

**ENHANCING STUDENTS' HEALTH LITERACY USING COMICS AS MEDIA
IN LEARNING THE DANGERS OF SMOKING ON THE HUMAN
RESPIRATORY SYSTEM**

RESEARCH PAPER

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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DECLARATION

I do hereby declare that every aspect written in this research paper entitled “ Enhancing Students’ Health Literacy Using Comics As Media In Learning The Dangers Of Smoking On The Human Respiratory System” is my original idea, effort, and work without copying or plagiarizing from other papers. All theories, experts’ opinions, and other statements contained in this paper have been quoted or referenced based on scientific code from UPI and in accordance with scientific ethics that apply on scholarly academic rules. This declaration was created with honest and mindful consideration, based on scientific ethics. If there are a violation or irresponsibility quoted statements, I am willing to accept the academic sanctions that correspond to the applicable academic law in this university.

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ABSTRACT

The ever-increasing prevalence of smoking among adolescents raises major concerns for public health, especially for the respiratory system. This phenomenon indicates a deficiency in health literacy among adolescents. As a solution, an effective learning strategy is needed. Learning media can be interpreted as a tool teachers use to deliver materials to students during the learning process. Comic learning media has emerged as an innovative and effective educational tool to enhance student engagement and comprehension. Therefore, this study aims to analyze the enhancement of students' health literacy by using comics to learn about the dangers of smoking in the human respiratory system. The research approach was pre-experimental with a one-group pretest-posttest design. The participants were 30 students from grade 8 who had not yet learned the dangers of smoking to the human respiratory system. The results of this research showed that the use of comics in the dangers of smoking there is a significant difference of students health literacy after using comics, with a significance value (2-tailed) of 0.000, which means that the Sig (2-tailed) value < 0.05 , so the H_1 hypothesis was accepted. The pre-test and post-test results were 59 and 74 respectively with N-gain results of 0.38 which were included in the medium category. It can be concluded that comics can enhance students' health literacy by teaching them the dangers of smoking in the human respiratory system. Overall, the students' shows positive impression to using comic as media in learning the dangers of smoking on human respiratory system.

Keyword: Health literacy, Learning Media, Comic, Smoking, Respiratory System

MENINGKATKAN LITERASI KESEHATAN SISWA DENGAN
MENGUNAKAN KOMIK SEBAGAI MEDIA DALAM MATERI BAHAYA
MEROKOK PADA SISTEM PERNAPASAN MANUSIA

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ABSTRAK

Prevalensi merokok yang terus meningkat di kalangan remaja menimbulkan kekhawatiran besar bagi kesehatan masyarakat, terutama untuk sistem pernapasan. Fenomena ini mengindikasikan kurangnya literasi kesehatan di kalangan remaja. Sebagai solusinya, diperlukan strategi pembelajaran yang efektif. Media pembelajaran dapat diartikan sebagai alat bantu yang digunakan untuk menyampaikan materi oleh guru kepada siswa dalam proses pembelajaran. Media pembelajaran komik telah muncul sebagai alat yang inovatif dan efektif dalam pendidikan untuk meningkatkan keterlibatan dan pemahaman siswa. Oleh karena itu, penelitian ini bertujuan untuk menganalisis peningkatan literasi kesehatan siswa dengan menggunakan komik untuk mempelajari bahaya merokok pada sistem pernapasan manusia. Metode yang digunakan adalah pra-eksperimental dengan desain pretest-posttest. Partisipan berjumlah 30 siswa dari kelas 8 SMP yang belum belajar bahaya merokok terhadap sistem pernapasan manusia. Hasil penelitian menunjukkan bahwa penggunaan komik pada materi bahaya merokok adanya perbedaan significant pada literasi kesehatan siswa setelah menggunakan komik, dengan nilai signifikansi (2-tailed) sebesar 0,000 yang berarti nilai Sig (2-tailed) < 0,05, sehingga hipotesis H_1 diterima. Hasil pre-test dan post-test masing-masing 59 dan 74 dengan hasil N-gain adalah 0,38 yang termasuk dalam kategori sedang. Dapat disimpulkan bahwa komik dapat meningkatkan literasi kesehatan siswa dengan mengajarkan bahaya merokok pada sistem pernapasan manusia. Secara keseluruhan, para siswa menunjukkan kesan yang positif terhadap penggunaan komik sebagai media pembelajaran dalam mempelajari bahaya merokok pada sistem pernapasan manusia.

