

## RESEARCH ARTICLE

# The mediating role of moral competence in the relationship between participation in physical education and character development among Chinese adolescents: Implications from social psychology

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## ABSTRACT

This study explores the mediating role of moral competence in the relationship between physical education (PE) participation and character development among adolescents in Hubei, China. The research aims to investigate whether moral competence acts as a key mechanism through which PE participation influences the development of positive character traits such as empathy, responsibility, and fairness. A sample of 500 students was divided into High and Low Participation Groups based on their involvement in PE. Regression analysis and mediation models were used to test the relationships between PE participation, moral competence, and character development. The results indicated that PE participation significantly predicted moral competence, which, in turn, positively predicted character development. Notably, the indirect effect of PE participation on character development through moral competence was significant ( $\beta = 0.15$ ,  $p < 0.05$ ), while the direct effect was not ( $\beta = 0.08$ ,  $p = 0.12$ ). These findings highlight the critical role of moral competence in explaining how PE contributes to the broader development of adolescents' social and moral competencies. The study concludes that moral education should be incorporated into PE curricula to foster not only physical but also moral and ethical growth in adolescents.

**Keywords:** moral competence; physical education; character development; adolescence; mediation analysis; social competencies; ethical decision-making; educational psychology

## 1. Introduction

It is during the adolescence stage of development when a person is faced with very serious changes that define his or her future identity, i.e., where he or she forms his or her values and character traits, particularly becoming morally alert. This is the time when tremendous physical, cognitive, and emotional changes occur. It is during this period that adolescents start developing the basic structure of their personal, social, and moral values. Such beliefs will dictate their actions and choices in life as they grow into adulthood. Although many people can connect adolescents with physical development and the development of rational thoughts, this is also the period when morally competent people and character can be built.

Physical education (PE) is traditionally regarded as a physical activity that helps achieve physical fitness

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and health. However, more and more recent studies have come to point out its possible contributions to the moral and social development of youth. Specifically, PE provides teenagers with a chance to train on teamwork, fairness, discipline, and respect, which are among the most important values as far as positive character traits are concerned<sup>[1]</sup>. However, physical activity and fitness are important features of PE; much of the educational benefits of PE in terms of social and moral development are routinely ignored.

The impact of PE in adolescents has always been researched under the scope of physical health; nonetheless, an increasing number of studies are demonstrating that the impact of PE on adolescent development is far more extensive than the emotional, moral, and social capacities of a human being. This study is placed in such a context, considering the mediating factor of moral competence between the involvement in physical education and the development of character among Chinese adolescents.

### **1.1. Significance of character development in adolescents**

Character development can be defined as the development of good moral character, which includes empathy, integrity, responsibility, fairness, and respect for others. These attributes are necessary for the achievement of prosocial behavior and for producing individuals who are of value to society. When a person is going through an adolescent stage in his or her life, ethical decision-making and ethical acting capacity play a very significant role, as they determine how the person is going to behave towards his or her peers, how he or she is going to make decisions, and solve moral and social dilemmas<sup>[2]</sup>.

The aspect of character education has gained significance in education reform, especially in China. Although academic performance should continue to be a primary educational objective, more and more people now understand that the development of the whole individual, including not only intellectual ability, but also moral quality, is also among the essential educational objectives of adolescents. The Chinese government has devoted much attention to the issue of moral education over the past few years and has emphasized values such as respect, honesty, and responsibility in the strategy of the national curriculum<sup>[3]</sup>. In that regard, PE can be considered a significant means of establishing these values, as it will offer adolescents the possibility of participating in both cooperative and competitive games that involve following rules, working in groups, and practicing fair play.

Based on its findings, several studies have described the relationship that exists between PE and character development, citing how physical activities aid an adolescent in developing some key aspects of life, including teamwork, emotions, and conflict resolution. Frequently, though, such studies tend to end their discussion with an explanation of outcomes, e.g., better social skills or emotional well-being, whereas the actual ways in which the improvements in these areas became a reality are not fully considered. This paper will attempt to fill this gap by examining how moral competence could serve as a mediator linking PE involvement and changes in character.

### **1.2. Moral competence: An important concept of social psychology**

Moral competence is the capacity of a person to make good moral judgments and to behave in a manner that is in accordance with moral values. It deals with not just the intellectual equipment of being able to think rationally about moral matters, but it also deals with the affective and entraining veins which are used to lead moral behavior. Someone once said moral competence is made up of four major parts that is; moral sensitivity (to be able to realize moral issues), moral judgment (to make a judgment on what is good or bad), moral motivation (to be able to follow the decision), and moral character (the resolve to act in ways that would reflect the beliefs one recognizes as justified). According to James Rest (1986), the higher the presence of these four moral issues in a person's life and performance, or the lesser the negative occurrence of such issues, the morally competent this individual is <sup>[4]</sup>.

