The Culprit Hormone: The Physiological Origin of School Violence amidst Middle School Students

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Abstract: The increasingly severe school violence has become an influential and notorious worldwide problem. The attribution of school violence determines the formulation of coping strategies. Unlike the analysis of family, psychological and social factors, long-term front-line work and follow-up studies have found that student violence’s physiological factors in adolescence are more significant than other factors. The decisive factor leading to school violence among middle school students is the secretion of sex hormones during adolescence, so hormones mostly cause violence. Attributing school violence to “sex instinct” does not deny the role of education; on the contrary, it recognizes the crux of the problem and provides the possibility of finding effective prevention and intervention measures. Using dopamine to antagonize hormones provides a physiological basis for education and violence intervention. Strengthening physical exercise, carrying out activities where boys and girls are present simultaneously, and building a harmonious teacher-student relationship and a friendly campus environment effectively prevent middle school students from campus violence.
**Problem**

The World Health Organization surveyed students from 40 European countries and found 26% said they had experienced violence in the past two months (Craig et al., 2009). UNESCO released a report at the World Education Forum that school violence has become a global public hazard, and 32% of students have been bullied by their peers in school at least once in the past month. According to a survey conducted by the Ministry of Education, Japan, there were 543,933 incidents of bullying in elementary and middle schools in 2018, and 80.8% of schools were confirmed to have bullied, and the “major incidents” of severe physical and psychological damage reached the highest level in history. In 2018, the “Survey Report on School Violence in China” jointly released by the Social Risk and Crisis Management Research Center of Nanjing University and Central South University in China showed that the incidence of school violence in central China was 46.23% (Han et al., 2017). The “White Paper on Juvenile Procuratorial Work (2014-2019)” issued by the Supreme People’s Procuratorate of China in 2020 shows that the number of school violence and juvenile crimes is on the rise, with the highest number of violent incidents among middle school students aged 12-15. School violence hits the moral bottom line, challenges human dignity, and is extremely harmful. All countries have spent colossal human resources and material resources to prevent it, but why does it continue to exist and is still deteriorating?

**Research Foundation**

**Definition**

No consensus is available on the definition of school violence. France defines school violence as “school harassment” (Han & Shi, 2020). The United States regards active, continuous attacks, and the disparity between both parties’ strengths as campus violence (Liu & Zheng, 2019). Norwegian scholar Dan Olweus defined campus violence as a
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student is repeatedly exposed to one or more student-led negative behaviors for a long time, while Germany tends to criminalize campus violence (Wang, 2019). China defines student violence as occurring between students on or off-campus, where one party deliberately or maliciously conducts bullying or insults through physical, verbal, and online methods one or more times, causing physical injury, property damage, or mental damage to the other party. The incident also covers the offensive behavior of outsiders (Yao, 2018). In recent years, related expressions have mostly avoided the word “violence,” but in 2019, UNESCO released “Behind the Numbers: Ending School Violence and School Bullying” (Gu, 2020), from which strict conceptual distinction was made between school violence, school humiliation, and school bullying (Zhang, 2015.). Uncertain concepts will seriously affect the quality of research (Zou et al., 2019). Before 2016, most of the forms of aggressive behavior on campuses were school violence. After 2016, violence, humiliation, and bullying are often confused. The order in which these three words first appeared in the paper is: school violence in 1989, school humiliation in 2002, and school bullying in 2010, reflecting that people are trying to avoid the word “violence” by using “humiliation” and “Bullying” instead. This “plug one’s ears while stealing a bell” approach conceals the situation’s seriousness, diverts people’s attention, and is detrimental to active and effective intervention, prevention, and control. Only by facing reality can the problem be solved. Therefore, the word “school violence” is used without taboo in this paper. The changes in the number of studies of the three concepts are shown in Figure 1.

