

# The Influence of Sports Lifestyle on the Communicative Ability of Young Children's Peers: The Mediating Role of Self-esteem

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## **Abstract:**

**Objective:** To explore the influence of children's sports lifestyle on the communication ability of peers and the mediating role of self-esteem. **Methods:** A survey was conducted on 422 children, which made reference to the Sports Lifestyle Scale, the Children's Companion Ability Scale and the Children's Self-Esteem Scale. AMOS 23.0 software was used to test the mediation effect. **Results:** Sports lifestyle is significantly positively correlated with peer communication ability ( $r = 0.364$ ,  $P < 0.001$ ), and it has a significant positive correlation with self-esteem ( $r = 0.171$ ,  $P < 0.001$ ). Furthermore, peer communication ability is positively correlated with self-esteem ( $r = 0.376$ ,  $P < 0.01$ ), while self-esteem plays a partially mediating role in the relationship between sports lifestyle and peer communication ability; the mediating effect value is 0.079, which is 29.82% of the total effect. **Conclusion:** On the one hand, sports lifestyle can directly improve children's companion communication ability; on the other hand, it can indirectly improve children's peer communication ability by improving their self-esteem.

**Keywords:** Child; Sports lifestyle; Peer communication ability; Self-esteem

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## **I. STATEMENT OF PROBLEM**

Sociality is an important indicator in the development of young children, and peer interaction is an important way to promote the development of children's socialization[1]. In recent years, the sports lifestyle of young children has received growing attention from scholars, as well as an increased level of research on children's ability for peer interaction as it relates to the psychology of attention both at home and abroad. It has been found that the early peer communication ability of young children plays an important role in their development of academic, emotional intelligence, self-regulation and leadership skills[2-3]. Accompanied by an increase in the one-child policy[4], children began to display peer interaction problems related to low quality[5]; studies have shown that only 10-24% of children are welcome, that 10-22% of children are denied companions, and that 12-20% of children who are ignored display peer interaction problems[6]. It can be seen that children's peer communication ability will directly affect children's daily life. It is very valuable to explore the sports lifestyle for children's peer

communication ability.

With the implementation of the Healthy China Strategy, an increasing number of people have not only begun to pay attention to sports but have also noticed the relationship between sports lifestyle and mental health. In particular, the functional benefits of sports activities in promoting children's mental health have attracted wide attention from scholars both at home and abroad; the functional benefits of physical activity in promoting early childhood mental health have especially attracted the attention of both domestic and foreign scholars[7]. Studies have shown that those engaged in regular physical activity groups form intimate relationships more easily with others and have more subjective well-being[8]; furthermore, those who only occasionally participate in sports activities have far more psychological problems related to interpersonal communication and neuroses than do those who regularly participate in sports activities[9]. Most of the research on the relationship between physical activities and interpersonal communication has focused on adults, college students or adolescents; there are few studies related to the preschool-age population. Early childhood represents the initial stage of children's psychological development, and such children comprise a group that is extremely vulnerable to external influences and problems[10]. Peer interaction represents the most direct mental health development of children, and children's sports activities are an important means by which to enhance the ability of young children and promote peer interaction. Therefore, exploring the sports lifestyle and children's ability to engage in peer interaction is a relationship that can provide new ideas for peer interaction to help enhance the communicative ability of young children.

Currently, there are a large number of theoretical and empirical research issues related to the relationships between the physical and mental health of lifestyle; such research has a tendency to replace compound variables with single variables such as "exercise frequency, time accumulation, frequent or not"[11]. However, the sports lifestyle is not a learned behavior. It is necessary to closely integrate the correct sports form with contemporary "civilized elements" to develop a sports lifestyle that is in line with the development of society[12]. In this regard, the current research is more in line with the characteristics of the physical and mental health of young children, and it draws lessons from the variable "young children's sports lifestyle" that has been proposed by related scholars. Young children's sports lifestyle refers to the needs of families for the healthy growth and comprehensive education of children aged 3-6, specifically that which occurs during everyday life outside of kindergarten and parents' guidance values. To develop sports habits, everyday life must be supplemented by a certain amount of sports consumption to form children's sports behavior model[11]. Obviously, regardless of the environment—in terms of personal interaction theory or the development of ecological theory—children's sports lifestyle variables will undoubtedly more comprehensively adequately reflect the true children's physical activity status compared to other variables and thus provide new ideas for clarifying the relationship between physical activities and children's mental health. Based on the above arguments, this research proposes Hypothesis H1 as follows: a sports lifestyle positively affects the communicative ability between young children and their peers.

