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Early Exposure of Over-the-Counter Medicine Basic Knowledge among Elementary School Students

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ABSTRAK

Belakangan ini, pengobatan sendiri dengan menggunakan obat bebas (OTC) atau obat tanpa resep menjadi semakin populer. Meningkatkan kesadaran masyarakat mengenai pengetahuan OTC dan penggunaan rasionalnya sangat penting untuk meningkatkan kesehatan masyarakat baik pada orang dewasa maupun anak-anak. Di AS, banyak anak kecil yang dibawa ke ruang gawat darurat setiap tahunnya karena pengobatan yang tidak disengaja dan tidak diawasi. Oleh karena itu, mempelajari cara mengobati diri sendiri dengan menggunakan OTC pada usia dini sangat penting untuk meningkatkan keamanan pengobatan di masyarakat. Penelitian ini bertujuan untuk melatih sekolah dasar kelas V dan IV pada usia 10 sampai 12 tahun untuk memahami pengetahuan dasar OTC dan cara meminumnya dengan aman. Penelitian ini melakukan sosialisasi kepada siswa kelas V dan VI yang diawali dengan pre-test, edukasi dan pelatihan, dilanjutkan dengan sesi tanya jawab, dan ditutup dengan post-test. Setelah mengikuti pendidikan dan pelatihan, pengetahuan tentang OTC pada siswa meningkat, terutama pada kelas V yang ditandai dengan peningkatan nilai post-test. Oleh karena itu, upaya ini dapat berkontribusi untuk meningkatkan kesadaran pengobatan mandiri menggunakan obat OTC di kalangan anak-anak.

ABSTRACT

Recently, self-medication using over-the-counter medicine (OTC) or non-prescription medicine became rapidly popular. Enhancing society's awareness of OTC knowledge and its rational use is greatly significant to promote public health both in adults and children. In the US, a high number of young children are brought to the emergency room due to accidental unsupervised medication each year. Therefore, learning how to self-medicate using OTC at an early age is very critical to improve medication safety in society. This study aims to trained elementary school grades V and IV at the age of 10 to 12 to perceive the basic knowledge of OTC and how to take them safely. This study conducted outreach to students in grades V and VI starting with a pre-test, education dan training, followed by a question-and-answer session, and closed with a post-test. After education and training, the knowledge of the OTC among the students increased, especially significantly in Grade V indicated by post-test score elevating. Thus, this attempt may contribute to increasing the awareness of self-medication using OTC among children.

1. INTRODUCTION

Medicine is an active substance used to prevent and treat the disease besides being used for patient recovery and health improvement. The massive advances in medications mean more of them are in Indonesian homes. With the rapid development of an economic and advanced medical system, people's perspectives on health keep changing. People are intending to choose self-medication, especially in developing countries (Chautrakarn et al., 2021; Chowdhury & Chakraborty, 2017). The World Health Organization defines self-medication as the treatment of self-diagnosed disorders or symptoms using medicines with the intent for them to be used by consumers on their initiative and responsibility (Parulekar et al., 2016; Shafie et al., 2018). Self-medication practices facilitate patients to make informed decisions about managing their minor illnesses and reduce pressure on medical services (Hughes et al., 2001; Jember et al., 2019; Noone & Blanchette, 2018). The prevalence of self-medication has increased. In Indonesia, about 84.34% of the population carried out self-medication in 2022. Thus, the population

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number arises, and more population take over-the-counter (OTC), the medicine may be bought directly without a prescription, for their medications not only for adults but also children. Self-medication is an important part of daily self-care and is influenced by various factors such as lifestyle, socioeconomic factors, availability of drugs, access to drugs, time of day, and perceived risks of self-medication (Afshary et al., 2015; Ayalew, 2017; Hailemichael et al., 2016). Hence the use of self-medication needs to be rationalized. A good self-medication practice could be beneficial for both the patient and the healthcare system because no resources are being wasted on minor cases. However, most self-medication practices are done irrationally. The patient's behavior such as sharing the medicines with family members or friends, using the same medicine from the past, incorrectly reading medicine labels, etc (Lei et al., 2018; Mohammed et al., 2021).

