

RISK TAKING BEHAVIOR OF ADOLESCENTS: THE PREDICTING ROLE OF PEER PRESSURE AND SELF-CONTROL

Fatima Shahbaz

Department of Clinical Psychology, the Superior University, Lahore Pakistan

Email: fatimashahbaz982000@gmail.com

Dr. Arooj Zahra Rizvi

Department of Clinical Psychology, the Superior University, Lahore Pakistan

Email: aroojzahra.fsd@superior.edu.pk

Yousaf Raza

Clinical Psychologist, Punjab Institute of Mental Health, Lahore

Email: yousafraza09@gmail.com

Fiza Noor

Department of Clinical Psychology, the Superior University, Lahore Pakistan

Email: fizabutt021@gmail.com

ABSTRACT

The present study examined the relationships among peer pressure, self-control, and risk-taking behavior among adolescents, as well as the predictive role of peer pressure and self-control on risk-taking behavior. The sample consisted of 269 adolescents aged 13–19 years, recruited from public and private schools and colleges in the Faisalabad district. Data were collected using the Adolescent Risk-Taking Questionnaire (ARQ), the Peer Pressure Scale (PPS), and the Brief Self-Control Scale (BSCS). Results indicated a significant positive relationship between peer pressure and risk-taking behavior and a significant negative relationship between self-control and risk-taking behavior. Additionally, peer pressure was negatively correlated with self-control. Multiple regression analysis revealed that both peer pressure and risk-taking behavior were significant negative predictors of self-control. These findings highlight the critical role of social and personal factors in shaping adolescent risk-taking behaviors and suggest the importance of interventions aimed at enhancing self-control and managing peer influence.

Keywords: Risk-Taking Behavior, Peer Pressure, Self-Control, Adolescents

INTRODUCTION

Adolescence is a critical developmental stage characterized by profound and observable changes. During this period, individuals undergo substantial emotional, social, cognitive, and physical transformations as they strive to establish their identity. This process can be challenging for adolescents and their immediate environment, particularly their parents and peers. One of the most important periods of an individual's life is adolescence, when one remarkably comes under the contact of many people and rapid changes takes place due to the influence of their interaction. During this time, the peer relationships take on increasing importance and play a critical role in a person's life, his social skills, his development, and even his self-concept (Mistry, 2019). It is a strong desire, for an adolescent, to have a peer group and to be appreciated by that group. The concept of peer influence is related to a mutual influence process through which peers become increasingly similar over time and share similar characteristics (Dodge et al., 2007).

Peer pressure is persuading or encouraging another person to engage in certain types of behaviour. Berndt and Ladd (1989) defined susceptibility to peer pressure as the influence that peer groups exert by rewarding those who conform to expected norms and/or punishing those who violate

them. Moreover, peer group pressure is one of the most dangerous aspects of adolescence to which teenagers are exposed. Negative peer influence could cause adolescents to behave in an aggressive way (Espelage, Holt, & Henkel, 2003). This is because adolescents would like to gain acceptance and appreciation from their peers.

Peer pressure can significantly influence adolescent behavior, especially among individuals with low levels of self-control. Adolescents who struggle with self-regulation are more likely to engage in risky behaviors such as substance use, aggression, and rule-breaking when encouraged by peers. This occurs because limited self-control reduces the ability to resist immediate social rewards and external approval, increasing conformity to negative peer norms (Gardner & Steinberg, 2005; Milić et al., 2025). In contrast, adolescents with higher self-control demonstrate greater resistance to negative peer pressure and are more capable of making independent, goal-oriented decisions. Strong self-control enables adolescents to manage impulses, evaluate consequences, and adhere to personal values even in socially demanding situations. Empirical evidence suggests that high self-control is associated with better academic performance, healthier social relationships, and reduced involvement in problem behaviors (Tangney et al., 2018; Steinberg & Monahan, 2007).

Generally, peer influence leads to engaging in risky behaviors such as substance use with some probability of negative consequences such as physical injury, social rejection, and financial loss (Boyer & Byrnes, 2016). Risk-taking “involves voluntary choices for behaviors where outcomes remain uncertain” (Crone et al., 2016). Based on this, negative risk-taking behavior refers to the behavior that an individual engages in with the expectation of rewarding results while acknowledging the potential risks and their associated negative consequences (Dou et al., 2020). In many cases, negative risk-taking behaviors impose more undesirable impacts on adolescent development than positive risk-taking behaviors (e.g., participating in challenging courses and sports), e.g., injuries, threats to physical and mental health, and even death (Crone et al., 2016). Due to the unbalanced development of their socioemotional system and cognitive control system, adolescents lack sufficient self-control (Shulman et al., 2016), and negative risk-taking behaviors reach a peak during adolescence (Van Duijvenvoorde et al., 2016).

