



Prevention of Drug Use in Early Adolescents in Palu City, Indonesia

Ahmad Yani^{1,2*}, Sukri Palutturi³, Ridwan Amiruddin⁴, Sudirman Nasir⁵, Asmin Fransiska⁶, Aminuddin Syam⁷, Yahya Thamrin⁸, Intan Sari Areni⁹, Rajindra Rajindra¹⁰, Anto J. Hadi¹¹

¹Doctoral Program of Public Health, Faculty of Public Health, Hasanuddin University, Indonesia; ²Department of Health Promotion and Behavioral Sciences, Faculty of Public Health, University of Muhammadiyah Palu, Palu, Indonesia; ³Department of Health Policy Administration, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁴Department of Epidemiology, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁵Department of Health Promotion and Behavioral Sciences, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁶Faculty of Law, Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia; ⁷Nutrition Study Program, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁸Department of Occupational Safety and Health, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁹Department of Electrical Engineering, Faculty of Engineering, Hasanuddin University, Makassar, Indonesia; ¹⁰Departemen of Management, Faculty of Economics, Universitas Muhammadiyah Palu, Palu, Indonesia; ¹¹Departement of Nutrition Science, Faculty of Public Health, Universitas Afa Royhan, Padangsidempuan, Indonesia

Abstract

Edited by: Sasho Stoleski
Citation: Yani A, Palutturi S, Amiruddin R, Nasir S, Fransiska A, Syam A, Thamrin Y, Areni IS, Rajindra R, Hadi AJ. Prevention of Drug Use in Early Adolescents in Palu City, Indonesia. Open Access Maced J Med Sci. 2022 Apr 25; 10(E):758-763. https://doi.org/10.3889/oamjms.2022.8972
Keywords: Risky Behavior; Early Adolescence; Drugs
***Correspondence:** Ahmad Yani, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia. Email: ahmadyani.publichealth@gmail.com
Received: 12-Feb-2022
Revised: 03-Mar-2022
Accepted: 15-Apr-2022
Copyright: © 2022 Ahmad Yani, Sukri Palutturi, Ridwan Amiruddin, Sudirman Nasir, Asmin Fransiska, Aminuddin Syam, Yahya Thamrin, Intan Sari Areni, Rajindra Rajindra, Anto J. Hadi
Funding: This research did not receive any financial support
Competing Interests: The authors have declared that no competing interests exist
Open Access: This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

BACKGROUND: In the last three decades, there has been a significant increase in risky behavior among adolescents in various countries, including Indonesia. They tend to get involved in potentially harmful activities and are at a greater risk of this behavior than other age groups.

AIM: This study aims to provide information about preventing drug use in early adolescents in Palu City.

METHODS: This qualitative study was carried out in Palu City between July and October 2021 using a phenomenological approach, with 7 informants that were selected using a purposive method. The data were collected through in-depth interviews and the comments recorded were analyzed. Furthermore, ethical considerations were taken into account which includes seeking the consent of the study participants to record the interviews, respecting the confidentiality of information, and giving the right to withdraw.

RESULTS: The result showed that risky behavior related to drug abuse among young adolescents is prevented by prioritizing education through related institutions such as the National Narcotics Agency (BNN) and schools.

CONCLUSIONS: Based on the result, prevention of risky behavior related to drug abuse is through the supervision of the school and people. Furthermore, the availability of information needs to be addressed by the extension system implemented by the Palu City BNN as a source of information for students in breaking the chain of drug abuse. Social control and supervision from parents are also needed to prevent this behavior among adolescents, especially students.

Introduction

Various countries such as Indonesia have experienced a significant increase in risky behavior among adolescents in the past 3 decades [1]. These individuals tend to get involved in potentially harmful activities [2] and are at a greater risk than other age groups [3]. The United Nations Office on Drugs and Crime in 2020 stated that 5.6% of the world's population (275 million people) have abused drugs [4]. Furthermore, the death rate from drug abuse increased by 60% between 2015 and 2018 [5] among the age range of 15–64 years. The Indonesian BNN also stated that approximately 2.29 million students are drug abusers in 2018 [6]. Meanwhile, adolescents among the students involved were 2,287,492 and the numbers increased to over 3.6 million in 2020 [7], [8].