Kata Kunci: Literasi kesehatan, Media Pembelajaran, Komik, Merokok, Sistem Pernapasan

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REFERENCES

- Akcanca, N. (2020). An Alternative Teaching Tool in Science Education: Educational Comics. *International Online Journal of Education & Teaching*, 7(4), 1550.
- Andi Kristanto. (2016). *Media Pembelajaran*. Penerbit Bintang Surabaya.
- Ashwal, G., & Thomas, A. (2018). Are comic books appropriate health education formats to offer adult patients? *AMA Journal of Ethics*.
<https://doi.org/10.1001/journalofethics.2018.20.2.ecas1-1802>
- Aurelien M, S., Rafanomezantsoa, R. M., Mich, M., Vincent, C., Preux, P., Boum, F., & Raharivelo, A. (2021). Effects of an educational comic book on epilepsy-related knowledge , attitudes and practices among schoolchildren in Madagascar, *176*(August). <https://doi.org/10.1016/j.eplepsyres.2021.106737>
- Azhar, A. (2009). *Media Pembelajaran*. Jakarta: Raja Grafindo Persada Rineka Cipta.
- Bröder, J., & Carvalho, G. S. (2023). Health literacy of children and adolescents: Conceptual approaches and developmental considerations. In *International Handbook of Health Literacy* (pp. 39–52).
<https://doi.org/10.56687/9781447344520-006>
- Bröder, J., Okan, O., Bauer, U., Bruland, D., Schlupp, S., Bollweg, T. M., ... Pinheiro, P. (2017). Health literacy in childhood and youth: A systematic review of definitions and models. *BMC Public Health*, 17(1), 1–25.
<https://doi.org/10.1186/s12889-017-4267-y>
- Budhathoki, S. S., Pokharel, P. K., Good, S., Limbu, S., Bhattachan, M., & Osborne, R. H. (2017). The potential of health literacy to address the health related UN sustainable development goal 3 (SDG3) in Nepal: a rapid review. *BMC Health Services Research*, 17(1), 1–13. <https://doi.org/10.1186/s12913-017-2183-6>
- Christie, G. P., & Ratzan, S. C. (2019). Beyond the bench and bedside: Health literacy is fundamental to sustainable health and development. *Information Services and Use*, 39(1–2), 79–92. <https://doi.org/10.3233/ISU-180037>
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education*. *Research Methods in Education*. <https://doi.org/10.4324/9780203029053>
- Dewi, F. S. T., Yulyana, Y., Novianti, D., & Ramania, A. (2023). Determining Priority Subgroup: Insight from a Health Literacy Survey in Universitas Gadjah Mada, Indonesia. *BIO Web of Conferences*, 75.
<https://doi.org/10.1051/bioconf/20237505007>
- Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1.
<https://doi.org/10.11648/j.ajtas.20160501.11>

