# The Impact of Extracurricular Aesthetic Education on Adolescents' Non-Cognitive Abilities and Mental Health-An Empirical Study Based on Data from the China Education Tracking Survey

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**Abstract: Using propensity score matching on CEPS data (N=9,886), this study examines how extracurricular aesthetic education influences adolescents' non-cognitive abilities and mental health in China. Results show participation significantly improves conscientiousness (β=0.073), agreeableness (β=0.094), and mental health scores (β=0.071), particularly among high-income and low-book-ownership groups. However, openness exhibits no direct causal link, and neuroticism reduction is mediated by socioeconomic factors. The findings highlight aesthetic education's role in addressing urban-rural disparities and suggest policy priorities for resource allocation under the "Double Reduction" policy.**

**Keywords: Aesthetic Education; Non-Cognitive Abilities; Mental Health; Adolescents**

## 1. Introduction

In 2015, the General Office of the State Council issued the "Opinions on Comprehensively Strengthening and Improving Aesthetic Education in Schools," clearly stating that aesthetic education, as an important means of cultivating students' aesthetic taste, complements moral, physical, and intellectual education, jointly fostering 'well-rounded individuals.'[1] With the proposal of the concept of 'comprehensive aesthetic education,' the practical aspect of the theory of 'five educations in tandem' has been elevated.[2] The goal is to build a 'comprehensive aesthetic education system in and out of class, on and off campus.'[3] In addition, society has begun to view aesthetic education as an important way to relieve stress, dispel negative emotions, and promote emotional expression. Cai Yuanpei proposed 'replacing religion with aesthetic education,' emphasizing that aesthetic education, through emotional experience and aesthetic practice, is an irreplaceable path for cultivating 'complete individuals.'[4] Freud believed that artistic creation is a healthy channel for transforming instinctual impulses into socially acceptable forms.[5] However, the development of aesthetic education in China still faces several constraints, such as cognitive biases, a disconnect between teaching and practice, and insufficient home-school collaboration. At present, empirical research on such hypotheses is relatively scarce in China.

This article attempts to use data to build a model to explore the relationship between extracurricular aesthetic education, non-cognitive abilities, and mental health, further confirming that aesthetic education has a positive significance in cultivating adolescents' non-cognitive abilities and developing a healthy mind. It also provides recommendations for the allocation of social resources and the development of extracurricular tutoring institutions under the 'Double Reduction' policy.

## 2. Literature Review

### 2.1 The Impact of Extracurricular Aesthetic Education on Non-Cognitive Abilities

The impact of aesthetic education on non-cognitive abilities is a hot area of interdisclosed research in education and psychology in recent years. "Schiller[6] emphasized aesthetic education's role in cultivating holistic sensibility and spiritual strength through beauty appreciation." Aesthetic education helps adolescents form a healthy aesthetic taste. "The Structure of Intelligence" talks about aesthetic education directly activating spatial intelligence, body kinesthetics, interpersonal intelligence, etc., and the development of these intelligences requires the

 

support of non-cognitive abilities. [7] "Flow: The Psychology of Optimal Experience" confirms that artistic activities such as painting and performance can strengthen an individual's concentration, resilience to frustration, and intrinsic motivation. [8] CASEL emphasizes five core competencies: self-management, self-awareness, social awareness, interpersonal relationships, and responsible decision-making. Several studies confirm that artistic activities directly train these abilities. For example, "Art and Social-Emotional Learning: An Empirical Study Based on K-12 Education" found that drama education significantly improves students' empathy and emotion recognition skills. [9] "Musical Cooperation and Adolescent Social Ability Development" shows that ensemble training can enhance the willingness to cooperate and help build trust. [10] Winner confirmed that visual arts have a long-lasting positive impact on perseverance, concentration, and concentration in low-income children. Aesthetic education enhances students' creativity and critical thinking. [11] In the "Creativity Handbook", Sternberg emphasizes that art training can enhance "creative intelligence". [12]

