

# A Review of Studies on Adolescent Prosocial Risk-taking Behavior

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## Abstract

**Risk-taking behavior is the focus of adolescent research. In recent years, a new field has emerged—prosocial risk-taking behavior, which refers to the purpose of completing the behavior is to benefit others rather than oneself, and the behavior may bring certain risks to oneself. This behavior is the intersection of prosocial behavior and risk-taking behavior, but domestic and foreign research is still at the theoretical level, and the research is very few. On the basis of risk taking behavior and prosocial behavior, this study comprehensively reviews a few previous studies, defines prosocial risk taking behavior for the first time in China, and elaborates its characteristics, research methods, research deficiencies and future prospects.**

## Keywords

**Adolescent; Prosocial behavior; Risk-taking behavior; Prosocial risk-taking behavior.**

## 1. INTRODUCTION

For decades, adolescence was known as a period of "stormy weather". In previous studies on adolescents, risk-taking behavior and prosocial behavior have been widely discussed and studied separately, and some studies argue that they are opposite. But for the development of science and social psychology, cognitive neuroscience, theory and empirical study of the integration of found negative risk-taking and positive prosocial behavior depends on the same brain circuits, and affected by this stage circuits development change, risk-taking and pro-social behavior in adolescence are increased. In real life, teenagers may not only participate in to hurt others or their own adventures, and was also involved in risky behavior to help others, that is the intersection of two-prosocial risk-taking behaviors, namely the complete behavior of the purpose is to benefit others rather than himself, and may bring some risk to their (economic, health, safety, etc.)<sup>[1]</sup>. Although such risky behavior may bring risks to teenagers, it has positive significance in the process of harmonious social development. However, so far, there are few researches on prosocial risk-taking behavior. Considering the important role of prosocial risk-taking behavior in personal development and social harmony, it is necessary to discuss prosocial risk-taking behavior in detail.

## 2. CONCEPT DEFINITION AND THEORY INTRODUCTION

### 2.1. Definition of Risk-taking Behavior

Risk-taking behavior refers to the behavior that individuals conduct in pursuit of favorable results with full knowledge of potential negative consequences and losses. It can be divided into positive risk-taking behavior and negative risk-taking behavior. The former refers to those behaviors that have certain challenges and can promote individual physical and mental health; The latter refers to behaviors harmful to health or not accepted and recognized by society, such as smoking, drunk driving, truancy, cheating, laughing at others, etc. Previous studies on risk-taking behavior using experimental tasks and questionnaires have found that adolescence is the

peak of risk-taking behavior. Risk-taking behavior will not only adversely affect the physical and mental development of teenagers, but also become a risk factor for social stability.

### 2.1.1 Introduction to risk-taking behavior theory

Problem behavior theory: Based on problem behavior theory, this theory studies risk-taking behavior from the perspective of development and interaction between individuals and the environment, and studies personality, perceived environment and behavior system. Each system involves a number of psychosocial variables. For example, personality includes alienation, self-confidence, internal and external locus of control, moral sentiment, and achievement motivation variables. The perceived environment included parental control, friend control, parent-friend interaction; Behaviors include problematic alcohol, drug use, smoking, and other behavioral variables. These three systems together with demographic variables and social structure contribute to the risk-taking tendency of adolescents.

## 2.2. Definition of Prosocial Behavior

Prosocial behavior refers to behaviors that help others, give to charity, or sacrifice themselves with little chance of being reciprocated. Human beings, as social and social creatures, themselves need to rely on interpersonal cooperation and mutual aid, in order to better cope with environmental changes. Therefore, prosocial behavior has a significant impact on human survival and social development, and is also an enduring research topic in the field of psychology. The theory is as follows.

### 2.2.1 Introduction to prosocial behavior theory

Prosocial behaviors of evolutionary theory system: the initial research Gui's attention is in the middle of the 20th century, when the researchers mainly from the perspective of evolutionary explanation animals and even human's prosocial behavior, gradually formed a system of evolutionary theory, the system including kin selection theory, group selection theory, reciprocal theory, etc. However, these theories are controversial and need to be developed.