To clarify the concept of school violence is a necessary prerequisite to prevent its occurrence effectively. This study defines “school violence” from the four dimensions of space, time, object, and degree of injury. No matter when and where an incident occurred between school students, that harms students to a severe degree. In terms of space, it is limited to the specific area of the campus because the campus has many teachers and students, is in the public’s view, and the monitoring is strict, so violence is not easy to occur. Violence among students often occurs outside the school, especially in tiny lanes. There are studies abroad that call violence incidents within 200 meters of the campus as school violence. In terms of time, school violence, in a narrow sense, refers to the period of schooling. Violent incidents mostly occur before and after school. These violations are ultimately the continuation of the contradictions among the students at school, so the time and space are extended to anytime and anywhere. In terms of objects, this refers specifically to violence between students, not between teachers and students, and external personnel explicitly targeting students. The degree of injury is more severe than humiliation and bullying.

Status Quo of Current Research

The 2015 China Education Blue Book pointed out that the age of juvenile delinquency tends to be younger. In June 2015, the Legal Network Public Opinion Monitoring Center announced that 75% of school violence occurred among middle school students. Because elementary school students are still ignorant, and high school students have a
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certain degree of self-control, this research focuses on the group of middle school students.

In response to the persistence of school violence, countries have racked their brains to try various solutions. The United States has set up campus police, allowing children various “adventurous” activities and training children on how to deal with criminals invading campus. Japan has established a “mother agent team” to protect the safety of children. Argentina has allowed vendors to serve as mobile outposts on campus to assist the police in paying close attention to suspicious people. Russia distributes identification cards to students. Germany allows students to learn Tai Chi to defend themselves. In the final analysis, their basis is the Crime Prevention through Environmental Design (CPTED) theory proposed by the scholar Ray Jeffrey in the early 1970s (Zhang, 2015). Although we try our best to achieve 360-degree monitoring without blind spots, close defenses to ensure that there is nothing wrong, it is impossible to prevent, and such incidents are still emerging. The reason is that the diagnosis has not been confirmed, and the real cause of school violence has not been found, so the right medicine cannot be prescribed.

Different researchers have different conclusions about the attribution of school violence. There are family attributions: Perren and Hornung (2005) surveyed 1,107 Swiss students in grades 7-9 that male victims are generally overprotected by their par-
ents, while female victims mostly come from families with emotional abuse (Chinese Government Network, 2018). According to statistics from the World Health Organization, domestic violence occurs in one-third of families worldwide, and at least 50% of minors grow up in a “domestic violence” environment. Such children are more violent, and violent fathers may affect two extreme children: cowardice and violent inheritance. Attributable to sexual orientation: The 2011 National School Environment Survey in the United States showed that 81.9% of LGBTQ students had had the experience of being bullied (Kosciw et al., 2012). There are education levels and even I.Q. Attributions; there are also a large number of psychological attributes and moral character attributes that believe that middle school student’s views are distorted, morally disordered, influenced by violent movies and television, and advocate violence.

According to Rawls’s Theory of Justice, Aijun Zhang analyzed the causes of school violence from three levels: politics, society, and family, and believed that the fundamental cause of school violence was a problem with the system (Zhang, 2016). In 2017, Xuezheng Zhang analyzed 145 papers related to CSSCI source journals related to school violence from 1999 to 2016: education research accounted for 69%, psychology accounted for 16.6%, but no physiological studies (Zhang, 2017).

Among the 50 papers in the CSSCI journal literature on school violence from 2016 to 2020, 11 papers were researched from the lack of legal system construction, 17 papers were made for comparative research between China and foreign countries, six papers specifically defined the concept, and three papers Study female violence. In the past three and a half years, with “school violence” as the keyword, 582 related journal articles were retrieved in CNKI, and no articles were found that analyzed from the physiological point of view, especially sexual physiology (Table 1).

