

## Prediction of Mental Health in Only Child Students based on Defense Mechanisms and Coherent Self-Knowledge

### Abstract

This structural equation modeling research using the correlation method examines the prediction of the mental health of only-child students based on defense mechanisms and coherent self-knowledge. In the spring/summer of 2022, only-child students from the Islamic Azad University of Rudehen and Tehran Medical Branch comprised the statistical population of this study. The General Health Questionnaire (Goldberg and Hillier, 1979), the Defense Styles Questionnaire (Andrews et al., 1993), and the Integrative Self-Knowledge Scale (ISK) (Ghorbani et al., 2008) were administered to 300 participants in one session. Significant at the 0.01 level are the overall path coefficients between psychotic defense mechanisms ( $p < 0.01$ ,  $\beta = 0.168$ ) and immature defense mechanisms ( $p < 0.01$ ,  $\beta = 0.296$ ) and positive mental health, and between mature defense mechanisms ( $p < 0.01$ ,  $\beta = -0.180$ ) and adverse mental health. Mental health was positively linked with the indirect path coefficient between psychologically offended defense mechanisms ( $p < 0.05$ ,  $\beta = 0.094$ ) and immature defense mechanisms ( $p < 0.05$ ,  $\beta = 0.110$ ). Positively and significantly, coherent self-knowledge influences the relationship between defense mechanisms and the mental health of only-child students.

**Keywords:** *Only child students, Mental health, Defense mechanisms, Coherent Self-Knowledge*

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### Introduction

During the difficult time of being a student, the brain grows fast and is more sensitive to the hazards that students typically experience, such as psychological stresses and medicines that can be used topically, alcohol, and sleep difficulties (Chung & Hudziak, 2017).

Individuals' efficacy and performance are impacted by the stress and anxiety of student circumstances (De Paula et al., 2020). Exposure to new people and situations and absence from family and university resources can expose kids to physical and psychological disorders, resulting in academic failure and even school dropout (Sharok, 2018). Adapting to new circumstances may be hazardous to the mental health of pupils. WHO (2012) defines mental health as mental well-being, perceived self-efficacy, autonomy, competence, intergenerational dependency, self-actualization, and an individual's intellectual and emotional capacity (Faisal et al., 2022). The proportion of only children has increased during the previous 20 years (Shojaei and Erfani, 2019). Consequently, adjusting to student life and its conditions may be different for only children compared to their counterparts with many children, which may impact their mental health.

Defense mechanisms are the unconscious methods through which individuals employ anxiety-inducing situations to shield themselves from psychological harm. Sigmund Freud proposed the idea of using these defensive actions in 1894. According to him, defense mechanisms eliminate negative ideas and diminish a person's anxiety (Freud, 1894). Mental health is correlated with the use of conventional defense mechanisms, according to the findings of researchers. Those that utilize these coping mechanisms adaptively manage

anxiety and respond to disputes. According to study findings, training some defense mechanisms, such as the predictive mechanism that involves goal-directed, realistic preparation for future discomforts, can help promote adaptation and mental health in individuals. In their research, Vaillant et al. demonstrated that people who utilize adequate defense mechanisms could effectively handle the psychological strain and adapt to conflict. The study by Zukali et al. found that persons who employ more sophisticated defense mechanisms had better control over their emotions (Vaillant, 2000).

Some researchers have examined immature defense mechanisms and their negative effects on students. Kramer's research demonstrated a connection between students' experiences with rage and inadequate defense mechanisms, such as projection. According to the findings of Mohtashami et al., the extent to which students utilize protective strategies of undetected growth (projection, denial, fantasizing, neuroticism, altruism, false, and undoing) has a negative correlation with their academic achievement. In contrast, kids with substantial academic success are more likely to employ the humor defense mechanism of the established defensive style. Other researchers have demonstrated that the undoing defense mechanism correlates with poor anxiety control strategies, daydreaming, and an absence of creative thought (Behzadpour, 2011).

