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Original Article

Effects of a Group Counseling Intervention Model Grounded on Character Strengths Theory on Inferiority Complex in Adolescents

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Abstract

Background: Inferiority complex is a common psychological disorder occurring in adolescents during their psychological development and the root cause of most psychological problems. However, inferiority complex in adolescents has rarely been examined in previous intervention studies. This practice-oriented study combined character strengths theory with group psychological counseling to examine adolescents with high inferiority complex scores.

Methods: A survey was conducted on 512 adolescents selected using convenience sampling from three middle schools in Wuhan, Hubei Province, China, to collect information regarding the degree and characteristics of their inferiority complex. Those with a high inferiority complex score were recruited for a grouped experiment, where the experiment group received group counseling grounded on character strengths theory.

Results: The participants had a moderately high degree of inferiority complex (mean = 2.92). Significant differences were observed in the total inferiority complex score across gender, left-behind experience, and academic performance ($P < 0.05$). After the intervention, the inferiority complex score of the experiment group was significantly lower than that of the control group, and the difference was statistically significant ($P< 0.05$).

Conclusion: The intervention model constructed in this study effectively reduces inferiority complex in adolescents, providing a reference for exploring an effective approach to adolescent-targeted mental health education.

Keywords: Character strengths; Inferiority complex; Group counseling

Introduction

Inferiority complex is a common problem among adolescents during their psychological development. According to the China National Mental Health Development Report (1), depression was detected in 24.6% of Chinese adolescents, followed by emotional disorders such as inferiority complex. Individuals with inferiority complex often doubt their abilities and values. This negative self-perception restricts their personal growth and development and may trigger a range of psychological problems, including anxiety and depression (2). Individuals trapped in prolonged inferiority complex are prone to self-negation and persistent negative emotions and struggle to escape this psychological quagmire. Such problems not only impair their emotional well-being but

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also may also adversely affect their daily life and work performance (3). Among middle school students experiencing chronic excessive inferiority complex, 23% were at risk of depression, and 12.3% had contemplated suicide (4). Some students even exhibit extreme behaviors, such as self-harm and school bullying. Therefore, systematic research on inferiority complex in adolescents is critical to safeguarding their mental health and fostering healthy development.

Given that inferiority complex, a prevalent emotional experience in modern society, increasingly triggers extreme social events, a growing number of scholars have paid attention to and conducted intervention research on inferiority complex. In several studies on inferiority complex, Rimes et al (5) drew on social theories to construct an inferiority complex intervention model based on behavioral and cognitive psychotherapy. This model emphasizes the relationship between self-esteem and the perception of personal value in the eyes of others. In recent years, researchers have proposed and implemented various forms of intervention strategies for addressing inferiority complex. For instance, Stefanos et al (6) employed psychodrama to intervene in students' inferiority complex, achieving notable intervention outcomes. Similarly, Tjahyani et al (7) utilized case counseling to intervene in students' inferiority complex and found that this method could shape their positioning away from environmentally ingrained negative thoughts. A drawback of this method, however, is that it requires professional guidance from school counselors. Xie et al (8) integrated Maxrap Aerobics exercises with app-based health education to address inferiority complex in Uyghur adolescents. The author proposed a theoretical hypothesis model for the psychological mechanism of reducing inferiority complex in college students through physical exercise activities. Overall, most of the current studies on specific feelings of inferiority complex have not yet formed a systematic framework, and effective interventions remain exploratory.

Character strengths theory originates from positive psychology theory. It manifests as various virtues and is a spiritual product that enriches the inner self and empowers individuals just like virtues (9). When individuals gradually perceive virtues—whether innate or acquired—such as responsibility and conscience in social life, they begin to demonstrate character strengths. Integrating character strengths with psychological counseling has gradually gained widespread application. Empirical studies have also shown that positive psychological intervention training established based on the identification of character strengths significantly improves the cognitive-emotional states and behavioral patterns of individuals. Researchers have actively advocated for identifying and cultivating character strengths in individuals through methods such as strengths-based training and mental health education to establish correct values and personalities in individuals, as well as promote the healthy development of their inner spiritual world (10). In recent years, psychological intervention approaches grounded on character strengths theory have also been widely applied in the medical field. Wagner et al (11) examined 199 Germans and found a positive correlation between higher levels of character strengths and positive emotions, providing empirical support for character strengths-based intervention research. During the COVID-19 pandemic, Chu et al (12) adopted a character strengths-based intervention strategy to enhance the social relationships and resilience of students. Smedema et al (13) investigated the relationship between negative emotions and quality of life in patients with multiple sclerosis, revealing that character strengths-based interventions could improve patients' quality of life and mitigate negative disease-related effects. Interventions based on character strengths theory have also been found to alleviate depression in patients with primary liver cancer and to improve healthy self-management behaviors and subjective well-being in patients with hypertension.

