

The role of physical activity in promoting healthy behaviors in adolescents (a review study)

Yuanyuan Deng^a, He Biao^{b*}

^aXiangtan University, Xiangtan City, Hunan Province 411105, China

^bHengyang Normal University, Hengyang City, Hunan Province 421002, China

Abstract

Background and goal:

Physical activity plays a crucial role in promoting healthy behaviors in adolescents. Therefore, the aim of the present study was to investigate the role of physical activity in promoting healthy behaviors in adolescents.

Method:

The present study was a systematic review. Google Scholar, Scopus, Pub Med, Wos and MDPI databases were used to search for articles from 2020 to 2024. Articles were extracted using the keywords of physical activity, promotion of healthy behaviors, adolescents and sports.

Findings:

The study suggests that regular physical activity is important for promoting healthy behaviors in children, such as maintaining a balanced diet, getting enough sleep, and managing stress effectively. Engagement in physical activity can improve academic outcomes in school-aged children and facilitate social and emotional learning.

Conclusion:

findings of this study support the idea that physical pastime is a key thing of a healthy way of life for young people.

Keywords: physical activity, promoting healthy behaviors, adolescents, exercise

Introduction

In addition to the bodily blessings, regular bodily hobby has been shown to have fantastic consequences on mental fitness in youth. Bodily activity can assist lessen emotions of strain and tension, improve mood, and boom shallowness. It is able to also offer opportunities for social interplay and teamwork, which could help teens construct robust relationships and increase critical social talents (1, 2). Furthermore, engaging in physical activity at a young age can help establish lifelong healthy habits. Adolescents who are physically active are more likely to continue being active into adulthood, leading to a lower risk of chronic diseases and improved overall quality of life (3). It is important for parents, educators, and community members to support and encourage adolescents to engage in regular physical activity. This can be done through providing access to safe and enjoyable physical activities, promoting the importance of exercise, and serving as positive role models for healthy behaviors. By prioritizing physical activity in adolescence, we can help teenagers build a foundation for a lifetime of health and well-being (4, 5). Normal bodily pastime no longer best improves bodily health however additionally has a fine effect on intellectual fitness. Workout releases endorphins, that are the body's herbal temper elevators, offering a experience of happiness and lowering feelings of pressure and tension. This can be mainly beneficial for children who may be struggling with the challenges of school, friendships, and vanity problems. Undertaking bodily hobby can provide a far-wanted outlet for these stresses and may help enhance standard mental nicely-being. By way of incorporating normal exercising into their routine, young people can experience improved emotional health and a extra feel of balance and happiness of their daily lives (6, 7). Bodily activity can also promote wholesome behaviors in adolescents by means of instilling critical life abilities inclusive of area, perseverance, and intention-setting. By using putting fitness dreams and working closer to accomplishing them, teens can increase a feel of accomplishment and self-self assurance which can bring over into other regions in their lives (8).

In this text, we will explore the function of physical hobby in promoting healthy behaviors in adolescents and discuss a few practical approaches that dad and mom, educators, and healthcare experts can inspire young adults to contain greater bodily interest into their every day lives. By emphasizing the significance of exercising and inspiring teens to make it a priority, we will help them develop the habits and behaviors so as to set them at the route to a lifetime of fitness and wellbeing.

Materials And Methods

The present study was a systematic review. Google Scholar, Scopus, Pub Med, Wos and MDPI databases were used to search for articles from 2020 to 2024. Articles were extracted using the keywords of physical activity,

promotion of healthy behaviors, adolescents and sports. Inclusion and exclusion criteria included factors such as the role of physical activity in promoting healthy behaviors in adolescents, availability of full-text studies, exclusion of articles older than 2020, high-quality articles, and participants who did not experience other mental or physical problems. Finally, 70 article titles were searched based on the keywords used, and after reviewing the articles based on inclusion and exclusion criteria and removing duplicate articles, 15 quality articles related to the role of physical activity in promoting healthy behaviors in adolescents were obtained and analyzed.

Results

The findings of this observe propose that bodily pastime performs a essential position in promoting healthful behaviors in kids. The effects showed that children who engaged in everyday bodily hobby were more likely to engage in special wholesome behaviors, collectively with ingesting a balanced weight loss program, getting enough sleep, and coping with stress efficaciously. This highlights the excessive fine effect that bodily interest ought to have on normal fitness and properly-being on this age employer. Moreover A unmarried bout of physical activity can enhance academic consequences in faculty-aged teens, non-public and social obligation facilitated social and emotional gaining knowledge of and advanced children’s private and social obligation.