Peer pressure has also been linked to economic resources. Specifically, income inequality is associated with risk-taking (Payne et al., 2017). Although not all adolescents from low-income families are likely to fall prey to negative peer influences, economic instability creates a “fertile ground” for adolescents to be influenced by peers. Adolescents with no resources may easily be encouraged to engage with financially stable peers to have a belonging. It is not uncommon in some peer relationships for peers who are relatively stable to provide the resources for a peer to acquire drugs and/or alcohol until one is stable to fund their acquisition (Foo et al., 2012). Moreover, peers may be encouraged by fellow peers to engage in risk-taking behaviors such as early unprotected sexual intercourse to gain resources (Ssewamala et al., 2010).

Numerous theories explain the phenomenon of young people engaging in risk behaviors. One of the most well-known and frequently mentioned is Jessor's Theory of Problem Behavior (Jessor, 2016), which emerged in the mid-20th century. This theory offers a comprehensive socio-psychological conceptual framework for understanding problematic behavior among adolescents and young adults, grounded in the premise that behavior is shaped by the interaction between the individual and their environment. Engagement in risk behaviors during adolescence can also be interpreted as an adaptive mechanism facilitating exploration in various relationships (especially

peer relations and those with parents and siblings) and identity formation, representing the central developmental task of this period.

For this reason, some researchers investigating youth risk behaviors have categorized specific actions, such as alcohol consumption, truancy, or fare evasion in public transportation as undesirable normative behaviors (Ručević et al., 2009). The issue arises when these behaviors escalate into delinquent and violent conduct. To enable early intervention at the initial stages of delinquency development, it is crucial to identify the key factors contributing to the emergence and progression of risk behaviors that may later evolve into delinquent acts, particularly at the onset of adolescence. Past studies found positive relationship between low self-control and negative risk-taking behavior (Cheung, 2014; Gottfredson & Hirschi, 1990).

Self-control refers to an individual's ability to alter his or her dominant cognitive, emotional, and behavioral reactions to follow social norms and to pursue long-term goals (Baumeister et al., 2007). According to problem behavior theory, protective factors account for a diminished likelihood of the occurrence of problem behaviors by directly mitigating or buffering the impact of exposure to risk factors (Jessor, 1991; Jessor & Turbin, 2014). Good self-control is a protective factor in the personality system, which can promote good internal inhibitions and help adolescents establish their own behavioral norms to prevent and reduce the occurrence of negative risk-taking behavior. The dual-system model of adolescent risk taking can also be used to explain the association between self-control and adolescents' risk-taking behavior.

According to the dual-system model, adolescents are particularly vulnerable to risk-taking via the confluence of the developmental patterns of their socioemotional and cognitive control systems, that is, their relatively high responsiveness to reward combined with their relatively weak self-regulation (Shulman et al., 2016). Adolescents' risk-taking is driven by the enhanced activation of sensation seeking and reward sensitivity during adolescence (Van Duijvenvoorde et al., 2016). As a form of cognitive control, a high level of self-control can help adolescents use better inhibitory control to plan and monitor to prevent or avoid engaging in negative risk-taking behavior (Shulman et al., 2016). Conversely, adolescents with low self-control have more negative risk-taking behavior (Cheung, 2014; Gottfredson & Hirschi, 1990).

A general theory of crime, which was proposed by Gottfredson and Hirschi (1990), suggests that lack of self-control is one of the key factors leading to juvenile delinquency. For instance, a study on how children's self-control predicts lifetime smoking found that low childhood self-control makes children more susceptible to tobacco use during adolescence and to becoming smokers, even leading to an elevated risk of smoking for many decades (Daly et al., 2016). Holmes et al. (2019) found that higher self-control trajectories from mid-childhood to late childhood are associated with lower risk-taking in adolescence. Moreover, some intervention studies found that the enhancement of control ability can help to reduce the risk that adolescents will participate in negative risk-taking behaviors, such as smoking, alcohol and drug use, unhealthy eating, or forming friendships with deviant peers (Protogerou et al., 2020). Overall, these studies suggest that as problem behavior theory and the dual-system model predict, higher self-control helps reduce or prevent adolescents' negative risk-taking behavior. However, these theoretical accounts provide little explanation for how self-control would be related to negative risk-taking behavior.