OTC medicine is safe and effective to treat some diseases when it is taken following the direction on the label and by health care professionals. Lack of adequate OTC knowledge during its medications may directly lead to non-compliance and severe outcomes. Rational self-medication is crucial to increase safety and save limited healthcare resources. While, irrational self-medication leads to delays in drug efficacy, causing adverse drug reactions and waste of medical resources (Rehman et al., 2021; Yin et al., 2022; Yusransyah et al., 2021). The impact of the problem of self-medication practices is getting worse among healthcare professionals because they are very vulnerable to inappropriate use (Fekadu et al., 2020; Mohammed et al., 2021). One-third of the patient death in worldwide was caused by irrational drug use based on a WHO survey, which may be happened both in adults and children. Study shows that self-medication begins around the age of 11 years, then irrational drug use while practicing self-medication may be happened both in adults and children (Abraham & Chmielinski, 2018; Sürmelioğlu et al., 2015). Approximately 90% of children have reported self-medicating with OTC medications by the age of 16 years (Abel et al., 2012; Abraham et al., 2019). In the United States (US), about 165 young children are brought to the emergency room due to accidental unsupervised medication each year. Other studies predicted that overall, only a 50% medication-compliance rate among the pediatric population (Wagner et al., 2015). Therefore, the education on rational medicine use in both of adults and children needs to be strengthened urgently.

Elementary students represent society related to the early age of individuals who can access OTC medicine at home with parental guidance. Self-medication among students is very popular, and the application of self-medication may increase with age. Elementary school student in grade V and VI aged 10-12 years old are categorized as adolescent by the WHO. At this range of age, parents or caregivers started to give them responsibility for doing self-medication practice for themselves since the child has an increasing sense of belonging and could form opinions on medication (Abraham & Chmielinski, 2018; ALBashtawy et al., 2015). Self-medication among adolescents is very popular, and the application by children may increase with age. However, several studies show adolescent medicine knowledge is low (Lee et al., 2017; Syofyan et al., 2019). Adolescents tend to have low medication knowledge and literacy thus associated with irrational self-medication practice. Internet and social media are the platforms that influenced adolescent behavior towards self-medication other than their family members (Abdullah et al., 2022; Mathias et al., 2020). The internet served various information that can be misleading for the adolescent and lead them into irrational self-medication (Boshhiha et al., 2021; Suarez-Lledo & Alvarez-Galvez, 2021; Swire-Thompson & Lazer, 2019). Therefore medicine-related education is urgently needed to prepare adolescent in doing self-medication. In this community program, pharmacy students were educated school students at the age of 10 to 12 years old in grades V and VI with basic knowledge of OTC medicine the indications, storage conditions, and proper dosing. Then, the students were also practicing reading the medicine label including finding the expiration date and determining the correct dosing. This study aims to trained elementary school grades V and IV at the age of 10 to 12 to perceive the basic knowledge of OTC and how to take them safely

2. METHOD

The participant of this study was students in grade V and grade VI aged 10 to 12 years old at a private elementary school in Sleman, Yogyakarta, Indonesia. Before the intervention, a pre-test was conducted as a baseline of the self-medication basic knowledge using OTC. The intervention in this study was education and training by the team consisting of a group of pharmacy students and a pharmacist. The education includes how to read the OTC label involving: the indication, storage information, probable occurred side effects, expiration date, how to use the medicine, and how to manage the expired medicine. The activity was the presentation by the pharmacist then continued with a discussion with the student

about the OTC. After the intervention, a post-test was employed to represent the self-medication knowledge using OTC after training. The result was then statistically compared.

3. RESULTS AND DISCUSSION

Results

Table 1. The population distribution in this study

Gender	Grade V (n= 38)	Grade VI (n=39)
Female (n=44, 42.85%)	26	18
Male (n=33, 57.15%)	12	21

Based on Table 1, the population in total for this study was 77 students, divided into 38 students in grade V and 39 students in grade VI. In total, there were 33 male students (42.85%) who have distributed 12 male students in grade V and 21 male students in grade VI. Thus, the total of female students was 44 (57.15%), distributed to 26 in grade V and 18 in grade VI (Table I). Overall, the population of this study was dominated by female students, contributed from grade V. While the number of female students' number was less in grade VI. The documentation of education activity to the students is show in Figure 1.