Table 1. The role of physical activity in promoting healthy behaviors in adolescents

names	year of publication and journal	Title	Type of intervention	Conclusion
Wei et al. (9)	2024 Research quarterly for exercise and sport.	Physical Education Teachers’ Perceptions of and Strategies for Managing Bullying: The Influence of Socialization	Thirty in-service physical education teachers were recruited to participate. One semi-structured, individual interview was conducted with each participant lasting approximately 60 minutes. Data analysis employed inductive and deductive techniques.	The current study suggests that while enrolled in a physical education teacher education program, preservice teachers should be provided greater knowledge about and strategies for addressing bullying. In-service teachers are encouraged to pursue professional development that increases their self-efficacy in managing bullying.
Li et al. (10)	2024 Acta Psychologica	Exercise habits and health behaviors on adolescent obesity	Using the raw data of 2021 adolescent health behavior online survey, this study analyzed demographic sociological factors, mental health, exercise habits, health behaviors and other categorical variables, and conducted the frequency, χ^2 test for the difference in the proportion of obese and non-obese.	The obesity rate of boys is higher than that of girls and high school students is higher than that of middle school students, and obesity is inversely proportional to family economic status. Mental health factors, exercise habits and eating habits are all important factors affecting adolescent obesity.
Muntaner-Mas et al. (11)	2024 Scandinavian Journal of Medicine & Science in Sports	Acute effect of physical activity on academic outcomes in school-aged youth: A systematic review and multivariate meta-analysis	We conducted a systematic search using PubMed, Web of Science, SPORTDiscus, and PsycINFO databases (from inception to 11th January 2023) for studies assessing the acute effects of physical activity on academic performance-related outcomes in school-aged youth. A univariate and multivariate meta-analysis was conducted based on a random-effects model with restricted maximum likelihood used to pool the academic outcomes results (Hedge's g).	A single bout of physical activity can improve academic outcomes in school-aged youth, which may serve as a complementary tool for the educational field. However, the observed heterogeneity in the results indicates that we should interpret the findings obtained with caution.

Wei et al. (12)	2023 Journal of Teaching in Physical Education	Influence of a summer wellness program on bullying reduction among school-age children	Data collection included semistructured interviews with 30 children and eight camp staff. Child participants completed the following pre- and postsurveys: Personal and Social Responsibility Questionnaire and the Illinois Bullying Scale. In addition, daily observations over a 4-week period were recorded in a field notes log. Survey data were analyzed using descriptive statistics and bivariate correlations, and all observational and interview data were coded using inductive and deductive techniques.	Findings from the present study suggested teaching personal and social responsibility facilitated social and emotional learning and improved children's personal and social responsibility.
Yang et al. (13)	2023 PeerJ	Effects of sports intervention on aggression in children and adolescents: a systematic review and meta-analysis	We performed a systematic search of Pubmed, Web of Science, Cochrane library, Embase and Scopus databases from database inception to 12 October 2022 for all studies written in English. Studies were included if they met the following PICO criteria. All analyses were carried out using the Review Manager 5.3 Software. We summarized aggression, hostility and anger scores using SMDs. Summary estimates with 95% confidence intervals were pooled using DerSimonian-Laird random effects model or fixed effects model according to between-study heterogeneity.	This review confirmed that sports intervention can reduce the aggression of children and adolescents. We suggested that schools can organize young people to participate in low-level, non-contact sports to reduce the occurrence of bullying, violence and other aggression-related adverse events. Additional studies are needed to determine which other variables are associated with aggression in children and adolescents, in order to develop a more detailed and comprehensive intervention programme to reduce their aggression.
Zhu et al. (14)	2022 Psychology of Sport and Exercise	Physical activity participation and physical aggression in children and adolescents: A systematic review and meta-analysis	Studies were identified through a search of five electronic databases (PsycINFO, SPORTDiscus, MEDLINE, CINAHL and Web of Science) with combinations of three groups of keywords. Two independent reviewers screened and extracted data from the individual studies. The reporting quality and publication bias were assessed. The relationship between physical activity participation and aggressive behaviour was systematically summarized. Data (effect sizes) were pooled to investigate the effects of physical activity interventions on aggressive behaviour.	The current meta-analysis presents evidence for the effect of physical activity interventions on aggressive behaviour in children and adolescents. Physical activity-only interventions involving team-based physical activity might be used for preventing or reducing aggressive behaviour in children and adolescents. Possible mechanisms, methodological strengths and weaknesses, implications, and suggestions for future studies were discussed.
Li et al. (15)	2022 International	Influence of sports activities	We searched databases for 27 interventional studies on the	This review demonstrates that sports activities improve the