Another study suggests that negative psychological features might predict a person's maladaptive defense mechanisms. Additionally, several studies have demonstrated that personality factors can predict defense mechanisms. According to a study, the higher a person's score on positive personality qualities, the more mature their defensive methods

are likely to be, and vice versa. Mohammadpanah Ardakan et al. (2012) and Kramer et al. (2007) discovered that extroversion is associated with the styles of established defense mechanisms. Coherent self-knowledge refers to moment-to-moment awareness of psychological states, distinguishing and analyzing the content of recent experiences, and active processing about oneself and focusing on past events. The result is to create a broader vision to guide behavior and form more complex and complete individual schemas (Ghorbani, Watson, Being, Davison, and Lebreton, 2003). According to research, coherent self-knowledge with extroversion, acceptance, conscientiousness, emotional stability, and openness to more experience in the five-factor model of personality (Tahmaseb, Ghorbani and Pourhossein, 2008); resistance to somatic symptoms of the disease (Ghorbani, Watson, Cunningham, 2010); Self-respect, empathy and positive dimensions of narcissism (Ghorbani, Watson, Hamzavi, Weathington, 2010) have been related. Coherent self-knowledge refers to individuals' efforts to integrate their past and present experiences to build a desirable future (Ghorbani et al., 2008). Coherent self-knowledge is a dynamic, adaptable, and coherent psychological process associated with adaptive mental health and healthy psychological functioning, and psychologists consider it an indicator of mental health. Research has proven the connection between coherent self-knowledge, mental health, and aware emotions and their influence on well-being. Based on this, this research examines the prediction of the mental health of only-child students based on defense mechanisms and coherent self-knowledge.

### **Research Methodology**

All the only-child students formed the statistical population of this descriptive correlational research at Islamic Azad University, Tehran Medical Branch, and the Islamic Azad University of Rudehen in the spring and summer of 2011. With purposive sampling, 231 only-child students from Islamic Azad University, Tehran Medical Branch, and the Islamic Azad University of Rudehen were selected. The criterion for entry into the study was participant satisfaction, whereas the criterion for exclusion was a lack of interest in participating in the research.

### **Research Tool**

#### **General Health Questionnaire**

Goldberg and Hillier created the 28-item General Health Screening and Self-Report Questionnaire (GHQ-28) in 1979 to increase variance and based on factor analysis on the original form, which is used to identify people with psychological disorders in clinical settings. The advantage of the 28-items form of this questionnaire is its design for all members of society. As a serendipitous tool, this questionnaire can determine the possibility of a mental disorder in a person (Fathi Ashtiani and Dastani, 2013). Factor analysis of the GHQ-28

identified four 7-item subscales: a) Somatic symptoms (items 1-7), b) Anxiety/insomnia (items 8-14), c) Social dysfunction (items 15-21), and d) Severe depression (items 22-28). A four-point Likert scale is used to score this questionnaire. Each individual receives five scores from the test, four of which correspond to the subscales (0-21) and one, the overall score (0-24), derived from the sum of the subscale scores. Greater health is indicated by a lower score, whereas decreased health is indicated by a higher score (Fathi Ashtiani and Dastani, 2013). On 101 participants, the concurrent validity coefficient of the general health questionnaire and the Beck Hopelessness Scale (BHS) was observed to be 0.69. This questionnaire's validity was determined by a simultaneous validity score of 0.55 and a subtest correlation with a total validity score between 0.70 to 0.78. The outcome of component analysis utilizing the varimax rotation technique and based on the scree plot demonstrates the existence of anxiety, social dysfunction, somatic symptoms, and depression factors, accounting for 50% of the variance of the entire test. Using the 0.90 test-retest method, validation of this questionnaire was reported (Robinson & Price, 1982). In Iran, this questionnaire's Cronbach's alpha was 0.91 for the overall scale and 0.84 for the subscale of somatic symptoms, 0.82 for anxiety, 0.63 for social dysfunction, and 0.88 for depression. This questionnaire's Cronbach's alpha coefficient ranged from 0.77 to 0.85 in the current study.