In recent years, inferiority complex has attracted growing research attention both domestically and internationally, leading to the increasing number of related studies years by year. In terms of study participants, most researchers focus on vocational college students, left-behind children, or chil-

dren with special needs. Few studies on inferiority complex specifically target adolescents, and even fewer intervention experiments are conducted on this group. Existing studies involve group counseling intervention and case counseling intervention, but no intervention studies combine character strengths theory with group counseling. Therefore, this intervention study on inferiority complex in adolescents have significant implications.

Materials and Methods

A survey was conducted from September to December 2024 on 512 adolescents selected using convenience sampling from three middle schools in Wuhan, Hubei Province, China, to collect information regarding the degree and characteristics of their inferiority complex. Those with a high inferiority complex score were then recruited as participants for a grouped experiment. The participants were randomly divided into an experiment group (n = 48) and a control group (n = 50) for intervention. The experiment group received group counseling grounded on character strengths theory, while the control group did not receive any group intervention or specialized psychological counseling. The results of statistical analysis revealed no significant differences between the two groups.

Tools

The Feelings of Inadequacy Scale: which revised by Fleming and Courtney (14) was utilized in this study to assess the inferiority complex of the participants. This scale contains 5 factors and 36 items: self-esteem (items 1–7, 7 items), social confidence (items 8–19, 12 items), academic competence (items 20–26, 7 items), appearance (items 27–31, 5 items), and physical fitness (items 32–36, 5 items). Items 3, 6, 25, and 31 are reverse-scored items. A five-point Likert Scale was used, with "1 = never", "2 = seldom," "3 = average," "4 = often," and "5=always." A higher total score indicates a stronger sense of inferiority complex in the respondent. The consistency coefficient of this scale in this study was 0.910.

Demographic data

A self-developed demographic questionnaire scale was used to collect demographic data, including name, gender, age, grade level, and whether the participant was left behind.

Intervention method

The participants were randomly divided into an experiment group (n = 48) and a control group (n = 50) to analyze and explore the effect of a group counseling intervention model grounded on character strengths theory on inferiority complex in adolescents. The control group received regular school education without any additional psychological counseling. By contrast, apart from regular school education, the experiment group received group psychological counseling grounded on character strengths theory for two consecutive months, with one 45–50-minute session per week. After each intervention session, their feedback was analyzed and synthesized to assess their real psychological states. After all the sessions were completed, the two groups were tested again using the Feelings of Inadequacy Scale to get their post-intervention outcomes, which were compared and analyzed with their pre-intervention outcomes using SPSS 27.0 software. Student interviews and parent interviews were also adopted to identify and evaluate the post-intervention outcomes. The specific operational steps for the group counseling intervention were as follows: Recognizing inferiority complex, I am unique, I can be excellent, Happiness passbook, Strengths cognitive function training, Self-appreciation and End.

Statistical methods

Data analysis was performed using SPSS 27.0 (IBM Corp., Armonk, NY, USA). Normally distributed quantitative data were described using $\bar{x}\pm s$. When the independent variable involved two categories, an independent samples t-test was adopted for univariate analysis. When the independent variable involved three or more categories, one-way ANOVA was utilized for intergroup comparison. A paired samples t-test was used to compare outcomes at two time points.

Results

Demographic data

The participants were selected through convenience sampling from three middle schools in Wuhan, Hubei Province. A total of 520 questionnaires were distributed, and 518 were returned, resulting in a recovery rate of 99.7%. After invalid copies were excluded, 512 valid copies were received, yielding a validity rate of 93.2%. The details are shown in Table 1.