	Journal of Environmental Research and Public Health	on prosocial behavior of children and adolescents: A systematic literature review	influence of sports activities on children and adolescents' prosocial behaviors published in peer-reviewed English journals. Subsequently, inductive, summary, analytical, and evaluation methods were used to systematically analyze and evaluate the literature.	prosocial behavior of children and adolescents. At the same time, we find that children and adolescents with special educational needs should be allowed to participate in more sports activities.
Chan et al. (16)	2022 Computers in Human Behavior	The impact of eSports and online video gaming on lifestyle behaviours in youth: A systematic review	We conducted a systematic review and meta-analysis of studies in journals published in the English language since 2011. We searched PubMed, Web of Science (WoS) and Bielefeld Academic Search Engine (BASE) using search strings related to eSports or video-gaming and lifestyle behaviours.	Lifestyle outcomes associated with engagement in eSports and video gaming are important to consider. This emphasizes the need for longitudinal studies which examine characteristics of gaming that may increase young people's risk of practicing unhealthy lifestyle behaviours. The accessibility of eSports to a wide digital audience highlights the need for this sector to promote healthy lifestyle behaviours among consumers and gamers.
Vandoni et al. (17)	2021 Nutrients	Combatting sedentary behaviors by delivering remote physical exercise in children and adolescents with obesity in the COVID-19 era: a narrative review	independently identified the most relevant papers published in English in the past 15 years, including original papers, metanalysis, clinical trials, and reviews. Case reports or series and letters were excluded. Papers published up to September 2021 were found thanks to the following keywords: COVID-19, adolescents, children, PA, exercise, training, online, exergames, obesity, lockdown, and weight gain. PubMed, Scopus, EMBASE, and Web of Science were used as the electronic databases to search.	Assisting overweight and obese children with remote PA programs may be relevant not only in the case of intermittent lockdowns due to pandemics, but it can also be a valuable strategy for fostering compliance with PA guidelines. These telehealth activities can be conducted either for outdoor or home-based training.
Muñoz-Llerena et al. (18)	2021 Frontiers in psychology	Personal and Social Responsibility Development in a Volleyball Hybrid Positive Youth Development Program: A Mixed Methods Approach	A hybrid program was applied during the competitive season, with a total of 37 sessions with 30 girl students (15 experimental and 15 control) aged between 8 and 10 years ($M = 8.87$, $SD = 0.82$).	Although there were no statistically significant intergroup or intragroup differences, the findings suggest that the hybrid program seems to be effective in fostering PR and SR in youth girl volleyball players.
Wan et al. (19)	2021 Children	Effects of physical exercise on prosocial behavior of junior high school students	Based on the 2014–2015 China education panel survey (CEPS), the relationship between regular athletic sports and prosocial behavior was evaluated among eighth-grade students by ordinary least squares (OLS)	Physical activity has a significant positive effect on students' prosocial behavior, and gender and the father's education are significantly related to prosocial behavior.