Drug abuse among adolescents leads to health problems that affect the quality of life mentally, psychologically, physically, and socially in the future [4]. This is in line with Oktriyanto *et al.*, 2020 which stated that adolescent drug addicts had more characteristics in the 15–20-year age group [8]. Several factors influencing drug abuse in adolescents include smoking, alcohol consumption, premarital sex, peers, gender, family, and environment [9,10].

Various attempts have been made in Indonesia to address this problem, but the number of adolescent drug addicts remains high. Moreover, the National Narcotics Agency (BNN) and the Indonesian Institute of Sciences (LIPI) in 2019 reported that Central Sulawesi is one of the provinces with the highest number of drug abuse cases in Indonesia [7] with 216 students involved. The BNN of Central Sulawesi Province noted that drug abuse increased by 47.6% between January

and December 2010, including among students [11] and the concern about the abuse among students in Palu City is growing. The Palu City BNN also noted that in 2020 over 181 students involved were dominated by Junior High School (SMP) students [12].

Consequently, prevention of drug abuse in adolescents is very important because they easily develop intentions not to engage in risky activities such as drug abuse [13]. Several studies have shown that adolescents' interest in avoiding drug abuse has increased over the past three decades [14], [15], [16]; hence, it is important to protect adolescents from its harmful effects. Meanwhile, the group of adolescents commonly affected by drug abuse is age group 12–15 years [17] because they face more health challenges than others in the future [18]. This group is more likely to become long-term drug abusers as they have a lot of time to consume drugs.

The drug abuse behavior in adolescents is influenced by peers that possess different dynamics. Similarly, Hirschi's theory also states that the risk behavior of drug abuse in adolescents is due to external factors such as family and peers [19]. These factors are strongholds and they directly and indirectly influence the abuse of drug in adolescents [20]. This study aims to provide information about preventing drug use in early adolescents in Palu City.

Methods

This is a qualitative study with a phenomenological approach carried out to obtain information on the prevention of risky behavior related to drug abuse among young adolescents in Palu City. The study was carried for 3 months between July and October 2021.

Determination of informants was carried using the purposive method and 7 people were selected according to the criteria set. Three categories of informants were used, namely key, main, and supporting informants.

The defined criteria used include:

- a. Key Informant: 1 person
 - 1) Someone with the basic information needed for the study such as the Palu City BNN
 - 2) Willing to be an informant.
- b. Key Informants: 4 People
 - 1) The main informants are directly involved in the social interactions investigated
 - 2) Abuses drug/Never abuse drugs
 - 3) Lives in Palu city
 - 4) Registered as an active student in the school where the study was conducted

- 5) 12–15 Years old
 - 6) Willing to be an informant.
- c. Supporting Informants: 2 People
- 1) Additional informants are able to provide information, but they are not directly involved in the interaction such as parents and teachers
 - 2) Willing to be an informant.

The study data was obtained by in-depth interviews conducted in a remote private room while the purpose of the interview, confidentiality of the data, and the right to withdraw had been earlier discussed with each participant. The interviewer introduced himself, thanked the interviewees, and obtained verbal consent from the participants. The interviews were recorded and, in some cases, it was written depending on the choice of the participant.

Data analysis

The interviewer listened to the interviews several times to obtain an overview which was written word for word, the handwritten notes were then reviewed several times and sent for typing and analysis. Furthermore, analysis was carried out on each interview to extract key points.

