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美國中學生參與學校運動代表隊與偏差行爲發生的相關性之實證研究

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摘　要

青少年參加學校運動代表隊是否能夠有效防制偏差行爲的發生，或者是增加青少年偏差行爲的發生率？這是一個非常爭議的問題。只可惜，很少經驗研究就此一議題作詳細的探討。所以本研究嘗試回答下列兩個問題：(一)參與不同類型的學校運動代表隊是否與青少年偏差行爲存在著不同的關聯性？(二)參與某一類型的學校運動代表隊是否與不同種類的偏差行爲存在著不同的關聯性？本研究主要使用一九九〇美國國家教育長期追蹤資料庫，其中樣本包括 20,706 名中學生。本研究包涵三個依變項：違反校規行爲、暴力行爲、吸食大麻；而自變項則是參與不同類型的學校運動代表隊。在分析資料數據方面，主要採用巢式多元迴歸及邏輯迴歸統計分析技巧。研究結果顯示，參與不同類型的學校運動代表隊與青少年偏差行爲有著不同程度的關聯性。其次，參與某一類型的學校運動代表隊與不同種類的偏差行爲也存在著不同程度的關聯性。這些發現可能暗示著不同類型的運動項目有著不同的內容特性、訓練形式及比賽規則，所以導致與青少年偏差行爲的發生產生不同程度的關聯性。在研究報告中也對未來相關研究提出具體建議。

關鍵字：學校運動代表隊、青少年偏差行為

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The Relationship between Participation in Interscholastic Sports and Delinquency in American High Schools

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Abstract

Does participation in interscholastic sports have positive or negative relationships with adolescent delinquency? Though an arguable question, few empirical studies have focused on this topic. This study therefore, attempts to answer two questions. First, do different kinds of interscholastic sports have varied relations with the tendancy toward of adolescent delinquency? Second, does participation in one kind of interscholastic sport have variou effects on different forms of adolescent delinquency? This study used data from the first follow-up survey of the National Education Longitudinal Study in 1990 which consisted of 20,706 high school students. This research included three dependent variables: misbehavior at school, engagement in physical fighting at school, and the use of

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marijuana. Participation in different kinds of interscholastic sports was the independent variable. Moreover, the method of nested multiple and logistic regression was employed to analyze the collected data. The results displayed two meaningful findings. First, participation in different kinds of interscholastic sports had various relationships with adolescent deviant behavior. Secondly, participation in the same sport had various associations with different types of deviant behavior committed. This could possibly be attributed to the different activities and processes (i.e., rules, construction, practice, etc.) associated with each sport. Clearly, various relationships between participation in different kinds of interscholastic sports and adolescent delinquency were. Suggestions for future research are also presented in this study.

Keywords: interscholastic sports, delinquency

Introduction

Are there positive or negative relationships between participation in school sports and adolescent deviant behaviors? This is an arguable question. The results of studies indicate that participation in sports contributes to physical well-being, social adjustment, and self-esteem for adolescents (Kane, 1988;Thirer & Wright, 1985; Zarbatany, Hartmann, & Rankin, 1990). On the other hand, the results of other research shows that athletes are more likely to engage in deviant behaviors (Buhrmann & Bratton, 1978; Coakley, 1981; Schneider & Eitzen, 1983). There may be different influences of participation in different kinds of interscholastic sports on adolescent well-being. Few empirical studies have been interested in the study of relationships between different kinds of school sports and adolescent behaviors. If impacts of participation in different school sports are not controlled, the inconsistent results will be reported in different empirical studies of the effects of participation in school sports on the development of adolescent behaviors. The purposes of this study have two tasks. The first is to find out whether there are significant relationships between participation in school sports and adolescent deviant behaviors. Second, the influences of participation in different school sports on adolescent behaviors will be examined. It tries to show whether different kinds of school sports have discrepant impacts on the development of adolescent well-being and deviant behaviors.

Positive Effects of Participation in Sports

There are two general theoretical perspectives that address the issue of participation in activities as a link to adolescent behaviors/development. The first is Hirschi's (1969) social control theory in which he examined conventional and organized activities as one type of social control. According to Hirschi, the social bond consists of four parts: attachment, commitment, involvement, and belief, which act

together to determine how likely adolescents are to commit deviant behaviors. Attachment refers to connections with other persons, adults, or groups, such as parents and peer groups, which serve as reference groups. When youths have close affectional ties to others and identify with others, they care about others' expectations (Akers, 1997). Adolescents who participate in sport care about their coach's order and teammates' opinions. As a result, athletes are more likely to obey the rule of group and conform their peers. Commitment refers to the results of a cost-benefit analysis. In fact, commitment is the investments accumulated in terms of sake in conformity (Shoemaker, 1990). In other words, adolescents who participate in sports activities are less likely to engage in deviant behaviors based on the costs and the benefits of conformity to rules of these activities. Youths understand that they will be asked to leave the team when they break the rule or commit delinquency. Involvement refers to the assumption that individuals who spend considerable time and energy participating in conventional and legitimate activities have no time to engage in deviant behaviors. Therefore, if adolescents spend more time and energy engaging in sports activities, they will have less time to commit delinquency. Finally, belief refers to the acceptance of the conventional value system. Based on Hirschi's argument, youth who participate actively in sports activities are expected to be less likely to participate in deviant behaviors because these activities can establish and strengthen the social bond through obeying the values and rules of sport as a buffer against deviance. According to Hirschi's argument, youth who are involved in sports activities are less likely to participate in deviant behavior because their participation in sports activities can strengthen the social bond that acts as a social control.