Moral competence is an essential construct in social psychology and the research on moral development. Moral reasoning also changes as people grow old, and scholars such as Lawrence Kohlberg and James Rest have initiated theories on modes of developing moral reasoning. The theory of moral development developed by Kohlberg, as an example, assumes that people are passing through a scale of stages, beginning with the reasoning in favor of themselves during childhood, which turns into a more abstract reasoning based on moral principles of adults. Rest built on such a framework to include cognitive, emotional, and motivational elements of moral behavior<sup>[5]</sup>.

When applied to the context of PE, moral competence may be considered an ability that develops within an adolescent in the process of social negotiation of physical activity styles. Teamwork, rules compliance, coworker conflict, and respect towards others are common examples of what adolescents are asked to do in PE, which engage moral reasoning and demand the exercise of moral principles. These experiences can also increase an adolescent's ability to make ethical choices and become responsible in diverse contexts.

### **1.3. Research question and hypothesis**

The main research question in this study is: How is the relationship between participation in physical education and character development mediated by moral Competence among Chinese adolescents in Hubei, China? The hypothesis underpinning the research is that increased participation in PE will be linked with increased moral competence, which consequently will result in better character development. It is this hypothesis that defines moral competence as the result of PE and as the intermediary variable that describes the effect of practicing physical exercises on the acquisition of moral values and traits in adolescents.

This hypothesis is to be tested by selecting three main variables, namely:

- **Participation in Physical Education:** This is defined as the frequency, quality, and intensity with which adolescents engage in PE activities, including team formation sports, individualized fitness activities, and recreational activities.
- **Moral Competence:** Adolescents can be aware of moral problems, make moral decisions, and exhibit morally responsible behavior, as measured by questionnaires and moral reasoning tests.
- **Character Development:** These are the advances of the main ethical properties of empathy, honesty, responsibility, fairness, and respect, which are quantifiable by the standard scales of character and moral development.

### **1.4. Context of the study: Hubei adolescents, China**

Hubei Province, being a Central Chinese region, is a special case when investigating the connection between PE and character development. In Hubei, as in much of China, adolescents are dealt with heavy academic pressures and high family demands as far as success is concerned. Although some emphasis has been put on academic work, there has emerged much awareness among the education system of a need to develop the students, not just academically but also morally in terms of bringing up good citizens able to make positive contributions to society<sup>[6]</sup>.

The new changes in education in China have promoted the role of moral education, and there is an increasing trend in its integration into the school curricula. Hubei is an urban and rural region; thus, it provides a strategic environment for studying the interaction between adolescents of different socioeconomic statuses and their enrollment into PE and the way it helps inculcate morals and characters. The cultural, educational, and socioeconomic aspects that determine experiences of adolescents with PE in Hubei will be taken into account with regard to this research, since they are likely to contribute to the outcome of the research, possibly in a highway.

## **1.5. Significance**

The study has a number of important significances. To start with, it adds to the emerging literature on the issue of the importance of physical education in facilitating moral and character development. Although the positive effect of PE on its physical aspects has been studied a lot, not many studies have been conducted concerning the potential of PE to relate to the moral competence and character traits of adolescents. Second, the study will give a good idea of how moral competence mediates this relationship and give a further idea of the psychological processes involved in associating participation in PE with the benefits of the moral traits. Lastly, the emphasis on Chinese adolescents, specifically those in Hubei, creates a different dimension in the profession and sheds light on the role played by cultural and regional differences in determining the implications of PE on moral development <sup>[7]</sup>.

## **1.6. Background of the study**

### **1.6.1. Physical education and character development**

Physical education (PE) was well established as a physical part of a sound educational experience, medical fitness, and socialization. Nevertheless, the issue of the contribution of PE to the overall evolution of morality and character traits in adolescents will remain a neglected topic. A number of studies show that besides improving physical abilities, the involvement in PE can become a major influence on various significant values, including cooperation, equity, discipline, and respect for others. In their turn, these values form the basis of building positive character traits that are critical for responsible adulthood.

Using the case of adolescents in the United States, Scholars express that PE provides a special environment in which adolescents are socialized to engage in negotiations within social relationships, solve conflicts, and make ethical decisions <sup>[8]</sup>. They can transfer to other fields of life and develop character traits like empathy, responsibility, and integrity. Indicatively, a research report conducted by a researcher established that physical education in China plays a significant role in promoting teamwork and cooperation, which are paramount to the areas of character development. These results serve to get the idea that PE has an important contribution to make in the development of moral values and character in teenagers <sup>[9]</sup>.

A meta-analysis study by researchers investigated the effects of PE on the social and emotional development of adolescents. They discovered that PE would promote socialization and increase emotional control as well as lead to the formation of prosocial behavior. In addition to that, the study provided by scholars emphasized the relationship that exists between PE and the very issue of moral thinking among young people. They stated that through team sports and activities, adolescents must conform to the rules, cooperate with others, and show fair play, which will lead to building moral values <sup>[10]</sup>.