Ethics

Ethical considerations were taken into account which involved seeking the consent of the participants to participate and to record the interviews, confidentiality of information, and the right to withdraw from the interview. This study was approved by the Ethics Committee of the Faculty of Public Health, Hasanuddin University, Makassar, Indonesia with reference number: 6307/UN4.14.1/TP.02.02/2021

Results

The results of in-depth interviews were obtained from 2 Junior High School students that had used drugs and stopped in the last 6 months. The response of the two informants was similar which stated that prevention by promoting education is very effective. These are excerpts from the response of the informants that have used narcotics and are described in the interview results:

"I have been using this drug from the start, and I have never paid attention when people (BNN Counseling on Drugs) visiting our school to give socialization because I don't think it's important. if they (BNN) come, the teachers

direct all of us (students) to gather in the hall... but my friends and I never follow the socialization..."

"Later I realized that it (BNN Counseling) was important when I was caught by the teacher because I already had withdrawal. that was when I was reported to my parents."

"From there, I will continue to follow if they (BNN) come to educate us a about this medicine."

"I just started to realize, then I was able to stop. indeed there are benefits for me like that (BNN Education Counseling)."

(S31)

"I am lazy to participate (BNN Education Counseling), spend time. I'd rather go smoking in the canteen with my friends., only smart students are participating. hahaha."

"I will join the counseling later when my parents ask me. because I was scolded when the drug was found in my room."

"I was told to continue to follow me with the person who brought the counselling section (BNN), if not, my father took me."

"Later, I have often joined the drug abuse before I realized the dangers of drugs."

"I know it is too late, that's why I went the wrong way yesterday (Using drugs)."

(S51)

This study discovered that the two main informants that had used drugs had the same answer, namely using drugs was because they never received information about the dangers associated with it. This was also strengthened by the behavior of the informants that refused to participate in the activities carried out by the Palu City BNN to educate students about the dangers of drugs at the informant's school.

Meanwhile, in-depth interviews were also conducted with 2 students that had never used drugs. Their response was also similar which revealed that prevention by promoting education is very effective. These are excerpts from the response of informants that have not used narcotics:

"Yes. I always participate when there are activities from BNN people. from grade 1 Junior High School. that is why I know the dangers of these drugs."

"I have never used drugs like that (Drugs), I'm afraid that I will sin and it will ruin my future. I don't want to use those drugs (Drugs)."

(S32)

"Participating in counseling from the BNN is mandatory. If I do not participate, I will not graduate later. So, I continue to participate in this activity..."

"No. I have never and will not use drugs... fortunately, I already know the dangers. Otherwise, I might have tried that too... hahaha."

"The benefits are enormous. I became aware of the dangers of these drugs... and I also told my family about the dangers... my parents also just found out about the dangers..."

(S52)

The two informants also have the same answer where they have never used drugs because they already know the dangers. The knowledge of the informants was obtained from the socialization conducted by the Palu City BNN.

Apart from in-depth interviews with students, interviews were also conducted with teachers and parents of students, and a similar response was obtained. The participant (teacher) stated that the teachers in each school had made every effort to prevent students from being trapped by drugs. Parents of students also fully supported the socialization carried out by the Palu City BNN. The following are excerpts from the answers of the supporting informants (teacher and parent) described in the interviews:

"We from the school fully support the efforts made by the Palu City BNN in breaking the chain of distributing drugs to students"

"We always prepare free time for students to listen and discuss with them (Palu City BNN) when conducting counseling about the dangers of drugs"

"This is very important for our students... moreover, we cannot control our children (students) when they come home from school... Therefore, we also need the role of parents in educating and supervising their children's interactions at home..."

"For now, there has been no socialization regarding drugs from the City BNN due to the pandemic."

"We as teachers hope that our children (Students) will continue to receive counseling about drugs even though it is only online."

(GS3)

"I did not know that my son had ever used drugs. I was very surprised... fortunately my husband was there to calm me down... My husband always reminded him not to be friends with naughty children... my child was invited by his friend to take the drugs..."

"He was rehabilitated by the BNN and only recently regained consciousness. I am very grateful for the existence of this Agency who can bring my son to his senses."