Figure 1. The Education Activity to the Students

Base on Figure 1, the education and training were conducted in one-way, then followed by a discussion session at the end of the session. There were also hands on-training to read the indication, instructions, how to use, and the side effects. The overall population score of pre-test and post-test each grade is show in Figure 2.

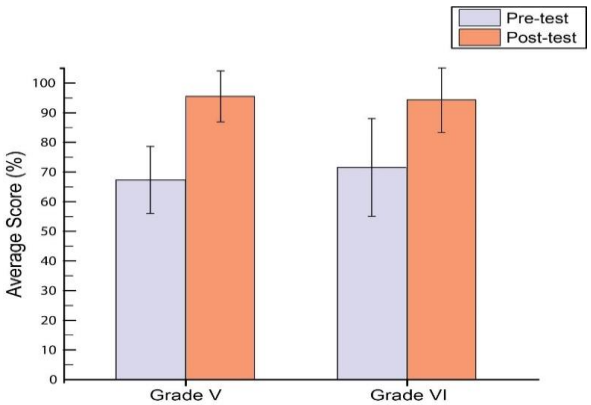

Figure 2. The Overall Population Score of Pre-Test and Post-Test Each Grade

Base on Figure 2, the pre-test score was 67.37 ± 11.31% and 71.54 ± 16.47% for grades V and VI respectively. After the education, the post-test score was significantly increased at grade V to 95.53 ± 8.6 % (p <0.05), while at grade VI, the score elevated to 94.36 ± 10.71%. The overall population score in male and female students is show in Figure 3.

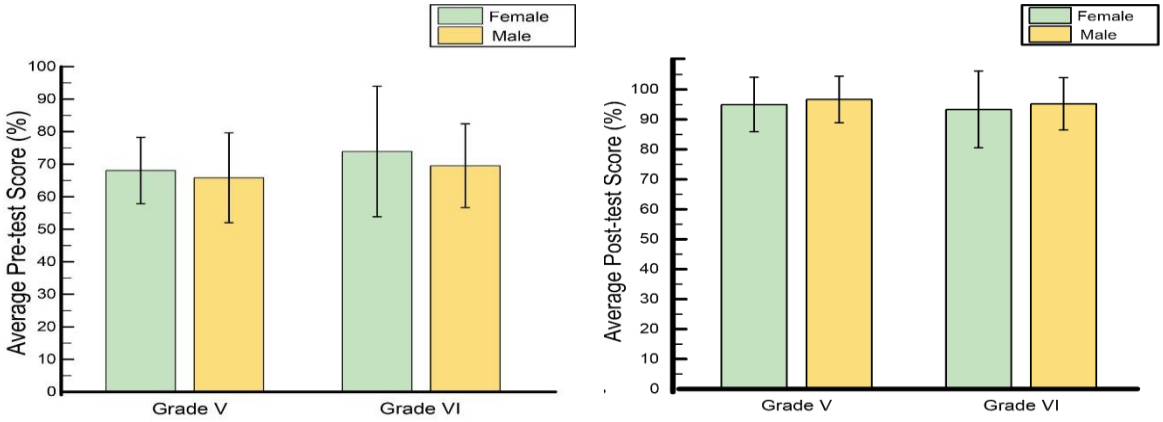

Figure 3. The Overall Population Score in Male and Female Students. A. Pre-Test Score, b. Post-Test Score

According to Figure 3 show gender, in grade V female average pre-test score was 68.077 ± 10.21 %, and the male average score was 65.83 ± 13.79 %. On the other hand, the pre-test score in grade VI were 73.89 ± 20.04% and 69.52 ± 12.84 % for female and male students. After the education and training of both grades, female and male students also had equal scores in both grades with no significant difference. In grade V, the post-test scores were 95.00 ± 9.06 and 96.67 ± 7.79 for female and male students, in post-test of the grade VI, the female student's score was 93.33 ±12.83 and male students' score was 95.24 ± 8.73.

Discussion

Society-wide outreach by the medical community, including pharmacists, must carry on addressing medical safety in many aspects of society while giving attention to the wide variation in health literacy. Children at the young age of community may be exposed to the OTC in their daily life. Many experts recommended communicating directly to about the medication (Ouyang & Scharber, 2017; Senok et al., 2022). Thus, it is an important approach to early educate them to increase OTC awareness. We designed the pre-and post-test According to FDA, children between 10 to 12 years old should have the following skill and abilities about OTC self-medication: taking more responsibility for using the medicine, identifying that the side effects are dangerous, and communicating to the parent about what to if the side effect occurs dosage chart reading, and storage and managing medicine storing and disposal (Asokan et al., 2019; Ouyang & Scharber, 2017).

