The Influencing Factors of Self-evaluation in Adolescents: A Structural Equation Modeling

Xiaobing Zhai

Wuhan University of Science and Technology School of Medicine

Yanan Zhang

Wuhan University of Science and Technology

Ehab S Eshak

Osaka University Graduate School of Medicine

Can Jiang

The University of Sydney Faculty of Science

Jing Zeng

Wuhan University of Science and Technology School of Medicine

Mei Yang

Wuhan University of Science and Technology School of Medicine

Jia Zhou

Wuhan University of Science and Technology School of Medicine

Yushuang Peng

Wuhan University of Science and Technology School of Medicine

Lihua Di

Wuhan University of Science and Technology School of Medicine

Jinhong Cao

Wuhan University School of Health Sciences

Bing Xiang (✉ 764356760@qq.com)

Wuhan University of Science and Technology School of Medicine <https://orcid.org/0000-0003-0925-7104>

Research

Keywords: Adolescents, self-evaluation, parental bonding instrument, personality traits, Kessler Psychological Distress Scale (K6), structural equation modeling

Posted Date: May 25th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-89997/v2>

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Abstract

Background

Adolescents' self-evaluation is an expressive form of their self-concept. Parental bonding, personality traits and psychological status were the three main determining factors of adolescents' self-evaluation; however, no study has tested the effects of the three variables simultaneously. We aimed to explore these effects by a systematic approach.

Methods

Data came from the Chinese Family Panel Studies (CFPS). The associations of parental bonding (measured by the Parental Bonding Instrument), personality traits (the Responsibility Scale) and psychological status (the Kessler Psychological Distress Scale, K6) with self-evaluation measured in three domains (the Rosenberg Self-Esteem Scale, the Nowicki-Strickland Locus of Control Scale for children and the Self-Discipline Scale) were tested by the structural equation modeling (SEM) analysis.

Results

A total of 892 Chinese adolescents (Average age = 10.72, SD = 0.89) were included. Significant positive correlations were found among self-evaluation, parental bonding, personality traits and psychological status. The overall (direct and indirect) effect of parental bonding on adolescents' self-evaluation was 0.49 (parental bonding→ self-evaluation, $\beta = 0.28$; parental bonding→ personality traits and psychological status→ self-evaluation, $\beta = 0.21$). Personality traits and psychological status were directly associated with adolescents' self-evaluation (personality trait→ self-evaluation, $\beta = 0.78$ and K6→ self-evaluation, $\beta = 0.39$).

Conclusions

The use of SEM offered a detailed analysis of the correlations between parental bonding, personality traits, and psychological status, and a systematic approach to investigating their direct and indirect effects on adolescents' self-evaluation. The three factors were directly associated with adolescents' self-evaluation and parental bonding had an indirect effect on adolescents' self-evaluation that was mediated by both personality traits and psychological status.

Introduction

Adolescents are in an important period of physical and psychological development, and self-evaluation is a basic evaluation of adolescent ability and value, affecting many aspects of adolescents [1, 2]. In 1997, Judge proposed the core self-evaluation, a potential, extensive and high-order construction, which was composed of four low-order traits established by self-esteem, locus of control, emotional stability and self-efficacy, and was referred to as a positive self-concept [3]. It is shown that this is such a powerful and highly consistent psychological construct which describes a significant connection between personality traits and pleasures, motivation and stress [4]. Judge believed that individuals with positive self-concepts tended to pursue goals which was easy to be achieved successfully. Compared with individuals with low core self-evaluation, individuals with high core self-evaluation are more able to keep their commitments when receiving negative and positive feedback, adopt more constructive strategies for negative feedback, be more active when receiving positive feedback, and their life satisfaction was higher [5]. In addition, Chinese scholars have also found similar results [6, 7]. Nevertheless, previous studies used the results of core self-evaluation as independent variables or intermediary variables to explore the impact of core self-evaluation on other aspects of adolescents. As for how other factors affect adolescents' self-evaluation, there are still a lack of relevant studies.