			estimation and propensity score matching (PSM) and the relationship between OLS and PSM was evaluated by Rosenbaum's bounds test for a robustness test; the observations were analyzed for heterogeneity to identify those who benefit more from sports.	
Ishihara et al. (20)	2020 Scandinavian journal of medicine & science in sports	Relationship of participation in specific sports to academic performance in adolescents: A 2-year longitudinal study	We focused on the demands of complex motor skills and the differences between individual sports vs team sports. Four hundred and sixty-three 7th-grade students (227 girls and 236 boys) were followed up over 2 years. Data regarding participation in sports activities, types of sports activities, academic performance, and cardiorespiratory fitness were obtained at baseline and after a 2-year follow-up.	participation in specific sports may have significant benefits for academic performance in adolescents. Although these relationships are presumably mediated by cardiorespiratory fitness, sports activities that require more complex motor skills and individual sports participation may be directly related to academic performance. Considering that quitting sports activities reversed these benefits, sustained participation in sports is important for academic success.
Huang et al. (21)	2020 International journal of environmental research and public health	Meta-analysis on intervention effects of physical activities on children and adolescents with autism	As for research methods, by searching in CNKI (China National Knowledge Infrastructure), WanFang data, VIP Database for Chinese Technical Periodicals, PubMed, Scopus, Web of Science, and other databases, this study collected randomized controlled trials (RCTs) on the intervention of physical activities on children and adolescents with autism and used Review Manager 5.3 software to process and analyze the outcome indicators of the literature. As for the result, a total of 12 papers and 492 research targets were selected.	The results of the meta-analysis show that physical activity had a significant positive impact on social interaction ability, communication ability, motor skills, and autism degree of autistic children as well as the social skills and communication skills of autistic adolescents. On the other hand, physical activity had no significant effect on the stereotyped behavior of autistic children and adolescents. In conclusion, physical activity intervention is beneficial to children and adolescents with autism, and continuous physical activity intervention can produce greater intervention effect.
Haverkamp et al. (22)	2020 Journal of sports sciences	Effects of physical activity interventions on cognitive outcomes and academic performance in adolescents and young adults: A meta-analysis	A systematic review with meta-analysis was performed using the following databases: Embase, ERIC, MEDLINE, PsycINFO and Web of Science. Studies had to meet the following criteria: controlled study design, investigating the effects of physical activity interventions on cognitive outcomes and academic performance in healthy	In conclusion, acute and chronic physical activity interventions might be a promising way to improve several cognitive outcomes and language skills in adolescents and young adults.

			adolescents or young adults (12–30 years)	
Burgueño et al. (23)	2020 International journal of environmental research and public health	Sport education and sportsmanship orientations: An intervention in high school students	The participants were 148 (52.70% female; Mage = 17.04, SDage = 0.99) high school students who were randomized into an experimental group (n = 74), which received 16 basketball lessons under sport education conditions, and a control group (n = 74), which received 16 basketball lessons following a traditional teaching approach.	In conclusion, sport education is an effective pedagogical model to be taken into consideration by physical education teachers in order to optimally promote the high school student's moral and ethical education via the development of sportsmanship orientations in the context of school physical education.

Discussion

Bodily hobby now not handiest contributes to physical fitness, however also has a extensive effect on intellectual and emotional properly-being. The examine discovered that young people who were physically energetic suggested lower stages of stress and anxiety, and were better able to cope with the needs of day by day existence. This shows that physical interest may also serve as a defensive thing towards the improvement of intellectual fitness troubles in childhood. The examine also discovered that teens who engaged in ordinary bodily hobby had been more likely to have fine self-esteem and body picture. This is specifically vital in the course of childhood, a time while body image worries are not unusual and may make a contribution to the improvement of ingesting disorders and different mental health issues. These findings underscore the importance of promoting physical activity among kids as a key thing of a healthful life-style.

Carrying out physical pastime can not most effective enhance an adolescent's bodily health, but also their mental properly-being (24, 25). Via participating in sports or other types of workout, teenagers can increase a high-quality relationship with their bodies and construct self-confidence and self-esteem (26). This can lead to a greater sense of self-worth and a more positive self-image, helping them navigate the challenges of adolescence with greater resilience and self-assurance. Regular physical activity can also provide a healthy outlet for stress and anxiety, promoting overall emotional well-being (27). Another purpose for this courting might be that people who often have interaction in physical activity have a tendency to be extra aware about their standard fitness and nicely-being, leading them to make more conscious selections about their diet and life-style. Physical pastime can also assist lessen stress and tension, which might be common obstacles to adopting wholesome conduct. Moreover, being energetic can increase power ranges and motivation, making it simpler to hold a healthful routine. Usual, the tremendous outcomes of physical interest on both bodily and intellectual well-being can create a supportive environment for the adoption of different healthy behaviors (28, 29). The connection between bodily activity and wholesome behaviors in children is probably motivated through a variety of factors. In addition to the extent of bodily hobby, socio-economic repute can effect get admission to to assets together with wholesome meals alternatives and safe locations to workout. Peer influences may play a function in shaping teens' behaviors, as they may be much more likely to interact in positive sports if their buddies are doing the identical (30-32). while physical activity can have many benefits for adolescents, there are several limitations that need to be addressed in order to effectively promote healthy behaviors in this population. By understanding and addressing these limitations, we can better support adolescents in leading active and healthy lifestyles.