The second perspective is catharsis theory of aggression. The general premise here is that people always face a lot of pressure from internal instinct and external environment, and individuals need to find a means to relieve the degree of pressure in order to maintain a safe setting (Storr, 1985). Based on catharsis theory, human organism is seen as a steam boiler. To maintain optimal operation, the boiler must have

a safe way to reduce excess force (Figler & Whitaker, 1995). According to this theory, if adolescents cannot find an adequate way to release their internal and external pressure, they are more like to rely on violent reaction to face the stress. Conversely, participation in sports activities may provide adolescents with an additional source of satisfaction; therefore, it can prevent adolescents from engaging in reactive aggression. The evidence that sport provides a reliable avenue to discharge excess pressure because physical exercise can generate a sense of physical and psychological well-being (Bennett, 1991). Like Figler and Whitaker's (1995) statement: "sport provides a ready outlet for hostile aggressive tension of nations and is the best hope for humanity, given the pressures of modern life, politics, war, and weaponry" (p.238).

According to the above theoretical viewpoints, participation in sports has two major functions to prevent adolescents from engaging in delinquency. The first function is the social integration. Adolescents who associate themselves with sports teams need to attach to their coach and teammates very well in order to have a good performance. Young athletes always have feelings of friendships and belonging within a team through exercises and competitions in sports (Figler & Whitaker, 1995). Also, in order to keep the status in a sports team, athletes need to follow the rules of sports and face the supervision of coaches. As a result, young athletes are able to learn socially approved attitudes and values in sports activities. Like Hirschi's (1969) argument, adolescents who closely attach to adults and peers are less likely to involve in delinquency. Moreover, adolescents participating in sports activities can improve their social skills because they usually and closely interact with peers and adults.

The second is the socioemotional function. Sports activities can help individuals release psychological tension. Young athletes learn how to manage tension and conflict through the process of practice and competition in sports. The process of sports exercises can give individuals a lot of enjoyment and relaxation. Participation in sports activities can reduce adolescent deviant behaviors by allowing release of tension and strengthening bonds between participants and members of the traditional power

structure, i.e., coaches and teachers (Agnew & Petersen, 1989; Crain, 1981).

Empirical researches also suggested that the function of athletics is to enhance the adolescent's psychological as well as physical development (i.e., learning sports skills, positively influencing one's self-concept, and developing intimate relationships with peers). Sports exercise is good not only for the body but also for the ethical development of adolescents (Dozier, Lewis, Kersey, & Charping, 1978). Moreover, Maton (1990) asserted that aspiration level, participation in meaningful instrumental activities, i.e. sport, might affect both life satisfaction and perceptions of value in daily activity. Adolescents are able to satisfy their aspirations through the process of participation in sports activities as socially accepted channels.

The results of Schafer's (1969) study from Midwestern high schools showed that young athletes were less likely to commit delinquent behaviors than young nonathletes. The findings of Browne and Francis' (1993) empirical research indicated that students who frequently participated in sports activities were more likely to be attractive, popular, and socially skilled. Moreover, Koss and Gaines (1993) reported that drug use is lower among intercollegiate athletes than among nonathletes.

For the school performance of athletes, Schafer (1969) tried to understand whether participation in high-school athletics influenced academic achievement. The samples of this study were collected from two Midwestern high schools. He found that athletes are more likely to earn higher grades than nonathletes in junior high school. The results of Sabo and his colleagues' (1989) study supported Schafer's findings. Students engaging in school sports were more likely to earn better grades, drop out less, have higher aspirations, attend college more often, and attain more years of college education.

Based on these scholars' arguments and research findings, there are functions of sports to positively influence the development of adolescent behaviors, such as school performance, interpersonal relationship, personality, etc. Landers and Landers (1978) stated:

> some of the often claimed contributions of athletics have included: development of a competitive spirit, ability to cooperate, sportsmanship, good manner, courage, a greater capacity for delay of gratification, persistence, resistance to pain and fatigue, and a release from tension and aggressive impulses (p. 299).

The light of these empirical researches indicated that participation in school sports have positive effects on the development of adolescent behaviors. In other words, students who participate in school sports are more likely to be attractive, popular, better, socially killed, and so on.

Negative Effects of Sports

There are two major perspectives to argue that participation in sport has negative association with the development of individual behaviors, for example engaging in violent behaviors and using drugs.

The first is the perspective of transformed aggression. Butt (1987) argued that sports behaviors possess a unique position in physical and psychological aggression. She defined aggression as "the energetic assault on animate or inanimate objects for a purpose" (p.15). Sport activities cover different types of aggression (Butt, 1987). Trait aggression means that sports reward persons who are high in biological aggression. Therefore, athletes are more likely to be aggressive. A second type of aggression in sports is called socialized aggression in which athletes become more aggressive through training and practice. The experience of participation in aggression in sports brings more aggression during the athletes' life. In other words, aggression may be transformed from sports activities to daily activities. According to aggression theory, students who participate in school sports are more likely to engage in physical fight. Youths involved with sports learn to define violence as a useful tool for achieving their goals. Bernard (2000) used the data of Saskatchewan Youth Attitudes 1997 Survey to test the relationship between participation in sports and adolescent violence. The

sample was administered to 2,605 high school students throughout the province of Saskatchewan, Canada. The results showed that participation in sports is the major factor which causes male adolescents to be aggressive and abusive to female adolescents (Bernard, 2000). The adequate reason to explain this finding is that athletics-based subcultures significantly construct masculinities and femininities in adolescents in which male adolescents are more likely to aggress female adolescents (Miedzian, 1991). Moreover, according to various reports in the press from 1993 to 1994, between 70 and 100 athletes and coaches have been accused of assault against a woman each year (Lapchick, 2000).