Recently, the society from all walks of life has attached more importance to self-evaluation issues among adolescents and this study constructs adolescent self-evaluation on the basis of core self-evaluation. The factors influencing contemporary adolescent self-evaluation are multidimensional and complex. Here, we nominate three main groups of factors: first, factors related to the family of origin; such as the relationships between the family members [8]. Parents are the earliest social environment for children, and play a unique and significant role in the development of adolescents [9, 10]. Parental bonding was identified as one of the crucial factors in children's self-evaluation and referred to the methods usually used by parents in the process of raising and educating their children [11, 12]. The second group of factors that affects adolescents' self-evaluation is related to the personality traits [13, 14], which contributes to the diversity in personal, emotional, motivational and social behaviour of adolescents [15, 16]. It follows that adolescents with different personality traits probably have different self-evaluation. Compared to parental bonding and personality traits, little research has been done on the impact of the third group of factors, the psychological status of adolescents on their self-evaluation [17, 18]. Some studies have shown that negativity, attachment anxiety or

depression are described as feelings of helplessness and weakness, fear of being abandoned, and hope to be cared for, loved and protected [19–21]. Besides, some studies found that core beliefs were key factors in the development and persistence of psychopathology and played an active role in developing and maintaining symptoms of depression, anxiety, and psychosis [22, 23]. When core beliefs are negative, these appraisals can be dysfunctional. Core beliefs are often rooted in early experience in childhood and adolescence, this self-reinforcing property means that dysfunctional core beliefs tend to become much more prominent with the onset of psychopathology [22, 23]. Obviously, psychological status is strongly related to self-evaluation.

Parental bonding in childhood directly increased happiness in adulthood and indirectly increased it through personality traits [24]. Further, higher psychological health was correlated with higher level of parental bonding, whereas lower level of psychological happiness was correlated with higher parental non-engagement or control [25]. Importantly, researchers have found that self-evaluation is positively associated with happiness [19]. Therefore, we hypothesis (propose a hypothesis) that parental bonding also affected self-evaluation through various personality traits and psychological status, which is a comprehensive process.

Although the previous studies have respectively investigated the associations of parental bonding, personality traits, and psychological status on adolescents' self-evaluation, no study has combined three factors together nor examined the relations among them so far. Therefore, we aimed in this study to fill this gap and provide a new perspective in examining the associations between these three factors in their pathways to affect the adolescents' self-evaluation. Based on the evidence presented previously, the hypotheses were formulated as follow:

H1: Parental bonding, personality traits, and psychological status is directly associated with adolescents' self-evaluation.

H2: Parental bonding is indirectly associated with adolescents' self-evaluation (mediated by personality traits and psychological status).

Methods

Data Sources and Participants

The data for this study were obtained from the China Social Science Survey Center, Peking University, which is one of the Chinese Family Panel Studies (CFPS) for which samples were collected from all over China in 2010. The study had collected data over four rounds, however, the data analyzed in this research were only from a single-round collection in 2014. The details of the study protocol and sampling method can be found elsewhere [26,27]. In brief, the CFPS sample was a multi-stage probability sample extracted by implicit stratification method. The samples of subsampling frame were extracted in three stages. The first-stage sampling (primary sampling units, PSUs) was counties (or county-level cities/districts) listed in descending order by a socioeconomic indicator. The second-stage sampling (Secondary sampling units, SSUs) was resident committees and administrative villages from counties (or county-level cities/districts). The third and final stage sampling (Tertiary sampling units, TSUs) was households from resident committees and administrative villages. At the first two stages in the sampling process, official administrative entities were used. The administrative structure in China has two important features: first, it is strictly hierarchical; and second, at least in theory, it covers the entire population of China exhaustively, without exception. Moreover, to minimize sampling frame errors, in the third stage it was the random starting point of the circular isometric sampling method that was used to extract sample households. The study was designed to include, interview and consider all members over the age of 9 years in a sampled household as core members of the CFPS.