## 2.3. Pro-social Risk-Taking Behavior

From the neurophysiological studies of risk-taking behavior and prosocial behavior in adolescents, it can be found that both risk-taking behavior and prosocial behavior involve activation of brain regions related to reward processing, which provides evidence for revealing the commonness of risk-taking behavior and prosocial behavior. Moreover, both risk-taking behavior and prosocial behavior of adolescents are on the increase. However, in previous studies on the relationship between prosocial behavior and risk-taking behavior, most of them are considered as opposites. As usual, aggressive children are compared with prosocial children, and it is found that aggressive children are more likely to be ostracized and cheated by their peers, have learning difficulties, and develop later externalized problem behaviors. On the contrary, prosocial children are liked by their peers and maintain good interpersonal relationships during development. Therefore, prosocial behavior and risk-taking behavior are considered to have different adaptive meanings. But in fact, not all individuals can be simply classified into the prosocial or risk-taking group, and there are individuals with both high risk and high prosociality. Accordingly, dou et al. [1] proposed a new research field in 2016: prosocial risk-taking behavior based on the main socialization process of adolescence and the reorganization of motivational, social and cognitive neural circuits. This behavior has two characteristics, one is to complete the purpose of this behavior is to benefit others rather than their own; Second, this behavior may bring certain risks to oneself, which may be economic, health/safety and social risks, etc. Since this behavior is the intersection of risk-taking behavior and prosocial behavior, its applicable theory is basically consistent with that of prosocial behavior and risk-taking behavior, so it will not be repeated.

### **3. REVIEW OF PREVIOUS STUDIES**

#### **3.1. The Influence of Interpersonal relationship on Adolescents' Prosocial Risk-taking Behavior**

At present, among the researches on adolescents' prosocial risk-taking behaviors, Yan Xuexin and Zhang Lijin were the first in China to publish a paper titled "The Influence of interpersonal relationship on Adolescents' Prosocial Risk-taking Behaviors" in 2018<sup>[2]</sup>. In experiment 1, 364 high school students were selected as subjects, and the prosocial risk-taking tendency was measured by gambling task in economic domain. In experiment 2, a total of 520 high school students were selected, and the prosocial risk-taking task (social event decision task) in the social domain was used to measure the prosocial risk-taking tendency of the participants. This study verifies the combined effects of behavior, personality, motivation and social factors on prosocial risk-taking behavior, which has certain guiding significance for the guidance of adolescents' prosocial risk-taking behavior.

#### **3.2. The Influence of Peer Presence and self-esteem on Prosocial Risk-taking Behavior of College Students**

Luo Haocheng<sup>[3]</sup> et al., the effect of Peer Presence and self-esteem on Prosocial Risk-taking Behavior of College Students in 2021, included in the abstracts of the 23rd National Psychological Academic Conference. In this study, two behavioral experiments were conducted to investigate the effects of peer presence and self-esteem on prosocial risk-taking behavior of college students.

#### **3.3. The effect of Subjective SOCIOECONOMIC status on Prosocial risk-taking Behavior of High School Students: A Moderated mediator**

Chen tao<sup>[4]</sup> and other researchers published in 2022, the subjective socioeconomic status influence on high school students prosocial risk-taking: a regulate mediation ", in order to explore the subjective social and economic status of the effect of prosocial risk-taking and collective responsibility and Thanksgiving mechanism, the influence of the takes the form of questionnaire, investigating 1248 high school students. The results show that subjective socioeconomic status can influence prosocial risk-taking behavior of high school students through collective responsibility, and the relationship is moderated by gratitude.

#### **3.4. "But is helping you worth the risk? Defining Prosocial risk Taking in attribute"**

In 2016, Dou et al.<sup>[1]</sup> wrote a review of adolescent prosocial risk-taking behavior, which defined prosocial risk-taking behavior for the first time and briefly summarized the current research status, research significance and shortcomings of prosocial risk-taking behavior, such as lack of empirical research and research paradigm. This once again provides a new idea for researchers to study adolescents, but there is no review article in China.

### **4. MEASURING TOOLS**

#### **4.1. Scale Measurement**

The authoritative tool used to evaluate adolescent prosocial risk-taking behavior in foreign countries is the prosocial risk-taking behavior subscale in adolescent Prosocial and Health Risk Behavior Scale compiled by Ska et al. (2014), which consists of 7 items and mainly focuses on risk-taking behaviors with positive social and emotional effects. The scale has good reliability and validity, and can effectively measure the prosocial and health risk tendency of American college adolescents.