Rationale of the Study

Adolescence is a critical developmental stage characterized by rapid biological, cognitive, and social changes that increase vulnerability to risk-taking behaviors. During this period, adolescents

are more likely to engage in behaviors such as substance use, reckless driving, and aggression, which can have long-term consequences for physical, psychological, and social well-being. Understanding the factors that contribute to adolescent risk-taking is therefore essential for promoting healthy development and preventing maladaptive outcomes. Peer pressure is one of the most influential social factors affecting adolescent behavior. As adolescents increasingly seek acceptance and approval from peers, they may conform to group norms even when such norms encourage risky or harmful behaviors. Self-control is a key psychological factor that may explain variations in adolescents' responses to peer pressure. Adolescents with lower levels of self-control are more prone to impulsivity and sensation-seeking, making them particularly susceptible to peer-induced risk-taking. In contrast, adolescents with higher self-control are better equipped to resist negative peer influences and make adaptive decisions, even in socially demanding contexts. Despite extensive international research on peer pressure, self-control, and adolescent risk-taking, there remains a need for integrated studies that examine these variables simultaneously. Many existing studies focus on peer influence or self-control in isolation, limiting a comprehensive understanding of how these factors interact to shape adolescent behavior. Moreover, there is a scarcity of context-specific research in developing countries, including Pakistan, where cultural norms, family structures, and social dynamics may uniquely influence adolescents' experiences of peer pressure and self-regulation. Therefore, the present study aims to examine the influence of peer pressure and self-control on risk-taking behavior among adolescents. By investigating these relationships, the study seeks to contribute to the existing literature and provide empirical evidence that can inform school-based interventions, parental guidance programs, and mental health policies. Understanding the protective role of self-control may help in designing preventive strategies that reduce harmful risk-taking and promote healthier developmental outcomes among adolescents.

Objectives

- To measure relationship between peer pressure, self-control, and risk taking behavior among adolescents.
- To check the predicting role of peer pressure and self-control in risk taking behavior among adolescents.

Hypotheses

1. There would be significant relationship between peer pressure, self-control, and risk taking behavior among adolescents.
2. There would be significant predicting role of peer pressure and self-control in risk taking behavior among adolescents.

RESEARCH METHODS

Sample

The sample consisted of 269 adolescents aged 13–19 years both male and females, recruited from public and private schools and colleges of Faisalabad district using convenience sampling.

Demographic Information Sheet

A self-report demographic form was used to gather basic information about the participants, including their age, gender, level of education, and family system. Collecting these details helped in better understanding the participants' backgrounds and the contextual factors that may influence their help-seeking behavior.

Instruments

The Adolescent Risk-Taking Questionnaire (ARQ, Gullone & Moore, 2000)

The ARQ (Gullone & Moore, 2000) is a two-part instrument used to measure adolescents' risk-taking behaviors as well as their perceptions of the risks associated with these behaviors. It includes 44 items rated on a 5-point Likert scale. One section asks participants to judge how risky they believe certain behaviors are (e.g., smoking), while the other section assesses how often they engage in those behaviors. Prior studies have reported satisfactory internal reliability for the ARQ, with Cronbach's alpha values between 0.70 and 0.79 for antisocial subscales and values above 0.80 for other subscales across different genders and age groups (Gullone et al., 2000).

Peer Pressure Scale (PPS; Esen, 2003)

The PPS developed by Esen (2003), consists of 34 items and is a 5-point Likert-type measure designed to assess negative peer pressure experienced by adolescents. Reliability analyses of the original scale demonstrated strong psychometric properties, with an internal consistency coefficient of .90 and a test-retest reliability coefficient of .82 for the total scale. Higher scores reflect greater levels of perceived peer pressure, whereas lower scores indicate lower levels of peer pressure (Esen, 2003).

The Brief Self-Control Scale (BSCS; Tangney et al., 2018)

The Brief Self-Control Scale (BSCS) is a concise form of the Self-Control Scale introduced by Tangney et al. (2018). It consists of 13 items rated on a 5 Likert-type scale ("1 = not at all like me"; "5 = very much like me") and measures an individual's capacity to regulate thoughts, emotions, and behaviors. Higher scores reflect stronger self-control. The scale has shown satisfactory reliability and validity and is commonly used in psychological research (Tangney et al., 2018).

