
Education On The Dangers Of Tramadol Misuse For Students At MAN 1 Banyumas

Widya Sari¹⁾, Wilis Sukmaningtyas²⁾, Ikit Netra Wirakhmi³⁾

^{1,2,3)} Program Studi Keperawatan Anestesiologi, Fakultas Kesehatan, Universitas Harapan Bangsa, Indonesia

*Corresponding Author

Email: widia9108@gmail.com

Abstract

Tramadol abuse among adolescents has become an increasingly concerning health issue in Indonesia. Although tramadol is an opioid analgesic intended for use under medical supervision to manage moderate to severe pain, its misuse can lead to dependency, central nervous system disorders, and even death. This community service initiative aimed to enhance students' knowledge regarding the dangers of tramadol abuse through interactive, visually-based education. The methodology employed included a pre-test, the delivery of material via lectures and educational videos, and a post-test evaluation. The results demonstrated a significant improvement in the participants' knowledge levels; prior to the education session, 46.7% of participants possessed poor knowledge and 53.3% had adequate knowledge, whereas following the session, all participants (100%) fell into the "good" category. The initiative demonstrates that interactive education is effective in improving students' understanding of the risks associated with tramadol abuse and is expected to serve as a preventive measure to curb drug abuse among adolescents.

Keywords: *Tramadol Education, Drug Abuse, Adolescents, Knowledge*

INTRODUCTION

Drug abuse is a global issue that remains difficult to eradicate and continues to be a concern for many nations. The drugs most frequently abused are typically potent medications intended for medical use under a doctor's prescription (Syaira et al., 2019). In 2017, approximately 271 million people—or 5.5% of the global population aged 15–64—used drugs, with 35.6 million suffering from drug-use disorders. Abuse is prevalent among individuals aged 18–25, predominantly males, and is most common among those with only a primary education (Saapiire et al., 2021; Legasse, 2025). In Indonesia, drug abuse figures are alarming, with around 15,000 deaths annually, the majority of victims being adolescents. Data indicate that the highest prevalence occurs among high school students compared to other educational levels (Fitriani, 2019).

According to the Regulation of the Head of BPOM No. 28 of 2018, several frequently abused drugs act on the central nervous system; these include tramadol, a synthetic opioid used as an analgesic for moderate to severe pain. Although medically indicated for therapy, tramadol is often abused due to the euphoric and sedative effects it produces (Prasetyo, 2022; Randi, 2024). The drug works by binding to opioid receptors in the brain and shares a mechanism similar to that of morphine, albeit with weaker effects (Subarnas, 2019; Muttaqin, 2023). Tramadol abuse is also a matter of global concern—including in Africa and Southeast Asia—with rising case numbers in countries such as Singapore, Thailand, and Malaysia (Zin et al., 2018). In Indonesia, the circulation of tramadol is becoming increasingly widespread; authorities have even intercepted the distribution of millions of pills linked to international networks (Pirdaus et al., 2024).

Tramadol abuse affects not only adults but also adolescents—a group particularly vulnerable due to factors such as emotional instability, social pressure, curiosity, and environmental or familial influences (Randi, 2024; Firas, 2021). The drug is relatively easy to obtain at an affordable price, which further elevates the risk of abuse (Nurjannah et al., 2021). Excessive tramadol use can lead to serious consequences, including respiratory depression, seizures, dependency, mental health disorders, and even death (Cereza et al.,

2025; Pirdaus et al., 2024). Furthermore, such abuse impacts adolescents' social and academic lives and carries the potential for legal repercussions (Cisarua et al., 2024).

Previous research indicates that visual and interactive health education can significantly improve student understanding, although limitations regarding scope and long-term retention remain (Randi, 2024). This aligns with the results of a pre-survey conducted on August 15, 2025, involving 10 students; the findings showed that the majority were unfamiliar with tramadol, and even those who had heard of it did not grasp the associated risks. Previous school-based outreach had not specifically addressed tramadol, resulting in an information gap that could potentially increase the risk of misuse.

In response to this situation, a community service initiative was conducted to educate students at MAN 1 Banyumas on the dangers of tramadol misuse. The activity aimed to enhance student knowledge and awareness by assessing baseline understanding, providing education, and evaluating comprehension regarding the physical, psychological, and social impacts of tramadol misuse. The initiative was expected to increase student knowledge, serve as a reference for the school's ongoing educational efforts, support the development of higher education teaching materials, and provide the authors with practical experience in applying their knowledge within the community.