The second is the perspective of positive deviance. Hughes and Coakley (1991) mentioned "positive deviance" as the over conformity to the norms and values of sports by athletes through transforming positive behaviors into negative behaviors, for example, the use of performance-enhancing drugs in sports. In other words, in order to win a game or have a good performance, athletes would use every strategy, even use illegal means. Following Hughes and Coakley's statement, Miracle and Rees (1994) argued that "the conformity of athletes to this culture helps to create very strong bonds that can form the basis of negative behaviors, especially among athletes who have low self-esteem and are vulnerable to group demands, or among athletes who regard sports as their only opportunity for success in life"(p. 118). Athletes are more likely to use drugs than nonathletes. The reason is that student athletes deal with the maintenance of athletic performance while responding to injuries and stress by using illegal drugs (Wechsler & Davenport, 1997).

Based on the above theoretical viewpoints, we may be able to understand why Segrave and Chu (1978) found a higher rate of delinquency among young male athletes than among young male nonathletes. The results of Buhrmann and Bratton's (1978) empirical research also showed that female athletes are more likely to engage in delinquent behaviors, including smoking, drinking, breaking school rule, cheating on tests, and getting into trouble with the law, than female nonathletes.

The results of an empirical study showed that a number of athletes believe the use of drug supplements can increase testosterone, as performance enhancers (Johnson, 1998). Additionally, Ray (2000) examined the attitudes of college athletes toward the use of painkilling drugs. A number of student athletes think that there is nothing wrong with using painkillers as an illegal drug for sports activities. Bower and Martin (1999) developed a study by sampling 50 African American basketball players, representing 11 southeastern colleges. These players ranged in age from 18 to 23 years. The results displayed that of the 50 athletes in this study, 72% reported having consumed alcoholic beverages, and 46% had engaged in binge drinking. Eight percent of selected athletes used alcohol and tobacco, and their use of alcohol and tobacco would reduce during the competitive season. In fact, there are a number of empirical studies found that athletes tend to use illegal drugs frequently (i.e., Anderson, Albrecht, McKeag, Hough, McGrew, 1991; Denham, 1997; Selby, Wechsler, Moeykens, Davenport, Castillo, Hansen, 1995; Weinsten, Bird, 1990).

Relationship between Different Kinds of Interscholastic Activities and Different Types of Delinquency

The inconsistent results are found in different studies for the impact of participation in school sports on adolescent well-being. These studies do not consider that the effects of different types of school sports on the development of adolescent behaviors are varied. Therefore, if our explanation of relationships between athletes and deviant behaviors are based on one particular school sport or combination of several school sports, the inconsistent results will be found.

Zimmerman and Maton (1992) stated that only some kinds of activities prevent deviant behaviors, and others may cause adolescent deviance. They argued that meaningful instrumental activities may preclude adolescents engaging in deviant behaviors. They define meaningful instrumental activities as "task-or skill-related

experiences that have positive implications for one's psychological well-being and sense of environmental mastery"(p. 112). The positive or negative effects of participation in interscholastic sports on adolescent behaviors are dependent on those sports constructions, rules, qualities, and the like.

Smit (1996) asserted that athletes participating in different sports are related to different degrees of violence. Each interscholastic sport has the official rules of body contact performed within the competition. Smith (1996) also mentioned that "such contact is inherent in sports such as boxing, wrestling, ice hockey, rugby, lacrosse, football, and to lesser degrees in soccer, basketball, water polo, team handball, and the like" (p.162). In other words, the practices of some sports are significantly related to violence, while other sports are not.

Based on Zimmerman and Maton's statement and Smith's argument, different types of interscholastic sports have different competition rules, practice processes, cooperation levels, and aggression degrees. As a result, when researchers attempt to understand the relationships between athletes and deviant behaviors, different types of school sports should be controlled in their study.

Problem Statement

According to theoretical arguments and findings of empirical studies, participation in interscholastic sports has influences on the development of adolescent behaviors. Participation in school sports is able to limit or develop adolescent delinquency. The explanation for this puzzle may be that different kinds of interscholastic activity have positive or negative effects on the development of adolescent deviant behaviors. Therefore, this study tries to answer the following two questions. First, do different kinds of interscholastic sports have varied relations with the occurrence of adolescent delinquency? In this study, different types of interscholastic sports will be classified in the analysis in order to understand what kinds of school sports have positive effects and what types of school sports have negative impacts on adolescent engaging in deviant

behaviors. Second, does participation in one kind of interscholastic sports have various effects on different types of adolescent delinquency?

Research Method

Data

The National Education Longitudinal Study of 1988 [NELS:88] has been useful data for the study of the relation between school athletes and adolescent deviance, such as misbehavior at school, drug use, and physical fights at school. The data were developed and practiced by the National Opinion Research Center at University of Chicago and sponsored by the U.S. Department of Education. The sample was a two-stage stratified probability sampling design that was utilized to build up a nationally representative sample of schools and students. The first stage was to select 815 public and 237 private schools from four areas in the Unites States, including Northeast, South, North Central, and West. The second stage developed a random selection of 26,435 students among the sampled schools. NELS:88 included high school students' transition from 8th to 12nd grade as a national longitudinal study. The data series begins with the year 1988. The first follow-up was surveyed in 1990, and the second follow-up was conducted in 1992. NELS:88 not only included about 25,000 students, but also surveyed students' parents, teachers, and the school administrators (Horn & West, 1992). This study uses data from the first follow-up survey in 1990 which consisted of 20,706 students and 695 variables.

These data include measures of many important individual backgrounds, values, and behaviors of American youth. In addition, the respondents were also asked whether they participated in different kinds of interscholastic activities, such as baseball, basketball, football, soccer, and swimming team. Some students participated in more than one interscholastic sport. Based on these data, the effects of different types of interscholastic activities on the development of adolescent well-being can be measured

and analyzed.