Procedure

After obtaining ethical approval from the relevant institutional review board, data were collected from adolescents enrolled in public and private schools and colleges in the Faisalabad district. Prior to data collection, formal permission was secured through an official authority letter issued by the Department of Clinical Psychology to obtain approval from the concerned school and college administrations. To ensure accessibility and convenience, data were collected using face-to-face administration in classrooms. Participants were clearly informed about the purpose of the study and were assured that their participation was entirely voluntary. They were also informed that the information provided would be used solely for research purposes and that their responses would remain confidential and anonymous. Written informed consent was obtained from all participants prior to administering the questionnaires. Only adolescents who met the inclusion criteria and agreed to participate were included in the study. Participants were first asked to complete a demographic information sheet, followed by the Adolescent Risk-Taking Questionnaire (ARQ), the Peer Pressure Scale (PPS), and the Brief Self-Control Scale (BSCS). Clear instructions were provided, and participants were encouraged to respond honestly. The researcher remained available to address any questions or concerns during the data collection process. On average, completion of the questionnaires took approximately 15–20 minutes.

RESULTS

Table 1

Demographics Profile (N= 269)

Respondent's Characteristics	N	%	M (SD)
Age (years)			16. 57 (2.04)
Gender			
Male	135	50.2	
Female	134	49.8	
Educational Level			
Matric	153	56.9	
Intermediate	116	43.1	
Family System			
Nuclear	121	44.9	
Joint	148	55.1	

Note. M = Mean, SD = Standard Deviation

Table 1 indicates that the mean age of the participants was approximately 16 years (SD = 2.04), confirming that the sample comprised adolescents. The gender distribution was nearly equal, with males constituting 50.2% of the sample and females 49.8%. A majority of the participants were enrolled in the Matric level (56.9%), while 43.1% (n = 116) were studying at the intermediate level. Regarding family structure, most participants belonged to joint family systems (55.1%), whereas 44.9% reported living in nuclear families.

Table 2

Descriptive Statistics and Correlation Analysis

Variables	M	SD	Risk Taking Behavior	Peer Pressure	Self-Control
Risk Taking Behavior	156.71	20.06	-	0.48**	-0.44**
Peer Pressure	134.57	12.94		-	-0.34**
Self-Control	48.62	7.38			-

Note. $p < .01$

The Pearson correlation analysis is given in Table 2. Results indicated a significant positive association between risk taking behavior and peer pressure ($r = 0.48$, $p < .01$). While there was a significant negative relationship between risk taking behavior and self-control ($r = -0.44$, $p < .01$). Additionally, peer pressure was also found to be significant negatively correlated with self-control ($r = -0.34$, $p < .01$).

Table 3

Multiple Regression Analysis for Predicting Self-Control from Risk Taking Behavior and Peer Pressure among Adolescents (N =269)

Predictor	B	β	p	CI 95%
Risk Taking Behavior	-0.14	-0.36	.000**	-0.19 – -0.09
Peer Pressure	-0.47	-0.17	.007**	-0.80 – -0.13
R ²	.21**			
ΔR^2	.20			
F	35.93			

Note. CI = Confidence Interval

Table 3 shows the results of the multiple regression analysis used to examine risk taking behavior and peer pressure as predictors of self-control among adolescents. The overall model was statistically significant, $F(2, 266) = 35.93$, $p < .01$. The model explained 21% of the variance in self-control, which indicates a strong model fit. While, risk taking behavior was a significant negative predictor of self-control ($B = -0.14$, $\beta = -0.36$, $p < .001$). Similarly, peer pressure was also significant negative predictor of self-control ($B = -0.47$, $\beta = -0.17$, $p < .001$).

DISCUSSION

The present study examined the predictive role of risk-taking behavior and peer pressure on self-control among adolescents. The findings largely supported the proposed hypotheses and align with existing research in the field of adolescent development. Consistent with the first hypothesis, a significant positive association was found between peer pressure and risk-taking behavior. This result supports earlier research showing that adolescents who experience greater peer influence are more likely to engage in risky behaviors such as substance use, reckless driving, and delinquency (Brown et al., 1986; Steinberg & Monahan, 2007). Peer norms and the desire for acceptance often encourage adolescents to conform to behaviors that elevate risk, confirming the important role of social context in adolescent decision making.