This study was a cross-sectional study of the population of children in the range of 10 to 12 years old by evaluating the students' basic knowledge about OTC according to the FDA. The result of this activity effectively improves the students' knowledge of OTC in both grades V and VI (Al-Qahtani, 2013; Savitri et al., 2022). The gender-based result revealed that there was no score difference in both grades V and VI. All the students had some basic knowledge of OTC and those after the education increased in both grades. The results were equal in female and male students without any significant difference. To conclude, our intervention was effective to elevate the children's knowledge about OTC. It may contribute to higher society about the appropriateness of OTC usage and self-management at home. The education of medicine for children is not only the parent's or guardians' responsibility, but also the health worker especially pharmacists' responsibility. Many studies suggested that a key strategy to improving the medicine usage and knowledge for clinicians is to directly communicate and educate children, instead of only with the parents or caregivers (Abraham & Chmielinski, 2018; Matson et al., 2019). The evaluation score improved from before to after the education and training. Elevating students' knowledge is expected to promote the awareness of self-medication using OTC medicine in early childhood. This community activity is not only beneficial for the students but also for the pharmacy student whose conducts the activity since the pharmacy student could practice active communication with the adolescent population. This research can make a significant contribution to increasing basic knowledge about over-the-counter medicines among elementary school students. Better health awareness can help prevent abuse and promote safe use. In

addition, research results can form the basis for the development of prevention education programs in schools. This can help create a generation that is more aware of the risks and benefits of using over-the-counter medicines. However, this research may be limited to a sample of students from certain locations or backgrounds, so the results cannot be directly generalized to the entire population of elementary school students.

4. CONCLUSIONS

Early exposure to OTC medicines knowledge among elementary school students is important to elevate society's awareness of OTC usage and self-management at home. Further, this activity may be implemented in wider and higher society as a health promotion activity.

5. REFERENCES

Abdullah, I. S., Chaw, L. L., Koh, D., Hussain, Z., Goh, K. W., Hamid, A. A. A., & Ming, L. C. (2022). Over-the-Counter Medicine Attitudes and Knowledge among University and College Students in Brunei Darussalam: Findings from the First National Survey. *International Journal of Environmental Research and Public Health*, *19*(5). https://doi.org/10.3390/ijerph19052658.

Abel, C., Johnson, K., Waller, D., Abdalla, M., & Goldsmith, C. A. W. (2012). Nonprescription medication use and literacy among New Hampshire eighth graders. *Journal of the American Pharmacists Association*, *52*(6), 777–782. https://doi.org/10.1331/JAPhA.2012.11158.

Abraham, O., & Chmielinski, J. (2018). Adolescents' Misuse of Over-The-Counter Medications: The Need for Pharmacist-led Intervention. *INNOVATIONS in Pharmacy*, *9*(3), 4. https://doi.org/10.24926/iip.v9i3.979.

Abraham, O., Feathers, A., Mook, H., & Korenoski, A. (2019). The perceived benefits of student pharmacists educating children about over-the-counter medication safety. *Currents in Pharmacy Teaching and Learning*, *11*(2), 184–191. https://doi.org/10.1016/j.cptl.2018.11.005.

Afshary, P., Mohammadi, S., Najar, S., Pajohideh, Z., & Tabesh, H. (2015). Prevalence and Causes of Self-Medication in Pregnant Women Referring To Health Centers in Southern of Iran. *International Journal of Pharmaceutical Sciences and Research*, *6*(2), 612. https://doi.org/10.13040/IJPSR.0975-8232.6(2).612-19.

Al-Qahtani, M. F. (2013). Relationship between English Language, Learning Strategies, Attitudes, Motivation, and Students' Academic Achievement. *Education in Medicine Journal*, *5*(3), 19–30. https://doi.org/10.5959/eimj.v5i3.124.

