

# Risk Identification and Evaluation of Large-Scale Sports Events Based on Standard Electronic Modules

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**Abstract.** Different degrees of risk events exist in the process of sports events. This paper takes the risk identification, risk assessment, risk response as the main research field, puts forward the risk factors, and proposes the corresponding risk prevention strategies. The applicability of the method is verified, which provides large sports events risk identification and prevention research with certain reference value. Big data also plays a helpful role in identifying sports risks, and to some extent can help to conduct more detailed testing in sports events. According to the characteristics of SEM system, a system for sports risk identification is built to intercept sports risk in the first time, so as to reduce the probability of risk.

**Keywords:** SEM; risk identification; Big data analysis

## 1. Introduction

Sports safety of primary and secondary schools has always been the focus of social concern. In recent years, school sports is injured. The occurrence of harmful accidents is on the rise, which is very bad for the students in the youth development period, not only caused physical harm, but also caused a certain impact on mental health. People initially have a certain understanding of risks from the negative perspective of risks. At present, the risks of large-scale sports events in China feature the objectivity, contingency and damage of risks, which brings great pressure to the risk prevention work, and is easy to cause more events and bring greater losses [1]. To realize a powerful prevention and control of the risks in the competition, it has a certain inhibitory effect on many potential risks in the operation process of the whole large-scale sports events.

With the acceleration of school physical education curriculum reform in China, the content of physical education teaching is becoming more and more rich and has options. Classes are increasing, but the physical education teaching funds investment is relatively insufficient, the school stadium, facilities, equipment is old. There are potential security risks. In addition, the school sports venues are gradually opening to the society for compensation or free, which is increasing. The likelihood and severity of the risk to have occurred among the students. Many risks and problems faced by school sports have become constraints [2]. An important factor for the development of physical education in primary and secondary schools in China.

Therefore, the management of sports risk in primary and secondary schools appears. Especially important, it will become an important part of the school physical education management work [3].

## 2. SEM Principle and Procedures

### 2.1 Fundamental

The model of structural equation mainly consists of two parts. It is a widely used analytical tool in the field of multivariate statistics [4]. This model can solve the complex relationship between multiple variables well, and can also play a good role in studying some variables that cannot be directly measured. The measurement model is shown in the following figure:

$$X = Ax + \ell \quad (1)$$

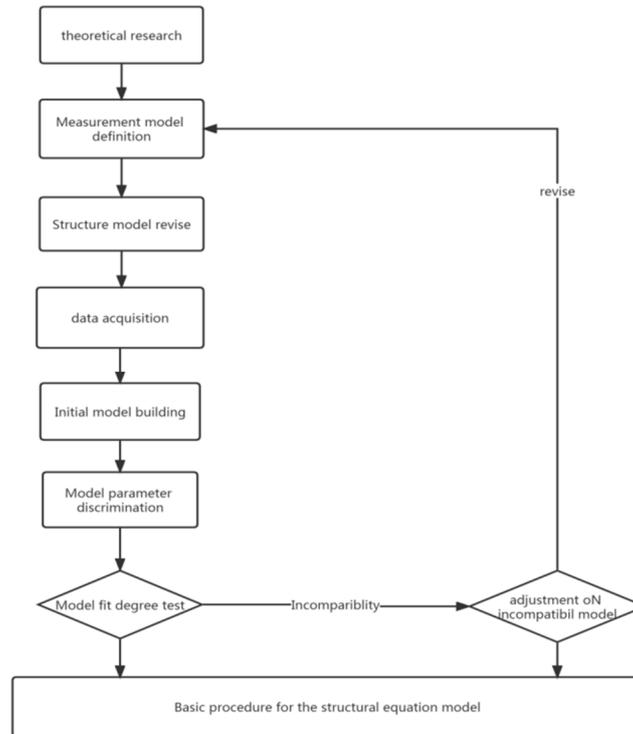
(Ax and Ay in the model refer to the factor load of the index variable  $\eta(x, y)$ )

The structural model is shown in the figure:

$$\mu = B\mu + F\vartheta + \vartheta \quad (2)$$

### 2.2 Base program

The whole process of the structural equation model consists of four stages: preliminary preparation, model initial construction, model discrimination and model correction, as shown in Fig1.:



**Figure 1:** Basic procedure for the structural equation model

### 3. Identification of sports event risks

#### 3.1 Definition

Sports event risk identification is the basis and an important part of sports event risk management [5]. The meaning of sports event risk identification is to identify the possible risk events in sports events and document the characteristics of these risks. In the process of risk identification of sports events, the most important attention paid is the comprehensiveness and accuracy of identification. In the face of potential risks that have not yet occurred, with systematic investigation, analysis and comprehensive classification, it is possible to find out these risk factors and their inherent characteristics. In the process of holding sports events, there are relatively many risk factors, and the severity of the consequences is not the same. These factors must be fully taken into account when holding sports events, and should not be easily omitted. Therefore, the identification of risk to some extent is also meant to reasonably reduce the uncertainty of risk.

