themselves from behaviorally expressing it. The recent literature indicates that reappraisal is a healthier emotion regulation strategy than suppression [6]. It is reasonable to expect that as more and healthier emotion regulation strategies are used, individuals’ perceived stress will decrease.

Hypothesis 1. Increased emotion regulation, especially the use of reappraisal, will be associated with decreased stress.

Job satisfaction is defined as an emotional response [7] or an attitude [8] towards one’s job and various facets of the job, it influences factors such as the individual’s life satisfaction, overall performance of the organization, absenteeism, turnover and organizational citizenship. Herzberg’s Dual Factor Theory states that job satisfaction and dissatisfaction are influenced by different sets of factors [9, 10]. Job dissatisfaction occurs due the employees’ perception
of work environment such as wage, working conditions, interpersonal relations and company policies [11]. The fulfillment of these hygienic factors (extrinsic factors) is a prerequisite for preventing job dissatisfaction. On the other hand, employees’ satisfaction depends on motivators (intrinsic factors) such as recognition and advancement, as indicated in Locke’s model [12].

The major difference between Locke’s and Herzberg’s approaches to the concept of job satisfaction is about the level dependency between the motivators and hygienic factors. In other words, while Herzberg states that these factors are mutually exclusive, Locke [13] indicates that though they are two distinct categories, they are interdependent on each other. According to Locke’s Value Theory, job satisfaction occurs if there is a fit between the importance of a certain facet of the job and the outcome of the job [12]. Lawler [14] had a similar approach to the determinants of job satisfaction. Lawler’s facet satisfaction model is about establishing links between certain facets of the job, and the perceptions of employees with regards these facets.

In the present study, contextual nature of Value Theory is emphasized. Value Theory states that goal setting is a cognitive process in the course of which desires and intentions of the individuals determine their behavior.

This view is similar to McClelland’s Need for Achievement Theory. Both Locke and McClelland concluded that individuals try hard to achieve their goals in order to satisfy their emotions and objectives. These theoretical frameworks imply that job satisfaction is not only related to job facets, it is also related to situational and contextual factors as well as individual characteristics such as self esteem and the ability to cope with stress [13, 14].

Lindstrom [15] and Taylor [16] state that a healthy organization is an organization where stress levels are low and commitment to organization and job satisfaction are high. In terms of the relevant literature, the relationship between job satisfaction and stress is widely studied. Numerous studies indicate that as stress increases, job satisfaction decreases (e.g., [17, 18, 19]). Thus, our second aim is to replicate this robust finding.

**Hypothesis 2.** There will be a negative correlation between perceived stress and job satisfaction.

In the present study, we also explore the extent and the type of emotion regulation strategies that are used, and since successful emotion regulation is associated with decreased stress, it should also be associated with increased job satisfaction.

**Hypothesis 3a.** More extensive use of emotion regulation, especially reappraisal, will be associated with higher levels of job satisfaction.

Job insecurity, job control, and managerial style are variables that function as mediators of the relationship between stress and job satisfaction [20]. For example, job insecurity, the absence of a guarantee for the continuation of employment, is perceived to be worse than unemployment [21]. Job control or autonomy refers to employees’ control over their jobs in terms of freedom, independence and discretion in scheduling work [22], and higher levels of job control are associated with an increase in job satisfaction. Managerial style establishes an implicit link between the superiors and subordinates which may affect employees positively or negatively [23]. Thus, it is important to consider the operation of multiple mediating variables along with emotion regulation, in the investigation of job satisfaction:

**Hypothesis 3b.** Job insecurity, job control, and managerial style will mediate relationship between stress and job satisfaction regardless of the type of emotion regulation strategies.