### 2.2 The Impact of Extracurricular Aesthetic Education on Mental Health

Expressive art therapy theory believes that aesthetic education provides adolescents with a non-verbal way of expression, bypassing verbal defenses and dealing with subconscious emotions and trauma. In the "Expressive Art Therapy Handbook", visual art, music and other media can help individuals "externalize" their inner conflicts and transform unspeakable pain into observable and modifiable forms. [13] Csikszentmihalyi regards artistic creation and performance as typical flow activities that enhance subjective well-being and a sense of meaning in life. [14] From the perspective of neuroscience, artistic activities can regulate individual emotions and stress-related brain neural networks, and relieve negative emotions such as anxiety and depression. Research by Kaimal (2016) published in Art Therapy found that art creation reduces stress hormone levels and boosts positive mood. [15] Reynolds and Prior found that regular art creation helps people with chronic illness rebuild their self-identity weakened by illness and find a sense of control and worth in their lives. [16] The impact of aesthetic education on mental health covers physiological, psychological, and social levels, and it is not only an auxiliary means of treating mental illness, but also an effective way to relieve stress to prevent the basic occurrence of psychology.

## 3. Research Design

### 3.1 Data Sources

The data in this paper come from the China Education Tracking Survey. Using the 2013-2014 academic year as the baseline, the survey started from two cohorts in 7th and 9th grades. A total of 28 county-level units (counties, districts, cities) were randomly selected nationwide as survey points, stratified by the average population education level and the proportion of migrant population, and the survey was conducted on a school basis. In 2014-2015, the follow-up survey was successfully conducted, with a response rate as high as 91.9%. Considering timeliness, this paper selects the 2014-2015 follow-up student data.

### 3.2 Selection and Processing of Research Variables

3.2.1 Explanatory variables

A binary variable “extracurricular aesthetic education” (1 = participated in painting, music, calligraphy, or dance interest classes; 0 = otherwise). Participation rate is 5.9%.

3.2.2 Explained variables

(1) Mental health was measured using multiple-choice item w2b21, where higher scores represent better mental health and lower scores indicate poorer mental health. Items w2c2501, w2c2502, w2c2503, and w2c2506 were reverse-coded. A composite index was then constructed to represent overall mental health, which was further dichotomized as 1 for healthy and 0 for unhealthy. Reliability analysis yielded a Cronbach’s α coefficient of 0.8274, indicating good internal consistency.

(2) Measured via the Big Five personality traits: conscientiousness, agreeableness, openness, extraversion, and neuroticism.

Conscientiousness reflects responsibility, patience, and persistence. Items w2c2401–w2c2404 and w2d0307 were positively scored and averaged to form a scale ranging from 1 to 4, with a Cronbach’s α of 0.7448.

Agreeableness is characterized by friendliness, humility, helpfulness, and compassion. It was

measured as the mean of positively scored items w2d0101–w2d0103, with scores ranging from 1 to 5 and a Cronbach's α of 0.6887.

Openness reflects imagination, creativity, curiosity, and open-mindedness. It was measured using item w2b0610, with scores ranging from 1 to 4. Given the small number of items, the measure may not support sufficiently accurate analysis.

Extraversion: Higher scores reflect greater sociability, cheerfulness and vitality. Items measuring activity participation (w2b0607) and intergenerational socializing (w2d0305) were positively scored, whereas social confidence items (w2d0301–w2d0303) were reverse-coded. All items were averaged into a 1–4 scale. Cronbach's α for social confidence was 0.6957, and for overall extraversion 0.5854.

The low reliability mainly stems from the simplified CEPS scale, which covers heterogeneous sub-traits of extraversion with limited items per dimension. According to Qiu Haozheng (2013), a total Cronbach's α between 0.5 and 0.7 is acceptable for large-scale survey scales if core sub-dimensions are reliable. As social confidence meets this standard, the scale is valid for further analysis.

Neuroticism: Higher scores indicate emotional stability and lower anxiety; lower scores reflect more negative emotions. Items w2c2501–w2c2510 were reverse-coded, averaged to a 1–5 scale. Cronbach's α = 0.9086.

3.2.3 Control variables

These include individual characteristics (only child, rural Hukou), family background (economic status, parental occupation, home book ownership), and academic pressure (standardized scores in core subjects).