#### **Defense Style Questionnaire (DSQ-40)**

There are 40 items in the Defense Style Questionnaire (DSQ-40) (Andrews et al., 1993). It employs a 9-point Likert scale (from Strongly Agree to Strongly Disagree) to evaluate 20 defense mechanisms based on three defensive styles: mature, frustrated, and immature. Items 2, 3, 7, 21, 24, 29, and 35 are assigned to the developed defensive style, items 1, 6, 11, 17, 28, 33, 34, and 40 are assigned to the neurotic defensive style, and the rest of the questions are assigned to the immature defensive style. Mature defense mechanisms include Sublimation, Humor, Anticipation, and Suppression. Neurotic defense style includes Undoing, Pseudo-altruism, Idealization, and Reaction formation. The mature defense style consists of twelve defense mechanisms: Projection, Passive Aggression, Acting Out, Isolation, Devaluation, Autistic Fantasy, Denial, Displacement, Dissociation, Splitting, Rationalization and Somatization. Andrews and colleagues satisfactorily described Cronbach's alpha coefficient for each defensive style's questions (1993). Heydarinasab attained alpha values of 0.74, 0.72, and 0.74 for the Mature, Neurotic, and Immature styles, respectively, in 2006. Cronbach's alpha coefficients for the questions of the Mature, Immature, and Neurotic styles of the Persian variant of the scale in a sample of students across all topics were 0.75, 0.73, and 0.74, respectively. The internal consistency of the Iranian version of the defensive styles

questionnaire was 0.74, 0.74, and 0.72 for male students and 0.75, 0.74, and 0.74 for female students, indicating satisfactory reliability. The test-retest reliability of the defensive styles questionnaire for a sample of 32 individuals administered twice with a 4-week interval was determined to be 0.82 for all participants, 0.81 for male subjects, and 0.84 for female subjects (Besharat, Sharifi, and Irvani, 2000). Each of the subscales of the Mature style, Immature style, and Neurotic style had reliability using Cronbach's alpha method ranging from 0.83 to 0.94, 0.81 to 0.92, and 0.79 to 0.91, respectively. The validity of the Persian version of defensive styles was supported by confirmatory component analysis, which identified three factors (mature, immature, and neurotic defensive styles). This questionnaire's Cronbach's alpha coefficient ranged from 0.56 to 0.74 in the current research.

### **Integrative Self-Knowledge Scale (ISK)**

Ghorbani and colleagues created the Integrative Self-Knowledge Scale (ISK) in 2008. This 12-item scale is derived from the revision of the two-faceted theory of experiential self-knowledge and reflective self-knowledge and contains three subscales of reflective self-knowledge, experiential self-knowledge, and coherent self-knowledge. Respondents should answer on a 5-point Likert scale (from largely true = 4 to largely untrue = zero). The reliability and validity of this scale's concept, criteria, and predictor have been demonstrated by cross-cultural research conducted by Ghorbani et al. (2008). The internal reliability of this scale was determined using Cronbach's alpha technique, which yielded a value of 0.82, and its correlation with the scale measuring alertness was between 0.62 and 0.68. In their analysis of three Iranian and three American samples, Ghorbani et al. (2008) found that Cronbach's alpha of the scale was 0.12, 0.81, and 0.81 for the

first, second, and third Iranian samples, respectively. Additionally, they reported values of 0.78, 0.78, and 0.74 for the first, second, and third American samples, respectively. This study verified the scale's convergent, differentiated, and incremental validity. Cronbach's alpha of 1.79 was recorded in the research by Ghorbani and coworkers (2010). A higher score on this questionnaire suggests greater self-awareness, whereas a lower score indicates less self-awareness of other people. In addition, the content validity of the questionnaire was validated following a study of the work of several eminent academics (Ghorbani, Cunningham, and Watson, 2010). This scale's Cronbach's alpha coefficient ranged from 0.68 to 0.72 in the present investigation. SPSS and Amos version 24 software were utilized for data analysis.