There is contradictory evidence in the literature with regards to the relationship between emotion regulation and job satisfaction. Whereas some studies indicate that emotion regulation can decrease job satisfaction (e.g., [24]), others show that this relationship does not hold true for all emotion regulation strategies, and that emotion regulation can increase job satisfaction by means of amplifying positive emotions [1]. To our knowledge, no other studies looked at the relationship between emotion regulation and job satisfaction relationship in a time perspective, that is, by considering how it changes as the individual gets older. The Socioemotional Selectivity Theory states that emotion regulation increases with increasing age (e.g., [25]). Older adults tend to put more emphasis on emotionally-satisfying relationships (e.g., [26-29]) and tend to report more positive emotions compared to younger adults (e.g., [30]). Older adults also report greater control over their emotions than younger adults [31]. Moreover, for older adults, positive emotions endure longer than negative ones [30], and older adults use healthier emotion regulation strategies [32, 33]. Considering aging at the work place is especially important when we take into account that emotion regulation improves with increasing age and that stress and job satisfaction are related to emotion regulation. Thus, our final two hypotheses are as follows:

**Hypothesis 4.** There will be more extensive use of emotion regulation in older adults.

**Hypothesis 5.** Stress will be lower and job satisfaction will be higher in older adults.

To sum up, the present study aims at reaching a better understanding of the relationship between emotion regulation, perceived global stress and job satisfaction by emphasizing the probable changes by age.
Method

Participants:
The participants were full-time female and male workers from different economic sectors and from various size organizations in Istanbul and Antalya recruited by convenience sampling. A total of 239 participants participated in the study, consisting of 141 males, 98 females. The age range was 21 to 75 (M = 38.29, SD = 13.46).

Materials and Procedure
Questionnaires, as well as a cover letter informing the participants about the general aim of the study were distributed to participants by students at Yeditepe University. No information was asked on the identity or contact information of the respondents. The study involved the following questionnaires:
1) Socio-demographic questionnaire. This questionnaire included questions on the background information of the participant, such as age, gender, and number of years of education.
2) Emotion Regulation Questionnaire (ERQ). This is a 10-item questionnaire developed by Gross and John [6]. The ERQ has two subscales, Reappraisal, consisting of 6 items (e.g., “I control my emotions by changing the way I think about the situation I’m in”), and Suppression, consisting of 4 items (e.g., “I control my emotions by not expressing them”). Both subscales were 5-point Likert, ranging from “Strongly agree” to “Strongly disagree”. Two bilingual academics completed the translation and back-translation of the ERQ, until an agreement was reached on the final version of the scale.
3) Perceived Stress Scale (PSS). Cohen et al. (1983) developed this instrument which is composed of 14 items to measure global stress, that is, to what degree individuals appraise their lives as stressful. The validity and the reliability studies of the Turkish version of the questionnaire were conducted by Baltas, Atakuman, and Duman [34]. The scale involves items such as “In the last month, how often you dealt successfully with irritating life hassles” and the 5-point Likert scale ranges from “never” to “very often”.
4) Minnesota Job Satisfaction Questionnaire (MSQ). This is the short version of well-known Minnesota Job Satisfaction Scale [35]. The original scale consists of 100 statements on a 5-point Likert scale. The instrument is widely used in Turkey since it has been translated and tested for reliability [36, 37]. The short version of MSQ contains 20 items twelve of which are related to intrinsic factors such as doing things for other people, feeling of accomplishment, six items are related to the extrinsic factors such as opportunity for advancement, competence of supervisor, and remaining two items cover work conditions and coworkers. The questionnaire uses a 5-point Likert scale ranging from “very dissatisfied” to “very satisfied”. A pilot study on 34 Masters in Business Administration students showed a Cronbach alpha value of 0.92 on the reliability test for the short version of this questionnaire.

Research findings
The full data set (n = 239) was analyzed using both structural equation modeling (SEM) and conventional statistical methods. The results section is divided into two sections, SEM analyses, and hypothesis testing. AMOS 5.0 and SPSS 13.0 were used in statistical analyses.