**Table 1. Variable Definitions and Descriptive Statistics**

| | Full Sample | | | Aesthetic-Ed Participants | | | Non-Participants | | | T-Test | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| variable | Mean | SD | count | Mean | SD | count | Mean | SD | count | T-value | P-value |
| Neuroticism | 2.807 | 0.818 | 9891 | 2.770 | 0.855 | 632 | 2.810 | 0.815 | 9259 | 0.040 | 0.260 |
| Extraversion | 2.934 | 0.569 | 9701 | 2.995 | 0.567 | 614 | 2.930 | 0.569 | 9087 | -0.065 | 0.006 |
| Openness | 1.590 | 0.910 | 9876 | 1.615 | 0.933 | 633 | 1.589 | 0.908 | 9243 | -0.026 | 0.497 |
| Conscientiousness | 3.200 | 0.622 | 9834 | 3.319 | 0.581 | 628 | 3.191 | 0.624 | 9206 | -0.128 | 0.000 |
| Agreeableness | 3.786 | 0.771 | 9879 | 3.960 | 0.705 | 631 | 3.775 | 0.774 | 9248 | -0.185 | 0.000 |
| Non-Cog. Ability Score | 2.864 | 0.363 | 9626 | 2.931 | 0.349 | 610 | 2.860 | 0.363 | 9016 | -0.071 | 0.000 |
| Mental Health | 0.578 | 0.494 | 10750 | 0.699 | 0.459 | 634 | 0.570 | 0.495 | 10116 | -0.128 | 0.000 |
| Only Child | 0.509 | 0.500 | 10750 | 0.434 | 0.496 | 634 | 0.513 | 0.500 | 10116 | 0.080 | 0.000 |
| Rural Hukou | 0.475 | 0.499 | 10750 | 0.333 | 0.472 | 634 | 0.484 | 0.500 | 10116 | 0.151 | 0.000 |
| Family Econ. | 0.877 | 0.562 | 10750 | 1.073 | 0.513 | 634 | 0.865 | 0.563 | 10116 | -0.207 | 0.000 |
| Mother's Job | 0.181 | 0.385 | 10750 | 0.297 | 0.457 | 634 | 0.140 | 0.347 | 10116 | -0.157 | 0.000 |
| Father's Job | 0.149 | 0.356 | 10750 | 0.344 | 0.475 | 634 | 0.171 | 0.376 | 10116 | -0.173 | 0.000 |
| Books at Home | 0.314 | 0.464 | 10750 | 0.522 | 0.500 | 634 | 0.301 | 0.459 | 10116 | -0.221 | 0.000 |
| Edu. Expectation | 0.785 | 0.411 | 10750 | 0.741 | 0.438 | 634 | 0.788 | 0.409 | 10116 | 0.046 | 0.010 |
| Academic Pressure | 7.586 | 1.966 | 9886 | 8.120 | 1.868 | 632 | 7.549 | 1.967 | 9254 | -0.571 | 0.000 |
| Observations | 10750 | | | 634 | | | 10116 | | | | |

As shown in Table 1, the participation group scores significantly higher in non-cognitive abilities and mental health. However, a clear selection bias exists: students from affluent families with higher parental professional status and more books are more likely to participate. This necessitates the use of Propensity Score Matching (PSM) to isolate the net causal effect.

### 3.3 Data Analysis Method

To address confounding factors and selection bias, this paper employs PSM with nearest-neighbor matching to estimate the Average Treatment Effect on the Treated (ATT), ensuring a more rigorous causal inference than standard OLS.

## 4. Empirical Analysis

### 4.1 OLS Regression Model

The OLS baseline regression model set in this paper is as follows:

$$Y_i=\beta_0+\beta_1 art\_participation_i+\sum \beta_2 Control_i+\varepsilon_i \quad (1)$$

$Y_i$ represents non-cognitive abilities and mental health, $\beta_1$ is its coefficient, $Control_i$ represents a series of control variables, $\beta_2$ is its coefficient,

 

and $\varepsilon_i$ is the error term. Table 2 shows the OLS regression results.