Adolescents in this study were students aged 10 to 15 years old from east, north, south, central, northeast, northwest and southwest regions of China. 892 adolescents from 871 families were included in the study with relatively complete and significant study questionnaire.

Measures

Questionnaire design

To improve the operability of the questionnaire survey, a preliminary survey of 783 adolescents was conducted in Beijing, Shanghai and Guangdong provinces in 2008 and 2009. Those 783 adolescents were excluded from the formal study because the final questionnaire had been modified according to their feedback. The study is based on the CFPS self-administered questionnaire for adolescents aged 10 to 15 years that covered basic information on age, gender, living condition, educational level, type of residence, self-evaluation, parental bonding instrument, personality traits, and psychological status.

Self-evaluation

Before conducting this study, the researchers reviewed a large number of literatures to determine the definition and composition of core self-evaluation that is a latent, broad, high-order construct consisting of four well-established lower-order traits: self-esteem, locus of control, emotional stability and self-efficacy. Adolescents' self-evaluation was constructed on the basis of core self-evaluation and was consisted of three scales: the Rosenberg Self-Esteem Scale [28], the Nowicki-Strickland Locus of Control Scale for children (NLCS-C) [29] and the Self-Discipline Scale [30]. The Rosenberg Self-Esteem Scale consisted of 10 questions and answers were on a 4-point Likert scale (1) "totally disagree" (2) "disagree" (3) "agree" and (4) "totally agree", with some questions were reverse scored. A higher final sum score for all the ten items indicated higher self-esteem. The NLCS-C scale consisted of 40 yes/no answered questions with a low score indicating internal locus of control and a high score indicating external locus of control. The Self-Discipline Scale based a 5-point Likert scale (1) "Disagree strongly" (2) "Disagree a little" (3) "Neither agree nor disagree" (4) "Agree a little" and (5) "Agree Strongly" of 12 questions, a higher score indicates optimism and higher perceived self-efficacy. However, existing and mature scales from foreign countries have been introduced to China, and the researchers are also faced with the problems of measuring validity and reliability. Because Chinese people tend to be conservative in their responses to the scale, they tend to choose neutral answers rather than the most suitable ones, which leads to the inaccurate measurement results. In dealing with this problem, the researchers of CFPS have added or deleted items and modified their scoring to include (1) "totally disagree" (2) "disagree" (3) "neither agree nor disagree" (4) "agree" and (5) "totally agree" to reduce the probability that respondents improperly choose the middle option and re-measured the validity and reliability of the scales to adapt to Chinese culture [31]. The Cronbach's alphas for respective three scales were 0.88, 0.82 and 0.70.

Parental Bonding Instrument, Personality Traits and Psychological Status

In order to make the scales conform to Chinese people's answering habits and thinking mode, and to reduce the inaccurate measurement results, the researchers of CFPS have modified these scoring scales a little and re-measured the validity and reliability of the scales [31]. The Parental Bonding Instrument introduced by Parker et al [32] was used with a 14-item measure of differences in parental bonding and responses were scored on a 5-point Likert scale ranging from (1) "never" (2) "rarely" (3) "sometimes" (4) "often" and (5) "always"; Cronbach's alpha for the scale was 0.80. The Responsibility Scale that was used to assess the personality traits was derived from a sub-scale of the Big Five Questionnaire-Children produced by Barbaranelli [33] with a 12- self-reported items rated from (1) "totally disagree" to (5) "totally agree" and its Cronbach's alpha was 0.77. The psychological status was measured using the Kessler 6 Psychological Distress Scale (K6) by Kessler [34]. The scale consisted of 6 items scored on a 5-point Likert scale ranging from (1) "always" (2) "often" (3) "sometimes" (4) "rarely" and (5) "never". Some of the items were reversely scored so that the high total score indicates positive psychological status. The Cronbach's alpha for this scale was 0.649.