SEM Analysis
SEM is a blend of regression and factor analysis, and the basic statistics in SEM is covariance matrix [38], which is especially useful for testing hypothetical relationships between observed and latent variables. The two-step modeling was used in this study for both defining and testing fit measures, as well as for analyzing these models with confirmatory factor analyses. Necessary controls were carried out in order to satisfy the assumptions of normality. Since AMOS displays the p-value for the hypothesis test of the overall model fit, individual model tests were performed after dropping 5 cases (n = 234), and final full model test was carried out with 219 cases in order to deal with the problem of non-normality (See Table 1). The bootstrap analyses were performed each time, and the differences between the maximum likelihood-based estimate and the bootstrap-based estimate were examined. All of the measurement devices were reliable. Cronbach’s alpha was .71 for ERQ, .84 for PSS, and .91 for MSQ.

The initial step of SEM analysis is to test the three models used for each of the three key variables (i.e. emotion regulation, global stress, and job satisfaction) in order to assess the degree of fit between each model and the observed data. The outcomes of the said models are as follows:

Table 1. Descriptive statistics and correlations based on full model (n=219)

| Variables           | Mean | SD   | Cronbach’s alpha | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|---------------------|------|------|------------------|----|-----|-----|-----|-----|-----|-----|-----|
| 1. Emotion regulation | 4.60 | 1.28 | .71              | -  | -0.17 | 0.29 | 0.29 | 0.24 | 0.86 | 0.73 | 0.27 |
| 2. Stress            | 2.84 | 0.59 | .84              | -0.17 | -  | -0.37 | -0.36 | -0.32 | -0.22 | -    | -0.27 |
| 3. Job Satisfaction  | 3.65 | 0.64 | .91              | 0.29 | -0.37 | -    | 0.92 | 0.91 | 0.27 | 0.18 | 0.83 |
| 4. Intrinsic Job Sat | 3.84 | 0.60 | .86              | 0.29 | -0.36 | 0.92 | -    | 0.67 | 0.27 | 0.18 | 0.67 |
5. Extrinsic Job Sat.  3.36 0.84 .86 0.24 -0.32 0.91 0.67 -0.22 0.15 0.84
6. Reappraisal  4.87 1.06 .71 0.86 -0.22 0.27 0.27 0.22 -0.27 0.24
7. Suppression  4.26 1.20 .65 0.73 - 0.18 0.18 0.27 -0.27 0.24
8. Mediators  3.48 0.89 .69 0.27 -0.27 0.83 0.67 0.84 0.24 0.18

Note. Bold correlations are significant at alpha level of .05; all others at significant at the .01 level.

a) The Emotion Regulation Model:
Emotion regulation consists of two main strategies, reappraisal and suppression, and they have 6 and 4 items respectively. After dropping one item from suppression, the following model was accepted in line with the values of fit statistics, which all indicated a good fit to the data (See Table 2) with the exception of RMR which is slightly greater than .10, and is just acceptable [38]. The standardized regression weights of each variable indicated high loadings (larger than .50) on the respective factor, except for a single item in reappraisal and two items in suppression. These results, in extent, indicated moderate construct validity.

Table 2. Model Comparisons

|                | χ² | df | p   | X /df | RMR | GFI | CFI | RMSEA       |
|----------------|----|----|-----|-------|-----|-----|-----|-------------|
| Emotion reg.   | 24.00 | 25  | .39 | 1.05  | .11 | .98 | 1.00 | .02 (.00-.06) |
| Job sat. (4 Factor) | 102.20 | 79  | .04 | 1.29  | .05 | .95 | .98 | .04 (.01-.05) |
| Job sat. (2 Factor) | 70.60  | 57  | .11 | 1.24  | .04 | .96 | .99 | .03 (.00-.05) |
| Stress         | 53.70  | 37  | .04 | 1.45  | .04 | .96 | .98 | .04 (.01-.07) |
| Full Model     | 142.70 | 125 | .13 | 1.14  | .08 | .94 | .98 | .03 (.00-.04) |

b) The Job Satisfaction Model:
Firstly, a set of exploratory factor analysis (with Eigenvalues larger than 1.0) were performed. Items that have multiple (cross) loadings on more than two or more factors were dropped if the difference between the items was less than .40, and items with factor loadings of .45 or more were retained [39, 40]. As a result, a four-factor solution was accepted (KMO = .87, p < .0001), and the number of items was reduced from 20 to 15. This model including 15 items was tested by using the confirmatory analysis. The results indicated a highly acceptable fit to the data with the following alpha values: Factor 1 (4 items)= .80; Factor 2 (5 items)= .77; Factor 3 (2 items)= .66; Factor 4 (4 items)= .71.