Conclusion

in Conclusion the findings of this study support the idea that physical pastime is a key thing of a healthy way of life for young people. Via encouraging young human beings to engage in regular physical interest, we will also be promoting a variety of other high quality behaviors that can cause improved standard health and well-being. Public health interventions aimed at selling physical pastime among teens are therefore crucial in addressing the growing quotes of obesity and different fitness problems on this age organization.

Acknowledgments:

This study is supported by Scientific Research Project of Hunan Provincial Education Department in 2023, Project type: Outstanding Youth Project (23B0175).

References

- 1 Delelis G. Deleterious effects of unchosen solitude on adolescents' mental and social health: The moderating role of self-esteem. *Scand J Psychol.* 2023;64(6):710-8.
- 2 Sun YL, Wang J, Yao JX, Ji CS, Dai Q, Jin YH. [Physical exercise and mental health: cognition, anxiety, depression and self-concept]. *Sheng Li Ke Xue Jin Zhan.* 2014;45(5):337-42.
- 3 Leinberger-Jabari A, Al-Ajlouni Y, Ieriti M, Cannie S, Mladenovic M, Ali R. Assessing motivators and barriers to active healthy living among a multicultural college student body: A qualitative inquiry. *J Am Coll Health.* 2023;71(2):338-42.
- 4 Banspach S, Zaza S, Dittus P, Michael S, Brindis CD, Thorpe P. CDC Grand Rounds: Adolescence - Preparing for Lifelong Health and Wellness. *MMWR Morb Mortal Wkly Rep.* 2016;65(30):759-62.
- 5 Jackson JL, Fox KR, Rausch JR, Swenski TN, Neville SP, Marousis NC, et al. A Randomized Clinical Trial Demonstrating Feasibility and Preliminary Efficacy of a Videoconference-Delivered Physical Activity Lifestyle Intervention Among Adolescents With a Congenital Heart Defect. *Ann Behav Med.* 2022;56(7):673-84.
- 6 Mikkelsen K, Stojanovska L, Polenakovic M, Bosevski M, Apostolopoulos V. Exercise and mental health. *Maturitas.* 2017;106:48-56.
- 7 Shim IH, Sim IO. A Study of the Experience of Working Adults on Regular Choral Activities: Applying Focus Groups. *Int J Environ Res Public Health.* 2020;17(23).
- 8 Kassas S, Culot C, Crombez G, Smeding A, Leys C, Thompson D, DeSmet A. Study protocol for an adapted personal project analysis to measure vertical inter-goal relations on physical activity and diet. *BMC Psychol.* 2022;10(1):225.
- 9 Wei M, Richards KA, Graber KC. Physical Education Teachers' Perceptions of and Strategies for Managing Bullying: The Influence of Socialization. *Research quarterly for exercise and sport.* 2024:1-10.
- 10 Li H, He W, Liu G. Exercise habits and health behaviors on adolescent obesity. *Acta Psychologica.* 2024;245:104199.
- 11 Muntaner-Mas A, Morales JS, Martínez-de-Quel Ó, Lubans DR, García-Hermoso A. Acute effect of physical activity on academic outcomes in school-aged youth: A systematic review and multivariate meta-analysis. *Scandinavian Journal of Medicine & Science in Sports.* 2024;34(1):e14479.
- 12 Wei M, Richards KA, Khan NA, Woods AM, Espelage DL, Graber KC. Influence of a summer wellness program on bullying reduction among school-age children. *Journal of Teaching in Physical Education.* 2023;42(4):710-20.
- 13 Yang Y, Zhu H, Chu K, Zheng Y, Zhu F. Effects of sports intervention on aggression in children and adolescents: a systematic review and meta-analysis. *PeerJ.* 2023;11:e15504.
- 14 Zhu Y, Li J, Zhang M, Li C, Lau EYH, Tao S. Physical activity participation and physical aggression in children and adolescents: A systematic review and meta-analysis. *Psychology of Sport and Exercise.* 2022;63:102288.
- 15 Li J, Shao W. Influence of sports activities on prosocial behavior of children and adolescents: A systematic literature review. *International Journal of Environmental Research and Public Health.* 2022;19(11):6484.
- 16 Chan G, Huo Y, Kelly S, Leung J, Tisdale C, Gullo M. The impact of eSports and online video gaming on lifestyle behaviours in youth: A systematic review. *Computers in Human Behavior.* 2022;126:106974.
- 17 Vandoni M, Codella R, Pippi R, Carnevale Pellino V, Lovecchio N, Marin L, et al. Combatting sedentary behaviors by delivering remote physical exercise in children and adolescents with obesity in the COVID-19 era: a narrative review. *Nutrients.* 2021;13(12):4459.
- 18 Muñoz-Llerena A, Hernández-Hernández E, García-de-Alcaraz A, Caballero-Blanco P. Personal and Social Responsibility Development in a Volleyball Hybrid Positive Youth Development Program: A Mixed Methods Approach. *Frontiers in psychology.* 2021;12:675532.
- 19 Wan Y, Zhao Y, Song H. Effects of physical exercise on prosocial behavior of junior high school students. *Children.* 2021;8(12):1199.
- 20 Ishihara T, Nakajima T, Yamatsu K, Okita K, Sagawa M, Morita N. Relationship of participation in specific sports to academic performance in adolescents: A 2-year longitudinal study. *Scandinavian journal of medicine & science in sports.* 2020;30(8):1471-82.
- 21 Huang J, Du C, Liu J, Tan G. Meta-analysis on intervention effects of physical activities on children and adolescents with autism. *International journal of environmental research and public health.* 2020;17(6):1950.