- Fadhila, S. F. N., & Widodo, W. (2019). The Development of Education Comic as Science Materials for Lower Secondary on Topic of Light and Optic to Improve Student Learning Outcomes. *E-Journal Pensa*, 7(2), 262–267.
- Fitria, Y., Malik, A., Mutiaramses, Halili, S. H., & Amelia, R. (2023). Digital comic teaching materials: It's role to enhance student's literacy on organism characteristic topic. *Eurasia Journal of Mathematics, Science and Technology Education*, 19(10). <https://doi.org/10.29333/ejmste/13573>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to Design and Evaluate Research in Education*. (Sarah Kiefer, Ed.) (Eight). New York: McGraw-Hil. [https://doi.org/10.1016/0003-2697\(76\)90527-3](https://doi.org/10.1016/0003-2697(76)90527-3)
- Gunawan, P., & Sujarwo. (2022). Pemanfaatan Komik Sebagai Media Pembelajaran Sejarah dalam Meningkatkan Motivasi dan Hasil Belajar Siswa. *Journal of History Education and Historiography*, 6(1), 2022.
- Hanso, B. (2019). Media Pembelajaran Komik Sebagai Sarana Literasi Informasi Dalam Pendidikan Mitigasi Bencana Di Sekolah Dasar. *Repository. Usd*, 4(2017), 1–23.
- Harmawati, D., Hasanah, N., Belwawin, S. M., & Hidayat, S. H. (2020). Developing of an Educative Comic on the Theme of Clean and Healthy Life for Grade 2 Students of the Elementary Schools of YPPK Biankuk Merauke. *Enfermeria Clinica*, 30, 371–373. <https://doi.org/10.1016/j.enfcli.2019.07.120>
- Hasan, S., Rakkah, N. I. A. V., & Attaur-rasool, S. (2013). Effect Of Smoking On Respiratory Pressures And Lung Volumes In Young Adults, 29, 96–100.
- Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, 18(3), 66–67. <https://doi.org/10.1136/eb-2015-102129>
- Hosler, J., & Boomer, K. B. (2011). Are Comic Books an Effective Way to Engage Nonmajors in Learning and Appreciating Science ? 1, 10, 309–317. <https://doi.org/10.1187/cbe.10-07-0090>
- Irawan, L., Yulaini, E., & Januardi, J. (2019). Pengaruh Media Pembelajaran Komik terhadap Hasil Belajar Siswa Akuntansi di Smk Pgri 1 Palembang Tahun Pelajaran 2019/2020. *Jurnal Neraca: Jurnal Pendidikan Dan Ilmu Ekonomi Akuntansi*, 3(1), 99–107. <https://doi.org/10.31851/neraca.v3i1.3385>
- Irfan, A., Sayuti, S., Sari, P., & Solida, A. (2024). The Effect Of Health Promotion Interventions Through Comic-Based Photonovella Media In Increasing Knowledge And Attitudes About The Dangers Of Smoking Among Middle School Students In Jambi City, 3(3), 83–95.
- Jafari, A., Tavakoly Sany, S. B., & Peyman, N. (2021). The status of health literacy in students aged 6 to 18 old years: A systematic review study. *Iranian Journal of Public Health*, 50(3), 448–458.