List of abbreviations

CFPS: the Chinese Family Panel Studies. K6—the Kessler Psychological Distress Scale.

SEM—the structural equation modeling. PSUs: primary sampling units. SSUs: Secondary sampling units. TSUs: Tertiary sampling units. NLCS-C: the Nowicki-Strickland Locus of Control Scale. BCA: the bivariate correlation analysis. χ^2 : the chi-square; df: the degree of freedom. GFI: goodness of fit index. AGFI: adjusted goodness of fit index. CFI: comparative fit index. RMSEA: root mean square error of approximation.

Statistical analysis

SPSS 25.0 and AMOS V-24.0 were used for data analyses. The participants' characteristics were presented as number and frequencies. In order to examine the theoretical model which contained the targeted factors, a type of multivariate analysis method, structural equation modeling (SEM) was applied. Initially, a model containing the final scores of parental bonding instrument, personality traits scale and psychological status scale with the adolescents' self-evaluation domains was designed. Then the estimated value and significance level of each parameter were obtained. After that, the bivariate correlation analysis (BCA) was used to observe the correlation among the included factors. After the analysis results are confirmed, the proposed hypothesis model was verified and fitted with the structural equation modeling (SEM) analysis of AMOS. The proposed model was confirmed by examining the goodness of fit statistics, which indicted a ratio of the chi-square (χ^2) to the degree of freedom (df), a goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), and

root mean square error of approximation (RMSEA). The definition of satisfactory goodness of fit was $\chi^2/df < 2.0$, GFI > 0.95 , AGFI > 0.90 , CFI > 0.97 , and RMSEA < 0.05 , while the standard of acceptable goodness of fit was $\chi^2/df < 3.0$, GFI > 0.90 , AGFI > 0.85 , CFI > 0.95 , and RMSEA < 0.08 [35]. The chi-square difference test was used to check the nested models and if the complex model fitted a higher degree of the data when compared to the simpler model [36]. By comparing the Akaike information criterion (AIC) value of the models, a nested model is proved to be a significant well-fitting model if it was associated with at least 50 units reduction in the measurement [37-39].

Results

Baseline characteristics

The baseline characteristics of study participants are shown in **Table 1**. A total of 892 adolescents from east (15.1%), north (11.3%), south (14.0%), central (19.7%), northeast (10.2%), northwest (16.0%) and southwest (13.6%) China, including 485 (54.4%) males and 407 (45.6%) females were included in the current study. The sample was composed of 365 (40.9%) adolescents living in urban areas and 527 (59.1%) adolescents from rural areas. The average age of total, male and female adolescents was 10.72 (SD=0.89), 10.71 (SD=0.83) and 10.72 (SD=0.96) years respectively.

Correlations

The mean, standard deviation (SD) and Pearson correlation coefficients of the targeted variables are shown in **Table 2**. The results show that the score of parental bonding instrument correlated with scores of the self-evaluation domains, including self-esteem, self-discipline and NLCS-C (r from 0.119 to 0.265, $P < 0.01$). It meant that adolescents' self-evaluation may rise with high levels of parental bonding instrument. The parental bonding instrument score was reasonably associated with K6 score of psychological status and personality traits score ($r = 0.185$ and 0.157 , $P < 0.01$, respectively). It meant different parental bonding instrument may have different psychological states and personality traits for adolescents. At the same time, personality traits score was correlated with all self-evaluation domains' scores (r from 0.156 to 0.364, $P < 0.01$), with the strongest correlation observed with self-esteem ($r = 0.364$). Meanwhile, K6 score (psychological status) was moderately correlated with some self-evaluation domains, which were the self-esteem score ($r = 0.250$, $p < 0.01$) and NLCS-C score ($r = 0.126$, $p < 0.01$) specifically. Correlation analysis of this study showed that adolescents' self-evaluation, parental bonding instrument, personality traits, and Psychological status have different levels of internal connection, and are related to each other in different levels.