- 22 Haverkamp BF, Wiersma R, Vertessen K, van Ewijk H, Oosterlaan J, Hartman E. Effects of physical activity interventions on cognitive outcomes and academic performance in adolescents and young adults: A meta-analysis. *Journal of sports sciences*. 2020;38(23):2637-60.
- 23 Burgueño R, Medina-Casabón J. Sport education and sportsmanship orientations: An intervention in high school students. *International journal of environmental research and public health*. 2020;17(3):837.
- 24 Bell OJ, Flynn D, Clifford T, West D, Stevenson E, Avery L. Identifying behavioural barriers and facilitators to engaging men in a community-based lifestyle intervention to improve physical and mental health and well-being. *Int J Behav Nutr Phys Act*. 2023;20(1):25.
- 25 Poirel E. [Psychological benefits of physical activity for optimal mental health]. *Sante Ment Que*. 2017;42(1):147-64.
- 26 Laferrier JZ, Teodorski E, Cooper RA. Investigation of the Impact of Sports, Exercise, and Recreation Participation on Psychosocial Outcomes in a Population of Veterans with Disabilities: A Cross-sectional Study. *Am J Phys Med Rehabil*. 2015;94(12):1026-34.
- 27 Ramalho S, Martins-Mendes D, Macedo JM, Barros C, Luis C, Sá S, et al. Unveiling the Path to Resilience: Prioritizing Mental Health, Sleep, and Nutrition in the Post-COVID Era. *Healthcare (Basel)*. 2023;11(17).
- 28 Rynhach NO, Mykhalchuk VM, Krut AH. [AWARENESS OF THE WORKING AGE POPULATION ABOUT PHYSICAL ACTIVITY AS A RISK FACTOR FOR NON-INFECTIOUS DISEASES]. *Wiad Lek*. 2018;71(3 pt 2):678-82.
- 29 Saúl LA, Sanfeliciano A, Botella L, Perea R, Gonzalez-Puerto JA. Fuzzy Cognitive Maps as a Tool for Identifying Cognitive Conflicts That Hinder the Adoption of Healthy Habits. *Int J Environ Res Public Health*. 2022;19(3).
- 30 Banna JC, Buchthal OV, Delormier T, Creed-Kanashiro HM, Penny ME. Influences on eating: a qualitative study of adolescents in a periurban area in Lima, Peru. *BMC Public Health*. 2016;16:40.
- 31 Choi YJ, Crimmins EM, Kim JK, Ailshire JA. Food and nutrient intake and diet quality among older Americans. *Public Health Nutr*. 2021;24(7):1638-47.
- 32 Levey EKV, Garandeanu CF, Meeus W, Branje S. The Longitudinal Role of Self-Concept Clarity and Best Friend Delinquency in Adolescent Delinquent Behavior. *J Youth Adolesc*. 2019;48(6):1068-81.