"I want the socialization from school to continue for students/children who are now studying from home... This socialization is carried out to make children know about drugs..."

(OS31)

Based on the excerpts of the interview, the two informants (teachers and parents of students) fully supported the activities carried out by the Palu City

BNN. Teachers expect the parents to supervise and take care of the children in terms of learning, socializing, and playing at home. Furthermore, the participants (Parent and Teacher) stated that online-based counseling needs to be carried out by the Palu City BNN for students that study at home. They also stated that housewives need counseling by the Palu City BNN as many parents are ignorant of the dangers of drugs.

Furthermore, in-depth interviews were continued with the key informant (Head of the Prevention Section in the Palu City BNN) on the prevention of drug abuse. The informant's responses were similar to that of the key informants which stated that prevention by prioritizing education is very effective. The following are excerpts from key informants' answers described in the interviews.

"Yes, that is right. we always try to cover all students in Palu City hence they can know and apply drug prevention."

"Thus, we did socialization not only for Junior High Schools 3 and 5, but all Junior and Senior High Schools in Palu City..."

"We also have supervisors at every school in Palu City to control suspicious student behavior and conduct urine tests for these students."

"The educational approach we have taken so far is effective... but there are still drawbacks... therefore, some students still use drugs."

"Moreover, Indonesia, especially Palu City, is still implementing PPKM (Enforcement of Restrictions on Community Activities) Level 4 hence it is difficult for us (BNN) to reach students who are at home or in their respective villages."

(BN)

Discussion

This study emphasizes that the prevention of risky behavior related to drug abuse by prioritizing education is very important and effective. This activity starts from school using narrative and pedagogical prevention methods carried out directly by the teacher [21]. Based on the interview results, teachers in schools also support BNN socialization activities. Dekawati's study which was applied through extension-based education shows that students' knowledge increased from 24% to 96% after being given the intervention [22], moreover, education is feasible in form of counseling [23].

Adolescent education based on a social norm approach and health promotion has been proven to be effective in preventing drug use in US universities [24]. The students in the interviews realized the importance of counseling carried out by BNN. However, they are

still unaware and lack knowledge about the positive impact of education.

One of the triggers of adolescent drug abuse is the lack of information, this is in line with Prisia's study which concluded that with sufficient knowledge, drug abuse is avoidable [25], consequently, they need to be educated about the dangers of drugs. Based on the result of the interview, the most influential factor is the role of the closest person or parents. These roles are very important in drug prevention and they include foresight in applying the rules to children, monitoring, and communicating to prevent drug abuse [26]. Moreover, it is advisable for parents to build a close relationship as this enables direct supervision of all forms of deviant actions. Family check-up is also applicable as a special method in supervising children, this activity is consistent with Stormshak's study [27].

The persuasive approach is also applicable to children; hence, the problems are directly known and immediately solved, including the abuse of drugs [28]. The family approach-based model is still the most effective solution in the abuse of drugs [29]. However, the parent's knowledge about drugs is also important as this enables the proper transfer of knowledge to the children.

Furthermore, drug consumption among adolescents is prohibited and needs urgent attention for early prevention which is carried out through education outreaches and online mediums. The interview results showed the need for online-based counseling and the World Health Organization (WHO) has developed a website-based intervention tool. The site has been tested in four countries, Belarus, Brazil, India, and Mexico, and WHO strongly recommends that this intervention be carried out in developing countries such as Indonesia [30]. Moreover, this has been carried out in the country through Educational and Information Communications (KIE) using digital platforms. This is similar to BNN which launched a Dialogue 101 application in 2018 as a container of drug prevention information, but the system has drawbacks and is only accessed by Android users [31].

The role of the government, teachers, and parents in overcoming drug abuse among adolescents is necessary and working together with cooperation is essential. Moreover, there is a constant need for education to increase the knowledge of adolescents which prevents the abuse of drug. This prevention effort is not achievable without the awareness of adolescents, therefore, the role of the closest people in monitoring and supervising needs to be continuously carried out.