Structural equation model

In the initial model, it was assumed that self-evaluation was affected by the scores of parental bonding instrument, personality traits and psychological status. The unsatisfactory fit of the initial model was revealed by the measures of model fit ($\chi^2/df = 12.214$, GFI = 0.961, AGFI = 0.908, CFI = 0.793, RMSEA = 0.112), especially whose AIC was 133.929 (**Fig. 1**).

To optimize the model, several significant paths were added and a revised structural equation model was specified in Fig. 2. The measures of the revised model fit ($\chi^2/df = 2.876$, GFI = 0.994, AGFI = 0.977, CFI = 0.977, RMSEA = 0.046) indicates that the revised model has a satisfactory fit. Furthermore, given that the AIC for the revised model (47.255) was lower than that of the initial model (133.929); thus, the revised model was more suitable for the data than the initial one.

Significant relationships between observed variables

As the path diagram with the standardized coefficients for each factor was provided in **Fig. 2**, **Table 3** presented the direct, indirect and total effects of the scores of parental bonding instrument, personality traits and K6 (psychological status) on the self-evaluation scores calculated with both unstandardized and standardized coefficients. Using the standardized coefficients, the path coefficients of variables measured at different scales within the same model can be directly compared. In the revised SEM, parental bonding instrument has a great direct and indirect influence on self-evaluation (direct $\beta = 0.28$; mediated by personality traits and K6 $\beta = 0.21$, and total effect $\beta = 0.49$), while K6 was directly related to self-evaluation ($\beta = 0.39$). Additionally, personality traits have the strongest positive total (direct) effect on self-evaluation ($\beta = 0.78$).

Discussion

This is the first empirical study to use the SEM systematic approach to investigate the influence of parental bonding, personality traits and psychological status on self-evaluation of Chinese adolescents, which presented a comprehensive study of mechanisms for the parental, personal and psychological impacts on adolescents' self-concept. The SEM analysis has demonstrated that parental bonding, personality traits and psychological status played significant positive roles in the self-evaluation of Chinese adolescents. A high level of core self-evaluation is not only adolescents' high evaluation of their own ability and value, but also a kind of the self-protection, making the self-development in a normal and positive direction.

The study found that adolescents with higher scores on personality traits scale were more likely to have higher self-evaluation (total effect = 0.78). Personality traits are persistent and universal positive or negative attitudes towards people or things [40]. Adolescents with high personality traits score usually have constant self-affirmation and ability to complete daily tasks [41, 42] and this is consistent with the results of this study. Besides, different personality traits may be positively or negatively correlated with core beliefs [43]. Core beliefs was a strong negative correlation with introversion and extroversion personality traits and significant positive correlations with neuroticism and psychoticism personality traits. It meant that extroversion, emotional stability and agreeableness were positive factors for adolescents' self-perception. On the other hand, introversion, emotional instability, apathy and personality traits were the negative factors of self-perception. Adolescents' self-evaluation was closely related to their healthy growth and development in the future, and it may be an important factor for them to achieve good life and success in the future. Therefore, in the progress of enhancing self-evaluation, the development of personality traits merits is a major consideration.

As indicated by the results, psychological status, measured by K6 scale was associated with the self-evaluation in Chinese adolescents. Psychological status acts as a major internal motive for improving psychological and physical health [44, 45]. It had been a consensus that poorer sleep quality, depression, and suicide were associated with poor psychological status, and adolescents with poor psychological status were prone to low expectancies for pleasure, success, and acceptance, and a perception of limited psychological resources, and were prone to a negative self-evaluation, considering themselves inferior to others [46, 47]. In addition, those adolescents with distressed psychological status were vulnerable to lose their courage and determination to surmount difficulties and experienced greater emotional instability (higher neuroticism), which can lead to a reduction in individual self-evaluation [42]. In the current study, we found similar results that self-evaluation was positive correlated with psychological status of adolescents. Adolescents with good psychological status are may easily full of confidence and hope for their future growth and life. In the view of this, it is essential to ameliorate the psychological status of adolescents for improving their self-evaluation.