**Table 2. OLS Regression Results**

| | art_participation | | Only Child | | Rural Hukou | | Family Econ. | | Father's Job | |
|---|---|---|---|---|---|---|---|---|---|---|
| Neuroticism | -0.107 | (0.034) | -0.039 | (0.018) | 0.024 | (0.018) | 0.099 | (0.018) | -0.045* | (0.025) |
| Extraversion | 0.003 | (0.023) | -0.024* | (0.013) | 0.005 | (0.013) | 0.072 | (0.012) | -0.017 | (0.017) |
| Openness | 0.088 | (0.038) | 0.097 | (0.020) | 0.016 | (0.021) | -0.084 | (0.020) | 0.034 | (0.026) |
| Conscientiousness | 0.073 | (0.024) | -0.011 | (0.014) | 0.038 | (0.014) | 0.002 | (0.013) | -0.006 | (0.018) |
| Agreeableness | 0.094 | (0.029) | -0.019 | (0.017) | 0.008 | (0.017) | 0.006 | (0.016) | -0.003 | (0.023) |
| Non-Cog. Ability Score | 0.028 | (0.014) | -0.001 | (0.008) | 0.019 | (0.008) | 0.019 | (0.008) | -0.007 | (0.010) |
| Mental Health | 0.071 | (0.019) | 0.001 | (0.011) | 0.028 | (0.011) | -0.009 | (0.010) | 0.025* | (0.015) |
| | Mother's Job | | Books at Home | | Edu. Expectation | | Academic Pressure | | Constant Term | |
| Neuroticism | -0.008 | (0.027) | 0.021 | (0.019) | 0.035* | (0.019) | 0.103 | (0.005) | 1.928 | (0.049) |
| Extraversion | 0.007 | (0.018) | 0.108 | (0.014) | 0.039 | (0.014) | 0.057 | (0.003) | 2.378 | (0.033) |
| Openness | 0.047* | (0.028) | -0.066 | (0.021) | -0.068 | (0.022) | -0.064 | (0.006) | 2.145 | (0.056) |
| Conscientiousness | 0.007 | (0.020) | 0.098 | (0.015) | -0.110 | (0.014) | 0.066 | (0.004) | 2.727 | (0.037) |
| Agreeableness | 0.028 | (0.024) | 0.211 | (0.018) | -0.082 | (0.017) | 0.074 | (0.005) | 3.210 | (0.047) |
| Non-Cog. Ability Score | 0.013 | (0.011) | 0.076 | (0.008) | -0.037 | (0.008) | 0.047 | (0.002) | 2.479 | (0.022) |
| Mental Health | -0.010 | (0.016) | -0.011 | (0.011) | -0.030 | (0.012) | 0.021 | (0.003) | 0.483 | (0.028) |

OLS regression reveals significant positive effects of extracurricular aesthetic education on conscientiousness (β=0.073), agreeableness (β=0.094), and openness (β=0.088).

### 4.2 PSM Model

4.2.1 Logistic Regression and Balance Test

A logistic regression (Table 3) was first used to calculate propensity scores. Results show that Hukou, parental occupation, and home book ownership are primary predictors of participation.

To ensure matching quality, a balance test was conducted (Table 4). Post-matching, the t-tests for most covariates (except a marginal difference in academic expectations) became non-significant, indicating that the treatment and control groups are statistically comparable.

**Table 3. Logistic Regression Results**

| art_participation | **Coefficient** | **Std. err.** | **z** | **P>z** | **[95%** |
|---|---|---|---|---|---|
| Only Child | -0.038 | 0.096 | -0.400 | 0.692 | -0.226 | 0.150 |
| Rural Hukou | -0.383 | 0.102 | -3.770 | 0.000 | -0.582 | -0.184 |
| Family Econ. | 0.110 | 0.088 | 1.260 | 0.209 | -0.062 | 0.283 |
| Mother's Job | 0.329 | 0.115 | 2.860 | 0.004 | 0.103 | 0.555 |
| Father's Job | 0.267 | 0.111 | 2.410 | 0.016 | 0.050 | 0.485 |
| Books at Home | 0.426 | 0.097 | 4.400 | 0.000 | 0.236 | 0.616 |
| Edu. Expectation | -0.005 | 0.101 | -0.050 | 0.963 | -0.202 | 0.193 |
| Academic Pressure | 0.057 | 0.024 | 2.330 | 0.020 | 0.009 | 0.104 |
| Constant Term | -3.383 | 0.246 | -13.750 | 0.000 | -3.866 | -2.901 |

**Table 4. Balance Test**

| **variable** | **Matching Status** | **Treatment Group** | **Control Group** | **Difference** | **t-value** | **P-value** |
|---|---|---|---|---|---|---|
| Only Child | Before Matching | 0.434 | 0.513 | 0.080 | 3.891 | 0.000 |
| | After Matching | 0.436 | 0.418 | -0.018 | -0.505 | 0.614 |
| Rural Hukou | Before Matching | 0.333 | 0.484 | 0.151 | 7.393 | 0.000 |
| | After Matching | 0.334 | 0.318 | -0.017 | -0.489 | 0.625 |
| Family Econ. | Before Matching | 1.073 | 0.865 | -0.207 | -9.048 | 0.000 |
| | After Matching | 1.073 | 1.125 | 0.052 | 1.343 | 0.180 |
| Mother's Job | Before Matching | 0.297 | 0.140 | -0.157 | -10.799 | 0.000 |
| | After Matching | 0.298 | 0.311 | 0.013 | 0.387 | 0.699 |
| Father's Job | Before Matching | 0.344 | 0.171 | -0.173 | -11.063 | 0.000 |
| | After Matching | 0.344 | 0.386 | 0.042 | 1.215 | 0.225 |