**Analysis of Physiological Attribution**

- **Theoretical Basis**

Hormone originally means “exciting activity” in Greek. It is a substance produced by the endocrine glands and directly enters the blood circulation. The secretion is minimal, but the effect is excellent. It plays a significant role in regulating the body’s metabolism, growth, development, reproduction, sex, and sexual activity. Sex hormones are divided into male and female. The male hormones are mainly testosterone secreted by the testes, which makes men masculine and robust; the female hormones are mainly estrogen and progesterone secreted by the ovaries, making women gentle and charming. Hormone secretion increases sharply during adolescence. Nerves and body fluids regulate human life activities. Body fluid regulation mainly refers to hormone regulation. The difficulty of controlling violent impulses is closely related to the body’s regulation. Hormonal effects occur unconsciously, making the rational side challenging to control. Sex hormones make adolescent children prone to impulse and make mistakes. As Schopenhauer said, “It is the strongest and most powerful activity besides the impulse of life; it occupies half of the golden age of human adolescence, consumes the body’s thoughts and energy, and can produce the most vicious event” (Schopenhauer, 1990).
Sexual desire is an inherent instinct based on human reproduction needs. The violent tendency of desire and impulse is the most profound and most essential existence of life. “Without reproduction, mankind would not develop to this day” people have always valued the sexual physiology and psychology of adolescence. Affected by sex hormones, adolescents are intertwined with anxiety and curiosity, self-awareness is high, and love goes to the opposite side, which quickly leads to violence. Testosterone has been accused of causing bad things in hooliganism, increasing violence, and risk-taking. Female hormones make women compare with each other, jealous, and make trouble for no reason, which becomes the fuse of school violence. The group effect and audience psychology of school violence are mostly the results of hormones. Through violence to satisfy masculinity, many abusers are entirely unaware of it. British scholar Whitehead once put forward “Masculinity Anxiety,” saying that when masculinity is threatened, anxiety and fear will arise. This “fear of unlike a man” overwhelms the sense of morality and compassion and is more likely to produce violence. The group effect of school violence and audience psychology is mostly the result of hormones. Through violence to satisfy masculinity, many abusers are entirely unaware of it. British scholar Whitehead once put forward “Masculinity Anxiety,” saying that when masculinity is threatened, anxiety and fear will arise. This “unlike fear of men” overwhelms the sense of morality and compassion and is more likely to produce violence. Sexual instinct is the strongest desire of human beings. Freud called it the vital life force of human beings and explained everything with it. Although it is a bit excessive, there is some truth in it. Human beings need to maintain the continuity of life and leave their genes to the next generation, and the role of hormones is indispensable.

Related theories and viewpoints include: Adolescent phobia (Adolescent phobia) theory believes that adolescent children’s physical and psychological development are not synchronized, and their desire for performance at this time is extreme. When they cannot find a suitable stage, they will use school violence to vent in form. The drift
theory of juvenile delinquency (The drift theory of juvenile delinquency) believes that young people’s ability to control their behavior is far behind, small things will be infinitely amplified, and inexplicably appear irrational and illogical mania and excitement, resulting in extremely irresponsible behavior (Wang, 2016). Regarding the theory of adolescence, there is Hall’s theory of great turmoil, Freud’s theory of psychoanalysis, Mead’s theory of cultural influence, Bandura’s theory of social roles, and Eriksson’s theory of social psychology stages.

**Physiological Factors: Adolescent Sex Hormones are Making Trouble**

“Sisters have an affair, several of our friends heard the matter, ready to represent her, and teach the two who engaged in the illicit love affair”, the result was the male and female students were beaten up after pulled into the bathroom (Yu, 2016).

The girl was dissatisfied with her ex-boyfriend being in love with someone else, beating her, and taking nude pictures forcibly. Ming Zhang of the Renmin University of China used the Law of the Jungle to study school violence and showed that: “In all violent incidents involving girls, almost all the other girls’ clothes are stripped off” (Zhang, 2016).