Nevertheless, whereas such studies support the results on PE's positive outcomes on character development, very few studies have been undertaken on the psychology that governs and defines PE's role in moral and character development. Moral competence is one of the most important mechanisms highlighted in the research; this is the target of the study.

### **1.6.2. The mediator of moral competence**

According to scientists, moral competence is the capacity of individuals to make moral judgments and decisions using the ethical aspects, and more so, the motivation to enact the decisions. The moral development model of Rest refers to four mental elements: moral sensitivity (the capacity to identify moral matters), moral judgment (the capacity to make moral judgments), moral motivation (the determination to fulfill particular moral judgments), and moral character (the power to act on moral actions). It has been

perceived that moral competence plays a key role in establishing prosocial behavior, including helping others, telling the truth, and conforming to societal norms and values <sup>[11]</sup>.

Some studies have looked into the use of moral competence to mediate the connection between participation in PE and the development of character. An important research study was concerned with the determination of the effects of moral competence on moral behavior among adolescents. As mentioned in the study, adolescents who prove to have a greater degree of moral Competency tend to have more positive social behavior and develop traits such as fairness, empathy, and responsibility. This is supported by the perception that moral competence is a mediator in the connection between PE and character development because, in most circumstances involving participation in PE activities, young people must learn exercise and simultaneously apply these moral values in everyday life <sup>[12]</sup>.

Moreover, social cognitive theory suggests that moral competence can be achieved through observational learning and self-regulation that can be accomplished with the help of social settings such as PE. During PE, the adolescents can see their classmates and teachers model moral values like cooperation, respect, and fair play. These are absorbed, and the teenagers will start regulating their self-actions against these moral instructions. The organized nature of PE, with well-established rules and reliance on cooperation and competition in social relations, contributes to the development of the described process, too <sup>[13]</sup>.

Moral education has also been shown to be vital in the development of moral competence, indicating that education systems ought to play a key role in bringing up an individual epitomizing moral development. It has been argued that by virtue of the structured nature of sports and physical activities in the context of PE, adolescents are provided with a setting in which they can exercise their moral reasoning and decision-making skills in a social setting. The importance of team spirit, competition, and adherence to rules within the PE class makes the children morally sensitive as well as judgmental, which are two critical elements of moral competence <sup>[14]</sup>.

### **1.6.3. Character development in adolescents**

One of the main purposes of most learning systems in the world is to allow character development, especially in adolescence. Adolescence happens to be a period, and during this period, values, a belief system, and morality are shaped and will shape the behaviour of an individual in life. The growth of desirable character traits, which include responsibility, respect, empathy, and honesty, is also regarded as part of the whole educational process. The inculcating of these values through character education has been on the rise and is, as such, integrated into the school curricula, even within China.

In China, attention to character learning is entrenched in Confucian philosophy, where moral formation, filial piety, and social harmony have been the key elements. For centuries, the educational system has been formulated according to these values. Modern education in China has, however, changed, and in the past, there has been an increasing number of people advocating a better holistic development that would measure not only education but also moral character building. The Chinese Ministry of Education has also realized that education must not only be centered on the acquisition of knowledge, but is obliged to pay attention to character building and citizenship <sup>[15]</sup>.

According to studies conducted on character development in Chinese adolescents, moral education appears to contribute significantly to modeling the behaviors and attitudes of adolescents. Scholars conducted a study and compared two groups of students: one group participated in extracurricular activities, among which was PE, and the other group was less engaged in them. The researchers did not show the difference between the two groups but concluded that students who were more involved in extracurricular activities scored better in moral and social development. The paper concluded that PE in Chinese schools is

also used to inculcate values under the headings of characters, which include respect, fairness, and teamwork [16].

In the same manner, researchers examined the role of PE in Chinese schools in promoting the moral and social capabilities of students. The study showed that PE programs brought not only positive changes in physical fitness but also increased the students' interpersonal skills, emotional control, and moral thinking. These results are supported by the opinion that PE supports both physical and moral development in adolescents and provides a holistic learning environment that covers both physical and character education [17].

Although there is empirical evidence that confirms the idea that PE aids in character building, it has also been brought to the scientific attention that there is a lack of empirical evidence that directly drives moral competence to character development in PE. This evidence gap in the literature advocates the need to study moral competence as a mediating variable in the affiliation wherein PE participation and character development are studied more in Chinese adolescents.

#### **1.6.4. Defects in assurance of literature and the necessity of the current study**

Though the existing studies do show the beneficial influence of PE on character building, the intermediary role of moral competence has not received much research attention. The research about moral competence and the development of character is conducted in most cases within a general education context, but not much has been done regarding the PE context, particularly. In addition, most of the current studies on PE and character development have been carried out in the West, and the educational and cultural environments that exist in this region may be very different in China [18].

The current study seeks to fill this gap by studying the role of moral competence in mediating the connection between PE and character development in Chinese adolescents in Hubei Province. The study is more specifically applicable considering the attention the Chinese culture pays to moral education and the rising spheres of holistic development in the Chinese system of education. This study will also help in understanding how PE can help in the physical and moral growth of adolescents by paying attention to the interdependence of the factors, such as psychological mechanisms involved in the association between PE participation and adolescent character development.