Additionally, the significant negative relationship between self-control and risk-taking behavior aligns with previous studies indicating that higher self-control is linked to lower involvement in harmful behaviors (Tangney et al., 2018; de Ridder et al., 2012). Adolescents with better self-regulatory abilities tend to exhibit greater restraint in impulsive situations and are less likely to pursue immediate rewards at the expense of long-term consequences. This supports the idea that self-control functions as a protective factor against risk-taking. The finding that peer pressure was negatively correlated with self-control further echoes existing literature suggesting that social influences can undermine self-regulatory capacities. Research has shown that adolescents embedded in peer groups that endorse risky norms often exhibit diminished self-control, as social demands can override individual restraint (Dishion & Tipsord, 2011; Gardner & Steinberg, 2005). The results of the multiple regression analysis also confirmed the second hypothesis: both risk-taking behavior and peer pressure significantly predicted self-control. Specifically, risk-taking behavior was a significant negative predictor of self-control, as was peer pressure. These findings extend prior research demonstrating that frequent engagement in high-risk activities and intense peer influence can erode self-regulatory resources, increasing adolescents' susceptibility to impulsive decisions (Steinberg, 2008; Patterson & Stoolmiller, 1991). Overall, the study's findings reinforce the interconnected nature of social and individual factors in adolescent behavior. Peer

pressure appears to encourage risk-taking and diminish self-control, while strong self-regulatory abilities may protect against engagement in potentially harmful behaviors.

Despite its contributions, the current study has several limitations. First, the cross-sectional design restricts causal interpretations among peer pressure, self-control, and risk-taking behavior. Longitudinal studies are needed to better examine developmental changes and causal pathways across time. Second, data were collected through self-report questionnaires, which may be subject to social desirability and recall biases, particularly in the assessment of sensitive behaviors such as risk-taking. Finally, the sample was limited to adolescents from public and private schools and colleges in the Faisalabad district. As a result, the findings may not generalize to adolescents from other geographic areas or cultural contexts.

Future research should adopt longitudinal and experimental designs to clarify causality among the studied variables. Including additional methods such as behavioral tasks, parent/teacher reports, or ecological momentary assessment could strengthen the measurement of risk behavior and self-control. Researchers might also explore mediators or moderators such as emotional regulation, family environment, or socioeconomic status to deepen understanding of how social and individual factors jointly shape adolescent outcomes. Expanding research to more diverse populations across different regions would enhance the generalizability of findings and offer insights into cultural variations in peer influence and self-control development.

Conclusion

In conclusion, the present study provides evidence that risk taking behavior and peer pressure are significant correlates of self-control among adolescents. The findings confirm that peer pressure is positively associated with risk-taking behaviors, while self-control is inversely related. Additionally, both risk-taking behavior and peer pressure negatively predict adolescents' self-control. These results underscore the importance of interventions focused on strengthening self-regulation and equipping young people with strategies to manage peer influence, with the potential to reduce engagement in risky behaviors and promote healthier developmental trajectories.

References

- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, 16(6), 351-355.
- Berndt, T. J., & Ladd, G. W. (1989). *Peer relationships in child development*. John Wiley & Sons.
- Boyer, T. W., & Byrnes, J. P. (2016). Risk-taking. In Levesque R, ed. *Encyclopedia of Adolescence*. Cham: Springer. https://doi.org/10.1007/978-3-319-32132-5_15-2
- Brown, B. B., Clasen, D. R., & Eicher, S. A. (1986). Perceptions of peer pressure, peer conformity dispositions, and self-reported behavior among adolescents. *Developmental Psychology*, 22(4), 521-530.
- Cheung, N. W. (2014). Low self-control and co-occurrence of gambling with substance use and delinquency among Chinese adolescents. *Journal of Gambling Studies*, 30(1), 105-124.
- Crone, E. A., Van Duijvenvoorde, A. C., & Peper, J. S. (2016). Annual Research Review: Neural contributions to risk-taking in adolescence—developmental changes and individual differences. *Journal of Child Psychology and Psychiatry*, 57(3), 353-368.
- Daly, M., Egan, M., Quigley, J., Delaney, L., & Baumeister, R. F. (2016). Childhood self-control predicts smoking throughout life: Evidence from 21,000 cohort study participants. *Health Psychology*, 35(11), 1254.