The primary issue addressed was the students' limited knowledge regarding the dangers of tramadol misuse, which can lead to dependency, central nervous system disorders, and even death. Consequently, there was a need for an educational intervention that was preventive, practical, and easily understood, enabling students to become agents of change in fostering a healthy school environment free from drug misuse. The activity targeted 30 students from MAN 1 Banyumas and comprised several stages: a pre-test to measure baseline knowledge, interactive material delivery, the screening of educational videos, a post-test for evaluation, and the distribution of leaflets alongside the installation of educational materials to promote long-term awareness.

RESEARCH METHODS

The method for implementing Community Service activities begins with the preparation and coordination stages carried out through field surveys and obtaining permits from the Principal of MAN 1 Banyumas. This activity aims to understand field conditions, participants' needs, establish initial communication with the school, determine technical implementation, and anticipate obstacles that may occur. The stages carried out include equalizing perceptions with the drafting team and supervising lecturers through discussions and consultations, active consultation with supervising lecturers, arranging a pre-survey approval letter to Harapan Bangsa University, implementing the pre-survey to partner institutions as well as coordinating with the school, and coordinating with the implementation team regarding the use of LCDs, x banners and distribution of leaflets.

The next stage was participant screening, where the educational activity "Dangers of Abusing Tramadol Type Drugs" was aimed at class X students at MAN 1 Banyumas with a total of 30 students. The activity will be carried out on October 11 2025 at 08.00 WIB at MAN 1 Banyumas. The activity begins with the participants' consent, followed by a pre-test using a questionnaire to measure students' initial knowledge. Furthermore, education is provided through an interactive lecture method regarding the dangers of tramadol abuse, complemented by the screening of illustrative videos that describe the physical, psychological and social impacts. Activities also include question and answer sessions, quizzes, and giving prizes as a form of appreciation. After that, a post-test was carried out using a questionnaire to evaluate the increase in students' knowledge. As long-term educational reinforcement, leaflets were distributed and x-banners were installed.

Monitoring and evaluation are conducted by comparing pre-test and post-test results—using a 10-question questionnaire with a 15-minute completion time—to assess changes in students' knowledge regarding the dangers of tramadol abuse.

The activity is scheduled throughout 2025, encompassing stages such as preparation, title and proposal submission, site authorization, the proposal seminar, proposal revision, obtaining ethical clearance, implementation coordination, fieldwork and data collection (in October), and finally, the compilation of the final report, results seminar, report revision, and journal publication.

The budget covers operational needs such as an LCD projector, leaflet printing, door prizes, stationery, participant refreshments, X-banner stands and banners, video production, and costs for scientific journal publication and Intellectual Property Rights (IPR) registration, totaling IDR 1,805,000.

This community service activity takes place at MAN 1 Banyumas, located approximately 2.4 km from Universitas Harapan Bangsa Purwokerto—a distance that can be covered in about 7 minutes by motorcycle.

The activity targets students at MAN 1 Banyumas, aiming to enhance their knowledge and understanding of the physical, psychological, and social dangers of tramadol abuse, as well as to raise awareness of the associated risks and impacts, thereby enabling them to contribute to reducing abuse rates among adolescents. The outputs generated from this activity include an illustrative video on tramadol abuse, leaflets, X-banners, and a publication in a community service journal.

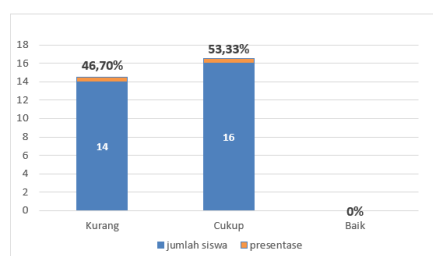
RESULTS AND DISCUSSION

Outcomes of Community Service Activities

Presented here are the results of a community service activity titled "Education on the Dangers of Tramadol Misuse for Students at MAN 1 Banyumas." Data were obtained through an analysis using questionnaires to assess students' knowledge regarding the dangers of tramadol misuse; the activity was conducted on October 11, 2025, with 30 students participating as respondents.

Distribution of Pre-test Knowledge Levels among Community Service Participants

The distribution of pre-test knowledge levels among the Community Service (PkM) participants is used to describe the students' initial knowledge status prior to the educational intervention.



Graph 1. Pre-test Knowledge Levels of Community Service Participants

Based on graph.1, the average pretest score on the level of knowledge of PkM participants before being educated about the dangers of tramadol drug abuse was obtained, with a sufficient category of 16 students (53.33%) and a poor category of 14 students (46.7%), with a minimum score of 30 and a maximum of 70.