Measurement

This study attempted to find out the complex relationship between participation in interscholastic sports and delinquency. Therefore, the analysis of this study included three types of adolescent misbehave. The independent variables were mainly participation in different kinds of interscholastic sport. A set of control variables was also control in order to avoid the spurious relation. The following was to describe the measurement of each variable in detail.

Dependent Variables Both theoretical viewpoints and empirical studies have identified that participation in interscholastic sport had negative or positive impacts on adolescent deviant behavior, such as misbehavior at school, drug use, and physical fight. Consequently, this study included three dependent variables: misbehavior at school, commitment to physical fight at school, and using marijuana.

Students' misbehavior at school consisted of six items: (1) respondent was late for school, (2) respondent cut or skipped classes, (3) respondent got in trouble, (4) respondent was put on in-school suspension, (5) respondent was suspended or put on probation from school, (6) respondent was transferred to another school for disciplinary reasons. The students were asked "how many times did such things happen to you in the first half of the current school year?" Students who had higher scores were more like to engage in misbehavior at school. The reliability for these questions is 0.65. Commitment to physical fight at school was dummy recoded: 0=never; 1=one or more than one. To measure using drugs, students were asked "on how many occasions have you used marijuana in your lifetime?" Drug use was also recoded: 0=never; 1=one or more than one occasion.

Independent Variables In this study, interscholastic activities were only considered in the measurement of school sports. Interscholastic sports meant one school team competed with other school teams. To measure school sport, students were

asked "did you participate in any interscholastic sport?" Moreover, these sports were recoded as a set of dummy variables (1=yes; 0=no): baseball, basketball, football, soccer, swimming, participation in more than one sport, and nonparticipation in any interscholastic sport as the reference category. The impacts of friend's attitudes toward sport were also examined in this study. Respondents were asked whether their friends felt sports were important. The response choices consisted of: 1=not important, 2=somewhat important, 3=very important.

Control Variables Phillips (1993) argued that when researchers study the relationship between athletic and adolescent delinquency, family background and personal characteristics, such as social class, family structure, parental education, gender, race, etc., should be controlled. For example, Miracle and Rees (1994) stated that high school students from lower socioeconomic background were more likely to experience frustration in school. Sports activities may give those students satisfaction. The results of this study implied that students in different social classes had different effects of school sport participation on the development of adolescent delinquency and academic achievement.

For personal characteristics, gender was dummy coded as 1=male or 0=female. Race was recoded into three dummy variables: White, Hispanic, and other race, with Black as the reference category. Individual self-esteem contained eight items: (1) feels good about him/herself, (2) does not have enough control over life, (3) feels he or she is a person of worth, (4) able to do things as well as others, (5) satisfies him/herself, (6) feels useless at times, (7) thinks he or she is no good at all, (8) does not have much to be proud of. The response choices for self-esteem was from strongly disagree to strongly agree. Higher scores indicated respondents have higher self-esteem. The reliability for these eight questions was 0.82.

A set of variables was used to control the impacts of family factors. Family structure was dummy recoded as 1=intact family or 0=non-intact family. To measure the relationship between students with their parents, students were asked whether they

did get along with their parents. The response categories were: 1=not along with their parents, 2=only along with either one, 3=along with both. The measures of parents' helping and checking respondents' homework consisted of two questions: (1) how often parents check respondents' homework, (2) how often parents help respondents with homework. The response categories were recoded: 1=never, 2=rarely, 3=sometimes, 4=often. The reliability for these questions is 0.70. A set of items that was used to measure the degree of students' discussion with their parents consisted of: (1) discussed school courses with parents, (2) discussed school activities with parents, (3) discussed things studied in class with parents, (4) discussed grades with parents. The response categories were recoded: 1=never, 2=sometimes, 3=often. The reliability for these four questions was 0.77. Family socio-economic status (SES) was the combination of father's education level, mother's education level, father's occupation, mother's occupation, and family income. Family socio-economic status composite was standardized to a mean of 0 and a standard deviation of 1. The higher the score the higher socio-economic status respondents' families have.

For school variables, the evaluation of school grades contained four subjects: mathematics grades, English grades, history grades, and science grades. The reliability for these four grades was 0.82. The grades ranged from 1 to 8. High scores indicated better school grades. School region was recoded as a set of dummy variables (1=yes; 0=no): Northeast, North Central, West, and the South as the reference category. School area was also dummy recoded (1=yes; 0=no): urban areas, suburban areas, and rural areas as the reference category. Two items that measured time spent in homework consisted of: time spent on homework in school and time spent on homework out of school. The response included a set of categories: 0=none, 1=1 hour or less, 2=2-3 hours, 3=4-6 hours, 4=7-9 hours, 5=10-12 hours, and 6=over 15 hours.

Analysis

There were three dependent variables and a set of independent variables in this

study. Multiple regression analysis was used to test the usefulness of predictors of students' misbehaviors at school. The results of regression analysis could describe different aspects of the relationships between students' misbehavior at school and participation in different kinds of interscholastic.

Two of the three dependent variables had very skewed distribution with many cases having a value of zero. There were lifetime using marijuana and engaging in physical fights at school. Lifetime marijuana use was recoded to zero and one with zero meaning no experience, and one meaning one or more instances of marijuana use. Engaging in physical fights at school was also recoded to zero and one, with zero meaning no reported physical fights, and one meaning one or more. Logistic regression analysis was used to test the usefulness of predictors of each of the dependent variables that were dichotomous variables. Logistic regression estimated parameters using maximum likelihood method.