Besides the educational approach, protection factors in the family and peer control of adolescents at risk for drug abuse have a strong correlation [32]. The strong risk factors such as the relationship between peers which involves carrying out less useful activities

and conflicts that occur in the family lead to drug abuse in adolescents to drugs [33]. Therefore, it is expected that schools and the Palu City BNN reach out to students that study at home to continue providing socialization about the dangers of drug use. Furthermore, school and community control inspection is needed noting that the school environment and community directly affect behavioral problems in adolescents.

Further study needs to address other factors such as self-concept, self-control, self-esteem, anxiety, decision-making skills, belief in abilities, and problem-solving skills. Furthermore, an in-depth study is needed on unexplored areas of social control and early preventive measures for adolescents in schools or environments that have the potential to form a risk of drug abuse.

In addition, the role of schools is also very important in carrying out health promotion, especially regarding the prevention of drug use in adolescents because, health promotion in schools has the aim of increasing the health status of the school community, preventing and eradicating infectious diseases among the school community and improving and restoring the health of the school community. through actively involving teachers and students in health education and supervising the health of students, especially in the prevention of drug use in students or adolescents.

Drugs are pharmacological substances that affect the brain, nerves, and body. Then, the body is an individual and part of a particular social group that is the interaction of drug, set, and setting as theorized by Norman Zinberg [34]. Using drugs can violate existing norms, as well as applicable laws. That is why it is important to prevent drug abuse, especially among teenagers. Because the various damage caused when teenagers consume drugs, not only physically, but mentally, socially, and their future is at stake.

Conclusions

Based on the results, the prevention of risky behavior related to drug abuse is carried out through the supervision of schools and parents which are the main factors of early prevention. Accessibility of information also needs to be addressed by the extension system implemented by the Palu City BNN as a source of information for students in breaking the chain of drug abuse, especially junior high school students. Therefore, it is expected that the schools and the Palu City BNN reach out to students that study at home to continue providing socialization about the dangers of drug use. Furthermore, there is a need for social activity control from parents noting that the school environment and community directly influence behavioral problems in early adolescence.