Dissemination of Information on the Dangers of Tramadol Misuse

The educational session on the dangers of tramadol abuse was conducted effectively and in a structured manner, in accordance with the plan. The proceedings went smoothly; participants paid close attention to the material and actively engaged in discussions.

Attendance records show a total of 30 students, all of whom were present and participated from start to finish, resulting in a 100% attendance rate (30 present, 0 absent). This full attendance reflects a positive response and keen interest in the subject matter, serving as a key factor in the effective delivery of the education and the overall success of the activity in raising awareness about the dangers of tramadol abuse.

Distribution of Post-test Knowledge Levels among PKM Participants

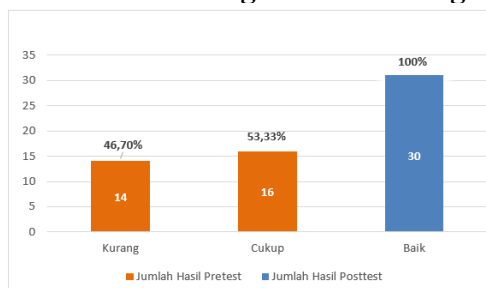


Figure 2. Post-test Knowledge Levels of PkM Participants

Graph 2 presents a comparison of knowledge levels before and after the educational intervention. Prior to the intervention, 14 participants (46.7%) possessed a low level of knowledge, while 16 participants (53.3%) had a moderate level. Following the intervention, all 30 students (100.0%) fell into the "good" or "excellent" categories regarding their understanding of the dangers associated with tramadol abuse. Consequently, there was a 46.67% increase in the "good" knowledge category from the pre-test to the post-test.

Discussion

Based on Graph 1, the average pre-test knowledge score of the Community Service (PkM) participants prior to the education session on the dangers of tramadol abuse showed that 16 students (53.33%) fell into the "sufficient" category, while 14 students (46.7%) fell into the "poor" category; scores ranged from a minimum of 30 to a maximum of 70. Participant attendance reached 100% (30 out of 30 participants present), indicating a positive response and keen interest in the material, which supported the effectiveness of the educational delivery and the successful improvement of participants' knowledge regarding the dangers of tramadol abuse. Graph 2, comparing knowledge levels before and after the education session, reveals that prior to the intervention, 14 participants (46.7%) had poor knowledge and 16 (53.3%) had sufficient knowledge; however, following the education, all 30 students (100.0%) fell into the "good" or "excellent" categories. This represents a 46.67% increase in the "good" knowledge category from pre-test to post-test, demonstrating that the education provided successfully enhanced students' understanding of how to recognize and avoid drug abuse.

The study results also indicate that some students were unaware of what tramadol is, while others were aware of the drug but did not understand that it is a potent opioid medication capable of causing dependency and life-threatening consequences if misused, revealing a gap in knowledge. This situation is influenced by several factors, such as age, education, gender, sources of information, and experience. Education is a crucial factor as it affects an individual's ability to absorb and comprehend information; generally, higher levels of education correlate with greater knowledge acquisition (Darsini, 2019). Furthermore, one's environment plays a role in shaping experience and knowledge—both directly and indirectly—through interactions with others who possess a higher level of knowledge.

These results align with the study by Syaira et al. (2019), which showed an increase in the "good" knowledge category following education—rising from 2 to 19 respondents (62%)—and the study by Randi (2024), which demonstrated improved student understanding through the use of visual and interactive media, with nearly half of the participants experiencing a significant gain in knowledge. The success of this activity was

supported by the use of animated visual media and interactive lectures, which facilitated participant comprehension. Long-term educational materials, such as X-banners and leaflets, also played a role in reinforcing and sustaining the educational impact by providing visual information on health and psychological consequences as well as prevention methods. Animated visual media effectively captured attention, boosted engagement, and aided understanding through visualization, while interactive lectures enabled two-way communication that fostered deeper insight, critical thinking, and awareness regarding the dangers of drug abuse. Thus, this educational initiative proved effective in enhancing students' knowledge and understanding of the risks associated with tramadol abuse among adolescents and in strengthening the efficacy of interactive media-based outreach programs.