Although the relationship between a sports lifestyle and interpersonal communication has been clarified, environmental factors are often required by internal factors to play a role in individual development[13]. Therefore, it is necessary to further study the potential mechanism between the sports lifestyle and the communicative ability of young children and their peers. Some contemporary researchers have proposed theories of cognitive development and have begun to pay attention to the role of the sports lifestyle in the establishment of basic mental processes in infancy, childhood and adolescence [14]. Some studies have pointed out that some of the benefits of a sports lifestyle intervention on mental function may be due to direct changes in the central nervous system. However, such an impact is indirect and may be mediated by other factors, such as mental health and social status [14]. However, self-esteem is a force commonly found in human motivation[15], and it has always been regarded as a potential mechanism by which physical activity affects mental function. Self-esteem refers to the self-love and self-respect of an individual based on his or her self-evaluation and asking others to give him or her respect and social emotional experiences[16]. In the theory of interpersonal relations, Leary argues that humans generally have the motivation to maintain important interpersonal relationships. Self-esteem is a psychological measure that indicates the quality of interpersonal relationships[15]. In workout psychology, researchers generally believe that some physical activities can effectively promote the improvement of self-esteem[9]. Individuals who participate in sports activities can robustly improve their self-esteem. The current research analyzes the relationship between children's sports lifestyle, self-esteem and peer communication ability and the related internal mechanism of action. Hypothesis H2 is as follows: self-esteem has a mediating effect on the influence of a sports lifestyle on the formation and development of children's peer communication ability.

## II. OBJECTS AND METHODS

### 2.1 Research object

The data of this research come from the 13th Five-Year Educational Science Planning Project of Hunan Province (XJK19BJC003). Given that children's self-esteem exhibits wavy trends[17], 5- to 6-year-old children were selected as the research object. The research team conducted a cross-sectional survey using convenience sampling in Changsha city, Hunan Province, from October to December 2020. Participants were required to meet the following selection criteria: 1. be between the ages of 5-6 years old and 2. obtain informed consent from one's guardian. Participants' guardians either used mobile applications to complete the electronic questionnaire or gave oral answers; the results were then synchronized. To protect family privacy, the research data remained anonymous. After a total of 450 questionnaires and 422 valid questionnaires were completed, the effective rate was 93.78%, including 245 boys (58.06%) and 177 girls (41.94%).

## 2.2 Research tools

### 2.2.1 Scale for Children's Sports Lifestyle

To meet the purposes of this research, the Children's Sports Lifestyle Scale was mainly compiled by combining Lv Hailong's (2020) "Initial Questionnaire on Sports Lifestyle of Children" [11] with Karageorghis's (2005) "Sports Lifestyle Scale"[18] and making necessary revisions. The scale consists of 11 items in 3 dimensions, namely, planned sports behavior, unplanned sports behavior and sports consumption behavior. Using a Likert-type 5-point score, the higher the individual's score on the scale is, the higher his or her level of the corresponding dimension is. In contrast, lower scores indicate lower levels of the corresponding dimension. In this study, the internal consistency reliability of the Cronbach's alpha scale was 0.84.

### 2.2.2 Children's Self-Esteem Scale

Compiled by Yang Lizhu and Zhang Lihua and titled "Self-Esteem Scale for 3-9-year-olds"[19], the scale consists of 22 items in 3 dimensions, namely, importance, self-competence, and appearance. Using a Likert-type 5-point score, the higher the score is, the higher the child's self-esteem is, and vice versa regarding lower scores. In this study, the internal consistency reliability of the Cronbach's alpha scale was 0.83.