Three reduced models, without effects of controlled variables, were first tested to see participation in which school sports variables were useful for predicting each of the three dependent variables: students' misbehaviors at school, marijuana use, and physical fights at school. The full models were then examined to find out whether there were still significant effects of participation in sports on the three dependent variables, while controlling effects of personal characteristics, family backgrounds, and school factors. In addition, the light of full models could also indicate whether there were discrepant impacts of participation on different interscholastic sports. After fitting restricted models to the data, the results could be used to make inferences regarding the validity of hypotheses. This analytical strategy was also to evaluate the relationship between participation in interscholastic sports and adolescent delinquency, guarding possible spurious relations.

Results and Discussion

Table 1 showed summary statistics for school misbehavior, marijuana use, and

physical fights at school, personal characteristics, family backgrounds, school factors, and participation in interscholastic sports. The mean score of students engaging in misbehaviors at school was 0.58, with a standard deviantion 3.8. A higher score indicated greater commitment to school misbehaviors. With regard to drug use, of the respondents, twenty percent reported that they had used marijuana. Furthermore, seventeen percent had the experience of physical fights at school. The detailed distribution of students participating in different kinds of interscholastic sport was also showed on Table 1.

The model 1 in Table 2 indicated that students participating in baseball (B=-.094; $p \leqq .001$), basketball (B=-.099; $p \leqq .001$), and swimming (B=-.079; $p \leqq .05$) were less likely to engage in school misbehaviors. However, adolescents who participated in football (B=.162; $p \leqq .001$) were more likely to commit school misbehaviors. Students whose friends felt school sports were important were less likely to engage in school misbehaviors (B=-.057; $p \leqq .001$). Finally, participation in soccer and more than one sport was not significantly related to school misbehaviors.

After including effects of controlled variables, the significant relationship between participation in basketball, swimming, and friend's attitudes toward to sports and misbehaviors disappeared (See Model 2, Table 2). On the other hand, participation in baseball and football still had significant relation with misbehaviors. Interestingly, the relationship between participation in more than one sports and misbehaviors became significant (B=.051; $p \leqq .01$). The full model with twenty-four independent variables accounted for only 21 percent (R^2=.212) of the variance in the dependent variable, engaging in school misbehaviors.

Table 1. Descriptive Statistics of the Variables in the Analysis

Variable	Mean	Percent	n
Dependent Variables:			
Misbehavior at school (Index)	.58	-	18097
Marijuana use			16661
Yes	-	.20	3332
No	-	.80	13329
Engaging in physical fight at school			18013
Yes	-	.17	3062
No	-	.83	14951
Sports:			
Participation in School Sports			16191
Participation in Baseball Team	-	.04	648
Participation in Basketball Team	-	.06	971
Participation in Football Team	-	.06	971
Participation in Soccer Team	-	.03	486
Participation in Swim Team	-	.02	324
Participation in More Than One Sport	-	.10	1619
Nonparticipation in Any Sport (Reference)	-	.69	11172
Friends' Attitudes toward Sports	2.14	-	17098
Personal Characteristics:			
Gender			19344
Male	-	.50	9672
Female (Reference)	-	.50	9672
Race			19308
White	-	.66	12743
Other Races	-	.10	1931
Hispanic	-	.13	2510
Black (reference)	-	.11	2124
Self-Esteem (Index)	3.04	-	17330
Family Factors:			
Along with Parents	2.77	-	15456
Parents Check or Help Students' Homework	2.49	-	16768
Discussion with Parents	2.13	-	16433
Intact Family			17381
Yes	-	.69	11993
No	-	.31	5388
Socio-Economic Status (Index)	-.03	-	18668
School Factors:			
School Grade	5.66	-	17754
Time Spend on Homework	2.30	-	17279
School Areas			19375
Urban	-	.29	5619
Suburban	-	.56	10850
Rural (Reference)	-	.15	1906
School Regions			19426
Northeast	-	.19	3691
North Central	-	.26	5051
West	-	.20	3885
South (Reference)	-	.35	6799

Table 2: Ordinary Least Squares Estimation (OLS) for the Sports' Effect on Adolescent Misbehavior at School

Variable	Model 1		Model 2	
	B	S.E. (Adjusted)	B	S.E (Adjusted)
Sports:				
Participation in School Sports (Nonparticipation in Any Sports as Reference)				
Participation in Baseball Team	-.094	.025***	-.068	.023**
Participation in Basketball Team	-.099	.022***	-.005	.020
Participation in Football Team	.162	.026***	.077	.021***
Participation in Soccer Team	-.026	.031	.043	.028
Participation in Swim Team	-.079	.036*	-.023	.032
Participation in More Than One Sport	.035	.018	.051	.017**
Friends' Attitudes toward Sports	-.057	.008***	-.007	.007
Personal Characteristics:				
Gender (Dummy 1=Male)			.068	.010***
Race (Black as Reference)				
White			.018	.017
Other Races			.009	.024
Hispanic			.086	.023***
Self-Esteem (Index)			-.027	.011*
Family Factors:				
Along with Parents			-.094	.010***
Parents Check or Help Students' Homework			-.049	.006***
Discussion with Parents			-.122	.012***
Intact Family (Dummy 1=Yes)			-.084	.010***
Socio-Economic Status (Index)			.028	.007***
School Factors:				
School Grade			-.116	.004***
Time Spend on Homework			-.020	.004***
School Areas (Rural as Reference)				
Urban			.111	.015***
Suburban			.073	.013***
School Region (South as Reference)				
Northeast			.037	.014**
North Central			.013	.012
West			.135	.014***
(Constant)	.659	.015***	1.887	.046***
R^2	.015		.212	
n	11198		11198	

*Significant at .05 Level,**Significant at .0.1 Level,***Significant at .001 Level

Note: In order to avoid overestimating the significance test while weighting the sample, the original standard errors were multiplied by following formula: SQRT (N-df) / SQRT (n-df) . N is the population estimate. n is the actual sample size. df is the degrees of freedom in the model.