### **Findings**

The age range of the participants was: 58 people (25.1%) less than 21 years old, 95 people (41.1%) 22 to 24 years old, 47 people (20.3%) 25 to 27 years old and 31 people (13.5%) more than 28 years. The educational level of the participants: 23 people (10%) had an Associate Degree, 145 people (62.7%) had a Bachelor, 51 people (22.1%) had a Master, and 12 people (2.5%) had a Doctorate. 75 (32.5%) participants were female, and 156 (67.5%) were male. The participants were split between 152 (65.8%) singles and 79 (34.2%) married.

Table 1 displays the mean, standard deviation, and Cronbach's alpha coefficients of variables such as attachment types (anxious, dependent, and close), defense mechanisms (immature, neurotic, and mature), coherent self-knowledge (reflective self-awareness, experiential self-awareness, and integration), and Mental health (somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression).

Table 1 - Mean, standard deviation, and Cronbach's alpha coefficient of the variables

Variable	Mean	Standard deviation	Cronbach's alpha
Defense mechanisms - Immature	3113.39	19.44	0.74
Defense mechanisms - Neurotic	41.64	8.00	0.67
Defense mechanisms - Mature	35.43	7.96	0.56
Cohesive self-awareness - Reflective self-awareness	9.38	3.84	0.68
Cohesive self-awareness - experiential self-awareness	54.11	3.18	0.72
Cohesive Self-Knowledge - Integrating	33.14	4.12	0.76
Mental health - Somatic symptoms	30.9	3.26	0.82

Mental health - Anxiety/insomnia	9.05	4.13	0.79
Mental health - Social dysfunction	34.11	2.73	0.77
Mental health- Severe depression	7.10	3.09	0.85

In addition to the mean and standard deviation, Table 1 displays Cronbach's alpha coefficients of the research variables. Cronbach's alpha coefficient for Defense mechanisms - Mature is relatively low; hence, caution should

be exercised when interpreting the conclusions related to these factors.

Individual variables were examined to evaluate the normality of single variable data distribution, Kurtosis, and Skewness, and the results are in Table 2.

Table 2 - Kurtosis and Skewness of variables

Variable	Skewness	Kurtosis
Defense mechanisms - Immature	0.57	-0.33
Defense mechanisms - Neurotic	-0.29	-0.46
Defense mechanisms - Mature	0.74	-0.77
Coherent self-knowledge - Reflective self-awareness	-0.27	-1.39
Coherent self-knowledge - Experimental self-awareness	-0.12	-1.28
Coherent self-knowledge - Integrate	-0.23	-0.29

According to Table 2, the kurtosis and skewness values of all variables are in the range of  $\pm 2$ . Therefore, there are no evident deviations from the univariate normal distribution in the variable data distribution.

The variance inflation factor (VIF) and tolerance coefficient were used to examine the collinearity assumption, as illustrated in Table 3.

Table 3 - Variance inflation factor and tolerance coefficient of predictor variables

Variable	Tolerance coefficient	VIF
Defense mechanisms - Immature	0.58	1.74
Defense mechanisms - Neurotic	0.63	1.60
Defense mechanisms - Mature	0.62	1.61
Coherent self-knowledge - Reflective self-awareness	0.53	1.89
Coherent self-knowledge - Experimental self-awareness	0.53	1.88
Coherent self-knowledge - Integrate	0.47	2.11

The assumption of collinearity among the study data is maintained, according to Table 3. Because the variance inflation factor values for each predictor variable were less than ten and the tolerance coefficient values for all predictor variables were all more than 0.1. According to Mayers et al. (2006), the tolerance coefficient less than 0.1 and the value of the variance inflation factor more significant than 10 suggest the possibility of collinearity in the study data.