### 2.2.3 Peer interaction children's ability to scale

Mainly refer to as Zhang Yuan's "Companion Competence Scale for Children 4-6 Years Old"[20], the original scale was revised according to the purpose of this research. The scale consists of 13 items in 4 dimensions, namely, social initiative, verbal and nonverbal ability, social barriers and prosociality. Using a Likert-type 5-point score, the higher the score on the scale is, the higher the communicative ability of children's peers is. In contrast, lower scores show that the communicative ability of young children's peers is lower. In this study, the internal consistency reliability of the Cronbach's alpha scale was 0.86.

## 2.3 Statistical methods

SPSS 25.0 was used for the descriptive statistical analysis and correlation analysis between variables, and AMOS 23.0 software was used to use the deviation-corrected percentile bootstrap method to draw 5000 bootstrap samples (95% confidence interval) to test the significance of the mediating effect.

## III. RESULTS

### 3.1 Common method bias test

To control common method deviations, two methods are usually used: program control and statistical control[21]. In terms of procedural control, this research used measurement measures such as anonymous measurement and partial content reversal to control the common method deviation from the program[22]. In terms of statistical control, Harman's single factor method was used to test the common method

deviation for the collected data.

Variables such as children's sports lifestyle, self-esteem and peer interaction capability variables were included in an exploratory factor analysis and factor analysis to test the results of the unrotated factor analysis. The results show that there are 12 factors with characteristic roots greater than 1 and that the first factor explains 19.76% of the variation, which is less than the critical threshold of 40%[22]. This shows that there is no common method deviation problem present in this study.

### 3.2 Descriptive statistics and correlation analysis

The average value, standard deviation and correlation of each variable in this study are shown in Table 1. The mediating effect reflects a causal relationship, and the premise to explore the causal relationship between the variables is the presence of a significant correlation between the variables. The results show that there is a significant positive correlation between children's sports lifestyle and self-esteem ( $P < 0.001$ ) and peer communication ability ( $P < 0.001$ ). There is also a significant positive correlation between self-esteem and peer communication ability ( $P < 0.001$ ).

**Table 1 Descriptive statistics and correlation analysis of each variable**

|                                | 1        | 2        | 3        | 4        | 5        | 6        | 7     |
|--------------------------------|----------|----------|----------|----------|----------|----------|-------|
| 1.Sports lifestyle             | 1        |          |          |          |          |          |       |
| 2.Self-esteem                  | 0.171*** | 1        |          |          |          |          |       |
| 3.Social initiative            | 0.331*** | 0.293*** | 1        |          |          |          |       |
| 4.Prosociality                 | 0.315*** | 0.361*** | 0.591*** | 1        |          |          |       |
| 5.Social barriers              | 0.264*** | 0.241*** | 0.615*** | 0.608*** | 1        |          |       |
| 6.Verbal and nonverbal ability | 0.311*** | 0.364*** | 0.618*** | 0.604*** | 0.647*** | 1        |       |
| 7.Peer communication ability   | 0.364*** | 0.376*** | 0.848*** | 0.844*** | 0.836*** | 0.842*** | 1     |
| M                              | 36.72    | 79.26    | 15.37    | 11.39    | 11.95    | 11.13    | 48.84 |
| SD                             | 7.39     | 8.21     | 2.05     | 2.08     | 1.63     | 1.75     | 6.32  |

### 3.3 The mediating effect test of self-esteem

On the basis of correlation analysis, a structural equation model was established using Amos 23.0 software to establish a structural equation model for the mechanism by which young children's sports lifestyle affects their peers' communicative ability, as shown in Figure 1. The obtained model fit is as follows:  $\chi^2/df = 1.963$  ( $< 5.000$ ), GFI=0.974 ( $> 0.95$ ), AGFI=0.952 ( $> 0.95$ ), CFI=0.982 ( $> 0.95$ ), NFI=0.964 ( $> 0.95$ ), IFI=0.982 ( $> 0.95$ ), RMSEA=0.048 ( $< 0.08$ ), SRMR=0.047 ( $< 0.05$ ). The results show that the mediating effect model fits well [23]; intermediary path coefficients a, b and c are significantly smaller than 0.001. The results show that self-esteem plays a mediating role in the relationship between children's sports lifestyle and their peers' communicative ability.

