

Objective Socioeconomic Status, Subjective Class Identification and Physical Exercise ——Empirical Research Based on CGSS2015 Survey Data

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Research article

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Abstract

Based on the data of China's social survey in 2015, the purpose of the study discusses the differences in and mechanisms of the influences of subjective class identity and socioeconomic status on physical exercise. In this study, we selected the required variables on the basis of the database. After excluding the samples with relevant missing values, 2604 samples were used in the model analysis. The results show the following: (1) The subjective class identity and socioeconomic status have significant impacts on participating in physical exercise. It was found that as a kind of social culture, physical exercise results in social "separation". (2) Compared with subjective class identity, the internal structure of physical exercise caused by socioeconomic status is quite different. The results show that the relatively higher class will use social resources to maintain and expand the social "division". (3) Socioeconomic status plays a main role in physical training, and the subjective class identity plays an objective role. It shows that the subjective class identity cannot cross the social "separation" in the participation of physical exercise. Therefore, this study believes that the core perspective to increase the amount of physical exercise among the population may be the realization of sports equity. Conclusions, we should do the following: (1) to improve the participation and frequency of social physical exercise, we need to vigorously develop social productivity and respond to "power theory"; (2) to increase the thickness of the "bottom" sports policy, we need to and narrow the "structure theory"; and (3) to realize the real sense of equality for all, we need to reduce "the influence of subject object theory on physical exercise" through strengthening the concept of public service of local governments and improving the socialist legal system.

Background

Since the reform and opening up in 1979, the social status stratification in China has declined, the socioeconomic stratification has risen, and the social structure has also undergone significant changes. The following research assesses the changes in people and groups, and it is these changes that promote the continuous progress of reform. The purpose of the reform is to promote social progress and realize social equity. The issue of social equity and the understanding of people's structural status in society is an eternal academic topic, and the sports field is no exception. In past research, we were constantly trying to find the motivation, conditions and purpose of group education and exercise of a group of people. It is undeniable that the research results of individual or labeled people's physical exercise have deepened our understanding of sports. However, it is precisely because of this kind of research thinking that the research lacks analysis of the influencing mechanism of stratification factors on physical exercise. Specifically, there are two kinds of deviations: one is to blur the concept of socioeconomic status, and the other is the lack of analysis on the impacts of subjective class identification and socioeconomic status on physical exercise. These two kinds of deviations also indicate the complexity of the influences of subjective class identification and socioeconomic status on physical exercise because the social objective fact of physical exercise behavior is intertwined with people's subjective psychology and economic status, and they influence each other. From the perspective of the explanation of the effects of subjective class identification and socioeconomic status on physical exercise, subjective class

identification is mainly based on the chosen relationship of individual consciousness, perception and action. Furthermore, it advocates following the interpretation logic of "from consciousness to action" to realize the position of an individual stratum to choose whether to participate in physical exercise, and socioeconomic status is affected by a variety of social variables. This is similar to Hu Rong's (2014) (Rong, 2014) research on the perception of the social position of Chinese residents. In addition to income, occupation, education and other factors, socioeconomic status is also affected by a person's perception of their own position, which leads to inconsistency between the subjective class identity and socioeconomic status (Rong, 2014).

In this sense, examining the issue of physical exercise from the perspective of subjective class identification and socioeconomic status provides us with another perspective to examine the issue of sports equity and increase the amount of physical exercise of the population. Therefore, based on the redefinition of the impact of subjective class identification and socioeconomic structure on physical exercise, this paper aims to explore the influence mechanism of the social stratification structure and physical exercise behavior from the perspective of social stratification and conduct an empirical estimation using the 2015 China social survey data (CGSS).

Theoretical analysis and research hypotheses

In the traditional and modern sociological analysis and research, subjective class identification and socioeconomic status have always been the basic propositions studied by sociology. Marxist sociological theory holds that class status determines class identity. Weber thinks that multiple social stratification standards reveal the multidimensional nature of objective social stratification. Jackman and his wife believe that class identity is people's self-perception of their social class position (MR Jachman R., 1973). Structural functionalism holds that the stratification in industrial society is in line with the actual needs of the overall social function and is conducive to the smooth operation of society. The high and low differences within the society are just the differences in quantity, and the "crystallization" and "convergence" of various factors affect this stratification difference (B. Grusky, 2005). What can be determined is that social stratification is an objective existence. As long as we are in society, it will be linked with social stratification. People usually use the concept of socioeconomic status when determining and comparing the differences between people's social strata. Socioeconomic status is based on the comprehensive score calculated based on an individual's education level, income level and professional reputation. In general, a person's socioeconomic status and access to social resources are roughly the same (Hangsheng, 2014).