<https://doi.org/10.18502/ijph.v50i3.5584>

- Kutner, M., Greenberg, E., Jin, Y., & Paulsen, C. (2006). The health literacy of America's adults: results from the 2003 National Assessment of Adult Literacy. *Education*, 6, 1–59. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006483>
- Linggi, E. B., Madu, Y. G., Daben, D. C., & Tandi, D. (2023). Dampak Literasi Kesehatan terhadap Perilaku Merokok Anak Remaja, 14(7), 173–175. Retrieved from <https://forikes-ejournal.com/ojs-2.4.6/index.php/SF/article/view/sf14nk134>
- Liu, C., Wang, D., Liu, C., Jiang, J., Wang, X., Chen, H., ... Zhang, X. (2020). What is the meaning of health literacy? A systematic review and qualitative synthesis. *Family Medicine and Community Health*, 8(2), 1–8. <https://doi.org/10.1136/fmch-2020-000351>
- Lorensia, A., Muntu, C. M., Suryadinata, R. V., & Septiani, R. (2021). Effect of lung function disorders and physical activity on smoking and non-smoking students. *Journal of Preventive Medicine and Hygiene*, 62(1), E89–E96. <https://doi.org/10.15167/2421-4248/jpmh2021.62.1.1763>
- Made Martini, G. Nur Widya Putra, Kadek Yudi Aryawan, G. B. W. (2020). Pengaruh Pelaksanaan Pendidikan Kesehatan (Health Education) Kepada Para Pedagang Menggunakan Media Pembelajaran : Leaflet Dalam Meningkatkan Pengetahuan Tentang Pencegahan Covid-19 , The Implementation Effect Of Health Education On Traders Using Learning. *Prosiding Seminar ...*, 45–50.
- Majid, U. (2018). Research Fundamentals: Study Design, Population, and Sample Size. *Undergraduate Research in Natural and Clinical Science and Technology (URNCT) Journal*, 2(1), 1–7. <https://doi.org/10.26685/urncst.16>
- Malloy-weir, L. J., Charles, C., & Gafni, A. (2016). A review of health literacy : Definitions , interpretations , and implications for policy initiatives. *Journal of Public Health Policy*. <https://doi.org/10.1057/jphp.2016.18>
- Matuk, C., Hurwich, T., Spiegel, A., & Diamond, J. (2021). How Do Teachers Use Comics to Promote Engagement, Equity, and Diversity in Science Classrooms? *Research in Science Education*, 51(3), 685–732. <https://doi.org/10.1007/s11165-018-9814-8>
- Mcnicol, S. (2016). The potential of educational comics as a health information medium, 20–31. <https://doi.org/10.1111/hir.12145>
- Meredith, L.-V. (2022). Comics for Health Literacy. In *Graphic Public Health* (pp. 5–26). <https://doi.org/10.5325/j.ctv2cc5rdq.5>
- Mikamahuly, A., Fadieny, N., & Safriana, S. (2023). Analisis Pengembangan Media Komik Pembelajaran untuk Meningkatkan Minat Belajar Peserta Didik. *Jurnal Pendidikan Dan Ilmu Fisika*, 3(2), 256.

<https://doi.org/10.52434/jpif.v3i2.2818>

- Minium, E. W., King, B. M., & Bear, G. R. (1993). *Statistical Reasoning in Psychology and Education*. New York: Wiley.
- Muhaimin, M. R., Ni'mah, N. U., & Listryanto, D. P. (2023). Peranan Media Pembelajaran Komik terhadap Kemampuan Membaca Siswa Sekolah Dasar. *Jurnal Pendidikan Dasar Flobamorata*, 4(1), 399–405. <https://doi.org/10.51494/jpdf.v4i1.814>
- Nazarnia, M., Zarei, F., & Rozbahani, N. (2022). Development and psychometric properties of a tool to assess Media Health Literacy (MeHLit). *BMC Public Health*, 22(1), 1–12. <https://doi.org/10.1186/s12889-022-14221-6>
- Ntobuo, N. E., Arbie, A., & Amali, L. N. (2018). The development of gravity comic learning media based on gorontalo culture. *Jurnal Pendidikan IPA Indonesia*, 7(2), 246–251. <https://doi.org/10.15294/jpii.v7i2.14344>
- Nuraini, A., & Ronoatmodjo, S. (2016). The Effectiveness of Comic as Learning Media to Enhance Knowledge of Menarche and Menstruation among Female Students in Yogyakarta, 257–262.
- Nurjanah, N., Dian, U., Semarang, N., Rachmani, E., Dian, U., & Semarang, N. (2015). Assessing Health Literacy on Student using online HLS-EU-16 23 rd April 2015 ; ISBN 978-602-14215-8-1. <https://www.researchgate.net/publication/281235055>, (April).
- Nutbeam, D. (2008). The evolving concept of health literacy. *Social Science and Medicine*, 67(12), 2072–2078. <https://doi.org/10.1016/j.socscimed.2008.09.050>
- Nutbeam, D. (2015). Defining , measuring and improving health literacy, 42(4), 450–456.
- Nutbeam, D., & Lloyd, J. E. (2020). Understanding and Responding to Health Literacy as a Social Determinant of Health. *Annual Review of Public Health*, 42, 159–173. <https://doi.org/10.1146/annurev-publhealth-090419-102529>
- Okan, O., Baurer, U., Levin-Zamir, D., Pinheiro, P., & Sørensen, K. (2019). *International handbook of health literacy : research, practice and policy across the lifespan*. Bristol, Uk: Policy Press.
- Paakkari, L., & Paakkari, O. (2012). Health literacy as a learning outcome in schools. <https://doi.org/10.1108/09654281211203411>
- Paakkari, O., Torppa, M., Villberg, J., Kannas, L., & Paakkari, L. (2018). Subjective health literacy among school-aged children. *Health Education*, 118(2), 182–195. <https://doi.org/10.1108/HE-02-2017-0014>
- Pagès, M. A.-. (2022). The use of comics to promote health awareness : A template using nonalcoholic fatty liver disease, (June 2021), 1–12. <https://doi.org/10.1111/eci.13642>