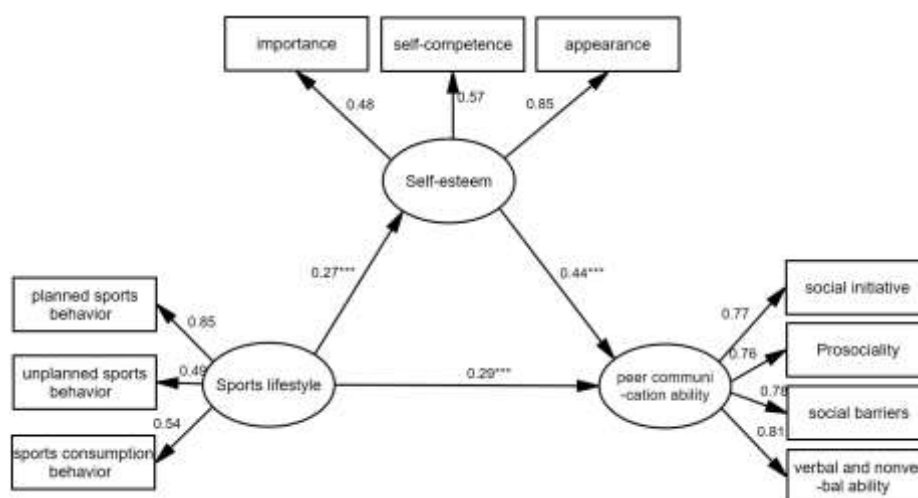


Figure 1. Structural equation modeling results for Model 2.

### 3.4 Analysis of the significance of the mediating effect

To further examine the mediating role of self-esteem, the deviation-corrected percentile bootstrap method was used to draw 5000 bootstrap samples (95% confidence interval) to test the significance of the mediation effect; the results are shown in Table 2. The mediating effect test results show that the bias correction interval of the self-esteem mediating effect (0.074—0.262) does not include 0. This outcome shows that self-esteem has a significant mediating effect on children's sports lifestyle and peer communication ability; with credibility, the mediating effect is 0.150. The deviation correction interval (0.198—0.514) of the direct effect of children's sports lifestyle on peer communication ability does not include 0, which suggests that self-esteem has a partially mediating role in the influence of children's sports lifestyle on their peers' communicative ability. Among the effects, direct effects accounted for 70.18%, indirect effects accounted for 29.82%, and the mediating effect of the model was statistically significant ( $P < 0.001$ ).

**Table 2 Bootstrap Analysis of Significance Test of Mediation Effect**

| Path                         | Effect size | Bias-corrected 95% CI |       | P     |
|------------------------------|-------------|-----------------------|-------|-------|
|                              |             | Lower                 | Upper |       |
| Self-esteem mediating effect | 0.150       | 0.074                 | 0.262 | 0.000 |
| Direct effect                | 0.353       | 0.198                 | 0.514 | 0.000 |
| Total effect                 | 0.503       | 0.355                 | 0.678 | 0.000 |

## IV. CONCLUSION

### 4.1 The relationship between young children's sports lifestyle, self-esteem and peer communication ability

The results of this study show that a sports lifestyle has a significant positive correlation with self-esteem and peer communication ability. This outcome is consistent with the results of previous studies



on adolescents and supports Hypothesis H1 of this research. The positive correlation between a sports lifestyle and the communicative ability of young children's peers may be related to the following two reasons. First, the theory of social cognition points out that children's behavioral patterns develop more by imitating role models. In the process of early childhood socialization development, sports venues are one of the important places for children to communicate with peers; in addition, sports activities provide and create more opportunities for children to communicate and discuss with their peers. Second, in the process of children's physical activities, the differences between children will not only stimulate children's motivation to act positively but also promote them actively imitating or learning other children's interpersonal behaviors and language, developing other children's active communication skills, and enhancing other children's peer communication skills.