All kinds of problems of the social stratum will also appear in participation in physical exercise through various forms of expression, or the social equity problems caused by social strata will also be reflected in the objective facts related to physical exercise. Due to the social class gap, the lack of some rights of citizens and so on, no one in society can mention it, which may be the main reason for the lack of equity in sports participation opportunities (Jingguo, 2010). Therefore, this paper attempts to examine the influence mechanism of social stratification structure and physical exercise behavior from the

perspective of three hypotheses of subjective class identification and objective socioeconomic status on physical exercise, namely, "dynamic theory", "structural theory" and "subjective and objective theory".

Subjective class identification and socioeconomic status in the "power theory" of physical exercise

From the perspective of the social structure, subjective class identity and socioeconomic status reflect certain social class group characteristics. Previous research results show that subjective class identity and socioeconomic status and the possibility of physical exercise are positively correlated. Among them, the research of Man (Jianghong, 2016) and Li (Haijie, 2017) shows that the higher the subjective class identity of urban residents is, the higher the degree of sports participation, which is mainly due to the higher social class's higher share of cultural capital (Ma Jiangtao, 2014). Tian studied the relationship between social class status and sports participation and found that the higher the social class status, the higher is the proportion of sports participation (Tian Xueli, 2014). It can be seen that, both subjectively and objectively, physical exercise can become a cultural distinction to judge a person's tastes and style. The reason is nothing more than the different understandings and needs of different classes of groups for sports under the intervention of their "field" and "habits" (Xu Feng, 2012). This also shows that the behavior of sports participation can not only shape people, but it can also be recognized and dominated by individuals (Liu W, 2011). In terms of the dynamic effect of subjective class identification and socioeconomic status on physical exercise, Li Xiaotian thought that the physical exercise of urban residents was affected by both individual and high-level independent variables (Li Xiaotian, 2019). Aron used the method of multiple correspondences and found that the social economy and culture play mediating roles in sports participation preferences (R, 2012). To sum up, the level of the subjective class and socioeconomic status promote the frequency of physical exercise. Therefore, this paper puts forward the hypothesis of "dynamic theory".

Hypothesis 1: In physical exercise participation, the objective socioeconomic status and subjective class identity have significant influences.

The "structural theory" of the effects of subjective class identification and socioeconomic status on physical exercise

The gap between the rich and the poor will be reflected in their physical exercise. LV Shuting (2006) once found that in Guangzhou, the highest proportion of the population participating in sports is the upper class of society, and the lowest proportion of the population participating in sports is in the middle and lower strata of society (Shuting, 2006). Support shows that social class differences affect people's physical exercise. In addition, subjective stratum identification may have strong explanatory power in terms of social attitudes, political preferences and collective action, which can provide supplementary and confirmatory information for socioeconomic status (Lilulu, 2018). From the perspective of internal social aspects, the structure of subjective class identity and socioeconomic status will inevitably lead to structural differentiation. The most important thing for an individual's subjective class is the group structure and "reference group" in which people form their own class identity and behavioral choices (Merton, 2006). Some studies have shown that the socioeconomic status and subjective class identity of

residents tend to generally trend downward (Chune, 2008), which may be closely related to the excessive pressure of residents' economic life and the weak sense of gain. In the empirical research on physical exercise and stratification, Wu explained this difference from the perspective of the functions of sports, that is, the middle and upper groups are better at exploring the multiple functions of sports, such as fitness and social interaction, while the middle and lower groups still view sports as a single traditional function (Wu Zhenhua, 2008). Chen through the investigation and research of Hangzhou, Ningbo and Wenzhou, found that there is a certain proportional structure for all social strata to participate in physical exercise, but the participation will increase as the social stratum improves (Chen Jihang, 2009). Li believes that the possibility of high class physical exercise is also high, mainly due to personal income, education and leisure time (Li Xiaotian, 2019). Han Qihong (2015) compared the influence of the internal structure on the differences in physical exercise. Han thought that the urban residents in the middle and upper social classes were more active in physical exercise than those in the upper and middle lower classes (Qihong, 2015). The reason for this internal structural difference is that the cultural capital of the middle and upper classes of society is higher, and the awareness of sports and cognitive levels are also higher for those classes than for other classes (Yifeng, 2015); however, there are also some scholars that believe that the influencing factors of social structural differences in physical exercise tend to be more diverse as the social stratum rises (Tang Guojie, 2009). In view of this, this paper puts forward the "structure theory" competition hypotheses:

Hypothesis 2A: In physical exercise participation, there is a big gap in the internal structure of subjective class identity.