## **2. Materials and methods**

### **2.1. Research approach**

The research design in the current study was quantitative, using surveys and assessments to measure the data on the proportion of adolescents engaged in PE and their moral competence and character traits. Statistical data analysis will be conducted to ascertain the viability of the statement that moral competence acts as a mediator between PE participation and the development of character. This strategy will offer empirical material concerning the role played by moral competence in the face of PE, which will be helpful to practitioners and policymakers [19].

### **2.2. Participants**

The adolescents who participated in this study consisted of 500 adolescents (250 Male, 250 Female) between the ages of 14 and 17 years living in Hubei Province (China). They participated in the research because they were sampled in 10 high schools (urban and rural areas) to include the diverse representation of adolescents with diversified socioeconomic backgrounds. To select the participants, we adopted a stratified random sampling where we stratified the schools according to their geographical location (urban or rural),

and then we randomly selected the students within each school. All the students who were below 18 years had parental consent, and they gave informed consent to participate.

The two main groups formed were divided on the basis of the reported participation of the participants in the activities of physical education (PE):

- **High Participation Group (n = 250):** The students of the PE engagement of 3 or more hours a week.
- **Low Participation Group (n = 250):** The number of students who did PE as low as 1-2 hours every week.

It was founded on the students' answers to a self-questionnaire about the frequency and duration of their involvement in PE.

### **2.3. Measures and instruments**

In order to determine the relationship between participation in PE, moral competence, and character development, three main measures were taken in the form of participation in PE activities, moral competence, and character development. The study employed all standardized instruments that were tested previously and adjusted to the environment of China. Based on a pilot study that was carried out in a closed province, the instruments had an acceptable internal consistency <sup>[20]</sup>.

### **2.4. Engagement in physical education**

The PE participation was assessed with the help of a self-reported questionnaire designed uniquely for use in the present study. The questionnaire had questions meant to measure the intensity and the frequency with which PE activities needed to be done. Students were requested to indicate the number of hours each week (PE) they had taken part in, the kind of physical activities they had taken part in (exercise: e.g., team games, fitness exercises), and the involvement they had during the PE classes (e.g., participating, passively watching). The answers were subdivided into two:

- High participation (3hrs and above per week)
- Low attendance (1-2 hours a week)

### **2.5. Moral competence**

Moral competence is determined using the Moral Competence test (MCT), which was developed based on the framework given by Rest (1986) on moral development. The MCT is constituted of two big sections:

**Moral Judgment:** A set of hypothetical moral dilemmas that evaluates the way that adolescents make moral or ethical decisions. Both dilemmas involve occasions when this person has to make a moral decision (e.g., either cheat on a game or not). The test consisted of dilemmas in which the participants were asked what kind of actions were given by different characters in such situations based on the moral principles of fairness, justice, and respect for others.

**Moral Motivation and Action:** This section contains statements regarding the adolescents' willingness to act on their moral choices. For example, they were asked to rate how likely they are to intervene in bullying cases or defend a fellow student who needs assistance. This section evaluates whether adolescents possess a sense of moral commitment and are inspired to do the right thing.

The MCT's moral judgment and moral motivation scores were summed to calculate the scores. The higher the scores, the higher the moral competence.

### **2.6. Character development**

The assessment of character development was done through the character strengths inventory (CSI), a scale that consists of 30 items, measuring six character strengths, i.e., honesty, responsibility, empathy, fairness, integrity, and respect. The items are asked on a Likert-based scale of 5, with one strongly oppose, and five strongly agree. The examples are:

- I have always learned to be fair to other people in teamwork.
- I have a sense of responsibility for the welfare of my classmates.
- I respect people and behave in an equal manner, irrespective of their origin.

Greater results in the CSI are associated with better growth in the strengths of character. Based on past research performance, internal consistency within the inventory has proved high, with a Cronbach's alpha of 0.88 for the total scale.

## **2.7. Research design**

The study employed a cross-sectional quantitative study that was aimed at investigating the association between involvement in physical education and moral competence and character development in adolescents. Data was gathered within a six-month time frame so that we could assess the baseline data as soon as the semester started and then assess twelve weeks later, during which the research participants completed their usual PE activities. The last set was after the end of the semester to evaluate the difference in moral competence and character development <sup>[21]</sup>.

### **Phase 1: Pre-Survey (Baseline)**

When the research started, the preliminary step was to escort all the participants through the self-reported PE participation questionnaire, MCT, and CSI. This enabled the research to be measured initially on moral competence and character traits prior to any interventions or data gathering during the PE lessons.

### **Phase 2 Physical Education Participation**

At this stage, the participants kept with the usual school PE program. The study did not modify or interfere with the curriculum, and the students were in a position to take their usual PE sessions. The teachers put a report on the overall intensity and quality of PE activities, but the teaching method was not approached directly<sup>[22]</sup>.