- Prihanto, J. B., Nurhayati, F., Wahjuni, E. S., Matsuyama, R., Tsunematsu, M., Kakehashi, M., & Guzek, D. (2021). Associated Factors in Surabaya High School Students. *Indonesia. Int. J. Environ. Res. Public Health*, 18(15), 8111. Retrieved from <https://doi.org/10.3390/ijerph18158111>
- Purwanti Hadisiwi, & Jenny Ratna Suminar. (2016). Literasi Kesehatan Masyarakat dalam Menopang Pembangunan Kesehatan di Indonesia. *Prosiding Seminar Nasional Komunikasi*, (November), 344–351. Retrieved from <https://shorturl.at/czMX8>
- Puspananda, D. R. (2022). Studi literatur: komik sebagai media pembelajaran yang efektif. *JPE (Jurnal Pendidikan Edutama)*, 9(1), 85–92. Retrieved from <http://ejurnal.ikipgribojonegoro.ac.id/index.php/JPE>
- Rahmawati, D. (2020). *Effectiveness Of The Use Of Comic In Improving Knowledge About Dangers Of Smoking In Learning Citizens In State Pkbm 04 Pademangan Jakarta Utara*. Universitas Negeri Jakarta.
- Ramadani, A. N., Kirana, K. C., Astuti, U., & Marini, A. (2023). Pengaruh Penggunaan Media Pembelajaran Terhadap Dunia Pendidikan (Studi Literatur). *Jurnal Pendidikan Dasar Dan Sosial Humaiora*, 2(6), 749–756.
- Ratna, H., Maharsi, D., Redjeki, E. S., Rachmawati, W. C., & Adi, S. (2024). Hubungan Akses Mendapatkan Informasi dengan Tingkat Literasi Kesehatan tentang Perilaku Hidup Bersih dan Sehat (PHBS) di Pondok Pesantren Roudlotul Hidayah Mojokerto, 6(5), 488–496.
- Ridha, A., Ramadhani, D., Trisnawati, E., Radiana, D., & Ruhama, U. (2022). Improving knowledge and attitudes about prevention and cessation of smoking using comics : study on youth with smoker ' s social environment.
- Rinando, A. A. (2018). Efektivitas Layanan Informasi Dengan Memanfaatkan Media Komik Dalam Meningkatkan Pengetahuan Bahaya Merokok Pada Peserta Didik Kelas VII Di SMPN 4 Bandar Lampung Tahun Ajaran 2017/2018. *Journal of Materials Processing Technology*, 1(1), 1–8.
- Sabri, Dias, V., Sumarlan, I., & Mohamad, R. (2024). Visual Narratives in Health Communication : Evaluating Comics as Tools for Health Literacy by the Indonesian Ministry of Health, 12(1), 26–36.
- Safitri, D. (2023). The Effect Of Health Education With Comic Media On The Level Of Knowledge Of Adolescent Girls About The Impact Of Underage Marriage On Reproductive Health. *Health Frontiers*, 1(1), 70–76. <https://doi.org/10.62255/mjhp.v1i1.83>
- Saracen, A. (2017). Cigarette Smoking and Respiratory System Diseases in Adolescents. *Respiratory Treatment and Prevention*, 944. https://doi.org/10.1007/978-3-319-44488-8_11
- Septialti, D., Shaluhiah, Z., & Widjanarko, B. (2022). The Effectiveness of Using Comics in Efforts to Increase Adolescent Health Knowledge : A