This result implied that controlled variables had impacts on the relationship between participation in more than one sport and school misbehaviors. These results indicated that participation in different types of sports had different impacts on engaging in school misbehaviors. Participation in football or more than one sports team had positive relations with adolescent engaging in misbehaviors at school. However, there was a negative relationship between participation in baseball team and engaging in school misbehaviors.

The results for the relationship between participation in sports and physical fights at school were showed in Table 3. Adolescents who participated in basketball (B=-.195; Exp(B)=.823) and swimming (B=-.326; Exp(B)=.720) were less likely to engage in physical fights during than those who did not participate in any interscholastic sports. Conversely, participation in football and more than one sport had a positive relationship with physical fights. Students who participated in football (B=.447; Exp(B)=1.563) were about 56 percent more likely to engage in physical fights than those who participated in no sports. Moreover, adolescents who joined more than one sport (B=.582; Exp(B)=1.295)were about 30 percent more likely to commit physical fights at school. No difference was found in the log odds of engaging in physical fights from adolescents participating in baseball and soccer.

After controlling a set of personal characteristics, family backgrounds, and school factors, the significant relationship between participation in football and more than one sports was not changed. On the other hand, participation in baseball and swimming became no significant relations with physical fights at school. One interesting finding was that friends' attitudes toward sports became significantly related to engaging in physical fights (B=.100; Exp(B)=1.105). These findings indicated that the relationship between participation in sports and physical fights

Table 3. Maximum Likelihood Estimates of Logistic Models for the Sports' Effects on Adolescent Physical Fight at School

Variables	Model 1			Model 2		
	B	S.E. (Adjusted)	Exp(B)	B	S.E. (Adjusted)	Exp(B)
Sports:						
Participation in Baseball Team	-.004	.067	.996	.030	.067	1.030
Participation in Basketball Team	-.195	.066**	.823	-.060	.067	.942
Participation in Football Team	.447	.047***	1.563	.170	.051***	1.186
Participation in Soccer Team	-.117	.086	.890	-.022	.090	.979
Participation in Swim Team	-.329	.118**	.720	-.178	.123	.837
Participation in More Than One Sport	.258	.042***	1.295	.193	.044***	1.213
Friends' Attitudes toward Sports	.039	.038	1.040	.100	.042*	1.105
Personal Characteristics:						
Gender (Dummy 1=Male)				.606	.032***	1.834
Race (Black as Reference)						
White				-.027	.050	.974
Other Races				-.007	.069	.993
Hispanic				.017	.066	1.017
Self-Esteem				-.300	.065***	.741
Family Factors:						
Along with Parents				-.244	.053***	.783
Parents Check of Help Students' Homework				-.010	.038	.990
Discussion with Parents				-.331	.070***	.718
Intact Family (Dummy 1=Yes)				-.059	.031	.943
Socio-Economic Status				-.177	.042***	.838
School Factors:						
School Grade				-.279	.020***	.757
Time Spend on Homework				-.068	.024**	.934
School Areas (Rural as Reference)						
Urban				.127	.047**	1.135
Suburban				.173	.041***	1.188
School Regions (South as Reference)						
Northeast				-.003	.041	.997
North Central				-.019	.036	.981
West				-.047	.043	.954
Constant	-1.781	.234***		2.085	.347***	
Model Chi-Square		25649.490			166967.409	
df		7			17	
n		11174			11174	

*Significant at .05 Level**Significant at .01 Level***Significant at .001 Level

Note: In order to avoid overestimating the significance test while weighting the sample, the original standard errors were multiplied by following formula: SQRT (N-df) / SQRT (n-df) . N is the population estimate. n is the actual sample size. df is the degrees of freedom in the model.

Based on these results, different types of sports have different effects on the occurrence of violent behaviors at school. An additional result concluded that a friend of the respondent who felt that the sports was important had a significant, positive impact on the respondent engaging in physical fights at school for both that participated in sports and those that did not. These results might imply that peer's influence played an important role in determining whether or not one who participated in sports would engage in physical fights at school. The findings of Table 3 also displayed an interesting result. Participation in school sports could not prevent engaging in physical fights at school. Nevertheless, joining some interscholastic sports might be related to violent behaviors.

Table 4 showed the relationship between participation in sports and using marijuana. Without including the effects of control variables, the results indicated that students who participated in basketball were less likely to use marijuana than those who participated in no sports by about 25 percent (B=-.291; Exp(B)=.747, See Model 1, Table 4). However, respondents who participated in football (B=.152; Exp(B)=1.164) or more than one sports (B=.152; Exp(B)=1.164) were more likely to smoke marijuana than those who did not participate in any interscholastic sports by about 16 percent. Friends' attitudes towards sports had a negative relationship with using marijuana ((B=-.404; Exp(B)=.66). In the model 1, however, the results showed that participation in baseball, soccer, and swimming had no significant relation with physical fights during school (See Table 4).