There are many similar cases. Through a literature search, case tracking, survey interviews, police station visits, data collection, and comparative analysis, the same conclusions can be drawn. What kind of hatred makes teenagers so cruel? A large number of studies have shown that it is the result of hormonal action during puberty. “Love and war are unscrupulous.” The extreme exclusivity of the relationship between the sexes determines this war’s irreconcilability, so violence occurs naturally. As animals’ instinct, they are fighting for the opposite sex during the breeding period is life-threatening. Not to mention the African lion, the fight between two roosters must also end in one party’s surrender. Darwin’s natural selection theory emphasizes “the survival of the fittest and the weak as the meat of the strong.”

After years of school management, I have dealt with many violent incidents among students. Most students are criticized and educated because they have bad moral qualities and violate school discipline. The parents and the police acted together to confess their mistakes on the surface but did not really repent, and similar incidents happened soon after through the re-examination, thinking, and research of 141 cases that have been memorized and recorded during the 30 years of teaching. As a psychological counselor, he has a deeper understanding of the incident through individual counseling experience for students. It was found that the original cause of 111 of these cases was related to the interaction between adolescent men and women. Finding commonalities can reveal the underlying causes of violence among middle school students.

The relationship between testosterone and aggressive behavior has been confirmed in animal experiments. Dolan’s research on male crimes with personality disorders shows that high levels of plasma testosterone are closely related to increased aggressive behavior, and the average level of testosterone secretion by juvenile offenders
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Investigation and research have found that the inducement of violence in middle school students is mostly related to obscure sexual awareness and sexual initiation during puberty. Violence mostly occurs in the presence of the opposite sex to attract the attention of the opposite sex, excessive self-expression, which is similar to the instinct of animals. Although violent behavior is affected by psychology, its root lies in the physiological changes of the person. Internal factors determine external factors. The primary source of adolescents’ violent behavior is their physiological changes, which result from adolescent hormones. The questionnaire survey found that 74.54% of school violence incidents among middle school students were related to sex, and most of them occurred because they could not correctly handle heterosexual interactions during adolescence.

Coping Strategies: Dopamine Antagonizes Hormones

Facing the hormones, the culprit of school violence, do you feel helpless? As virtue rises one foot, vice rises ten. In physiology, another substance inhibits a substance or that a physiological process restricts another process is called antagonism. Dopamine (dopamine) is a neurotransmitter secreted by the hypothalamus. It can regulate a variety of physiological functions of the central nervous system, relate to human lust and feelings, and transmit information of excitement and happiness. Dopamine, also known as happy growth hormone, increases its secretion during exercise, which can antagonize the damaging effects of sex hormones and reduce school violence.

In other words, to attribute school violence to physiological factors and adolescent sex hormones does not deny the human intervention’s effectiveness, nor does it mean that education is powerless. On the contrary, with this research conclusion, intervention and education can be effectively carried out in a targeted manner.

Release the Energy of Adolescence through Physical Exercise

The physiological characteristics of adolescence determine school violence-interview and survey of a martial arts school near Shaolin Temple in Dengfeng, China. There are 86 martial arts schools with 157,392 students. Among the 143,721 students between the ages of 13-18, violence incidents rarely occur, and part of this group is because of family or clan being bullied, and then came to the martial arts school to learn Kung Fu for revenge. There are two main factors at play: one is that the daily martial arts training has exhausted them, and there is no extra strength to violent other students; the other is that martial arts schools are male (the proportion of boys is more than 90%), and very few girls there and they also train and live alone, and the factors that induce violence.
among students no longer exist due to the scarcity of girls. This also confirms the conclusion of the study from another aspect.

Our school has developed school-based courses in recent years, combining martial arts teaching and sports, increasing the frequency and intensity of exercise, significantly increasing confrontational games, such as boxing, karate, basketball, football, badminton, and other sports. This not only played a role in strengthening the body but also significantly reduced violence among students.