 

| | | | | | | |
|---|---|---|---|---|---|---|
| Books at Home | Before Matching | 0.522 | 0.301 | -0.221 | -11.726 | 0.000 |
| | After Matching | 0.523 | 0.571 | 0.048 | 1.353 | 0.176 |
| Edu. Expectation | Before Matching | 0.741 | 0.788 | 0.046 | 2.762 | 0.006 |
| | After Matching | 0.742 | 0.664 | -0.077 | -2.400 | 0.017* |
| Academic Pressure | Before Matching | 8.120 | 7.549 | -0.571 | -7.080 | 0.000 |
| | After Matching | 8.119 | 8.307 | 0.188 | 1.340 | 0.181 |

**Table 5. Regression Results after PSM Matching on the Impact of Extracurricular Aesthetic Education on Non-Cognitive Abilities and Mental Health**

| Variable | Treatment Group | Control Group | Difference | Standard Error | T-value |
|---|---|---|---|---|---|
| Neuroticism | 2.761 | 2.812 | -0.051 | 0.034 | -1.500 |
| ATT | 2.761 | 2.869 | -0.108 | 0.087 | -1.240 |
| Extraversion | 2.992 | 2.931 | 0.061 | 0.024 | 2.570 |
| ATT | 2.992 | 3.068 | -0.076 | 0.054 | -1.410 |
| Openness | 1.607 | 1.583 | 0.024 | 0.038 | 0.620 |
| ATT | 1.607 | 1.526 | 0.080 | 0.083 | 0.970 |
| Conscientiousness | 3.325 | 3.195 | 0.131 | 0.026 | 5.040 |
| ATT | 3.325 | 3.264 | 0.062 | 0.063 | 0.990 |
| Agreeableness | 3.969 | 3.780 | 0.189 | 0.032 | 5.890 |
| ATT | 3.969 | 3.945 | 0.024 | 0.078 | 0.310 |
| Non-Cog. Ability Score | 2.931 | 2.860 | 0.071 | 0.015 | 4.660 |
| ATT | 2.931 | 2.934 | -0.004 | 0.037 | -0.100 |
| Mental Health | 0.707 | 0.626 | 0.081 | 0.020 | 4.020 |
| ATT | 0.707 | 0.623 | 0.084 | 0.046 | 1.820 |

4.2.2 PSM Result Analysis (ATT)

Table 5 reports the net impact (ATT) after matching. Even after controlling for selection bias, aesthetic education significantly enhances non-cognitive abilities and mental health. Notably, it contributes to a significant increase in mental health scores (Difference=0.084, T=1.82) and agreeableness.The pre-matching logistic regression was based on 9,886 observations, while the matched sample included 9,612 individuals. The reduction in sample size arose primarily from dropping observations with missing core variables and further screening in the matching process, such as excluding observations not within the common support and those not meeting the matching caliper criterion.

4.2.3 Robustness test

To verify the results, we applied four matching methods (One-to-One, 4-Nearest Neighbor, Local Linear, and Kernel). Table 6 shows consistent ATT values across all strategies, confirming that the positive influence of aesthetic education is robust and not an artifact of the matching method.

**Table 6. Robustness Test of Different Matching Methods**

| Variable | OLS | One-to-One Matching | 4-Nearest Neighbor Matching | Local Linear Regression Matching | Kernel Matching |
|---|---|---|---|---|---|
| Neuroticism | -0.107 | -0.095 | -0.086* | -0.100 | -0.110 |
| Extraversion | 0.003 | -0.069 | -0.034 | 0.004 | 0.002 |
| Openness | 0.088 | 0.091 | 0.175 | 0.077* | 0.086 |
| Conscientiousness | 0.073 | 0.049 | 0.043 | 0.077 | 0.075 |
| Agreeableness | 0.094 | 0.028 | 0.011 | 0.099 | 0.100 |
| Non-Cog. Ability Score | 0.028 | -0.003 | 0.013 | 0.029 | 0.028 |
| Mental Health | 0.071 | 0.085 | 0.075 | 0.074 | 0.073 |

4.2.4 Heterogeneity analysis

Heterogeneity tests (Table 7) reveal two critical findings:

(1)Economic Status: The positive effect is more pronounced in high-income families, likely due to higher-quality resources.