Parents were the earliest and social environment for children, and played a unique and significant role in the development of adolescents. It had become a general consensus that Parenting affects children's various aspects, such as self-esteem [48], emotional regulation [49], well-being [50], and eating patterns [51]. The current study findings indicated that parental bonding was a determining factor of Chinese adolescents' self-evaluation. The score of parental bonding instrument was not only directly associated with self-evaluation, but also had an indirect association with self-evaluation mediated by personality traits and K6 scores (total effect = 0.49). During adolescence, adolescents are vulnerable to the harm of adverse stimuli, which would cause some learning and psychological problems and reduce their self-evaluation. In such situations, there is no doubt that the parental effects will not only be limited to the role in their children's growth and development, but will also extend to the ways by which the adolescents interact with these harmful stimuli. Good parental bonding can easily improve children's confidence, ability and hope for the future. In a recent study [52], it was indicated that adolescents who perceived no parental support were 4-times likely to have mental health problems compared with those who perceived a strong support from their parents (adjusted odds ratio = 3.80, CI: 2.81–5.13). Personality traits and psychological status mediated the association between parental bonding and self-evaluation of adolescents. Psychological status and personality traits were associated with adolescent self-evaluation, and parental bonding was reasonably associated with psychological status and personality traits. Therefore, parental bonding may also have an influence on adolescent self-evaluation through psychological status and personality traits. This is a complex and comprehensive process. The current study pointed out concrete psychological mechanisms in terms of mentality and personality for parental bonding affecting adolescent self-evaluation.

Individuals with high self-evaluation have better abilities and positive self-concepts, so they have positive orientation goals and higher motivation for orientation to success, so as to obtain better life satisfaction and work achievements. The high level of core self-evaluation would make adolescents face various situations in life more actively, which is conducive to maintain health. From the view of practical significance, compared to interventional measures that target a single variable of either parental bonding, personality traits or psychological status of the adolescents, simultaneous interventions that take in consideration the mentioned three variables should be formulated and conducted. It may be effective and specific to improve adolescents' self-evaluation by improving parental bonding, cultivating obvious personality traits, and maintaining good psychological status.

Limitations

First, the causal associations between variables cannot be deduced because of the cross-sectional study, and long-term prospective cohort studies on a large number of subjects from many areas should be performed in the future. Second, this study was conducted by self-reports, and self-evaluation of adolescent may be over-or under-estimated. however, we strictly controlled the quality in the field investigation to reduce the occurrence of bias. Third, some interviewed adolescents did not submit relatively complete research questionnaires, especially the question about self-evaluations because of privacy, so they were excluded from the study in the process of selecting the population. Currently, we are applying for the use of updated and more comprehensive data for evaluating this issue in detail. Last but not least, self-evaluation was constructed on the basis of core self-evaluation, so there may be some bias that self-evaluation cannot fully represent core self-evaluation, which will be the focus of our next study and requires careful selection of scales.

Conclusions

Factors influencing Chinese adolescent's self-evaluation included parental bonding, personality traits and psychological status. Findings of this research contributed to the scarce empirical evidence regarding the factors determining the adolescent's self-evaluation. The direct and indirect effects of parental bonding, personality traits and psychological status in the association's paths towards self-evaluation and its domains (self-esteem, self-discipline and NLCS-C were supported by the SEM (path analyses).

Declarations

Acknowledgments

The authors of this study were very grateful to the staffs of China Institute of Social Science Survey and Center for Social Research of Peking University as well as other relevant institutions. The dedication of all the participants of China Family Panel Studies (CFPS) was also appreciated.

Role of funding source

This study was supported by the National Social Science Fund of China in 2015 (grant number: 15BSH057).