After ensuring the optimal fit of the measurement model, in the next step, the fit indices of the structural model (Fig 1) were

evaluated. In the structural model of the research, it was assumed that defense mechanisms predict mental health in only-child students, both directly and through the mediation of coherent self-knowledge. The fit of the structural model was investigated using the structural equation modeling method, and the results showed that the structural model has an acceptable fit with the collected data ( $\chi^2$  (N=231, df=43),  $\chi^2/df=2.19$ , CFI= 0.963, GFI=0.942, AGFI=0.877, and RMSEA=0.072).

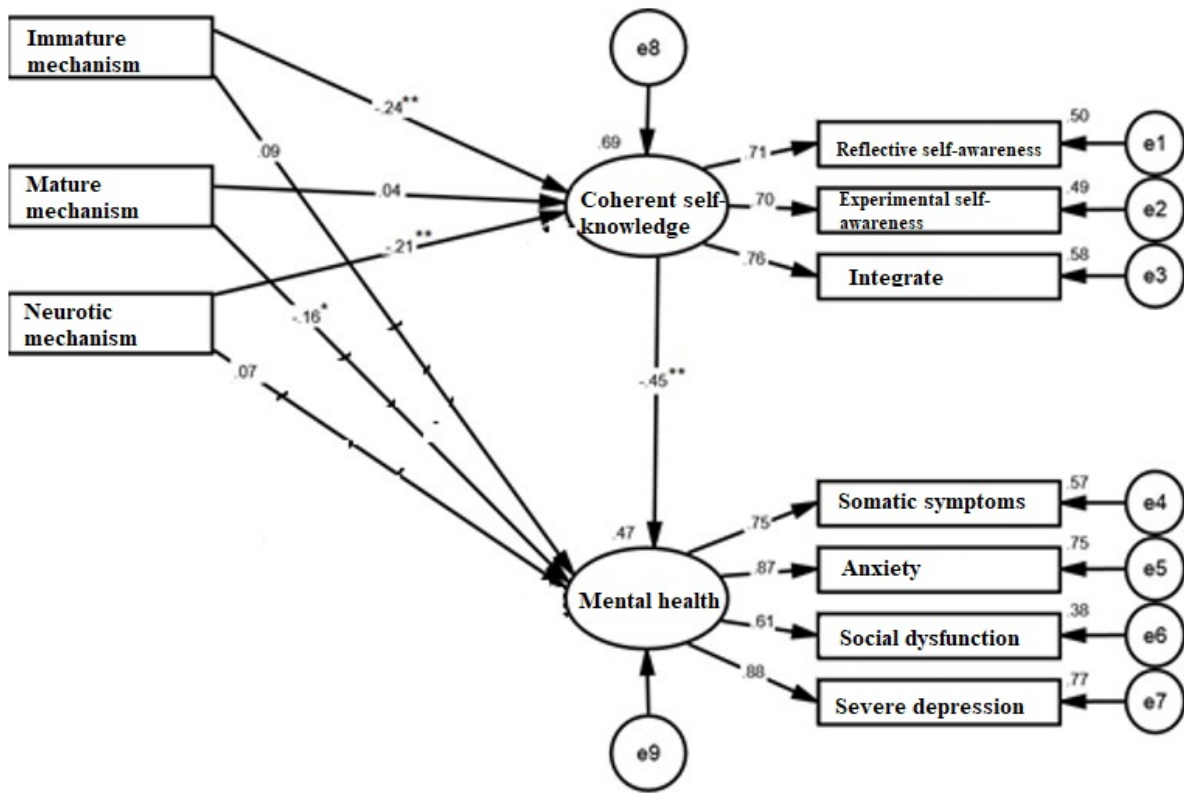


Fig 1 - Structural model of research

Table 4 - Total, direct, and indirect path coefficients between variables in the research model