Hypothesis 2B: In the physical exercise participation, there is a big gap in the internal structure of socioeconomic status.

Subjective class identity and socioeconomic status

Whether the subjective class identity and socioeconomic status play independent roles when influencing physical exercise or whether they have a kind of dependency relationship will be the research focus of this paper. In fact, socioeconomic status and subjective class identity are self-adjusted by other social variables. Feng Shizheng (2011) believes that the "middle class identity" of Chinese residents is decreasing while the "low-level class identity" is expanding. The reason is that social capital affects people's socioeconomic status and it affects people's subjective class identity. This study shows that socioeconomic status affects the formation of subjective class identity (Zhang Shun, 2012). Liu believes that in terms of the economic conditions that restrict people's participation in sports, the economic conditions from the upper middle class to the middle level and then to the middle and lower levels gradually decrease (Liu Wei, 2011). In terms of the subjective and objective theory of social class identity, Chase thinks that socioeconomic status has a significant impact on an individual's class identification, and an individual's political status, educational capital, social capital and economic capital have positive effects on subjective class identification. In addition, a personal sense of gain will also enhance personal class identity, that is, satisfaction with life improvements and a sense of gaining success (Sisi, 2018). It

can be seen that subjective class identity will have an upward or downward cognitive bias as the variables included in socioeconomic status change. Some people also believe that in physical exercise behavior, subjective class identification only plays a mediating role. Li thought that human behavior and its practice is affected by individual subjective consciousness, concepts and self-cognition, among which subjective identity is an important intermediary variable; and the result of human behavior and its practice is the result of the joint action of objective structure and subjective perception (Lulu, 2018). To investigate the results of physical exercise behavior, we should not only investigate the objective structure, but we should also investigate the subjective understanding. Man used structural equation modeling analysis to find that urban sports residents' class identity plays a partial intermediary role in the path from income to sports participation (Jianghong, 2016), which shows that class identity plays a role through individual income; in other words, individual economic income level affects individual class identity. To sum up, the subjective class identity and the objective economic status do not play independent roles, but there are subjects and objects in the influence mechanism.

In view of this, this paper puts forward the "subjective and objective" competition hypotheses.

Hypothesis 3A: In physical exercise participation, subjective class identity is the main variable.

Hypothesis 3B: In physical exercise participation, socioeconomic status is the main variable.

Methods

Data sources

The data of this study are from the comprehensive social survey of China (CGSS) conducted by Renmin University of China. In this survey, 28 provinces, autonomous regions and municipalities directly under the central government were selected. The survey samples were authentic and reliable, and the questionnaire structure was reasonable. In this study, we selected the required variables on the basis of the database. After excluding the samples with relevant missing values, 2604 samples were used in the model analysis. The descriptive statistics of the main variables are shown in Table 1.

Variable measurement and operation

Dependent variable:

The dependent variable is the frequency of physical exercise, and the question asked "In the past year, how often have you engaged in physical exercise activities in your spare time?". There are five possible answers to the question, which are "every day", "several times a week", "several times a month", "several times a year or less" and "never". In the analysis of this paper, according to the frequency, they are transformed into numerical variables of 5, 4, 3, 2 and 1.

Independent variables:

(1) Objective socioeconomic status, measured in terms of education, employer type, and income.

First, regarding education, we use the number of years of education to measure and divide it into three equal parts. According to the number of years of education, we assign 1, 2 and 3 as the classification values. For the types of employers, CGSS 2015 provides eight options for the respondents, including party and government organizations, enterprises, public institutions, social organizations, neighborhood and village committees, no employer/self-employed (including individuals), the military and others. For the nature of employers, this paper distinguishes them according to the internal and external system. According to this principle and according to the actual situation, this study assigned 1 as the reference group; 2 as the enterprises, social groups, and residential and village committees; and 3 as party and government organizations, business units and the military. In terms of income, this study selected the variable of " your personal total income for the last year " provided by CGSS 2015. To make the data scientific and effective, according to the statistical convention, we squared income to make the overall value close to a normal distribution, and then divided the variable into three parts: 1, 2, and 3 from low to high, respectively. Finally, after adding education, occupation and income together, 3 is the low level of objective socioeconomic status, 4-6 is the middle level of objective socioeconomic status, and 7-9 is the high level of objective socioeconomic status.

(2) Subjective class identity.