Additionally, there is a significant positive correlation between sports lifestyle and self-esteem, which indicates that a good sports lifestyle is conducive to cultivating children's self-esteem. In the theory of cognitive development, the action is the source of psychological development, which prompts the interaction intermediary; thus, movement is able to change a person's mental state because physical activity can activate the body's psychological potential to varying degrees and thus quietly encourage changes in the body's cognitive structure. Second, it is found in social comparison theory that individuals often make self-evaluations with the help of social comparisons that confirm their own attributes. In life, some young children will gain certain negative emotions by comparing themselves to ideal models; however, at the same time, young children will also gain alternative self-esteem by comparing themselves with peers who are worse than themselves, which then promotes children to develop a good sports lifestyle. In addition, some studies have pointed out that the formation of high self-esteem is always based on good evaluations of oneself, good evaluations of others, and sometimes unhealthy and untrue evaluations, which bring negative effects. That is, when an individual pays too much attention to the self, the body will produce a state of imbalance with the body's expectations, which will result in negative emotions and low self-esteem. However, compared to groups such as teenagers, college students, and adults, there is no clear conception of the requirements of young children in terms of physical quality; therefore, they form fewer negative emotions and consequently avoid negative self-esteem.

#### 4.2 The mediating role of self-esteem in children's sports lifestyle and peer communication ability

The results of this study show that self-esteem plays a partially mediating role in the relationship between young children's sports lifestyle and their peers' communicative ability, with an explanatory power of 29.82%. This outcome is consistent with Hypothesis H2 of this research. The results show that a sports lifestyle not only directly affects children's peer communication ability but also indirectly affects children's peer communication ability through self-esteem. The outcomes provide us with an empirical framework and a theoretical model to help explain the relationship among sports lifestyle, self-esteem, and the communicative ability of children's peers.

At the same time, this result also illustrates three problems. First, the sports lifestyle of young children

is one of the important ways by which to improve the communicative ability of peers. This outcome inspires us to begin with the fun of children's sports activities, gradually increase children's interest in sports activities, enhance children's internal motivation to participate in sports activities, promote the development of children's peer communication ability and thereby develop a healthy sports lifestyle. Second, self-esteem is an important predictor that promotes the communicative ability of young children's peers. Studies have found that self-esteem can be improved through a good sports lifestyle, which not only provides a new way to improve children's peer communication skills but also suggests that society, families and kindergartens need to pay attention to the improvement of children's self-esteem in the process of promoting the development of children's socialization and to standardize children's psychological-social health. Third, a sports lifestyle can not only improve children's peer communication skills but can also improve children's positive psychological qualities. This shows that physiology and psychology influence each other and further confirms the interaction between environmental factors and individual factors.

#### 4.3 Prospects and limitations of research

A sports lifestyle can positively predict children's self-esteem and peer communication ability. Meanwhile, a sports lifestyle can not only directly affect children's ability to engage in peer interaction but also indirectly affect the ability of young children to engage in peer interaction by increasing their self-esteem. However, consistent with most studies, there are some limitations present in this study. First, in the research design, we used the parent report method to observe the relationship between children's sports lifestyle, self-esteem and peer communication ability. However, parents are only one of the information sources found in children's lives. Future research can try to integrate teachers' opinions. Second, in the course of the study, all the data were cross-sectionally expanded, which requires longitudinal studies to determine the directionality of the relationship between the variables. In addition, self-esteem is only a partial mediator of the relationship between young children's sports lifestyle and their peers' communicative ability. Therefore, more research is needed to determine other intermediary factors.

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