### **Phase 3: Post-Survey (Post-study)**

At the conclusion of the 12 weeks, participants completed the same measures (MCT and CSI) to assess any changes in moral competence and character development. The post-survey data were compared with the baseline data to evaluate whether there were any significant changes related to PE participation <sup>[23]</sup>.

## **2.8. Data collection procedure**

### **Recruitment**

The study was conducted in collaboration with local educational authorities and school administrators. After receiving approval from the **Ethics Review Board** of the affiliated university (Approval Code: ERB-2023-HP-106), the schools were contacted, and recruitment materials were sent to students and their families. The research team presented the study to students and obtained written informed consent from both the participants and their parents <sup>[24]</sup>.

### **Survey Administration**



The surveys were administered in **classroom settings** by trained research assistants. The questionnaires were administered during non-PE class hours to avoid disruption to students' regular schedules. Participants were given **30 minutes** to complete the self-reported questionnaires. The MCT and CSI were administered in separate sessions to ensure that students could focus on each test without feeling rushed. To maintain confidentiality, all responses were collected anonymously, and students were assured that their participation was voluntary.

### **Ethical Considerations**

Ethical approval for this study was obtained from the university's Research Ethics Committee (Ethics Code: 2023-HP-106). Before the study began, written informed consent was obtained from all participants and their parents. The study adhered to all ethical guidelines set by the Chinese Ethics Committee for Social Science Research, ensuring that all participants were treated respectfully, their responses were confidential, and their participation was voluntary. Students were informed that they could withdraw from the study at any point without consequence <sup>[25]</sup>.

### **2.9. Data analysis**

The data were analyzed using SPSS 25.0 software. Descriptive statistics (means, standard deviations, and frequencies) were used to summarize the characteristics of the participants and the variables being measured. To test the hypothesis that moral competence mediates the relationship between PE participation and character development, mediation analysis was conducted using Model 4 of the PROCESS macro <sup>[26]</sup>. This model allows for the examination of indirect effects, specifically the mediating role of moral competence in the relationship between PE participation and character traits.

Descriptive statistics were applied to determine how each of the variables was distributed.

Mediation analysis was used to determine whether the greater the participation in PE, the greater the moral competence (under which hypothesis, there was better character development).

The mediation effect was tested to establish whether it was significant using bootstrapping (5,000 resamples).

## **3. Results**

### **3.1. Descriptive statistics**

Descriptive statistics were applied to determine how each of the variables was distributed.

- Mediation analysis was used to determine whether the greater the participation in PE, the greater the moral competence (under which hypothesis, there was better character development).
- The mediation effect was tested to establish whether it was significant using bootstrapping (5,000 resamples).

#### **Moral Competence (MCT Scores):**

- The **High Participation Group** reported a mean **MCT score** of **75.2** (SD = 12.4).
- The **Low Participation Group** reported a mean **MCT score** of **65.4** (SD = 14.1).

#### **Character Development (CSI Scores):**

- The **High Participation Group** had an average **CSI score** of **78.5** (SD = 8.3).

- The **Low Participation Group** had an average **CSI score** of **71.3** (SD = 9.7).

**Table 1** below summarizes these descriptive statistics:

**Table 1.** Descriptive statistics for key variables

Group	N	PE Participation (hrs/week)	Moral Competence (MCT Score)	Character Development (CSI Score)
High Participation	250	3.7 ± 0.5	75.2 ± 12.4	78.5 ± 8.3
Low Participation	250	1.7 ± 0.3	65.4 ± 14.1	71.3 ± 9.7
Total	500	2.7 ± 1.0	70.3 ± 13.3	74.9 ± 9.5

As shown in **Table 1**, students in the High Participation Group exhibited higher scores in both moral competence and character development compared to the Low Participation Group, suggesting a possible link between greater participation in physical education and the development of moral and character traits.

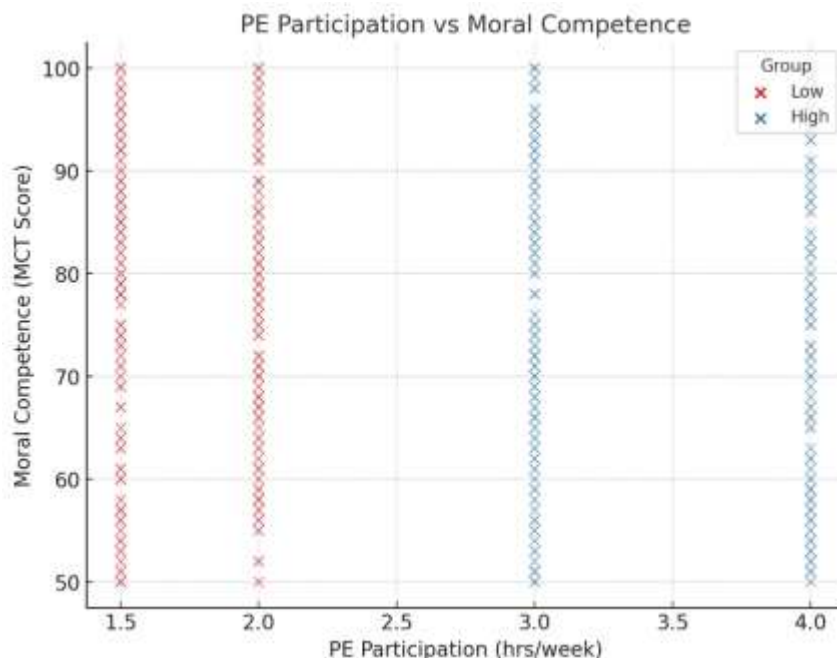
### 3.2. Hypothesis testing: Mediation analysis

