

The Relationship Between Family Parenting Styles and Willpower in 3 + 2 Continuous Education Medical Students: A Survey Study

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Abstract: This study investigated the mechanism through which family parenting styles influence the willpower of 1,442 medical students from the 2020 to 2025 cohorts in a five-year 3 + 2 continuous education program at a health school in Qingdao, using a questionnaire survey. Findings revealed that the students' overall willpower was relatively strong. Students who did not hold any class cadre or club positions had lower willpower levels. First- and second-year secondary vocational students demonstrated stronger willpower, and Stomatology majors exhibited significantly higher willpower than other majors. A harmonious parental relationship significantly and positively predicted students' willpower levels, whereas permissive and indulgent parenting styles were significant negative predictors. Recommendations for cultivation are proposed from the perspectives of the students themselves, the family environment, and school education.

Keywords: 3 + 2 continuous education medical students; Family parenting styles; Willpower

Online publication: December 12, 2025

1. Introduction

Secondary vocational and technical education is a vital component of China's modern education system, with its core mission being the cultivation of technical and skilled talents possessing strong practical operational abilities^[1,2]. Secondary vocational students, as a specific group within vocational education, are generally younger and at a critical stage of ideological maturation. They often exhibit characteristics such as weak willpower and insufficient self-control in their daily academic lives^[3,4], while simultaneously facing dual pressures from further education and employment. Therefore, enhancing the willpower quality of secondary vocational students is an imperative requirement for cultivating practical technical talents in the new era.

Modern Chinese psychologist Professor Zhu Zhixian posits that will is a complex psychological process through which humans consciously establish goals, actively regulate their own behaviors, and overcome

obstacles to achieve predetermined objectives^[5]. In this process, willpower manifests across four key dimensions: Consciousness (clear cognition of goals and internal drive), Decisiveness (swift and firm action in decision-making), Perseverance (tenacity to maintain sustained effort in adversity), and Self-control (capacity to control impulses and emotions to maintain focus). These core characteristics collectively constitute the stability of an individual's will, which is crucial for 3 + 2 continuous education medical students to maintain determination and resilience in pursuing long-term goals.

2. Research methods

2.1. Participants

This study employed a stratified sampling method, selecting all medical students from the first to fifth years (2020 to 2024 cohorts) of the five-year 3 + 2 continuous program at a secondary vocational health school in Qingdao, totaling 1,442 students.

2.2. Instruments

2.2.1. Self-compiled basic information questionnaire

This included: (1) student personal information (gender, grade, major, student role); (2) family relationship perceptions (primary influential caregiver, most trusted family member, parenting style of the primary caregiver, parental marital relationship status).

2.2.2. Middle school student willpower scale

This scale, developed by Professor Liang Chengmou^[6], is a commonly used psychological instrument for assessing the willpower level of middle school students. The scale consists of 20 items rated on a 5-point Likert scale from "Strongly Agree" to "Disagree" (scored 1 to 5), with a maximum score of 100. It contains 10 forward-scored and 10 reverse-scored items. The scale comprises four dimensions: Purposefulness, Consciousness, Decisiveness, Perseverance, and Self-control. Scoring criteria: 81–100 (very strong willpower), 61–80 (relatively strong), 41–60 (average), 21–40 (relatively weak), 0–20 (very weak). In this study, the scale demonstrated good internal consistency reliability (Cronbach's $\alpha = 0.796$) and structural validity (KMO = 0.896), meeting psychometric standards.

2.3. Survey method

The questionnaires were integrated on the Wenjuanwang platform, distributed via QR codes to classes. Class academic monitors were trained beforehand on the instructions, and then organized their classmates to complete the survey online anonymously in a unified manner.

2.4. Data analysis

Data were processed on the SPSSPRO platform within Wenjuanwang, involving data cleaning, reverse-scoring, and statistical analysis, including descriptive statistics, *t*-tests, chi-square tests, and ANOVA.

3. Results

3.1. Basic information

A total of 1446 questionnaires were distributed, with 1442 valid responses recovered (248 males, 1194 females). Specific demographic characteristics are shown in **Table 1**.

Table 1. Basic information statistics of students

Category	Option	Frequency	Percentage (%)
Gender	Female	1194	82.802
	Male	248	17.198
Student Role	Holds no above positions	880	61.026
	Student Cadre	368	25.520
	Both Student Cadre and League Member	112	7.767
	League Member	82	5.687
Major	Nursing	922	63.939
	Pharmacy	256	17.753
	Rehabilitation	120	8.322
	Stomatology	77	5.340
	Medical Imaging	66	4.577
	Midwifery	1	0.069
Grade	College Year 1	479	33.218
	Secondary Vocational Year 2	473	32.802
	Secondary Vocational Year 1	399	27.670
	Secondary Vocational Year 3	70	4.854
	College Year 2	21	1.456
	Total	1442	100.000

The primary caregivers perceived by students as having the most educational influence were, in order: mother (69.764%), father (18.863%), others (7.004%), grandparents (4.369%). The perceived parenting styles were: democratic (80.791%), strict (13.523%), permissive (2.427%), and indulgent (1.456%). The parental relationship types were: harmonious (85.922%), distant (6.588%), tense (4.716%), and uncertain (2.774%).