CGSS 2015 asks respondents to answer: "what is your socioeconomic status compared with your peers?" There are three options of "higher", "simila" and "lower". In this study, higher is assigned 3 = the upper level of subjective class identity, almost is assigned 2 = the middle level of subjective class identity, and the lower value is 1 = the lower level of subjective class identification. The reason for choosing this variable is the following. As mentioned above, the subjective class, which is the class perception after the individual and the comparison object are compared, is identified. If the peer is selected as the reference group, the object is clear and objective, which can effectively avoid the larger deviation of subjective class identification caused by different reference objects.

Other control variables

The other control variables include (1) gender, which is a dummy variable (female = 0); and (2) age and generation division of age, including the traditional generation (before 1945), the lost generation (1945-1960), the lucky generation (1961-1970), the transitional generation (1971-1980), and the only generation (after 1981). (3) Because the objective economic status contains the transformation of the three variables of occupation, education and income, these three variables are not considered as control variables.

Results And Analysis

Descriptive statistics of the dependent and independent variables

Table 1 gives the descriptive statistics of the main variables in this paper. It can be seen that the mean value of subjective class identification (1.776) is lower than that of objective socioeconomic status (2.295), which indicates that the subjective class identity of Chinese society has shifted downward, which is consistent with the existing research. In addition, it can be seen from Figure 1 that the difference in subjective class identification among the high level, middle level and low level is more significant than that of socioeconomic status, which indicates that the gap of subjective class identification in Chinese society is larger than that of objective socioeconomic status or that the ideological class solidification has been formed, which also shows that there is a "distinction" in the differences in social strata, which is also called "dynamic theory" and "structure theory". The establishment of the theory of subject and object provides social support.

Figure 2a and Figure 2B intuitively describe the subjective class identification, objective socioeconomic status and physical exercise frequency distribution and polynomial trend diagram. From Figure 2a, it can be seen that the frequency of physical exercise of urban residents in the upper level has little change, it shows an upward trend in the middle level, and it basically also shows an upward trend with a large slope in the lower level, which indicates that the subjective class identification will produce the possibility of reducing the exercise frequency as the class level decreases. This is consistent with the research results of Tang Guojie (2009), that is, the subjective norms of the lower, middle and upper levels are affected by the family concept, and the family physical exercise atmosphere affects physical exercise behavior (Tangguojie, 2009). From Figure 2B, it can be seen that the exercise frequency of urban residents in the upper level of objective socioeconomic status presents a parabola, which indicates that at least half of the urban residents exercise more than once a month; and the proportion of the middle and lower level residents shows a concave line that first decreases and then increases. The general trend is that the frequency of physical exercise decreases as the social stratum decreases. This may be due to the change in the identification framework and boundary of sports participation due to the lack of social resources for the middle and lower socioeconomic status (Liu Wei, 2011). By comparing Figure 2a with Figure 2B, we can draw the following conclusions: (1) Subjective class identity and socioeconomic status play important roles in promoting physical exercise, which supports hypothesis 1: both objective socioeconomic status and subjective class identity have significant effects on physical exercise participation. (2) The influence of subjective class identification and objective socioeconomic status on physical exercise frequency is complex and inconsistent, which indirectly supports hypothesis 2 regarding structure theory and hypothesis 3 regarding subject object theory.

Logistic regression analysis of subjective class identification and objective socioeconomic status on physical exercise frequency

Table 2 shows the regression analysis results of the effects of subjective class identification and socioeconomic status on the frequency of physical exercise. Among the models, model 1 is a control variable model. For comparative analysis, model 2 and model 3 respectively add the classification variables of subjective class identification and objective socioeconomic status, and model 4 takes

subjective class identification and socioeconomic status into account. From model 1 to model 4, we can find that the fitting degree of the model increases significantly.

Model 1 is the basic model. It can be found that the frequency of physical exercise of men is significantly greater than that of women ($p < 0.01$) by 0.29, but this is not reflected in the age generation. This is consistent with Li study on the physical exercise behavior of urban community residents and the age generation (Li Xiaotian, 2019). This shows that the benchmark model reflects the basic situation accurately and has referential significance.

Model 2 adds the classification variable subjective class identification to model 1. It can be found that the gender coefficient and age have little change in the model, which shows that the influence of subjective class identification on physical exercise frequency has nothing to do with gender and age, but rather, it is more related to social factors. It is verified that subjective class identity is the perception and sense of gain in social life and the comparison with reference groups. After comparing the subjective class identification coefficient in model 2, it was found that the subjective class identification coefficient was statistically significant at $p < 0.01$. In the comparison of the three groups of subjective class identity, it can be seen that compared with the reference group, that is, the low level, the middle and high levels increase by 1.47 times ($e^{0.388} = 1.47$) and 2.43 times ($e^{0.889} = 2.43$), respectively, which means that the subjective class identification results in an obvious increase in the frequency of physical exercise, which is consistent with the descriptive statistical conclusion in Figure 2A.