Secondly, intrinsic and extrinsic items of the job satisfaction questionnaire were treated as a two-factor model by using the confirmatory factor analysis, and the model fit the research data after dropping 7 items. The standardized regression weights of each variable indicated high loadings on these factors, except for one item in the two-factor model, and three items in the four factor model. When these factors were removed, the model showed a good fit to the data (See Table 2).

c) The Global Stress Model:
The confirmatory factor analysis indicated moderately good fit after having dropped 3 items. Only the loadings of two items were less than .50, and this resulted in a nicely fitting model (see Table 2).

d) The Full Research Model:
The number of cases was dropped to 219 in order to satisfy the normality assumption. This resulted in a model with an untestable path (the path between reappraisal and job satisfaction) due to the existence of so-called offending variables, which indicate errors in the hypothesized model, most probably due to the large amount of parameters involved in the study.

Hence, the same model was tested by entering the error terms of the computed variables of job satisfaction, but the variables of emotion regulation and stress were entered by including each of their items. The mediating variables of job insecurity, job control, and managerial style were excluded. This resulted with a fitting model (See Table 2).
Table 3a. Maximum Likelihood Parameter Estimates of the Full Research Model

| Parameter                      | Unstandardized | SE     | Standardized |
|-------------------------------|----------------|--------|--------------|
| Direct effects                |                |        |              |
| Emotion Reg. → Job Satisfaction| .303           | .097   | .441 (p=.002)|
| Stress → Job Satisfaction     | -.301          | .117   | -.264 (p=.010)|
| Variances                     |                |        |              |
| Emotion Regulation (1)         | .636           |        |              |
| Job Satisfaction (2)           | .300           |        |              |
| Stress (3)                    |                |        |              |

| Covariances                   |                |        |              |
| Emotion Regulation (1) - (2)   | .239           |        |              |
| Emotion Regulation (1) - (3)   | .37            |        |              |
| Stress (2) - (3)               | -.154          |        |              |
| Stress (2) - (3)               | -.116          |        |              |

Hypothesis Testing

All correlations reported in this section are two-tailed. In order to carry out the analyses reported below, first of all, means were calculated for overall emotion regulation, and separately for reappraisal and suppression strategies, as well as for stress and job satisfaction.

Our first hypothesis predicted a negative correlation between emotion regulation, especially reappraisal, and stress. As predicted, results indicated a significant negative correlation between overall emotion regulation and stress, \( r = -.20, n = 224, p < .01 \). With regards to the separate emotion regulation strategies, while reappraisal showed a significant negative correlation with stress, \( r = -.24, n = 225, p < .01 \), suppression failed to show any relationship, \( r = -.04, n = 227, p = .52 \). An additional analysis was carried out by calculating the separate means for the emotion regulation items that referred to the regulation of positive emotions versus negative ones. This analysis revealed that it is the regulation of negative emotions that correlates with stress, \( r = -.29, n = 226, p < .01 \), rather than the regulation of positive ones, \( r = -.05, n = 227, p = .23 \).

As part of our third hypothesis, a positive correlation between emotion regulation and job satisfaction was also confirmed, \( r = .30, n = 223, p < .01 \). However, although we predicted that especially reappraisal would be related to job satisfaction, both reappraisal and suppression showed a significant positive correlation with it \( (r = .24, n = 224, p < .01, \text{and } r = .21, n = 227, p < .01 \text{ respectively}) \).