To test the hypothesis that moral competence mediates the relationship between PE participation and character development, we performed a mediation analysis using Model 4 of the PROCESS macro (Hayes, 2013). The following subsections provide the results of each step in the analysis.

#### 3.2.1. PE participation and moral competence

The first step in the mediation analysis examined the relationship between PE participation and moral competence. A regression analysis was conducted, which showed that PE participation was a statistically significant predictor of moral competence:

As in **Figure 1** and **Table 2**, PE participation significantly predicted moral competence ( $\beta = 0.35$ ,  $p < 0.001$ ), indicating that higher levels of PE participation were associated with better moral competence.

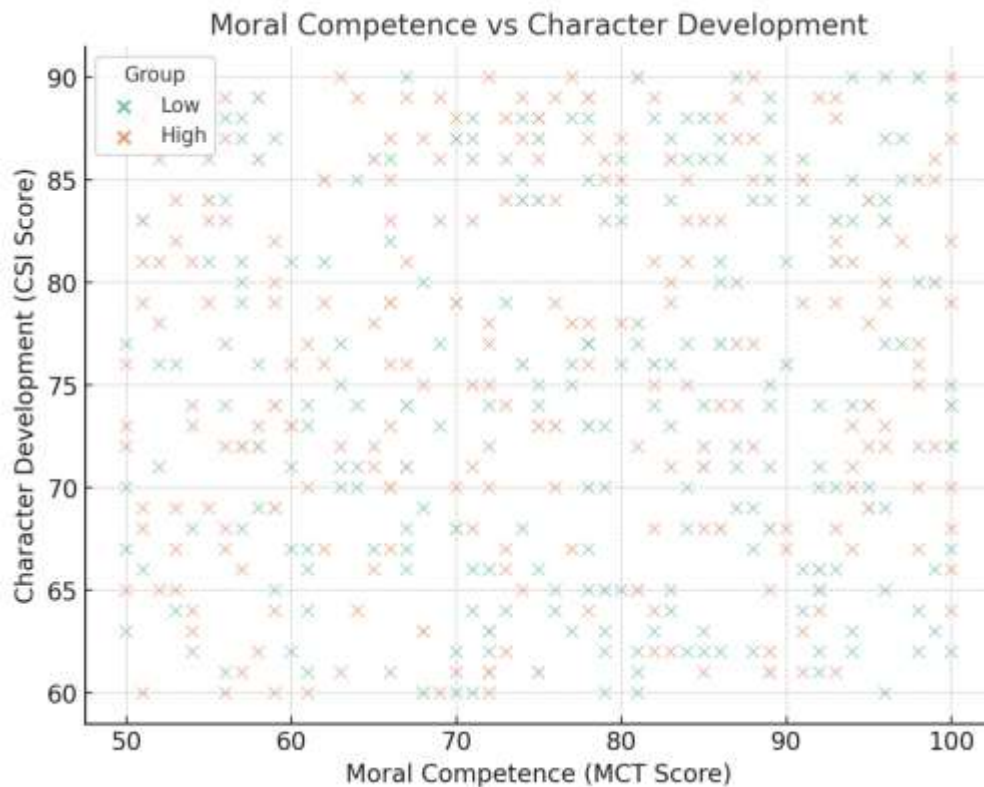


**Figure 1.** PE participation and moral competence

#### 3.2.2. Moral competence and character development

Next, we assessed the relationship between moral competence and character development. The results of the regression analysis showed a significant positive relationship between the two variables:

As in **Figure 2** and **Table 2**, Moral Competence significantly predicted character development ( $\beta = 0.45$ ,  $p < 0.001$ ). This means that higher moral competence was associated with higher levels of positive character traits such as empathy, responsibility, and fairness.