- de Ridder, D. T. D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review*, 16(1), 76–99.
- Dishion, T. J., & Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Annual Review of Psychology*, 62, 189–214.
- Dodge, K. A., Dishion, T. J., & Lansford, J. E. (Eds.). (2007). *Deviant peer influences in programs for youth: Problems and solutions*. Guilford Press.
- Dou, K., Lin, X. Q., & Wang, Y. J. (2020). Negative parenting and risk-taking behaviors in Chinese adolescents: Testing a sequential mediation model in a three-wave longitudinal study. *Children and Youth Services Review*, 119, 105631.
- Esen, B. K. (2003). The development of peer pressure scale: studies on the validity and reliability. *Journal of Educational Sciences & Practices*, 2(3), 65-76.
- Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development*, 74(1), 205-220.
- Foo, Y. C., Tam, C. L., & Lee, T. H. (2012). Family factors and peer influence in drug abuse: a study in rehabilitation centre. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 4(3), 189.
- Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: an experimental study. *Developmental Psychology*, 41(4), 625.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. In *A general theory of crime*. Stanford University Press.
- Gullone, E., & Moore, S. (2000). Adolescent risk-taking and the five-factor model of personality. *Journal of Adolescence*, 23(4), 393-407.
- Gullone, E., Moore, S., Moss, S., & Boyd, C. (2000). The adolescent risk-taking questionnaire: Development and psychometric evaluation. *Journal of Adolescent Research*, 15(2), 231-250.
- Holmes, C., Briant, A., Kahn, R., Deater-Deckard, K., & Kim-Spoon, J. (2019). Structural home environment effects on developmental trajectories of self-control and adolescent risk taking. *Journal of Youth and Adolescence*, 48(1), 43-55.
- Jessor, R. (1991). Risk behavior in adolescence: a psychosocial framework for understanding and action. *The Journal of Adolescent Health*, 12(8), 597-605.
- Jessor, R. (2016). *The origins and development of problem behavior theory: The collected works of Richard Jessor*. Springer International Publishing/Springer Nature.
- Jessor, R., & Turbin, M. S. (2014). Parsing protection and risk for problem behavior versus pro-social behavior among US and Chinese adolescents. *Journal of Youth and Adolescence*, 43(7), 1037-1051.
- Milić, M., Bjelobrsk, V., & Šincek, D. (2025). Self-esteem and peer pressure susceptibility mediating the link between maternal behavior and adolescent risk behaviors. *Frontiers in Psychology*, 16, 1655371.
- Mistry, N. (2019). Peer pressure in college students: a comparative study. *IOSR Journal of Humanities and Social Science*, 24(8), 63-69.
- Patterson, G. R., & Stoolmiller, M. (1991). Replication of a peer-oriented process model of deviancy training in a group of adolescent boys. *Aggressive Behavior*, 17(3), 205–228.

- Payne, B. K., Brown-Iannuzzi, J. L., & Hannay, J. W. (2017). Economic inequality increases risk taking. *Proceedings of the National Academy of Sciences*, 114(18), 4643-4648.
- Protopogou, C., McHugh, R. K., & Johnson, B. T. (2020). How best to reduce unhealthy risk-taking behaviours? A meta-review of evidence syntheses of interventions using self-regulation principles. *Health Psychology Review*, 14(1), 86-115.
- Ručević, S., Ajduković, M., and Šincek, D. (2009). *Development of youth self-reported delinquency and risk behaviors questionnaire* (SRDP-2007). *Kriminol. Socijalna Integr.* 17, 1–11. Available online at: <https://hrcak.srce.hr/40729> (Accessed December 20, 2025).
- Shulman, E. P., Smith, A. R., Silva, K., Icenogle, G., Duell, N., Chein, J., & Steinberg, L. (2016). The dual systems model: Review, reappraisal, and reaffirmation. *Developmental Cognitive Neuroscience*, 17, 103-117.
- Ssewamala, F. M., Han, C. K., Neilands, T. B., Ismayilova, L., & Sperber, E. (2010). Effect of economic assets on sexual risk-taking intentions among orphaned adolescents in Uganda. *American Journal of Public Health*, 100(3), 483-488.
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28(1), 78–106.
- Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology*, 43(6), 1531–1543.
- Tangney, J. P., Boone, A. L., & Baumeister, R. F. (2018). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. In *Self-regulation and self-control* (pp. 173-212). Routledge.
- Van Duijvenvoorde, A. C., Peters, S., Braams, B. R., & Crone, E. A. (2016). What motivates adolescents? Neural responses to rewards and their influence on adolescents' risk taking, learning, and cognitive control. *Neuroscience & Biobehavioral Reviews*, 70, 135-147.