In model 3, the objective socioeconomic status of categorical variables is added to model 2. At this time, there is no significant difference in gender change, which indicates that the objective socioeconomic status has improved the frequency of women's participation in physical exercise. This also coincides with Peng Dasong's research that the proportion of Chinese women participating in physical exercise is 15.8% and that of European Union women is 59.8% (Dasong, 2012), which proves that the social gap between education and economic prosperity in China and the European Union in 2012 is obvious; meanwhile, in recent years, China's rapid socioeconomic development has not promoted female sports participation. In model 3, the age generation shows a significant negative correlation while the objective socioeconomic status will promote older people's participation in sports, which may be related to the increase in age and social capital. After adding the objective socioeconomic status variables, the socioeconomic status was also statistically significant at $p < 0.01$. Regarding the objective socioeconomic status of the low level, the middle level and high level are respectively 2.718 times ($e^{1.000} = 2.718$) and 5.409 times ($e^{1.703} = 5.49$) more likely to engage in physical exercise than the low level, which indicates that the objective socioeconomic status has a positive correlation with the increase in the frequency of physical exercise. This verifies that cultural capital, social capital and economic capital form a social division for physical exercise, and they also play a role in social promotion. In conclusion, the results support hypothesis 1: subjective class identity and objective socioeconomic status have significant impacts on urban residents' participation in physical exercise.

In model 2, the proportion of physical exercise among the lower, middle and higher levels is 1:1.47:2.43, and that of the lower, middle and high levels affected by the objective socioeconomic status in model 3 is 1:2.718:5.409. It is not difficult to see that the structure of the urban population participating in physical exercise is quite different due to the objective socioeconomic status. This shows that the social segregation caused by the objective socioeconomic status is greater than that caused by the subjective class identification. On the other hand, the subjective class identification has the possibility of narrowing social segregation. In fact, it supports hypothesis 2B: in terms of the frequency of physical exercise, there is a big gap in the internal structure of socioeconomic status.

Model 4 adds variables such as subjective class identification and objective socioeconomic status on the basis of model 1. The following can be found: (1) Compared with model 1 and model 2, the gender variables in the model change from significant to insignificant, which indicates that women may have slightly higher subjective class identification than that of men, but this subjective class identification will be absorbed by objective socioeconomic status. In other words, improving women's socioeconomic status can enhance the possibility of women participating in physical exercise. In addition, it can also be considered that the objective socioeconomic status will promote the equality of men and women participating in physical exercise. (2) In model 4, the older the age group is, the more likely they are to participate in physical exercise. Here, the age generation coefficient of model 3 and model 4 is basically unchanged, which reflects the stability of objective socioeconomic status on people of different ages to participate in physical exercise. (3) Compared with the control group, the middle level and high level coefficients of model 2 and model 4 decreased by 0.206 and 0.380, respectively, while the middle level and high level coefficients of objective socioeconomic status from model 3 to model 4 decreased by 0.035 and 0.088, respectively. This shows that compared with the subjective class identification, the objective socioeconomic status can independently have a positive impact on the frequency of physical exercise while the subjective socioeconomic status will be cut by half the influence of the objective socioeconomic status. This conclusion supports hypothesis 3B: in physical exercise participation, socioeconomic status is dominant.

Discussion And Conclusions

To assess the influence of subjective class identification and socioeconomic status on sports, most scholars use survey data to prove that socioeconomic status has a significant impact on sports participation. However, there are few comparative studies on the combination of subjective class identity and socioeconomic status in the existing literature. Based on the existing theoretical research and empirical research, this paper uses the data of CGSS 2015 to explore the relationship between subjective class identification and objective socioeconomic status and their effects on physical exercise, and tests and compares the two. The results are as follows.

First, subjective class identity and objective socioeconomic status have significant influences on physical exercise. It is found that the subjective class identification and the promotion of objective socioeconomic status are conducive to urban residents' participation in physical exercise, which indicates that although

physical exercise may not require an economic cost and cannot be generally participated in, its attribute is still a "field" and "habit" of social and cultural activities, and this "habit" involves social stratification and leads to the improvement of social inequality.