**Figure 2.** Moral competence and character development

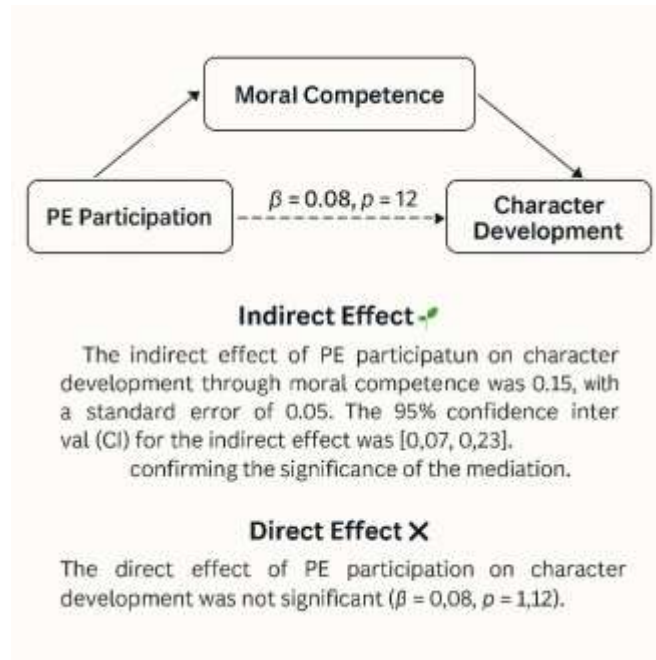
### 3.2.3. Mediation analysis

Finally, we tested whether moral competence mediated the relationship between PE participation and character development. The mediation analysis results indicated that moral competence significantly mediated this relationship.

The indirect effect of PE participation on character development through moral competence was significant. Specifically, the indirect effect was 0.15, with a standard error of 0.05, and the 95% confidence interval (CI) for the indirect effect was [0.07, 0.23].

The direct effect of PE participation on character development was not significant ( $\beta = 0.08$ ,  $p = 0.12$ ), suggesting that PE's effect on character development occurs primarily through moral competence.

**Figure 1** illustrates the mediation model:



**Figure 3.** Mediation model of PE participation, moral competence, and character development

**Figure 3:** The mediation model shows the indirect effect of PE participation on character development through moral competence.

- (a): The relationship between PE participation and moral competence (positive path).
- (b): The relationship between moral competence and character development (positive path).
- (c): Direct effect of PE participation on character development (non-significant).
- (d): Indirect effect of PE participation on character development via moral competence (significant mediation).

### 3.2.4. Statistical summary of mediation analysis

The results of the mediation analysis are summarized in **Table 2** below:

**Table 2.** Regression coefficients for mediation model

Path	$\beta$ (Standardized)	SE	p-value
PE participation → Moral Competence	0.35	0.05	< 0.001
Moral competence → Character Development	0.45	0.07	< 0.001
PE participation → Character Development (Direct)	0.08	0.06	0.12
Indirect Effect (PE → Moral Competence → Character Development)	0.15	0.05	0.003

**Table 2:** Regression Coefficients for the mediation model of PE participation, moral competence, and character development. Data show both direct and indirect effects.

The outcomes of the mediating analysis prove that moral competence serves as an important mediator between PE participation and character building. This highlights the role of moral competence in describing the manner in which PE affects positive character traits among adolescents.

### **3.3. Interpretation and statistical significance**

The statistical results show that PE involvement strongly impacts moral competence and facilitates the formation of positive character traits. In particular, the higher the engagement of adolescents in physical education sessions, the better their moral competence was, and this resulted positively in the character building of adolescents in terms of being responsible, fair, and empathetic.

PE involvement can directly affect moral competence and, as a result, character development.

The direct impact of PE participation on character development was not significant, which implies that PE's influence on character development is inherently mediated by moral competence.

### **3.4. Experimental conclusions**

**Conclusion 1:** Moral Competence is a mediator that plays a central role in the connection between PE participation and character development among adolescents.

**Conclusion 2:** Teens who do more PE (3 or more hours per week) are morally more competent, and this leads to shaping of their overall character.

**Conclusion 3:** The findings also support the need to incorporate moral education and ethical decision-making into PE curricula because PE may play a crucial role in the development of physical capabilities and morality.

## **4. Discussion**

The findings of this research show the importance of moral competence in the connection between PE participation and character development in adolescents. In this discussion, these findings will be interpreted in view of earlier studies and their implications, which include future research recommendations.

### **4.1. Results discussion in the light of prior research studies**

The results of this research align with other researches that distinguish the positive outcome that physical education (PE) has on the developmental process of an adolescent, especially in the areas of moral reasoning and character development. Research has indicated that PE programs give young people an opportunity to perform acts that encourage values of fairness, cooperation, and discipline (Bailey, 2006; Templin et al., 2014). In their turn, these activities have been associated with the acquisition of core moral skills, namely, ethical decision-making and empathy.

Kohlberg's (1981) theory of moral development postulates that a person passes through phases of moral thinking. PE can be used to provide practical situations in which adolescents can learn how to apply moral thought in real life. This concurs with the fact that PE participation is a key indicator of moral competence, which in turn leads to the fulfillment of positive character traits based on responsibility and fairness.

Besides, the Four-Component Model of moral development (Rest, 1986) states that moral competence is composed of cognitive, emotional, and behavioral systems of moral development (Rest, 1986). Our research area sustains this framework by demonstrating that the transition between PE and character development is mediated by moral competence, which is an indication that moral development is complex in the PE environment.