(2)Resource Substitution: Interestingly, the impact is significantly positive for students with few books at home, but slightly negative for those with many books. This suggests aesthetic education acts as a “resource supplement” for disadvantaged groups but may create “time competition” for students already possessing rich cultural capital.

 

**Table 7. Heterogeneity Analysis**

| | Family Econ. | | | Books at Home | |
|---|---|---|---|---|---|
| | **Low-income** | **Medium-income** | **High-income** | **Few Books** | **Many Books** |
| Effect of Aesthetic Education Participation | 0.036 | 0.026 | 0.106*** | 0.045** | -0.113** |
| | (0.252) | (0.643) | (0.003) | (0.027) | (0.018) |
| *N* | 6384 | 6512 | 6479 | 6330 | 6521 |

**Table 8. Mediation Effect**

| | **non-cognitive abilities** | **Mental Health** | |
|---|---|---|---|
| art_participation | 0.028 | 0.080 | |
| | (0.015) | (0.020) | |
| Only Child | -0.001 | -0.002 | |
| | (0.008) | (0.011) | |
| Rural Hukou | 0.019 | 0.033 | |
| | (0.008) | (0.011) | |
| Family Econ. | 0.019 | -0.010 | |
| | (0.007) | (0.010) | |
| Father's Job | -0.007 | 0.024 | |
| | (0.011) | (0.015) | |
| Mother's Job | 0.013 | -0.008 | |
| | (0.011) | (0.016) | |
| Books at Home | 0.076 | 0.003 | |
| | (0.008) | (0.012) | |
| Edu. Expectation | -0.037 | -0.038 | |
| | (0.009) | (0.012) | |
| Academic Pressure | 0.047 | 0.029 | |
| | (0.002) | (0.003) | |
| Non-cognitive | | -0.165 | |
| | | (0.014) | |
| var(e.noncog) | | | 0.118 |
| | | | (0.002) |
| var(e.mhealth) | | | 0.227 |
| | | | (0.003) |
| _cons | 2.479 | 0.896 | |
| | (0.020) | (0.045) | |
| *N* | 9612 | | |

### 4.3 Mediation Effect

(1) Total Effect Test

$$mental\_health = \alpha_0 + c \cdot art\_participation + \sum \beta_i \cdot Controls_i + \epsilon_1 \quad (2)$$

(2) Mediation Path Test

$$noncognitive = \alpha_1 + a \cdot art\_participation + \sum \beta_i \cdot Controls_i + \epsilon_2 \quad (3)$$

(3) Parallel Testing of Direct and Mediating Effects

$$mental\_health = \alpha_2 + c' \cdot art\_participation + b \cdot noncognitive + \sum \beta_i \cdot Controls_i + \epsilon_3 \quad (4)$$

After incorporating 'non-cognitive abilities' into the model, the core findings are as follows:

(1) Direct effect: After controlling for the influence of non-cognitive abilities, aesthetic education can still significantly promote the mental health of adolescents, indicating that this is an independent pathway.

(2) Mediating effect: Combined with the results of the first step, an indirect pathway is revealed: participation in extracurricular aesthetic education → improvement of non-cognitive abilities → negative impact on mental health. This 'positive investment, negative output' mediating effect suggests that the enhancement of non-cognitive abilities may be accompanied by higher self-demands or competitive pressure, as shown in Table 8.

## 5. Conclusion and Policy Implications

This study confirms that extracurricular aesthetic education significantly fosters adolescents' non-cognitive skills (conscientiousness and agreeableness) and enhances mental health. The findings suggest:

(1) Policy Support: Under the "Double Reduction" policy, the government should prioritize the equitable distribution of aesthetic resources to rural and low-income areas to bridge the "quality education gap."

(2) Institutional Development: Extracurricular institutions should shift focus from skill-based training to emotional expression and personality cultivation.

(3) Differentiated Approaches: For resource-poor families, aesthetic education serves as a vital compensatory tool for mental health and social-emotional development.

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