Moreover, the maximum likelihood parameter estimates supported the idea that emotion regulation predicts job satisfaction (See Table 3a). There was a .30 units increase in job satisfaction for each unit of increase in emotion regulation. The estimated standard error for this direct effect is .10, and the unstandardized effect of emotion regulation on job satisfaction is 3.12, \( p < .01 \) (See Table 3a).

Our third hypothesis also questioned the mediating role of the variables of job control, job insecurity, and managerial style that accounts for the relationship between stress and job satisfaction [47]. Since the measurement model did not explain the mediating effects of the variables, a regression analysis was carried out to test the third hypothesis (See Table 3b). The effect of emotion regulation was non-significant at the last step, whereas the mediators remained significant, as indicated by the t-test and beta values. This analysis showed that the mediators explain the variance in job satisfaction better than emotion regulation and stress. There was a strong positive correlation between job satisfaction and the mediators, \( r = .83, n = 234, p < .01 \); and a positive, but a weaker one between emotion regulation and the mediators, \( r = .28, n = 234, p < .01 \).

Table 3b. Regressions for the key variables on job satisfaction

| Step     | R²       | ΔR²   | F      | B       | t      |
|----------|----------|-------|--------|---------|--------|
| Step 1: Emotion Reg. | .10      | .10   | 24.98  | .07     | 1.84n.s.|
| Step 2: Stress        | .21      | .11   | 30.29* | -.17    | -.68*  |
| Step 3: Manag. style  | .54      | .33   | 88.36* | .40     | 10.25* |
| Step 4: Job control   | .68      | .14   | 120.33*| .31     | 6.77*  |
| Step 5: Job security  | .72      | .05   | 119.22*| .26     | 6.14*  |

Note. n.s.: non-significant; *: \( p < .001 \)
A partial correlation analysis was carried out to see the strength of the relationship between emotion regulation and job satisfaction after controlling for the effects of the mediators. In this analysis, the correlation between emotion regulation and job satisfaction decreased, though it was still significant, \( r = .15, n = 231, p < .05 \) (See Table 4).

### Table 4. The correlation matrix of the relationship between emotion regulation, stress, and job satisfaction

| Age Group          | Emotion Regulation | Stress | Job satisfaction |
|--------------------|--------------------|--------|------------------|
| Group 1 (Age 21-30) | n = 105            | Stress | -0.03            |
|                    |                    | Job satisfaction | 0.14            |
| Group 2 (Age 31-49) | n = 55             | Stress | -0.39**          |
|                    |                    | Job satisfaction | 0.40**          |
| Group 3 (Age 50-75) | n = 73             | Stress | -0.24**          |
|                    |                    | Job satisfaction | 0.35**          |

Note. * \( p < .05 \); ** \( p < .01 \)

With regards to age differences, our hypothesis predicted that emotion regulation would increase with increasing age. In order to test for this hypothesis, we first separated our participants into three age groups, Group 1 (youngest participants, ages 21-30), Group 2 (young to middle-aged participants, ages 31-49), and Group 3 (older participants, age 50-75). Analysis of variance (ANOVA) indicated that emotion regulation varied significantly as a function of age group, \( F (2, 230) = 3.26, p < .05 \). Pairwise comparisons showed that while there were no significant age differences in emotion regulation between Group 1 and Group 2, \( F < 1 \), there were significant differences between Group 1 and Group 3, \( F (1, 176) = 5.28, p < .05 \), and between Group 2 and Group 3, \( F (1, 126) = 4.04, p < .05 \). Mean emotion regulation scores (from a 7-point Likert scale) as a function of age are presented in Figure 1. We also predicted that stress would be lower and job satisfaction would be higher in older participants. Although job satisfaction varied as a function of age, \( F (2, 225) = 5.66, p < .05 \), stress did not, \( F = 1 \).