While controlling the effects of personal characteristics, family ackgrounds, and school factors, the relationship between participation in basketball and more than one

Table 4. Maximum Likelihood Estimates of Logistic Models for the Sports' Effects on Adolescent Using Marijuana

variables	Model 1			Model 2		
	B	S.E. (Adjusted)	Exp(B)	B	S.E. (Adjusted)	Exp(B)
Participation in School Sports (Nonparticipation in Any Sports as Reference)						
Participation in Baseball Team	-.090	.065	.914	-.028	.067	.973
Participation in Basketball Team	-.291	.065***	.747	-.136	.067*	.873
Participation in Football Team	.152	.051**	1.164	.064	.056	1.067
Participation in Soccer Team	.012	.074	1.012	.177	.078*	1.194
Participation in Swim Team	-.104	.090	.901	.049	.094	1.050
Participation in More Than One Sport	.152	.042***	1.164	.247	.046***	1.280
Friends' Attitudes toward Sports	-.404	.036***	.667	-.256	.038***	.774
Personal Characteristics:						
Gender (Dummy 1=Male)				.095	.028***	1.100
Race (Black as Reference)						
White				.212	.048***	1.236
Other Races				.214	.065***	1.238
Hispanic				.129	.064*	1.137
Self-Esteem				-.233	.059***	.792
Family Factors:						
Belong with Parents				-.224	.050***	.780
Parents Check of Help Students' Homework				-.244	.034***	.784
Discussion with Parents				-.223	.065***	.801
Intact Family (Dummy 1=Yes)				-.336	.027***	.715
Socio-Economic Status				-.051	.038	.951
School Factors:						
School Grade				-.326	.019***	.722
Time Spend on Homework				-.077	.022***	.926
School Areas (Rural as Reference)						
Urban				.182	.043***	1.120
Suburban				.214	.038***	1.239
School Regions (South as Reference)						
Northeast				.112	.038**	.894
North Central				-.058	.033	.944
West				.131	.038***	1.140
Constant	-.747	.205***		4.102	.317***	
Model Chi-Square		31482.572			179308.562	
df		7			17	
n		11029			11029	

*Significant at .05 Level**Significant at .01 Level***Significant at .001 Level

Note: In order to avoid overestimating the significance test while weighting the sample, the original standard errors were multiplied by following formula: SQRT (N-df) / SQRT (n-df) . N is the population estimate. n is the actual sample size. df is the degrees of freedom in the model.

sports and using marijuana was still significant. Friends' attitudes toward sports were still a useful predictor of adolescent using marijuana. The model 2 in Table 4 also showed an interesting finding in which the relationship between participation in football and using marijuana disappeared. On the other hand, participation in soccer became significantly related to the use of marijuana. Adolescents who participated in soccer were more likely to use marijuana than those who did not participate in any interscholastic sports by 20 percent (B=.177; Exp(B)=1.194). As a result, this implied that when researchers try to explain the relationship between participation in sports and using marijuana, they need to consider the effects of personal characteristics, family backgrounds, and school factors. Based on the results of the full model, participation in baseball, football, and swimming failed to predict adolescent using marijuana. These results again showed that the effect of different sports on respondents either decreased or increased the likelihood of marijuana usage. Thus, some sports may possibly provide a greater opportunity for the use of marijuana. Conversely, participation in some sports might limit the occurrence of using marijuana. Additionally, friends of the respondents who feel that sports are important had a significant, negative effect on marijuana use for the respondents.

The results of this study found out that participation in different types of interscholastic sports has various relations with the involvement of deviant behaviors, including school misbehaviors, physical fights, and using marijuana. Moreover, participation in one school sport had varied influences on different kinds of deviant behavior. These findings supported the previous argument that different types of interscholastic sports had varied constructions, rules, qualities, and so on; therefore, they had different directions and levels of influence on the development of adolescent behavior (Zimmerman & Maton, 1992). Although this research found some school sports had positive relationship with adolescent delinquency, it did not mean that we needed to limit or prohibit our kids to participate in those sports. In fact, we needed to pay attention to the characteristics of rules and practices of different sports and

understanding coach's attitudes toward winning a game and achieving a championship. For instance, Waser (2000) argued that when researchers study the situation of athletes using illegal drugs, they must consider coaches attitudes toward drug abuse. We also needed to help young players to release stress from the practice and championship. If we could follow the above suggestions, the negative impact of participation in interscholastic sports might be limited and the positive influence might be improved. We hope that participation in sports became a positive process of socialization.

In addition, inconsistent results were found when examining friends' attitudes towards sports and the three dependent variables. Friends' attitudes towards sports were found to have a significant, negative relationship with marijuana use at school. However, a positive relationship was found when examining physical fights at school. Thus, peer's influence positively affected the "macho behavior syndrome" in physical fights at school. In other words, friends might expect that those who participated in sports would more likely engage in obvious physical fights before, during, and after participation in these activities. However, they did not expect that their friends would engage in misbehaviors and marijuana use because of their participation in sports. These actions could possibly eject their friends from participating in sports.

No direct and complete theoretical viewpoints could be used to explain why participation in different kinds of sports had various relationships with deviant behavior. According to the findings of this study, researcher tried to develop a perspective of sports construction to interpret why participation in some kinds of sports might be related to engaging in deviant behavior, while other kinds might not be. The perspective consisted of three major dimensions. The first was the construction of sports violence. Smith (1986) differentiated four levels of sports violence, and football, hockey, and boxing were defined on higher level of sports aggression. Individuals who participated in sports with higher level of aggression were more likely to engage in violent behavior. The results of this study supported this argument. For instance, participation in football had relationship with involving in violence; however,

participation in swimming and baseball was not related to aggressive behavior. The reason might be that these sports were defined as a "noncontact sport" and the rules were intended to control player violence (Figler and Whitaker, 1995). The second direction is the construction of sports rules. Symbolic interactionists believed that adolescents could learn how to take a role from joining sports or games (Mead, 1977). In other words, youths were able to practice how to adequately play a role in a group and cooperate with others through participation in sports. Conversely, the rules of different sports had various effects on the development of adolescent behavior. Baseball players, for example, had to understand very well not only of their own role requirements but also of the roles and likely responses of every other teammate. If baseball players did not follow the rules, they could not take the role of other players, thus they could not anticipate how others would respond to their actions (Robertson, 1987). In this study, the measurement of school misbehavior included a set of behaviors in breaking school rules. This might explain why this study found that participation in baseball team was able to prevent the involvement of misbehaviors at school. On the other hand, the rule of football game not only directly encouraged player to practice aggressive behavior, but also indirectly implied the spirit of personal hero to break the rule (Figler and Whitaker, 1995). Consequently, the results of this study showed that there was a significant relationship between engaging in misbehaviors and participation in football. The third construction was the personal background of athletes. The findings indicated that participation in soccer became significantly related to drug use, while controlling personal background. This implied that there might be interaction effects between participation in soccer and personal background in the explanation of the development of adolescent deviance. As a result, when researchers focused on the relationship between participation in different kinds of sports and engaging in deviance, they also needed to consider the personal background of athletes. Unfortunately, based on the data analyses of the study, a detailed picture for the impact of personal characteristics on the association between participation in sports

and delinquency could not be drawn. The suggestion was that future studies should include effects of personal characteristics to find out what kind of individual background varied the link between participation in sports and involving delinquency.