Monitoring and evaluation of the activity were conducted on October 11, 2025, using a 10-question pre-test and post-test; the results indicated an increase in student knowledge regarding the dangers of tramadol abuse. However, the activity had limitations regarding its duration—lasting only about one hour—which restricted the depth of material delivery and the extent of interaction with participants. As a follow-up, the author has produced an educational video on the physical, psychological, and social impacts of tramadol abuse (accessible via https://youtu.be/kWo_f_sKYHE?si=hYeJI68c0hsjwhHs) and plans to publish an article in a health journal and a community service journal regarding the education provided to MAN 1 Banyumas students on the dangers of tramadol abuse.

CONCLUSION

Based on the results of the community service activity and the subsequent discussion, it can be concluded that the participants' average pre-test knowledge scores regarding the dangers of tramadol abuse fell into the "sufficient" category for 16 students (53.3%) and the "poor" category for 14 students (46.7%), with scores ranging from a minimum of 30 to a maximum of 70. The educational session was held on October 11, 2025, at 08:00 WIB at MAN 1 Banyumas and was attended by all 30 registered students, with no absences. Following the education, a significant increase in knowledge levels was observed; whereas prior to the session, 14 participants (46.7%) had poor knowledge and 16 (53.3%) had sufficient knowledge, post-education results showed that all participants (100.0%) fell into the "good" or "excellent" categories, representing a 46.67% increase in the "good" knowledge category from pre-test to post-test.

It is recommended that students at MAN 1 Banyumas avoid illicit drug abuse and apply the knowledge they have gained, thereby acting as peer educators. The school is advised to more actively provide regular education on the dangers of drug abuse—specifically tramadol—to strengthen early prevention efforts and foster healthy behaviors within the school environment. Universitas Harapan Bangsa is encouraged to use the results of this activity as a reference for developing knowledge regarding tramadol abuse among university students. Furthermore, future community service organizers are advised to use these findings as a basis for extended research featuring longer durations, more in-depth and interactive material delivery, and larger sample sizes.

REFERENCES

- Ardika Putra, H. B., Subarnas, A. & Raya Bandung-Sumedang Km, J. (n.d.). Penggunaan Klinis Tramadol Dengan Berbagai Aspeknya. *Jurnal*.
- Bobyanti, F. (2023). Kenakalan Remaja. *JERUMI: Journal of Education Religion Humanities and Multidisciplinary*. 1(2): 476–481.
- Cereza, G., Rius, P. & Rabanal, M. (2025). Penyalahgunaan dan Penyalahgunaan Tramadol Pada Pasien Dengan Nyeri Non-Onkologis Di Wilayah Eropa. 18(1): 1–19.
- Cisarua, K., Bogor, K., Matondang, M., Laka, M. T., Pradino, G., Harsanty, I., Sari, A., Meutuah, R., Komaria, N., Chandra, S. A. P., Putri, K. & Umacina, N. (2024). Penyusunan Tentang Pertanggungjawaban Hukum Terhadap Penyalahgunaan Tramadol dan Heximer di Kalangan Remaja di Kampung. 3(3): 23–30.
- Darsini, Fahrurrozi & Cahyono, E. A. (2019). Pengetahuan; Artikel Review. *Jurnal Keperawatan*. 12(1): 97.
- Darsini, Fahrurrozi & Cahyono, E. A. (2019). Pengetahuan; Artikel Review. *Jurnal Keperawatan*. 12(1): 97.
- Dewi Silvia, N. S. (2021). *Jurnal Pionir LPPM*. 7(1): 210–219.
- Dewi Silvia, N. S. (2021). *Jurnal Pionir LPPM*. 7(1): 210–219.
- Faizah, N. (2023). Pengelolaan Siswa Pada Sekolah Berbasis Agama Islam. *Jurnal Manajemen Pendidikan Indonesia*. 6(2): 461–474.
- Farid, A. (2017). Terapi Holistik Terhadap Pecandu Narkoba. *Jurnal Mulkiyan*. 8(2).
- Feri, Ikhtiar, M. & Afrianty Gobel, F. (2020). Penyalahgunaan Obat Terlarang Tramadol (Studi Kasus Pada Siswa). *Jurnal*: 130–150.
- Firnas, F. R. (2021). Penyalahgunaan Obat-Obat Golongan G Pada Geng Motor Remaja di Kota Makassar Sulawesi Selatan. *Journal of Health Education and Literacy*. 3(2): 76–81.
- Giovanny Permata Putri, S. W. (2018). *Jurnal Psikologi*. 40(2): 169–180.
- Gustia Amsah, D., Pawira, E. A. S. S. & Qauli, S. (2025). Pengaruh Lingkungan Teman Sebaya Terhadap Perilaku Sosial Remaja Usia 16–19 Tahun. *Madani: Jurnal Ilmiah Multidisiplin*. 3(1): 187–190.
- Hendrizar. (2020). Rendahnya Motivasi Belajar Siswa Dalam Proses Pembelajaran. *Jurnal Riset Pendidikan Dasar dan Karakter*. 2(1): 44–53.
- Hikmat, M. M., Thaha, I. L. M. & Dwinata, I. (2020). Faktor yang Memungkinkan Penyalahgunaan Narkoba pada Siswa. *Hasanuddin Journal of Public Health*. 1(1): 1–8.
- Husni, A. & Randi, M. (2024). *Jurnal Inovasi Global*. 2(3): 543–551.
- Husni, A. & Randi, M. (2024). *Jurnal Inovasi Global*. 2(3): 543–551.
- Ina Magdalena, H. T. S. & Ramadhani, V. (2021). Analisis Kesulitan Belajar Siswa Pada Pembelajaran Bahasa Indonesia. *Jurnal Pendidikan dan Dakwah*. 3(2): 358–367.
- Ina Magdalena, H. T. S. & Ramadhani, V. (2021). Analisis Kesulitan Belajar Siswa Pada Pembelajaran Bahasa Indonesia. *Jurnal Pendidikan dan Dakwah*. 3(2): 358–367.
- Iqbal, Y. (2019). Faktor Eksternal yang Mempengaruhi Remaja Menyalahgunakan Tramadol. *Journal of Chemical Information and Modeling*. 53(9): 1689–1699.
- Iswan, I., Majid, R. & Rezal, F. (2022). Studi Kasus Penyalahgunaan Obat-Obatan Psikotropika dan Zat Adiktif Lainnya Kalangan Remaja. *Jurnal Wawasan Promosi Kesehatan*. 2(3).
- Jamal, I. M. (2020). The Early Preventive Effort of Narcotic Abuse at Senior High School. *Samarah*. 4(1): 282–312.