Table 1: Demographic data

Variable		Frequency	Percentage (%)
Grade	7	174	33.98
	8	183	35.74
	9	155	30.27
Gender	Male	261	50.98
	Female	251	49.02
Household type	Urban	456	89.06
	Rural	56	10.94
Whether left-behind	No	482	94.14
	Yes	30	5.86
Class ranking	Top	156	30.47
	Middle	270	52.73
	Bottom	86	16.80
Total		512	100.00

Characteristics of Inferiority Complex in Adolescents

A total of 512 adolescents were included in this study. The distribution characteristics and influencing factors of inferiority complex in the participants were analyzed using the Feelings of Inadequacy Scale. The results reveal no significant differences in the total inferiority complex score across grade and gender. However, there was a significant difference in the total inferiority complex score between different household types (t = -2.155, P= 0.032), with urban adolescents (mean = 2.90) scoring significantly lower than rural adolescents (mean = 3.17). A significant difference was found in the total inferiority complex score between left-behind and non-left-behind adolescents (t = -2.528, P= 0.012), with non-left-behind adolescents scoring significantly lower (mean=2.90 vs. 3.33). Significant differences in the total inferiority complex score were likewise identified across class rankings (F=13.204, P< 0.001). The results of post-intervention testing revealed significant pairwise differences in the total inferiority complex score: middle > top; bottom > top; bottom > middle (P< 0.05) (Table 2).

Table 2: Characteristics of inferiority complex in adolescents

Variable		Total inferiority complex score	t/F	P
Grade	7 (n=174)	2.97±0.89	0.272	0.762
	8 (n=183)	2.91±0.90		
	9 (n=155)	2.91±0.91		
Gender	Male (n=261)	2.88±0.87	-1.284	0.200
	Female (n=251)	2.98±0.93		
Household type	Urban (n=456)	2.90±0.90	-2.155	0.032*
	Rural (n=56)	3.17±0.83		
Whether left-behind	No (n=482)	2.90±0.89	-2.528	0.012*
	Yes (n=30)	3.33±0.88		
Class ranking	Top (n=156)	2.67±0.94	13.204	<0.001**
	Middle (n=270)	2.97±0.87		
	Bottom (n=86)	3.26±0.79		

* P<0.05 ** P<0.01

Multi-dimensional Comparison of Inferiority Complex in Adolescents Before and After the Intervention

Table 3 shows no significant differences between the two groups in pre-intervention self-esteem, pre-intervention social confidence, pre-intervention academic competence, pre-intervention appearance, pre-intervention physical fitness, total pre-intervention inferiority complex score, and post-intervention academic competence. This result indicated consistency between the two groups in these aspects.

Table 3: Independent samples t-test of the two groups before and after the intervention

Variable		Experiment group (n=48)	Control group (n=50)	t	P
Pre-intervention	Self-esteem	4.12±0.64	4.02±0.65	0.784	0.435
	Social confidence	4.03±0.57	3.96±0.60	0.617	0.539
	Academic competence	3.63±0.75	3.72±0.79	-0.629	0.531
	Appearance	3.61±0.83	3.70±0.81	-0.552	0.582
	Physical fitness	4.07±0.69	4.00±0.63	0.470	0.639
	Total inferiority complex score	3.92±0.50	3.90±0.53	0.202	0.840
Post-intervention	Self-esteem	3.80±0.46	4.01±0.52	-2.057	0.042*
	Social confidence	3.56±0.72	3.92±0.47	-2.887	0.005**
	Academic competence	3.46±0.57	3.68±0.58	-1.828	0.071
	Appearance	3.05±0.94	3.65±0.79	-3.411	0.001**
	Physical fitness	3.55±0.91	4.10±0.64	-3.459	0.001**
	Total inferiority complex score	3.52±0.41	3.88±0.40	-4.389	<0.001**

* P<0.05 ** P<0.01

However, there was a significant difference between the two groups in post-intervention self-esteem (t = -2.057, P= 0.042), with the experiment group (mean = 3.80) scoring significantly lower than the control group (mean = 4.01). A significant difference was also observed between the two groups in both post-intervention social confidence (t = -2.887, P= 0.005) and post-intervention appearance (t = -3.411, P= 0.001), with the experiment group scoring significantly lower than the control group in both cases (social confidence: experiment group mean = 3.56, control group mean = 3.92; appearance: experiment group mean = 3.05, control group mean = 3.65). There was a significant difference in post-intervention physical fitness between the two groups (t = -3.459, P= 0.001), with the experiment group (mean = 3.55) scoring significantly lower than the control group (mean = 4.10). Moreover, a significant difference in the total post-intervention inferiority complex score was found between the two groups (t = -4.389, P<

0.001), with the experiment group (mean = 3.52) scoring significantly lower than the control group (mean = 3.88).

Table 4 shows no significant change in the academic competence score of the experiment group before and after the intervention.