References

1. Wiguna T, Ismail RI, Sekartini R, Rahardjo NS, Kaligis F, Prabowo AL, *et al.* The gender discrepancy in high-risk behavior outcomes in adolescents who have experienced cyberbullying in Indonesia. *Asian J Psychiatr.* 2018;37:130-5. <https://doi.org/10.1016/j.ajp.2018.08.021>
2. Ozer EJ. Youth-led participatory action research: Overview and potential for enhancing adolescent development. *Child Dev Perspect.* 2017;11(3):173-7. <https://doi.org/10.1111/cdep.12228>
3. McHugh RK, Nielsen S, Weiss RD. Prescription drug abuse: From epidemiology to public policy. *J Subst Abuse Treat.* 2015;48(1):1-7. <https://doi.org/10.1016/j.jsat.2014.08.004> PMID:25239857
4. United Nations Office on Drugs and Crime. UNODC World Drug Report 2020: Global Drug Use Rising; While COVID-19 Has a Far-reaching Impact on Global Drug Markets. Austria: United Nations Office on Drugs and Crime; 2020. Available from: <https://www.unodc.org/unodc/press/releases/2020/June/media-advisory-global-launch-of-the-2020-world-drug-report.html> [Last accessed on 2021 Mar 01]. <https://doi.org/10.18356/9789210054836c013>
5. United Nations Office on Drugs and Crime, World Health Organization. International Standards on Drug Use Prevention. 2nd updated ed. Austria, Geneva: United Nations Office on Drugs and Crime, World Health Organization; 2018. p. 58. Available from: http://www.unodc.org/documents/prevention/standards_180412.pdf. [Last accessed on 2021 Sep 27]. https://doi.org/10.1163/1570-6664_iyb_sim_org_2245
6. BNN RI. Penggunaan Narkotika di Kalangan Remaja Meningkat. 2019. Available from: <https://www.bnn.go.id/penggunaan-narkotika-kalangan-remaja-meningkat> [Last accessed on 2021 Feb 10]. <https://doi.org/10.31227/osf.io/ws6gk>
7. Novitasari N, Rochaeti N. Proses penegakan hukum terhadap tindak pidana penggunaan narkotika yang dilakukan oleh anak. *J Pembang Huk Indones.* 2021;3(1):96-108. <https://doi.org/10.21107/il.v2i1.11010>
8. Park S, Kim Y. Prevalence, correlates, and associated psychological problems of substance use in Korean adolescents. *BMC Public Health.* 2015;16(1):1-9. <https://doi.org/10.1186/s12889-016-2731-8>
9. Oktriyanto O, Amrullah H, Titisari AS. Family function and misuse of drug in adolescents in Indonesia. *J Kesehatan Masy.* 2020;16(2):271-83. <https://doi.org/10.15294/kemas.v16i2.23304>
10. Astuti NH, Utomo B, Damayanti R, Anshari D. Illicit drug use pattern, health-risk behaviors, and social contexts among Indonesian students. *J Drug Issues.* 2021;52(1):67-82. <https://doi.org/10.1177/00220426211045018>
11. Badan Narkotika Nasional Sulteng. Data Pengguna NAPZA di Provinsi Sulawesi Tengah. Indonesia: Badan Narkotika Nasional Sulteng; 2020.
12. Badan Narkotika Nasional Kota Palu. Data Pengguna Narkotika di Kota Palu. Indonesia: Badan Narkotika Nasional Kota Palu; 2020.
13. Alhyas L, Al Ozaibi N, Elarabi H, El-Kashef A, Wanigaratne S, Almarzouqi A, *et al.* Adolescents' perception of substance use and factors influencing its use: A qualitative study in Abu Dhabi. *JRSM Open.* 2015;6(2):1-12. <https://doi.org/10.1177/2054270414567167> PMID:25780594
14. Winters KC, Botzet AM, Fahnhorst T, Stinchfield R, Koskey R. Adolescent substance abuse treatment: A review of evidence-based research. *Adolesc Subst Abus.* 2018;13(5):141-71.
15. Rioux C, Castellanos-Ryan N, Parent S, Vitaro F, Tremblay RE,