Path	Variable	b	S.E	$\beta$	sig
Direct	Neurotic mechanism → coherent self-knowledge	-0.081	0.024	-0.209	0.001
	Mature mechanism → coherent self-knowledge	0.010	0.018	0.039	0.552
	Immature mechanism → coherent self-knowledge	-0.023	0.006	-0.243	0.001
	Neurotic mechanism → mental health	0.026	0.033	0.073	0.428
	Mature mechanism → mental health	-0.039	0.018	-0.163	0.041
	Immature mechanism → mental health	0.007	0.009	0.086	0.409
	Coherent self-knowledge → mental health	-0.406	0.113	-0.451	0.001

Indirect	Neurotic mechanism → mental health	0.033	0.013	0.094	0.031
	Mature mechanism → mental health	-0.004	0.010	-0.018	0.578
	Immature mechanism → mental health	0.009	0.004	0.110	0.021
Total	Neurotic mechanism → mental health	0.059	0.018	0.168	0.003
	Mature mechanism → mental health	-0.043	0.015	-0.180	0.001
	Immature mechanism → mental health	0.016	0.005	0.196	0.001

Table 4 illustrates the indirect path coefficient with positive mental health between neurotic defense mechanisms ( $p < 0.05$ ,  $\beta = 0.094$ ) and immature defense mechanisms ( $p < 0.05$ ,  $\beta = 0.110$ ) and significant at the 0.05 level. As a result, coherent self-knowledge significantly and positively mediates the relationship between neurotic defense mechanisms and immature defense mechanisms and the mental health of only-child students in the test of the sixth hypothesis.

### Conclusion

The findings indicated a positive and substantial indirect path coefficient between neurotic defense mechanisms, immature defense mechanisms, and mental health. According to the sixth hypothesis test results, coherent self-knowledge positively and significantly modulates the association between neurotic defense mechanisms and immature defense mechanisms and the mental health of only-child students. These outcomes support the results of (Omidi et al., 2019; Noorbala, Ghorbani, and Gholamali Lavasani, 2018). Coherent self-knowledge mediates the association between suppression and anxiety in gastrointestinal patients, according to the findings of Omidi et al. (2019). Noorbala, Ghorbani, and Gholamali Lavasani (2018) also verified the function of self-knowledge as a mediator between defensive styles and somatic symptoms. Based on the mediating function of coherent self-knowledge in the link between defense mechanisms and mental health in only-child students, it can be inferred that the quantity of coherent self-knowledge regulates a portion of the association between non-adaptive defense mechanisms and mental health. The detrimental consequences of maladaptive (neurotic and immature) defense mechanisms can be diminished by increasing coherent self-knowledge. Non-adaptive defense mechanisms, such as repression, denial, and avoiding reality,

are detrimental to students' mental health. The degree of self-awareness and coherence of self-knowledge mitigates the harmful impacts of these defense mechanisms. Students with greater self-awareness utilize fewer dysfunctional defense mechanisms, such as suppression, and suffer less damage from immature defenses. Coherent self-knowledge enables people to more accurately recognize and interpret tension and stress symptoms at the proper rate and more carefully monitor their inner states. Accordingly, instead of suppressing, rejecting, or ignoring the current reality, by being aware of them, the intensity of maladaptive defense mechanisms may be lessened, and the individual can adopt adaptive behaviors and emotional self-regulation in response to stress. The result of this process is an improvement in mental health, whereas students with limited coherent self-knowledge are more prone to employ non-adaptive defense mechanisms because they lack a thorough grasp of their inner sensations and feelings. This group of students adopts unsuitable coping mechanisms that harm their mental health because they lack the necessary knowledge of inner sensations and emotions, which prevents them from comprehending their experiences and the symptoms of tension and stress afterward.

The social desirability bias might taint the results of the current study due to the use of self-report questionnaires, which would undermine the study's internal validity. According to research findings, coherent self-knowledge modulates the association between defense mechanisms and mental health in students who are only children. It is advised that programs be created to improve parents, students, and instructors' coherent self-knowledge to prevent students' mental health issues. Additionally, one of the therapeutic ways to temper the impacts of defense mechanisms and attachment style on mental health

in single-child students is the use of therapies based on developing coherent self-knowledge.

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None

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None

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