ALBashtawy, M., Batiha, A. M., Tawalbeh, L., Tubaishat, A., & AlAzzam, M. (2015). Self-Medication Among School Students. *Journal of School Nursing*, *31*(2), 110–116. https://doi.org/10.1177/1059840514554837.

Asokan, A. G., Varghese, V. A., & Rajeev, A. (2019). Internet addiction among medical students and its impact on academic performance: an Indian study. *Journal of Medicine of Science Clinical Research*, *7*, 670–676. https://doi.org/10.18535/jmscr/v7i3.122.

Ayalew, M. B. (2017). Self-medication practice in Ethiopia: A systematic review. *Patient Preference and Adherence*, *11*, 401–413. https://doi.org/10.2147/PPA.S131496.

Boshhiha, A. M., Boshaiha, Z. M., Yousuf, A. T., & Sad, H. A. (2021). Use of over the counter medications among adolescents. *J Pharm Pharm Sci*, *1*(4), 9–14. https://doi.org/10.5281/zenodo.5805918.

Chautrakarn, S., Khumros, W., & Phutrakool, P. (2021). Self-Medication With Over-the-counter Medicines Among the Working Age Population in Metropolitan Areas of Thailand. *Frontiers in Pharmacology*, *12*(August), 1–9. https://doi.org/10.3389/fphar.2021.726643.

Chowdhury, S., & Chakraborty, P. prati. (2017). Universal health coverage - There is more to it than meets the eye. *Journal of Family Medicine and Primary Care*, *6*(2), 169–170. https://doi.org/10.4103/jfmpc.jfmpc.

Fekadu, G., Dugassa, D., Negera, G. Z., Woyessa, T. B., Turi, E., Tolossa, T., Fetensa, G., Assefa, L., Getachew, M., & Shibiru, T. (2020). Self-medication practices and associated factors among health-care professionals in selected hospitals of western ethiopia. *Patient Preference and Adherence*, *14*, 353–361. https://doi.org/10.2147/PPA.S244163.

Hailemichael, W., Sisay, M., & Mengistu, G. (2016). Assessment of Knowledge, Attitude, and Practice of Self-Medication Among Harar Health Sciences College Students, Harar, Eastern Ethiopia. *Journal of Drug Delivery and Therapeutics*, *6*(5). https://doi.org/10.22270/jddt.v6i5.1329.

Hughes, C. M., Mcelnay, J. C., & Fleming, G. F. (2001). Benefits and Risks of Self Medication. *Drug Safety*, *24*(14). https://doi.org/10.2165/00002018-200124140-00002.

Jember, E., Feleke, A., Debie, A., & Asrade, G. (2019). Self-medication practices and associated factors among households at Gondar town, Northwest Ethiopia: a cross-sectional study. *BMC Research Notes*, *12*(1). https://doi.org/10.1186/s13104-019-4195-2.

Lee, C. H., Chang, F. C., Hsu, S. de., Chi, H. Y., Huang, L. J., & Yeh, M. K. (2017). Inappropriate self-medication among adolescents and its association with lower medication literacy and substance use. *PLoS ONE*, *12*(12). https://doi.org/10.1371/journal.pone.0189199.

Lei, X., Jiang, H., Liu, C., Ferrier, A., & Mugavin, J. (2018). Self-medication practice and associated factors among residents in Wuhan, China. *International Journal of Environmental Research and Public Health*, *15*(1). https://doi.org/10.3390/ijerph15010068.

Mathias, E. G., D'Souza, A., & Prabhu, S. (2020). Self-Medication Practices among the Adolescent Population of South Karnataka, India. *Journal of Environmental and Public Health*. https://doi.org/10.1155/2020/9021819.

Matson, K. L., Orr, K. K., Marino, C., & Cohen, L. (2019). The Effect of a Student Pharmacist Directed Health-Education Program for Elementary-School Children. *Innovations in Pharmacy*, *10*(4), 6. https://doi.org/10.24926/iip.v10i4.1457.

Mohammed, S. A., Tsega, G., & Hailu, A. D. (2021). Self-medication practice and associated factors among health care professionals at debre markos comprehensive specialized hospital, Northwest Ethiopia. *Drug, Healthcare and Patient Safety*, *13*, 19–28. https://doi.org/10.2147/DHPS.S290662.