Taking Chinese adolescent students as objects, Chinese scholars adopted standard psychometric procedures to revise the prosocial risk behavior subscale compiled by Ska et al.<sup>[5]</sup>

in 2014 and test its reliability and validity, in order to provide a measurement tool for exploring the developmental characteristics and psychological mechanism of adolescent prosocial risk behavior. The translated prosocial risk behavior subscale consisted of 7 items, using 5-point Likert likert scale ("0" = "never", "1" = "hardly", "2" = "sometimes", "3" = "often" and "4" = "always"). The higher the score, the higher the degree of prosocial risk behavior. The reliability and validity of the revised scale were tested with three samples of adolescents, and the results confirmed that the translated and revised Chinese version of the prosocial risk behavior Scale had good applicability in Chinese adolescents.

#### 4.2. Experimental Paradigm

##### 4.2.1 Tasks in the economic field

Yan Xuanxin and Zhang Lijin[2] developed a task paradigm of prosocial risk-taking behavior combining simple gambling task and donation task. In the task, the subjects were told that there was a gambling task, and if they participated in this gambling, they would have a 50% chance to help others with financial difficulties to win a certain amount of money and not lose money themselves, or 50% chance to lose a certain amount of money and not help others to win money themselves. The subjects were asked whether they would like to participate in this gambling. Choosing to participate reflects an individual's tendency to take risks in order to help others, and vice versa. The participants' choices were then scored in reverse, with higher scores associated with higher pro-social risk-taking tendencies.

##### 4.2.2 Tasks in the social sphere

Yan Xuexin and Zhang Lijin [2] adapted the social event decision-making task, which included "crossing a bridge", "riding a bike" and "skiing". In different situations, high %  $\forall$  risk options were set, and the subjects were required to make corresponding choices according to the experimental situation and their own preferences. The paradigm modified or reconstructed the experimental situation according to the characteristics of prosocial risk-taking behavior and the characteristics of adolescents' daily life. In each situation, the other people with different degrees of intimacy with the subjects needed the help of the subjects due to certain life events. There were 3 situations, with 1 question in each situation and 3 questions in total. Subjects chose the high-risk option and scored 2 points, and chose the low-risk option and scored 1 point. The higher the score, the higher the prosocial risk-taking tendency.

### 5. RESEARCH DEFICIENCIES AND FUTURE PROSPECTS

As for the influencing factors of adolescent prosocial risk-taking behavior, since this behavior includes both prosocial behavior and risk-taking behavior, all the factors that affect prosocial behavior and risk-taking behavior may act on prosocial risk-taking behavior. Examples include peer presence, mood, parenting, situation, etc. Prosocial risk-taking behavior provides a new research field and direction for the study of adolescent risk-taking behavior, and it is necessary to further explore the influencing factors and internal mechanism of adolescent prosocial risk-taking behavior, so as to further enrich the study of adolescent risk-taking behavior. Future research can focus on developing research paradigms to study these mechanisms.

In addition, previous studies have focused on risk taking and prosocial behavior in isolation. However, studying the interplay between these adolescence-specific behaviors, combined with the development of social sensitivity and neurobiology, may update our understanding that adolescents are more of a time of opportunity than a time of high risk and vulnerability. Based on these findings, we suggest that adolescence may be a particularly sensitive time for prosocial risk-taking. Prosocial risk-taking may be an interesting area of research, but has been neglected in the literature, and may help explain how ongoing individual genetic changes in the adolescent brain may not only create vulnerability, but also provide opportunities for healthy development.

Further research into how prosocial risk-taking developed during this sensitive period may provide important insights into the mechanisms that distinguish positive and negative development outcomes.

In general, a few previous studies on prosocial risk-taking behavior remain at the level of theoretical review, and few researchers systematically explore the characteristics of adolescents' prosocial risk-taking behavior through empirical studies. The reason is the lack of empirical studies and research paradigms, etc. Future research can further focus on the development of research paradigms, and study the influencing factors and related mechanisms of adolescent prosocial risk-taking behavior, and compare whether it is different from risk-taking behavior and prosocial behavior alone.

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