### 3.2 Basis for the risk identification of sports events

In the field of risk management, sports event risk can be divided into natural environmental risk, event management risk and social environmental risk according to the source of risk. Natural environmental risk mainly refers to a series of risks caused by the uncertainty of the external environment in the process of holding the event, such as bad weather conditions, geological disasters and so on. Event management risk refers to the impact caused by the imperfect management system in the process of holding sports events, which often refers to the risk caused and the certain subjectivity of email [6]. Social and environmental risk mainly refers to the risk caused by the unstable factors in the social structure, such as war, social unrest and so on.

In the process of holding various events, due to the risk events vary, generally for its rule is difficult to master, this brings great difficulty to sports risk management, after careful analysis will find behind a lot of sports events risks are caused by several or a common reason, if the cause of these risk events analysis and control, can reduce the probability of risk accidents, but also can save the cost of sports risk management. As shown in Figure 2.

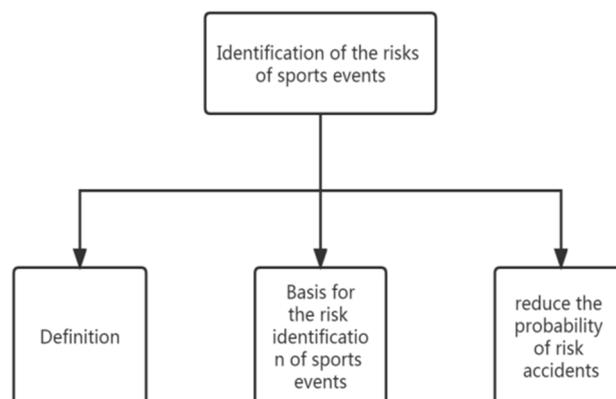


Figure 2: Identification of the risks of sports events

## 4. What is a sports event risk assessment

### 4.1 Definition of the risk assessment of sports events

Sports event risk assessment is to use various risk analysis technologies, including qualitative and quantitative methods on the probability of risk events, the severity of risk consequences and the impact of risk range. It is the link between the identification of sports events and the correspondence, and it is the basis of decision-making. The risk assessment of sports events helps sports event managers to objectively and accurately understand event risks, and

understand the interaction between event risks, effectively strengthen the risk awareness of event managers, and improve their decision-making level [7].

#### **4.2 Risk assessment objectives of sports events**

After the identification of sports risks, it is necessary to evaluate the risk of possible serious consequences, that is, to quantify the uncertainty of the risk and evaluate its potential risks. Only quantitative evaluation can be conducive to communication, comparison and selection, so as to better predict and measure the possibility of risk occurrence, the time period of risk occurrence, the harm of risk consequences, the grasp of risk prediction, and the ability of risk tolerance, so as to study how to make better use of risk.

#### **4.3 Risk assessment principles of sports events**

In the process of sports event risk assessment, the following principles should be followed: the first is the standard principle, the design and implementation of sports event risk assessment should be according to relevant standards at home and abroad; the second is the integrity principle, sports events should be evaluated from multiple angles and levels to ensure the comprehensiveness of the evaluation; the third is the accuracy principle. In the sports risk assessment, the results should be as accurate and detailed as possible to ensure the effectiveness of other management activities [8].

### **5. Conclusion**

For the safety risks of large sports events, managers should continuously improve their emergency response ability, achieve effective and accurate control, and minimize the loss; they should also make dangerous emergency plans in advance, and strictly follow the plan when risks occur. In addition, the decision should also be reasonable and scientific. Targeted decisions should be put forward according to the actual situation of sports events. If necessary, relevant personnel should be invited to demonstrate the feasibility of the decision. The development of sports events needs a complete set of rules, strict rules and regulations can effectively avoid risks, reduce and prevent the risks of sports events, and realize the sustainable development of sports health risks.

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