### Figure 1.

![Figure 1](image)

**Discussion**

Our study explored the relationship between job satisfaction, emotion regulation and stress, by taking into account the age of the participants. First of all, our findings were in line with the robust finding that increased stress is associated with decreased job satisfaction [2, 17]. There is extensive number of studies examining the relationship between job satisfaction and work stressors. Our study focused on global stress and showed that stressors in life do not need to be work-related to decrease job satisfaction.
A contribution of this study is to consider emotion regulation not as a single construct, but by separating it into two rather common emotion regulation strategies, namely, reappraisal and suppression. Reappraisal involves changing the way individuals think about emotional events, while suppression involves controlling the expression of emotions related to those events, and reappraisal is a healthier emotion regulation strategy than suppression [6]. Consistent with these findings, our findings show that it is the use of reappraisal, rather than suppression, that is associated with decreased stress. While emotion regulation can aid in the regulation of both positive and negative emotions, our findings point out that it is the regulation of negative emotions rather than positive ones that is related to decreased stress.

Our results also showed that emotion regulation is associated with increased job satisfaction. This relationship is likely a bidirectional one, as our analyses indicate. Note that both reappraisal and suppression are related to job satisfaction. While reappraisal, that is, changing the way one thinks about emotional events, can aid job satisfaction by providing every day well-being, suppression, that is, practicing not showing emotions, may lead to better interpersonal relationships at the workplace and increase job satisfaction.

Moreover, other studies also suggest that positive emotions predict job satisfaction [41], thus, if emotion regulation is successful, job satisfaction should increase. With regards to how job satisfaction might influence emotion regulation, since job satisfaction is related to a positive job relevant emotional response [13, 42], increased job satisfaction may possibly lead to greater use of emotion regulation since work condition can affect mood and emotions [41], and the work environment requires downregulation of emotions as well in order to maintain job-appropriate behavior.

Emotion regulation is not the sole factor that is related to job satisfaction in our study. Our findings also indicate that mediators such as managerial style, job control, and job insecurity highly influence job satisfaction. This finding is consistent with some of the findings in the literature [18, 43, 23] and extends the findings to these motivators’ standing with regards to emotion regulation. When factors such as having a supportive leader or having control over the job are perceived positively, this might decrease the need to use emotion regulation since the emotional response, that is part of job satisfaction is already positive.

To our knowledge, no other studies examined the relationship between job satisfaction, emotion regulation, and stress by taking into account the age of the participants. Findings show that aging is associated with better and healthier regulation of emotion (e.g., [32, 33]), a tendency to direct attention towards positive and away from negative emotional information [44], keeping a greater proportion of positive emotional information in mind compared to negative [45], and increased frequency and duration of positive emotions [30]. Thus, when emotional responses such as job satisfaction are investigated, it is important to take into account the age of the participants.

Previous studies consider participants between the ages 18-30 as younger adults and show that decreased negative affect, most probably due to increased emotion regulation starts around the middle ages (e.g., [30]). Thus, in our analyses related to aging, we separated our participants into three age groups, Group 1 (ages 21-30), Group 2 (ages 31-49), and Group 3 (ages 50 and over).

Our results indicated that emotion regulation is higher in the last group, as predicted. Moreover, while emotion regulation was negatively related to stress and positively related to job satisfaction in Group 2 and Group 3, this relationship was not statistically significant in the youngest group. Although stress did not vary as a function of age, job satisfaction was higher in older participants. This finding indicates that emotion regulation is likely an ability that is acquired with increasing age, and the ability to apply it to the work setting takes time, especially since stressors in every day life remain.

Note that Cote and Morgan [1] tested college students who worked part time as their participants and found that downregulation of negative emotions is actually related to decreased job satisfaction. Although we did not find a negative relationship between emotion regulation and job satisfaction in youngest adults, we found no relationship. Our youngest group was beyond the age of college students (ages 21-30), and this may account for the discrepant results since emotion regulation is associated with increased job satisfaction as the individual ages.

Emotion regulation has emerged as an important factor in the study of job satisfaction in the recent years (1, 41, 46). The present study contributes to the literature by considering different emotion regulation strategies, as well as by taking into account how emotion regulation changes with age. Findings confirm that every day emotion regulation is important in increasing job satisfaction, and that this relationship is especially evident as the individual gets older.
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