Table 4: Paired samples t-test of the two groups before and after the intervention

	Variable	Pre-intervention	Post-intervention	Difference (Pre-intervention score - post-intervention score)	*t*	*P*
Experiment group	Self-esteem	4.12±0.64	3.80±0.46	0.32	2.670	0.010*
	Social confidence	4.03±0.57	3.56±0.72	0.47	3.009	0.004**
	Academic competence	3.63±0.75	3.46±0.57	0.16	1.403	0.167
	Appearance	3.61±0.83	3.05±0.94	0.56	2.707	0.009**
	Physical fitness	4.07±0.69	3.55±0.91	0.52	3.101	0.003**
	Total inferiority complex score	3.92±0.50	3.52±0.41	0.40	3.876	<0.001**
Control group	Self-esteem	4.02±0.65	4.01±0.52	0.01	0.114	0.909
	Social confidence	3.96±0.60	3.92±0.47	0.05	0.508	0.613
	Academic competence	3.72±0.79	3.68±0.58	0.05	0.330	0.743
	Appearance	3.70±0.81	3.65±0.79	0.05	0.373	0.711
	Physical fitness	4.00±0.63	4.10±0.64	-0.10	-1.079	0.286
	Total inferiority complex score	3.90±0.53	3.88±0.40	0.02	0.270	0.788

* $P<0.05$ ** $P<0.01$

However, a significant difference was noted between pre-intervention and post-intervention self-esteem in the experiment group (t = 2.670, P= 0.010), with pre-intervention self-esteem being significantly higher (mean = 4.12 vs. 3.80). There was a significant difference between pre-intervention and post-intervention social confidence in the experiment group (t = 3.009, P= 0.004), with pre-intervention social confidence (mean = 4.03) being significantly higher than post-intervention social confidence (mean = 3.56). A significant difference was observed between pre-intervention and post-intervention appearance (t = 2.707, P= 0.009) as well as physical fitness (t = 3.101, P= 0.003) in the experiment group, with pre-intervention appearance (mean = 362) and physical fitness (mean = 4.07) being significantly higher than post-intervention appearance (mean = 3.05) and physical fitness (mean = 3.55), respectively.

A significant difference (t = 3.876, P< 0.001) was likewise found between the total pre-intervention and post-intervention inferiority complex scores in the experiment group, with pre-intervention inferiority complex score being significantly higher (mean = 3.92 vs. 3.52). For the control group,

no significant changes were found in self-esteem, social confidence, academic competence, appearance, physical fitness, and total inferiority complex score before and after the intervention.

Discussions

Statistical results of the participants' demographic data indicated a moderate level of inferiority complex tendency in adolescents (mean = 2.98). This finding aligns with another report (15). Among the five dimensions of inferiority complex, the participants scored highest in academic competence and physical fitness, suggesting that high school students feel most anxious about these two aspects. This condition is probably due to the excessive societal, school, and parental emphasis on academic performance (16). Meanwhile, the participants scored lowest in self-esteem and appearance, indicating that adolescents experience less pressure regarding their appearance compared to academic competence.

Household type, whether left-behind, gender, and class ranking were found to be significant contributors to inferiority complex. This outcome suggests that rural left-behind girls with middle or bottom class ranking should be prioritized for attention. As their self-awareness grows, adolescents become more focused on themselves and increasingly concerned about how others perceive them, making them prone to developing inferiority complex and avoidance behaviors over minor issues (17). There are significant gender differences between the male and female participants in physical fitness-caused inferiority complex. In particular, girls generally underperform in physical fitness compared to boys. Their reduced participation in physical activities is highly related to their fear of being ridiculed by male students for their incorrect or awkward movements during physical activities. Overall, the participants from rural households scored significantly higher in inferiority complex than did those from urban households. Although all three schools surveyed in this study are located in cities, some students from rural households were enrolled in these schools and affected by their previous learning experiences and family backgrounds. These students may have perceived their gaps with urban students in terms of learning and living environments, thus having inferiority complex (18). Significant differences in the participants' academic competence were observed across the five dimensions of inferiority complex. Self-esteem inferiority varied by class ranking: bottom-ranking students reported significantly higher self-esteem inferiority than middle- and top-ranking peers ($P < 0.05$), consistent with the results of prior studies (19). In today's society, schools and parents overly emphasize academic performance while neglecting students' emotional needs. Facing heightened academic pressure, compounded by adolescence-related hypersensitivity to external evaluations, middle school students generally misjudge themselves (19). Since parents and teachers tend to compare students by academic performance, bottom-ranking adolescents are prone to self-negation and inferiority complex.