- Literature Review, 7, 273–280. <https://doi.org/10.30604/jika.v7iS1.1134>
- Sørensen, K., Broucke, S. Van den, Fullam, J., Doyle, G., J. P., & B., Slonska, Z., & Helmut. (2021). A systematic review and integration of definitions and models: A systematic review and integration of definitions and models. *Health Literacy and Public Health*, 15(4).
- Sørensen, K., Broucke, S. Van Den, Fullam, J., Doyle, G., & Pelikan, J. (2012). Health literacy and public health : A systematic review and integration of definitions and models.
- Sudjana, N., & Rivai, A. (2011). *Media Pengajaran*. Bandung: Sinar Baru Algensindo.
- Suherman, E. (2003). *Strategi Pembelajaran Matematika Kontemporer*. Bandung: PT Remaja Rosdakarya.
- Syaiful Bahri Djamarah, & Zain Aswan. (2006). *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta.
- Tarver, T., Woodson, D., Fechter, N., Vanchiere, J., Olmstadt, W., & Tudor, C. (2016). A Novel Tool for Health Literacy: Using Comic Books to Combat Childhood Obesity. *Journal of Hospital Librarianship*, 16(2), 152–159. <https://doi.org/10.1080/15323269.2016.1154768>
- U.S.DHSS. (2010). *How Tobacco Smoke Causes Disease The Biology and Behavioral Basis for Smoking-Attributable Disease A Report of the Surgeon General. Public Health*. Centers for Disease Control and Prevention.
- Utariyanti, I. F. Z., Wahyuni, S., & Zaenab, S. (2015). Pengembangan Media Pembelajaran dan didahului dengan tanggapan terhadap adanya tujuan. *Jurnal Pendidikan Biologi Indonesia*, 1(3), 343–355.
- Vamos, S., Okan, O., Sentell, T., & Rootman, I. (2020). Making a case for “education for health literacy”: An international perspective. *International Journal of Environmental Research and Public Health*, 17(4), 1–18. <https://doi.org/10.3390/ijerph17041436>
- Wahyuningtyas, C. A. (2019). Efektivitas Penggunaan Media Pembelajaran Komik Materi Pembelajaran Peristiwa Sekitar Proklamasi Pada Hasil Belajar Sejarah Siswa Kelas Xii Ips Sma N 1 Ngemplak, Sleman Tahun Ajaran 2016/2017. *Journal of Chemical Information and Modeling*, 53(9), 214.
- Wang, Q., Tao, C., Yuan, Y., & Zhang, S. (2023). Current Situations and Challenges in the Development of Health Information Literacy.
- Yu, X., Yang, T., Wang, S., & Zhang, X. (2012). Study on student health literacy gained through health education in elementary and middle schools in China. *Health Education Journal*, 71(4), 452–460. <https://doi.org/10.1177/0017896911430548>
- Yulianti, U. (2023). *Penerapan Model Problem Based Learning Terhadap*

Kemampuan Literasi Kesehatan Dalam Materi Sistem Pertahanan Tubuh Manusia Pada Siswa Sma. Universitas Pendidikan Indonesia.

- Yusefni, E., Afa Firji, F., & Kesehatan Kemenkes Padang, P. (2021). Efektivitas Penggunaan Media Komik Terhadap Peningkatan Pengetahuan Siswa Tentang Hiv/Aids di Smp N 45 Kabupaten Sijunjung. *Jurnal Kesehatan Medika Sainika*, 12(1), 79–82. Retrieved from <https://jurnal.syedzasaintika.ac.id/index.php/medika/article/view/1116>
- Yusup, F., Studi, P., Biologi, T., Islam, U., & Antasari, N. (2018). Uji Validitas Dan Reliabilitas, 7(1), 17–23.