Finally, the data of this study were sampled from America, and the development of school sports between America and Taiwan was not similar. As a result, we could not directly explain the relationship between participation in sports and Taiwanese delinquency based on the data from other countries, because different societies had various cultural backgrounds. In spite of that, Taiwanese researchers and educators could realize some paths from the above findings to study how young athletics behavior was related to delinquency in Taiwan. First, few empirical studies focused on the impact of participation in sports on the development of delinquency in Taiwan. Consequently, educators and researches should develop empirical studies based on data from Taiwanese situation to draw up a more adequate and complete depiction to describe the influence of involvement in sports on the development of adolescent delinquency. Second, when we studied the relationship between participation in sports and delinquency, different types of sports should be categorized by the level of rule, violence, and practice. This process might generate a more detailed illustration to indicate what kinds of sport were related to adolescent delinquency, while other kinds might not be. Third, Taiwanese and American society had different cultural backgrounds. So, when Taiwanese researchers developed an empirical study to interpret the association between participation in sports and adolescent delinquency, they should add some variables into the analysis of the model. For instance, the impact of family life on the development of Taiwanese individual behaviors was greater than that of American individual behaviors (Thornton and Lin, 1994). Accordingly, the factor of family relationships could be considered as a significant role in the explanation of the relationship between participation in sports and delinquency. Finally, for the application, Taiwanese sports coaches and teachers should figure out the characteristics of sports rule and practice in order to suppress the negative impact and

improve the positive effect of participation in sports on adolescent behaviors.

Conclusion

In summary, the results of the study supported the hypothesis that participation in different kinds of interscholastic sports had various relationships with adolescent deviant behavior. For instance, participation in basketball had a negative relation with marijuana use, but not with physical fights at school and school misbehaviors (See Table 5). On the other hand, those who participate in more than one sport are more likely to engage in these behaviors. Again, the effects of participation in different sports allowed for more or less chances to participate in deviant behaviors inside and outside the school boundaries. This could possibly be due to the different activities and processes (i.e., rules, construction, practice, etc.) associated with each sport. Thus, these activities and processes might have different effects on athletes who engage in misbehaviors, physical fights, and marijuana use. Secondly, these results confirm the hypothesis that participation in the same sport had various associations with different types of deviant behavior committed (See Table 5). For example, participation in soccer team had a positive relationship with using marijuana, but no significant relationship with engaging in misbehaviors and physical fights at school.

Table 5. Summary for Relationships between Different types of Sport and Deviant Behaviors, Controlling for Personal Characteristics, Family Factors, and School Factors

Types of Sport	Misbehavior at School	Physical Fight Using Marijuana	at School
participation in baseball team	-**	-	+
participation in basketball team	-	-*	-
participation in football team	+***	+	+***
participation in soccer team	+	+*	-
participation in swimming team	-	+	-
participation in more than one sport	+**	+***	+***
friends' attitudes toward sport	-	-***	+*

*Significant at .05 Level ** Significant at .01 Level *** Significant at .001 Level
"-"=negative relationship
"+"=positive relationship

According to the findings of the study, we were able to conclude three major points. First, there were significant relationships between participation in interscholastic sports and adolescent deviant behavior. Secondly, participation in different school sports had various relationships with the development of adolescent deviant behavior. Thirdly, participation in the same interscholastic sports might have different associations with different adolescent deviant behaviors. The results might also be used to understand why there were inconsistent findings in the empirical studies of impacts of participation in school sports. Like Zimmerman and Maton's (1992) and Smith's (1992) argument, different types of school sports and activities had different competition rules, quality levels, practice processes, cooperation levels, aggression degrees, and so on. As a result, these school sports and activities had different directions and degrees of influence on the development of adolescent behaviors.

Finally, there were several suggestions for future researchers studying the relationship between participation in interscholastic sports and adolescent behaviors. First, researchers who wanted to test the relationship between school sports and adolescent delinquency should classify the effects of participation in different school sports. Only some kinds of interscholastic sports might be helpful for preventing adolescent deviance, while other kinds might not be. Secondly, the cross-sectional survey was not adequate to examine the causal relationship between a dependent variable and independent variables. Although this study found that participation in different interscholastic sports had different associations with the development of adolescent deviant behaviors, the reasons could not be explained by the analyses of this study. Miracle and Rees (1994) stated that the results of cross-sectional survey could not be used to interpret the causal relationship between school athletic participation and adolescent delinquency. Panel study data could be useful for the causal relation between participation in sports and adolescent behaviors. Thirdly, coach's attitudes toward deviant behaviors as a useful means to win a game need to be considered in the future studies for understanding the relationship between participation in sports and

deviance. Finally, although this study consists of several kinds of interscholastic sports, some popular sports, i.e. tennis, track-and-field, gymnastics, and volleyball, are not included in this research. Future studies should consider containing more kinds of sports in the examination for the relationship between participation in sports and delinquency.

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