Studies have shown that the number and duration of physical activity participation are negatively correlated with school violence tendency: the increase in physical activity and the decrease in school violence tendency. Positive emotions and collective violence tendencies are also negatively correlated. For middle school students in adolescence have healthy hormone secretion and are over-energetic, they need proper ways to vent, and physical exercise and physical labor are the best forms (Guo, 2017). Therefore, our intervention focuses on the popularization of sports activities and vents the body’s excess energy through physical exercise and physical fitness.

**Carry out Activities Where both Male and Female Students are Present to Guide Normal Communication**

Create conditions to carry out as many activities as possible so that male and female students can contact and eliminate the mystery brought by gender. Encourage male and female students to interact in public places. For example, recess can also be carried out in ballroom dancing, mental health classes can be group tutoring classes “Trust Journey,” and activities such as climbing the “graduation wall” and trust back throws in the expansion activities are all excellent choices.

*Figure 2* shows a climbing “Graduation Wall” activity that I designed when I took the 7th-grade freshmen during military training. All the students in the class had to climb the 4-meter-high wall, and the ladder sent up only the first student. This is the hardest step. The students on the lower level supported a few classmates with their shoulders to the second level, and then a boy with strong arms stepped on the shoulders of the second level student, grabbed the edge of the wall, and turned his body over the wall. This process is challenging to succeed every time, and students need to sum up the lessons after repeated failures and start again. At this time, there are no boys or girls. They all want to contribute as much as they can to the collective. When all the students overcame the wall, the teachers and students hugged each other and cried. Under the influence of this kind of collective identification and boys’ and girls’ presence, how can there be hatred and violence?

Another case: a group of girls fainted in a private suburban middle school. As long as one girl fainted, the other girls fainted one after another, and the hospital could not detect any organic diseases. After investigation and analysis, experts believe that this phenomenon is psychogenic. Due to the distance from the urban area, the school adopts closed boarding management. Communication between male and female students is not allowed, and the male and female dormitories are entirely separated. Under
this kind of high-pressure control, once, a girl suddenly fainted. Because of a sudden incident, everyone was caught off guard and swarmed; some people pinched Renzhong acupuncture point, and some people performed cardiopulmonary resuscitation; there were no boys and girls scrupulous at the time, and then a boy picked the girl up. So I took her to the hospital. After that, the opening scene appeared. Later, experts suggested that the school demolish the wall between male and female dormitories, promote regular exchanges between male and female students, and carry out ballroom dancing activities. This phenomenon has never happened again.

**Build a Harmonious Teacher-Student Relationship**

Pascale Benoliel surveyed 692 students and 92 principals in Israel, and the structural equation model showed that a harmonious and good teacher-student relationship could reduce school violence (Benoliel, 2020). Under UNESCO and the European Union’s influence, Spain had implemented the “Campus Coexistence Policy,” established national and local campus coexistence observatories, opened school violence hotlines, organized campus coexistence conferences, established campus coexistence awards, and strengthened relevant teacher training. The evaluation showed that these policy measures had achieved good results and were recognized by the Spanish education community (Sun & Yang, 2019). The construction of “Happy Campus” in South Korea was also to build an excellent teacher-student relationship to reduce violence.
Conclusions

Because of the seriousness of reality, we will not avoid the term “school violence,” and focus our research on the specific group of middle school students, and define middle school violence as no matter when and where occurred in a more physical severe conflict than humiliation and bullying injuries between middle school students. Through literature, questionnaires, and interviews, we found the internal cause of such events, that is, due to the healthy secretion of adolescent sex hormones. The study found that the causes of school violence in middle school students are physical and physiological reasons. This does not mean that education and external interventions can do nothing about school violence in middle school students. On the contrary, the right medicine can be prescribed. Good results can be achieved through the targeted enhancement of the quality and quantity of sports, collective activities, and group psychological counseling. Both boys and girls replay and construct a harmonious teacher-student relationship and campus atmosphere.

Notes

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