Second, there is a big gap between the objective socioeconomic status and the frequency of physical exercise. Although the subjective class identification may cause some deviation in the form of social stratum expression, whether it is an upward deviation due to the desire to obtain more social costs or improve individual social capital or a downward shift due to social pressure or a conservative and difficult social life, we have to face the fact that sports participation is not only an identity, but it is also related to ideological cultural differences. That is, people who improve their socioeconomic status will maintain such differences and will also maintain their own class superiority or class reproduction process through various sports activities or consumption. In addition, the results also show that the limitation of sports-related social resources determines that the allocation or distribution of sports-related social resources will further increase and aggravate social inequality.

Third, the objective socioeconomic status plays the main role, and the subjective class identity plays the objective role. In the discourse of subjective social class identification and objective socioeconomic status, the objective socioeconomic status plays a dominant role, that is, the socioeconomic status plays the main role in the influence of the stratification of physical exercise, and the subjective class identity plays the objective role. This shows that although people can understand and transform the world subjectively, everything should proceed from reality and be subjective. The fact is that class identity cannot cross the social "division" that exists, that is, the decisive role in the distribution of social sports resources is socioeconomic. Individuals will use the advantages of socioeconomic status to occupy more social sports resources, and even use sports resources for hierarchical reproduction.

To sum up, the core perspective of increasing the participation in physical exercise may be the realization of sports equity. The empirical results of this study support the "dynamic theory", "structural theory" and "subject object theory" of subjective class identification and socioeconomic status.

Previous studies have found that subjective class identification and objective socioeconomic status have significant impacts on physical exercise, but this paper believes that these effects may be superficial. The empirical data reflect the following points. First, to improve the participation and frequency of social physical exercise, we need to develop social productivity, improve social production relations, and objectively improve the level and subjectivity of the social economy. The second is to increase the thickness of the "bottom-up" sports policy, increase the quantity supplied and level of social sports resources, avoid the issue that the people at the bottom of the social hierarchy cannot exercise due to social resources, and reduce "structure theory". The third is to realize the real significance through strengthening the public service concept of local government and improving the construction of the socialist legal system, especially the construction of sports law. This will allow us to protect the sports rights of citizens so that the right of physical exercise will no longer become a social "separation" issue, and reduce the impact of "subjective and objective" on physical exercise.

The limitation of this paper is that it only uses subjective class identification and socioeconomic status to analyze the impact of physical exercise on urban residents, and including more control variables can also increase the accuracy of the study. However, in theory, it can be predicted that the subjective class identity and socioeconomic status, as kinds of social and cultural symbols, play a universal role in the power of physical exercise. In addition, in order to reduce the research error, the research object of this paper is only urban residents in China. The differences in class identity and socioeconomic status between rural and urban residents are significant, and the influence mechanism may be different, which is another perspective and important topic for future research on the social inequality in the structure of sports.

Declarations

The author declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analysed during the current study are available in the Chinese General Social Survey repository, <http://cnsda.ruc.edu.cn/index.php?r=projects/view&id=69084413>

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

Liu Wei was a major contributor in writing the manuscript.

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Tables

Table 1
descriptive statistics of dependent and independent variables

Variable	Obs	Mean	Std. Dev	Min	Max
Exercise frequency	2604	2.767	1.41	1	5
Age	2604	40.589	11.237	18	81
Age generation	2604	3.007	1.145	0	5
Gender	2604	.809	.393	0	1
Watch sports games	2604	.981	.137	0	1
Years of Education	2604	11.871	3.839	0	20
Educational level	2604	1.004	.86	0	2
Unit nature	2604	1.891	.71	1	3
Annual income	2604	10.526	.899	4.382	16.112
Revenue (squared)	2604	111.608	19.099	19.202	259.599
Income hierarchy	2604	1.978	.772	1	3
Objective economic status score	2604	5.873	1.771	3	9
Subjective class	2604	1.776	.546	1	3
Objective socioeconomic class	2604	2.295	.638	1	3

Table 2

Regression analysis results of subjective class identification and objective socio-economic status on physical exercise frequency