- Séguin JR. Age of cannabis use onset and adult drug abuse symptoms: A prospective study of common risk factors and indirect effects. *Can J Psychiatry*. 2018;63(7):457-64. <https://doi.org/10.1177/0706743718760289>
PMid:29682999
16. Yazdi-Feyzabadi V, Mehroolhassani MH, Zolala F, Haghdoost A, Oroomiei N. Determinants of risky sexual practice, drug abuse, and alcohol consumption in adolescents in Iran: A systematic literature review. *Reprod Health*. 2019;16(1):115. <https://doi.org/10.1186/s12978-019-0779-5>
PMid:31340817
 17. Boyce SC, Deardorff J, Minnis AM. Relationship factors associated with early adolescent dating violence victimization and perpetration among Latinx youth in an agricultural community. *J Interpers Violence*. 2020;17(12):27-35. <https://doi.org/10.1177/0886260520980396>
PMid:33331222
 18. Rizzo CJ, Houck C, Barker D, Collibee C, Hood E, Bala K. Project strong: An online, parent-son intervention for the prevention of dating violence among early adolescent boys. *Prev Sci*. 2021;22(2):193-204. <https://doi.org/10.1007/s1121-020-01168-6>
PMid:32940857
 19. Costello BJ, Laub JH. Social control theory: The legacy of Travis Hirschi's causes of delinquency. *Annu Rev Criminol*. 2020;3:21-41. <https://doi.org/10.1146/annurev-criminol-011419-041527>
 20. Mills CE, Freilich JD, Chermak SM, Holt TJ, LaFree G. Social learning and social control in the off-and online pathways to hate crime and terrorist violence. *Stud Confl Terror*. 2021;44(9):701-29. <https://doi.org/10.1080/1057610x.2019.1585628>
 21. Miller-Day M, Hecht ML, Krieger JL, Pettigrew J, Shin YJ, Graham J. Teacher narratives and student engagement: Testing narrative engagement theory in drug prevention education. *J Lang Soc Psychol*. 2015;34(6):604-20. <https://doi.org/10.1177/0261927X15586429>
PMid:26690668
 22. Dekawati A, Imardiani I. Pendidikan kesehatan mengenai penggunaan NAPZA pada siswa SMA negeri 1 kecamatan sungsang. *Khidmah*. 2020;2(2):196-205.
 23. Amir H, Agus AI, Ashar JI, Zainal AQ, Jihad MF, Musda MH, et al. Penerapan 3M dalam mencegah penularan Covid-19 di desa Lonjoboko Kabupaten Gowa. *Idea Pengabdian Masyarakat*. 2021;1(1):1-4. <https://doi.org/10.53690/ipm.v1i01.23>
 24. McAlaney J, Bewick B, Hughes C. The international development of the "Social Norms" approach to drug education and prevention. *Drugs Educ Prev Policy*. 2011;18(2):81-9. <https://doi.org/10.3109/09687631003610977>
 25. Prisaria N, Suharto S. Hubungan pengetahuan dan lingkungan sosial terhadap tindakan pencegahan penggunaan napza pada siswa Sma Negeri 1 Jepara. *J Kedokt Diponegoro*. 2012;1(1):104961. <https://doi.org/10.31289/diversita.v5i2.2234.s117>
 26. Kuntsche S, Kuntsche E. Parent-based interventions for preventing or reducing adolescent substance use-a systematic literature review. *Clin Psychol Rev*. 2016;45:89-101. <https://doi.org/10.1016/j.cpr.2016.02.004>
PMid:27111301
 27. Stormshak EA, Connell AM, Véronneau MH, Myers MW, Dishion TJ, Kavanagh K, et al. An ecological approach to promoting early adolescent mental health and social adaptation: Family-centered intervention in public middle schools. *Child Dev*. 2011;82(1):209-25. <https://doi.org/10.1111/j.1467-8624.2010.01551.x>
PMid:21291438
 28. Crano WD, Siegel JT, Alvaro EM, Patel NM. Overcoming adolescents' resistance to anti-inhalant appeals. *Psychol Addict Behav*. 2007;21:516-24. <https://doi.org/10.1037/0893-164x.21.4.516>
 29. Rowe CL. Family therapy for drug abuse: Review and updates 2003-2010. *J Marital Fam Ther*. 2012;38(1):59-81. <https://doi.org/10.1111/j.1752-0606.2011.00280.x>
PMid:22283381
 30. World Health Organization. Recommendations on Digital Interventions for Health System Strengthening. Geneva: World Health Organization; 2019.
 31. Merdeka S. Com BNN Gandeng Pihak Ketiga Luncurkan Aplikasi Dialogue 101. *Merdeka.com*; 2018.
 32. Trucco EM. A review of psychosocial factors linked to adolescent substance use. *Pharmacol Biochem Behav*. 2020;196:172969. <https://doi.org/10.1016/j.pbb.2020.172969>
PMid:32565241
 33. Tucker JS, Davis JP, Seelam R, Stein BD, D'Amico EJ. Predictors of opioid misuse during emerging adulthood: An examination of adolescent individual, family, and peer factors. *Drug Alcohol Depend*. 2020;214:108188. <https://doi.org/10.1016/j.drugalcdep.2020.108188>
PMid:32717502
 34. Zinberg NE. Drug, set, and setting: The basis for controlled intoxicant use. *JAMA*. 1984;16(3):271.