- Larasati, D. A., Nakita, J., Zahra, N. A., Nugraha, Y. A., Ridwan, H. & Sopiah, P. (2024). Efektivitas Penggunaan Tramadol Dalam Pengelolaan Nyeri Pasca Operasi. *Jurnal Ilmiah Keperawatan*. 10(2): 357–362.
- Legasse, A. S. (2025). Prevalensi Penyalahgunaan Tramadol dan Faktor-Faktor Terkait. *Jurnal*: 1–11.
- Lestari, A. B. S., Gani, M. R. & Christasani, P. D. (2024). Peningkatan Pengetahuan Tentang Penyalahgunaan Obat di Kalangan Pelajar. *Abdimas Altruus*. 7(2): 109–113.
- Mahesha, A., Anggraeni, D. & Adriansyah, M. I. (2024). Mengungkap Kenakalan Remaja: Penyebab, Dampak, dan Solusi. *PRIMER: Jurnal Ilmiah Multidisiplin*. 2(1): 16–26.
- Mahesha, A., Anggraeni, D. & Adriansyah, M. I. (2024). Mengungkap Kenakalan Remaja: Penyebab, Dampak, dan Solusi. *PRIMER: Jurnal Ilmiah Multidisiplin*. 2(1): 16–26.
- Mardiana, Ugi, N. & Budi, S. I. (2022). Motivasi Siswa Mengikuti Mata Pelajaran Pendidikan Jasmani. *Jurnal Score*. 2(1): 32–37.
- Mendra, N. N. Y., Ikawati, Z. & Kristanto, C. S. (2022). Faktor yang Mempengaruhi Respon Terapi Gangguan Ansietas. *Majalah Farmaseutik*. 18(4): 398.
- Mutia. (2022). Karakteristik Anak Usia Pendidikan Menengah. *Jurnal Al-Fikrah*. 11(1): 14–28.
- Mutia. (2022). Karakteristik Anak Usia Pendidikan Menengah. *Jurnal Al-Fikrah*. 11(1): 14–28.
- Muttaqin, L. (2023). Motif Penyalahgunaan Obat Tramadol Pada Dewasa Awal. Karya Ilmiah.
- Naiboho, R., Tukayo, B. L. A. & Wandasari, B. D. (2020). Gambaran Peresepan Benzodiazepine. *Gema Kesehatan*. 12(1): 38–43.
- Nakhaee, S., Hoyte, C., Dart, R. C., Askari, M., Lamarine, R. J. & Mehrpour, O. (2021). Toksisitas Tramadol: Mekanisme dan Pengobatan. *Jurnal*: 293–310.
- Nurjannah, Oktamaya & Awaru, T. (2021). Penyalahgunaan Obat Tramadol dan Trihexyphenidyl. *Jurnal Sosialisasi Pendidikan Sosiologi*. 52(2): 97–101.
- Nurjannah, Oktamaya & Awaru, T. (2021). Penyalahgunaan Obat Tramadol dan Trihexyphenidyl. *Jurnal Sosialisasi Pendidikan Sosiologi*. 52(2): 97–101.
- Pirdaus, D. I., Ibrahim, R. A. & Yuningsih, S. H. (2024). Penyalahgunaan Tramadol di Kalangan Remaja. *Jurnal Internasional*.
- Pokhrel, S. (2024). Penyuluhan Tentang Penyalahgunaan Obat. *Jurnal*. 15(1): 37–48.
- Prasetyo, F. (2022). Efek Berbahaya Penyalahgunaan Tramadol: Tinjauan Pustaka. 13(2): 595–601.
- Prasetyo, F. (2022). Efek Berbahaya Penyalahgunaan Tramadol. 13(2): 595–601.
- Priescisila, I. R. & Mahmudah, M. (2017). Hubungan Faktor Lingkungan dengan Penggunaan Obat. *Jurnal Biometrika dan Kependudukan*. 5(1): 70.
- Putra, H. B. A. & Subarnas, A. (2019). Penggunaan Klinis Tramadol Dengan Berbagai Aspeknya. *Farmaka*. 17(2): 244–249.
- Rahayu, R. A., Kusdiyati, S. & Borualogo, I. S. (2021). Pengaruh Stress Akademik terhadap Resiliensi. *Prosiding Psikologi*. 7(2): 398–403.
- Rahmadani, S. & Okfrima, R. (2022). Hubungan Kontrol Diri dengan Kenakalan Remaja. *Psyche 165 Journal*. 15(2): 74–79.
- Rianda, H. & Azhari, A. (2024). Proses Rehabilitasi Pecandu Narkotika. *AKM*. 4(2): 473–480.
- Rifai, Y. A. & Dewi, I. S. (2023). Hubungan Lingkungan Teman Sebaya Terhadap Tingkah Laku Siswa. *Cybernetics Journal*. 4(1).
- Saapiire, F., Namillah, G., Tanye, V. & Abubakari, A. (2021). Penyalahgunaan Tramadol di Kalangan Penduduk. *Jurnal*.