3.2. Descriptive analysis

The means and standard deviations of the four willpower factors were ranked (**Table 3**). The overall mean willpower score was 60.474, indicating relatively strong willpower. Significant differences existed among the four factors ($p < 0.01$), ranked high to low: Consciousness (3.839 ± 0.754), Perseverance (3.763 ± 0.881), Decisiveness (2.799 ± 0.882), and Self-control (1.659 ± 0.613). Significant polarization was observed in the total score and all factors.

3.3. Difference analysis

3.3.1. Gender differences

Independent samples t-tests revealed significant gender differences in Consciousness, Decisiveness, and Perseverance. Females had higher Decisiveness (2.817 ± 0.85) than males (2.714 ± 1.021), while males had higher Consciousness (3.95 ± 0.909) and Perseverance (3.97 ± 0.917) than females. No significant gender differences were found in total willpower or Self-control.

3.3.2. Grade differences

One-way ANOVA with post-hoc comparisons found significant grade differences in total willpower and all dimensions ($p < 0.05$). Total willpower was highest in Secondary Vocational Year 1 (62.863 ± 9.775) and lowest in Secondary Vocational Year 3 (57.286 ± 6.061). Self-control was highest in Secondary Vocational Year 1 (1.757 ± 0.602) and lowest in College Year 2 (1.435 ± 0.555). Consciousness was highest in College Year 2 (4.114 ± 0.768) and lowest in Secondary Vocational Year 3 (3.709 ± 0.701). Decisiveness was highest in Secondary Vocational Year 1 (3.03 ± 0.799) and lowest in College Year 2 (2.415 ± 1.078). Perseverance was highest in College Year 2 (3.988 ± 0.989) and lowest in Secondary Vocational Year 3 (3.482 ± 0.854).

3.3.3. Student role differences

One-way ANOVA found significant differences in total willpower and the Consciousness factor based on student role. Student cadres had a significantly higher total willpower score (61.393 ± 9.166) than other categories. League members had significantly higher Consciousness (4.002 ± 0.66) than other categories.

3.3.4. Major differences

One-way ANOVA found significant differences in total willpower and the Consciousness factor based on major. Stomatology majors had a significantly higher total willpower score (63.234 ± 9.159) than other majors. Nursing majors had significantly higher Consciousness (3.883 ± 0.719) than other majors.

3.3.5. Parenting style

One-way ANOVA found that parenting style had a significant impact on the total willpower score and all four factors. Students with a democratic parenting style had significantly higher total willpower (61.131 ± 8.715), Perseverance (3.819 ± 0.826), and Consciousness (3.876 ± 0.704) than those with other parenting styles.

3.3.6. Parental relationship

One-way ANOVA found that the parental relationship had a significant impact on the total willpower score and all four factors. Students with a harmonious parental relationship had significantly higher total willpower (61.305 ± 8.817), Perseverance (3.853 ± 0.838), Decisiveness (2.835 ± 0.887), and Consciousness (3.893 ± 0.727) than those with other relationship types.

3.3.7. Multivariate analysis of variance (MANOVA) on willpower

A MANOVA with student gender, role, grade, major, parenting style, and parental relationship as independent variables and total willpower as the dependent variable showed that all factors except major had a significant influence on student willpower ($p < 0.01$).

3.3.8. Multiple regression analysis on willpower

A stepwise regression analysis with the same predictors (**Table 2**) showed that a harmonious parental relationship, being in Secondary Vocational Year 1, being in Secondary Vocational Year 2, and majoring in Stomatology were significant positive predictors of student willpower, jointly explaining 10.1% of the variance (Adj. $R^2 = 0.101$, $F = 24.239^{**}$). Secondary Vocational Year 1 contributed the most ($Beta = 0.20$), followed by a harmonious parental relationship ($Beta = 0.192$). Permissive and indulgent parenting styles, and not holding any student role, were significant negative predictors. Gender and grade (as a block) did not show significant predictive effects.