The paired samples t-test results revealed no significant differences between the two groups in the five dimensions of inferiority complex, including self-esteem, social confidence, academic competence, appearance, and physical fitness. This indicates that both groups met the requirement for homogeneity and were suitable participants for this study. After the intervention, however, the experiment group exhibited significant changes ($P< 0.05$) in self-esteem, social confidence, appearance, and physical fitness, with $P< 0.01$ in the evaluation of the last three dimensions. Overall, the experiment group demonstrated significant improvements, proving that the intervention was effective in reducing the degree of inferiority complex in adolescents. By contrast, the control group exhibited no significant changes in four dimensions, namely, self-esteem, social confidence, appearance, and physical fitness, indicating no significant difference in inferiority complex despite some degree of changes.

These results were related to the adoption of interactive games as the main intervention for the group psychological counseling model grounded on character strengths theory. First, prior to the

intervention, adolescents were encouraged to understand that they could only face life actively and grow up healthily by objectively and comprehensively recognizing themselves, acknowledging both their strengths and weaknesses, and perceiving their self-worth. Their self-evaluations were found to have a positive correlation with their inferiority complex. During interviews, some participants expressed tendencies toward negative self-evaluation and inferiority, often due to perceived personal shortcomings. They believe they were inferior to others in various aspects of life and academics. Therefore, the application of character strengths theory in this study could guide them to discover their own strengths, enhance their self-confidence, and foster accurate self-recognition, ultimately optimizing their self-awareness, improving their self-evaluation, and reducing their inferiority complex. Second, peer companionship and interactions are crucial for the growth and development of adolescents. Through peer engagement, adolescents not only achieve physical and mental well-being and develop interpersonal skills but also build peer support systems that motivate them to seek help from others when facing difficulties (20).

Based on character strengths theory, this study found that utilizing informal social support networks helped team members fully understand themselves, deconstruct their negative self-evaluation, discover their strengths and potentials, and rebuild their strengths-based language, ultimately contributing to their true self-awareness and reducing their self-esteem inferiority complex. The results of this study are similar to Ahn's survey (21). Similarly, physical exercise sessions were incorporated in this intervention model to boost the adolescents' self-confidence, reduce their inferiority complex, and promote mental health, aligning with other findings (22).

The intervention model constructed in this study effectively reduced social confidence, physical fitness, and self-esteem inferiority complex scores, but no significant change was noted in its impact on academic competence inferiority complex before and after the intervention. Notably, this intervention model focused on guiding group members to comprehensively understand themselves, recognize their strengths and potentials, discover one another's positive qualities, gain true self-cognition through positive and objective evaluations by others, rebuild their strengths, and further enhance their sense of self-identity from a strengths-based perspective. However, academic competence inferiority complex remains an objective issue. According to learned helplessness theory, adolescents may believe that "no matter how hard they try, they cannot improve academically." Therefore, they attribute their poor academic performance to their insufficient innate ability. Moreover, repeated setbacks and failures reduce their willingness to adopt proactive and effective measures. In summary, academic competence inferiority complex in adolescents may stem from erroneous cognitive patterns, inappropriate attribution styles, negative emotional experiences, and passive learning behaviors. As a result, this eight-week intervention model did not trigger a significant change in this regard, highlighting the need to integrate other theoretical approaches in future interventions to reduce further academic competence inferiority complex in adolescents.

The limitations of this study include the underrepresentativeness of the sample and the use of singular intervention methods. Inferiority complex has a broad range of influence affected by diverse factors. Therefore, future interventions should adopt multidisciplinary approaches (e.g., casework, community work) to address varying needs from multiple perspectives. While this intervention is successful and innovative overall, its limited effect on academic competence inferiority complex hints at the need for further interventions.

Conclusion

A two-month empirical intervention was conducted using this approach to address inferiority complex in adolescents. A review of the pre-intervention and post-intervention outcomes in the grouped experiment revealed that the overall

inferiority complex score of adolescents in this study was at a moderate to slightly high level. In addition, the total inferiority complex scores varied significantly across gender, left-behind experience, and academic performance. After the intervention, the overall inferiority complex score of the experiment group was significantly lower than that of the control group, with significant decreases in the physical fitness, social confidence, self-esteem, and appearance dimensions. However, there was no significant change in the academic competence dimension, suggesting the need for mobilizing schools and communities to participate in services that prioritize alleviating inferiority complex in adolescents. Key target groups requiring intervention include girls and rural left-behind adolescents.

Journalism Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of Interest

The authors declare that there is no conflict of interests.

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