- Setiawan, H., Kumiar, M. & Rinayanti, Y. (2020). Faktor Penyalahgunaan Obat Golongan Bebas Terbatas. *Jurnal Kesehatan*. 5(2): 31–41.
- Solihat Holida, S. & Fitriani, D. (2019). Perilaku Penyalahgunaan Obat Pada Remaja. *Healthy Journal*. 7(1): 1–8.
- Syaira, R., Nadia, K. & Larasati, U. (2019). Analisis Penyebab Penyalahgunaan Tramadol. *Jurnal*. 1(2): 101–111.
- Tumangger, L. (2023). Faktor Penyalahgunaan Narkoba Pada Anak. *Jurnal Education for All*. 9(1): 43.
- Yamin, M., Jufri, A. W., Jamaluddin, Khairuddin & Riyanto, A. A. (2024). Sosialisasi Zat Adiktif dan Psikotropika. *Jurnal Pengabdian Pendidikan IPA*. 7(2): 368–373.
- Yuliati, N. (2020). Krisis Identitas Remaja. *Jurnal*.
- Yusup, Y. & Sari, R. O. (2023). Dampak Penyalahgunaan Narkotika. *Atmosfer*. 2(1): 42–47.
- Zamhari, Z., Noviani, D. & Zainuddin, Z. (2023). Perkembangan Pendidikan di Indonesia. *Morfologi*. 1(5): 1–10.
- Zebedee, L. U., Bariweni, M. W., Oboma, Y. I. & Ilegbedion, I. G. (2022). Tramadol Abuse and Addiction. *Egyptian Pharmaceutical Journal*. 21(1): 75–83.
- Zin, C. S., Nazar, N. I., Rahman, N. S., Alias, N. E., Ahmad, W. R., Rani, N. S., Cardosa, M. S., Ng, K. S. & Ye, F. L. (2018). Trends and Patterns of Analgesic Prescribing. *Journal of Pain Research*. 11: 1959–1966.