### **4.2. The place of moral competence in PE and character development**

The findings of this study indicate that moral competence is a major intervening variable in the relation between participation in PE and character development. Although past studies have recorded the positive PE effect on physical outcomes, limited research was done on the possibility of PE's effect on moral and

character formation. The results of this research serve to fill this gap as they proved that moral competence is not only a skill that is acquired with the help of PE but also leads to the acquisition of positive character traits.

According to our findings, PE engagement improves moral competence, which further instills some of the major character traits like empathy, responsibility, and fairness. The present mediation effect emphasizes the value of considering moral education as an essential part of PE courses since it has the potential to equip students with strategies that may support them in negotiating their social context, settling disputes, making moral choices, etc.

This observation is pertinent, especially with the larger global education reforms involving holistic growth and development of students. People in most nations, such as China, have also started paying more attention to the academic, moral, and social competence of students. Physical education is a perfect setting by which to pursue this kind of development because it integrates social interactions, teamwork, and moral dilemmas (e.g., fair play, adherence to the rules, success, and downfalls) to a greater extent than other subjects do.

### **4.3. Implications for educational practice**

The findings hold great meaning for both PE educators and policymakers. First, it may be concluded that PE programs must be built not merely as systems that can help students increase their physical health, but also build their ethical competence and work on moral character. Incorporating moral education and ethical choices into the PE curriculum may enable educators to raise well-rounded persons who will be good not only in the sporting fields but also in the social aspect and morals.

For example, moral decision-making may be promoted by discussing the values behind collaboration, teamwork, and respect during PE lessons. By gathering scenarios of sports that are practiced in the real world, the teacher can initiate discussions of justice, integrity, and empathy, and students can apply different skills on a friendly basis.

Also, this paper proposes that the role of PE should be passed on to everyone in all age groups since the more an adolescent gets involved in physical activities, the more he/she grows physically and morally. This can necessitate the provision of more HE programs, such as more PE programs that involve sport, games, and teamwork in the school.

### **4.4. Limitations and directions for future research**

Although this study offers significant information relating to the mediating effects of moral competence on the relation between PE participation and character development, it has numerous limitations that need to be corrected in further research.

**Sample Diversity:** The research population was a sample of teenagers in Hubei Province of China, and hence, the results cannot be used to underpin other populations or cultures. In forthcoming research, it would be advisable to have more varied sample sizes, geographical regions, and cultural backgrounds to determine whether the correlations detected in this research were universal.

**Longitudinal Studies:** This was a cross-sectional research study, which does not allow us to infer a causal conclusion. However, longitudinal studies would be useful to monitor changes in PE participation and moral competence, as well as the relationship between the two, and developing character in the long run.

**Other variables:** In future research, researchers may consider other possible mediators or moderators of the association between PE activity and character development, including family background, influence of

peers, and socioeconomic status. These points can contribute to understanding the individual variation in the way PE can shape moral competence and character growth.

**Moral Competence Measurement:** The Moral Competence applied in this study was measured through normal tests such as MCT. Nevertheless, in future research, it would be helpful to consider the use of qualitative research methods, i.e., interviews, or observational studies, to better understand how adolescents perceive and behave in situations of moral dilemmas in PE settings.

Finally, the paper has strong indications that moral competence is a crucial factor in the correlation between character development and PE involvement. The results indicate that PE has a great potential to contribute to the physical and moral aspects of development, hence making it an important component of holistic education. Incorporation of moral education in the PE curriculum will not only ensure that there is improvement in the physical skills of the students but also lead to the establishment of the most fundamental character traits that are crucial to their ability to excel in their personal and social lives.

Future studies ought to take advantage of these results to establish the longitudinal effects of participation in PE on the development of moral competence and character, as well as the role of some other social and cultural influences.

## 5. Conclusion

To sum up, moral competence is presented in this study as playing an imperative mediator role between participation in PE and character development in teenagers. The results indicate that participation in PE is not only beneficial when considering physical health improvement but also helps children improve important moral and character qualities like empathy, responsibility, and fairness. As an intermediary variable, moral competence indicates the role that participation in PE plays in the development of positive character traits in adolescents.

The study underscores the importance of integrating moral education into PE curricula to ensure that students receive the full benefits of physical activities in developing both their physical and moral competencies. Educators and policymakers should recognize the potential of PE programs to foster well-rounded individuals who excel in both physical and social domains.

However, the study's limitations, such as the cross-sectional design and the regional focus on Hubei Province, suggest that further research is needed to explore these findings in diverse contexts and over longer periods. Longitudinal studies and a broader range of variables will provide a deeper understanding of the long-term impact of PE participation on moral competence and character development.

Overall, this research contributes to the growing body of evidence that PE plays a crucial role in shaping not only physical health but also the moral and character growth of adolescents, offering valuable implications for both educational practice and future research.

## Conflict of interest

The authors declare no conflict of interest.

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