Table 2. Regression analysis of factors influencing willpower in secondary vocational students

Predictor	Unstandardized coefficients		Standardized coefficient(beta)	t-value	p-value	Adjusted R^2	F
	B	Std. Error					
Constant	55.52	0.716	0				
Harmonious Parental Relationship	4.901	0.662	0.192	77.544	0.000***	0.101	$F = 24.239$,
Secondary Vocational Year 1	3.973	0.560	0.200	7.407	0.000***		$p = 0.000^{***}$
Secondary Vocational Year 2	1.816	0.527	0.096	7.095	0.000***		
Parenting Style_Permissive	-5.141	1.485	-0.089	3.447	0.001***		
Student Role_Holds no positions	-1.454	0.464	-0.080	-3.463	0.001***		
Major_Stomatology	2.300	0.995	0.058	-3.136	0.002***		
Parenting Style_Indulgent	-4.274	1.866	-0.058	2.312	0.021*		

4. Discussion

4.1. The influence of student individual factors on willpower

4.1.1. Gender factors

This study found females had higher Decisiveness, while males had higher Consciousness and Perseverance. This aligns with existing domestic research [7]. Cross-cultural analysis by Costa et al. also found that in most global cultures, females score significantly higher on “Neuroticism” and “Agreeableness,” while males typically score slightly higher or similar on “Conscientiousness” [8,9]. This may be related to gender role socialization, where females are often encouraged to develop decision-making and self-expression, leading to stronger decisiveness, while males are expected to possess self-discipline and perseverance.

4.1.2. Grade factors

Analysis showed the highest total willpower in Secondary Vocational Year 1, with varying levels across dimensions in other grades. This is likely related to the academic stage, stressors, and psychological adaptation. First-year students have high enthusiasm and motivation. Second-year students face increased course pressure, challenging decisiveness. Third-year students face enrollment pressure/employment pressure, depleting psychological resources and reducing willpower. College Year 2 students have clearer professional direction and improved self-control but the lowest decisiveness, possibly due to complex decisions or plateau-phase anxiety.

4.1.3. Student cadre role factor

Students holding cadre positions exhibited stronger willpower, consistent with existing research ^[10]. This could be because students who become cadres inherently possess stronger willpower, and the role itself, involving handling affairs, coordinating conflicts, and persisting in plans, directly trains dimensions like Consciousness, Perseverance, and Decisiveness.

4.2. The influence of family factors on student willpower

4.2.1. Family parenting style factor

Students with a democratic parenting style performed significantly better in total willpower, Perseverance, and Consciousness, consistent with many studies ^[11]. When parents provide tolerance, understanding, and encouragement, smooth parent-child communication and a harmonious relationship are established. Children's negative emotions are alleviated in this atmosphere, collectively promoting willpower development.

4.2.2. Parental relationship factor

Students with a harmonious parental relationship significantly outperformed others in total willpower, Perseverance, Decisiveness, and Consciousness. Research by Wang Juan et al. also confirmed that parental conflict is a significant risk factor affecting the psychological resilience of secondary vocational students, influencing willpower through emotional resources ^[12]. Liu Hongyun et al. found that parental conflict reduces adolescents' emotional security, leading to decreased self-control ^[13].

5. Educational recommendations

5.1. For students: Enhancing self-management abilities

Students should actively enhance their awareness of willpower. Firstly, build self-confidence and avoid negative emotions. Secondly, overcome inertia and cultivate resilience; maintain energy through regular routines, a healthy diet, and physical exercise, and make plans to complete tasks promptly. Finally, actions should have clear goals and feasible plans; focus intently during execution to cultivate active consciousness.

5.2. For schools: Improving classroom teaching and practical education quality

During daily teaching, help students discover their strengths, challenge irrational cognitions, seek external support, and acquire skills like emotion management and problem-solving ^[14]. Enhance students' self-efficacy and professional confidence, thereby improving self-management and career planning abilities ^[15]. Develop targeted plans for students with different willpower levels, using different strategies by specialized teachers. Also, pay attention to individual personality differences ^[16]; although there are many methods to cultivate willpower, not every method is suitable for everyone; it must be tailored to the individual.

5.3. For parents: Providing positive emotional support and value guidance

Parents should commit to nurturing the will quality of secondary vocational students. The primary step is to create a harmonious family atmosphere, providing ample security and emotional support. Assisting children in establishing meaningful career development goals is crucial; the establishment of values and a sense of responsibility can significantly enhance willpower. Parents should also foster children's independent abilities, creating opportunities for them to solve practical problems. The exercise of willpower begins with daily

trivialities, such as adhering to regular schedules and physical exercise; parents should assist children in developing good habits from minor details, shaping characteristics of earnest pragmatism and persistence.

Funding

Qingdao Education Science “14th Five-Year Plan” 2023 Special Project, “Research on the Integration Model of Psychological Quality Education and Ideal & Belief Education for Secondary Vocational Medical Students under the ‘All-Environment Education’ Background” (Project No.: QJK2023D001)

Disclosure statement

The author declares no conflict of interest.

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