Availability of data and material

The public data used to support the findings of this study are available from the Peking University Open Research Data.

<https://opendata.pku.edu.cn/dataset.xhtml?persistentId=doi:10.18170/DVN/45LCSO>.

Authorship contribution statement

XBZ, LHD, JZ, and YSP did statistical analyses, XBZ drafted the manuscript. XBZ, LHD, Ehab S Eshak, CJ, JZ, MY, JZ, YSP, JHC, and BX revised the final manuscript, BX, and JHC are act as the guarantors for the paper. All authors have read and agree to publish the final manuscript.

Ethics approval and consent to participate

Participants had received explanation before signing the consent to participate and given the right to withdraw from the study whenever they are reluctant to continue, and the analysis was entirely anonymous. The study was approval by the Ethics Committee of Peking University, Institute of Social Science Survey (ISSS).

Consent for publication

Participants (or legal parents or guardians of adolescents) agree that researchers may report their personal data.

Declaration of Competing Interest

The Authors declare that there is no conflict of interest.

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Tables

Table 1 Baseline characteristics of the study participants

Characteristics	N	%
Age, years	10.72	0.89
Geographic Location		
East China	135	15.1
North China	101	11.3
South China	125	14.0
Central China	176	19.7
Northeast China	91	10.2
Northwest China	143	16.0
Southwest China	121	13.6
Sex		
Male	485	54.4
Female	407	45.6
Living Environment		
Urban	365	40.9
Rural	527	59.1
Health Status		
Excellent	311	34.9
Very good	275	30.8
Good	238	26.7
Fair	56	6.3
Poor	12	1.3
Whether have pocket money		
Yes	685	76.8
No	207	23.2
Whether participated in student organizations		
Yes	89	10.0
No	613	68.7
No student organization in school	190	21.3

Table 2 Descriptive statistics and Pearson correlations of variables

Variables					Parental bonding instrument	Personality Traits	K6 (Psychological status)	Self-evaluation		
	Minimum	Maximum	Mean	SD				Self-esteem	Self-discipline	NLCS-C
Parental bonding instrument	21	65	45.22	7.73	1					
Personality traits	20	59	43.57	6.4	.185**	1				
K6 (Psychological status)	12	30	26.70	3.87	.157**	.002	1			
Self-esteem	34	66	50.32	4.84	.265**	.364**	.250**	1		
Self-discipline	21	46	34.36	3.38	.119**	.350**	0.088	.165**	1	
NLCS-C	26	47	37.24	3.41	.133**	.156**	.126**	.314**	.084*	1

*, **, represents a significance level of $p < 0.05$ and $p < 0.01$, respectively.

Table 3 Total, direct and indirect effects of the independent variables on the dependent variable.

Dependent variables (self-evaluation and its domains)	Effect	Independent variables					
		Parental bonding	Personality traits	K6	Parental bonding	Personality traits	K6
		β^a			B^b		
Self-evaluation	Total	0.49	0.78	0.39	0.05	0.09	0.08
	Direct	0.28	0.78	0.39	0.03	0.09	0.08
	Indirect	0.21	0	0	0.02	0	0
Self-esteem	Total	0.23	0.37	0.19	0.15	0.28	0.24
	Direct	0	0	0	0	0	0
	Indirect	0.23	0.37	0.19	0.15	0.28	0.24
Self-discipline	Total	0.17	0.28	0.14	0.08	0.15	0.12
	Direct	0	0	0	0	0	0
	Indirect	0.17	0.28	0.14	0.08	0.15	0.12
NLCS-C	Total	0.11	0.17	0.09	0.05	0.09	0.08
	Direct	0	0	0	0	0	0
	Indirect	0.11	0.17	0.09	0.05	0.17	0.08

^a Standardized regression weight (β); ^b Unstandardized regression weight (B)

Figures

Figure 1

Initial model (Structural equation modeling).

Figure 2

Revised model (Structural equation modeling).