Noone, J., & Blanchette, C. M. (2018). The value of self-medication: summary of existing evidence. *Journal of Medical Economics*, *21*(2), 201–211. https://doi.org/10.1080/13696998.2017.1390473.

Ouyang, F., & Scharber, C. (2017). The influences of an experienced instructor's discussion design and facilitation on an online learning community development: A social network analysis study. *Internet High. Educ.*, *35*, 34–47. https://doi.org/10.1016/j.iheduc.2017.07.002.

Parulekar, M., Mekoth, N., Ramesh, C., & Parulekar, A. (2016). Self-medication in Developing Countries a Systematic Review. *Journal of Pharmaceutical Technology, Research and Management*, *4*(2), 103–127. https://doi.org/10.15415/jptrm.2016.42007.

Rehman, M., Ahmed, S., Ahmed, U., Tamanna, K., Shehryar Sabir, M., & Niaz, Z. (2021). An overview of self-medication: A major cause of antibiotic resistance and a threat to global public health. *Journal of the Pakistan Medical*, *71*(3), 943–949. https://doi.org/10.47391/JPMA.1331.

Savitri, A. R. E., Rahman, A., & Hermawan, Y. (2022). Pengaruh Kecemasan dan Motivasi Belajar dalam Pembelejaran Daring di Masa Pandemi Covid-19 Terhadap Hasil Belajar Sosiologi Siswa Kelas XII SMA Batik 1 Surakarta. *JISIP (Jurnal Ilmu Sosial Dan Pendidikan)*, *6*(1), 2148–2155. https://doi.org/10.58258/jisip.v6i1.2569.

Senok, A., John-Baptiste, A.-M., Al Heialy, S., Naidoo, N., Otaki, F., & Davis, D. (2022). Leveraging the Added Value of Experiential Co-Curricular Programs to Humanize Medical Education. *Journal of Experiential Education*, *45*(2), 172–190. https://doi.org/10.1177/10538259211021444.

Shafie, M., Eyasu, M., Muzeyin, K., Worku, Y., & Martín-Aragón, S. (2018). Prevalence and determinants of selfmedication practice among selected households in Addis Ababa community. *PLoS ONE*, *13*(3), 1–20. https://doi.org/10.1371/journal.pone.0194122.

Suarez-Lledo, V., & Alvarez-Galvez, J. (2021). Prevalence of health misinformation on social media: Systematic review. *Journal of Medical Internet Research*, *23*(1). https://doi.org/10.2196/17187.

Sürmelioğlu, N., Kıroğlu, O., T., E., & Y, K. (2015). Measures for Prevention of Irrational Drug Use. *Archives Medical Review Journal*, *24*(4), 452–462. https://doi.org/10.17827/aktd.64527.

Swire-Thompson, B., & Lazer, D. (2019). Public health and online misinformation: Challenges and recommendations. *Annual Review of Public Health*, *41*, 433–451. https://doi.org/10.1146/annurev-publhealth-040119-094127.

Syofyan, S., Dachriyanus, D., Masrul, M., & Rasyid, R. (2019). The knowledge and attitudes about the benefits, risks and use of medicine in aged primary students in Indonesia. *Open Access Macedonian Journal of Medical Sciences*, *7*(11), 1860–1866. https://doi.org/10.3889/oamjms.2019.347.

Wagner, J. L., Guilfoyle, S. M., Rausch, J., & Modi, A. C. (2015). Psychometric validation of the Pediatric Symptom Checklist-17 in a pediatric population with epilepsy: A methods study. *Epilepsy & Behavior*, *51*, 112–116. https://doi.org/10.1016/j.yebeh.2015.06.027.

Yin, C., He, X., Shen, K., Mu, X., & Tang, F. (2022). Knowledge and Behavior in Rational Drug Use Among College Students in Zunyi City. *Risk Management and Healthcare Policy*, *15*, 121–131. https://doi.org/10.2147/RMHP.S347822.

Yusransyah, Y., Stiani, S. N., & Zahroh, S. L. (2021). Pengabdian Masyarakat Tentang Dagusibu (Dapatkan, Gunakan, Simpan Dan Buang) Obat Dengan Benar di SMK LPKI Labuan Pandeglang. *Jurnal Abdi Masyarakat Kita*, *1*(1), 22–31. https://doi.org/10.33759/asta.v1i1.95.