Variable	Model 1	Model 2	Model 3	Model 4
Gender(Female = 0)	0.290*** (0.089)	0.292*** (0.089)	0.089(0.091)	0.102(0.091)
Agegeneration (Traditional generation = 0)				
Lost generation = 1	-0.422(0.562)	-0.425(0.564)	-0.639(0.589)	-0.640(0.590)
Lucky generation = 2	-0.646(0.555)	-0.657(0.558)	-1.011* (0.583)	-1.005* (0.584)
Transformational generation = 3	-0.702(0.554)	-0.716(0.557)	-1.167** (0.583)	-1.155** (0.584)
The only generation = 4	-0.560(0.553)	-0.592(0.556)	-1.142** (0.583)	-1.131* (0.584)
Subjective class(Low = 0)				
Middle = 1		0.388*** (0.080)		0.182** (0.082)
High = 2		0.889*** (0.153)		0.509*** (0.157)
Objective socioeconomic status(Low = 0)				
Middle = 1			1.000*** (0.132)	0.965*** (0.133)
High = 2			1.703*** (0.138)	1.615*** (0.141)
Obs	2604	2604	2604	2604
R-squared	0.002	0.007	0.025	0.026
Standard errors are in parenthesis				
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Figures

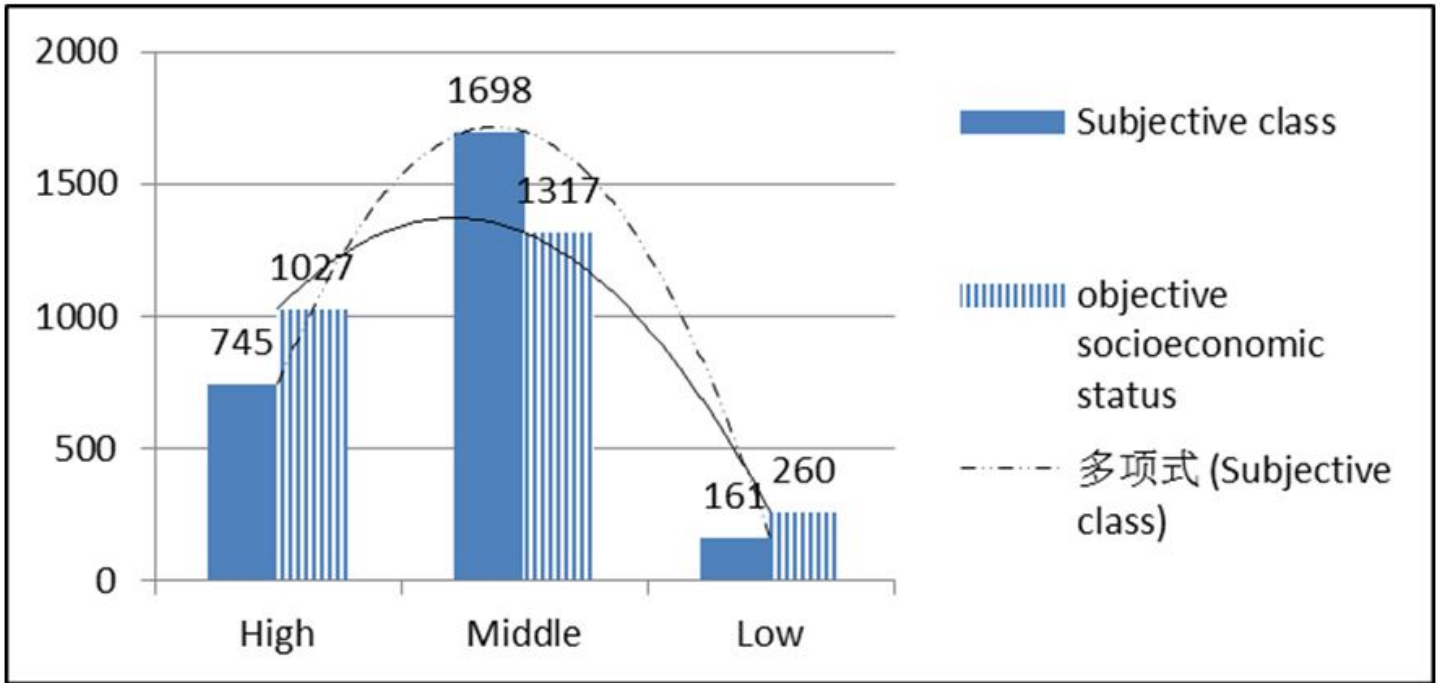
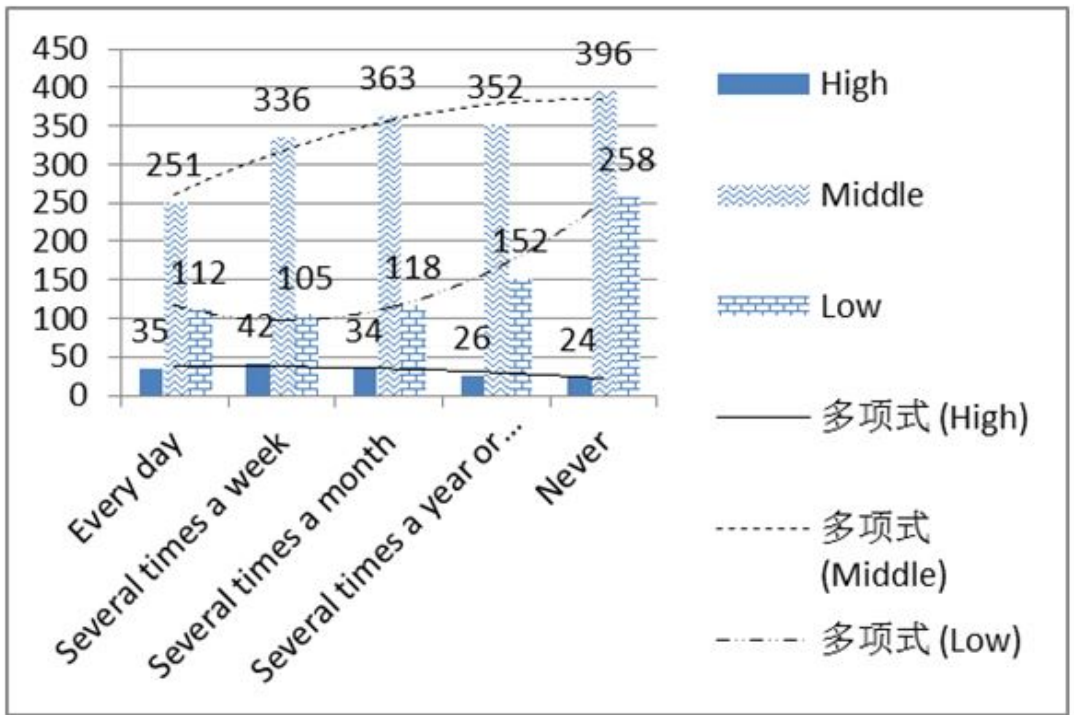
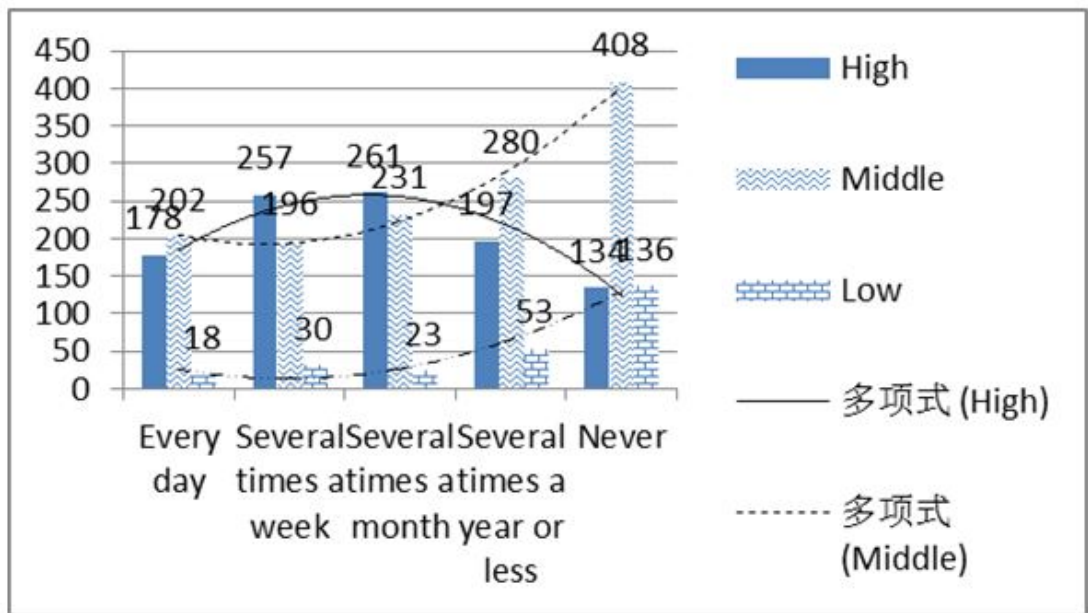


Figure 1

distribution of objective socioeconomic status and subjective class identification



(a) Relationship between subjective class identification and physical exercise frequency



(b) Relationship between objective socioeconomic status and physical exercise frequency

Figure 2

Distribution trend of subjective class identification, objective socioeconomic status and physical exercise frequency