

Research Article

The difference between health education with PowerPoint and booklet media to increase knowledge about the dangers of smoking

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Article history:

Submission December 2024

Revised December 2024

Accepted December 2024

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ABSTRACT

Background: Cigarettes are cylindrical objects that contain many dangerous additives. The danger of smoking is that it can cause periodontitis (gums inflammation, pharyngitis (throat infection), laryngitis (infection of the larynx and vocal cords), and bronchitis (infection of the bronchial tubes). Protecting the dangers of smoking can be provided through health education. Health education can be provided using several methods. One of them is the lecture method using interesting media such as PowerPoint and booklets

Objective: To determine the difference in increasing knowledge of the dangers of smoking between the Health Education lecture method with PowerPoint media and booklets.

Methods: This study used a quasi-experimental method with a two-group pretest and posttest. The 63 respondents in the sample were divided into 31 respondents in the booklet group (B) and 32 respondents in the PowerPoint group (P). The questionnaire contains 15 questions used to measure knowledge of the dangers of smoking.

Results: The mean value was 66.34 for the PowerPoint media lecture approach and 76.16 for the booklet media lecture method. The Mann-Whitney test indicated a difference between the two presentations ($p = 0.010$).

Conclusions: There is a difference in increasing knowledge about the dangers of smoking between health education lecture methods with PowerPoint media and booklets.

Keywords: Health Education, Powerpoint, Booklet, Dangers of Smoking

Introduction

The World Health Organization, in its 2022 report, stated that eight million people die from smoking every year, with 1.2 million of these deaths resulting from secondhand smoke [1]. Previously, beginner smokers were typically over 15 years old, but this trend has shifted to

teenagers under 15. Based on the 2018 Basic Health Research (Riskesdas) report, 9.1% of individuals aged 10 to 18 smoke. Smoking habits among teenagers in Indonesia and across the world increase every year. Teenagers' desire to appear mature and to show off is one of the

How to cite:

Rahmadhani, S. N., Sunarto, Sudiro (2024). The difference between health education with PowerPoint and booklet media to increase knowledge about the dangers of smoking. *Basic and Applied Nursing Research Journal*, 5(2), 147 – 152. doi: 10.11594/banrj.05.02.10

reasons why smoking rates are higher among teenagers and new smokers [2].

Some of the dangers posed by smoking include periodontitis (inflammation of the gums), which is caused by the harmful contents of cigarettes, as well as mouth sores, pharyngitis (throat infection), and laryngitis (infection of the larynx and vocal cords). Smoking can also lead to diseases of the bronchial tract, such as bronchitis (bronchial tube infection), and lung diseases, such as lung cancer and chronic obstructive pulmonary disease [3].

This issue results from a lack of awareness about the risks associated with smoking [2,4]. Educating youth about these risks is one method to stop this trend. Lectures must use media because they are less effective without it [5,6]. One medium that can be used is PowerPoint, an application program designed for making presentations, conducting meetings, or planning other activities, including educational purposes in schools. PowerPoint can be utilized for health education to create engaging and informative slides [7]. In addition to PowerPoint, booklet media can also be employed. Research indicates that booklets are effective for health education, as they increase knowledge and perception, are practical, and can be easily carried. This was demonstrated in a study on mothers of stunted toddlers [8].

An interview with the principal of SMPN 2 Kalijambe confirmed that many male students smoke. Despite reprimands, they continue to smoke, as environmental factors often reinforce this behavior—for instance, parents at home do not prohibit their children from smoking. Interviews with teachers revealed data showing that approximately 70 out of 261 students smoke, including 20 out of 68 students in Grade VII. Some have been caught smoking during recess, carrying cigarettes, or exhibiting signs of smoking, such as discoloration on their lips and faces. Schools often conduct sudden inspections, and many students are found carrying cigarettes.

Interviews with the surrounding community indicated that residents often see students from SMPN 2 Kalijambe smoking in the parking lot, as it is outside the school premises. Interviews with students revealed that they do not

understand the dangers of smoking, as there is rarely any counseling on this topic. Students also expressed feeling uncomfortable when peers smoke at school but refrain from reprimanding them due to fear. Most students who smoke are influential peers, such as class leaders.

Efforts by the school to address smoking include providing counseling about the dangers of smoking; however, this is only conducted once a year during the PPDB (new student admission) event, with local police officers delivering the material. Despite these efforts, students often remain indifferent or dismissive because they do not fully understand the dangers of smoking, resulting in no significant behavioral change.

Therefore, the researcher aims to provide education about the dangers of smoking to help students understand these risks and quit smoking. The educational media chosen, PowerPoint and booklets, are designed to be engaging and effective. Both media have unique advantages that can help students grasp the material more easily, both in terms of presentation and content.

Based on this phenomenon, the researcher is interested in conducting a study titled, “The Difference Between Health Education with PowerPoint and Booklet Media to Increase Knowledge About the Dangers of Smoking.”

Methods

Study design

This study employs a quantitative approach with a pretest-posttest control group design using a quasi-experimental methodology. A pretest was conducted before the intervention, followed by a posttest afterward [8]. The research was conducted at SMPN 2 Kalijambe, Sragen, from August 26 to 30, 2024.

Sample

In this study, the target population comprises students at SMPN 2 Kalijambe. The accessible population consists of 63 Grade VII students. These 63 students were sampled and randomly divided into two groups: the PowerPoint group (P), with 32 participants, and the booklet group (B), with 31 participants.

Instruments

The instrument used in this study is a questionnaire. The questionnaire contains 15 questions about the dangers of smoking and is designed to measure the knowledge of Grade VII students at SMPN 2 Kalijambe. Reliability testing was conducted using a 95% significance level, yielding a Cronbach’s alpha value of 0.7107, which indicates that the questionnaire is reliable.

Intervention

Respondents were first gathered in one room, where the researcher explained the purpose and benefits of the study. All 63 students agreed to participate and signed informed consent forms. The respondents were then divided into two groups using a random method: odd-numbered students were assigned to the PowerPoint group, while even-numbered students were assigned to the booklet group.

Each group was placed in a separate room and completed a 15-minute pretest. Following this, each group received its respective intervention: the PowerPoint group was educated using PowerPoint media, while the booklet group was educated using booklet media. The intervention was conducted over three consecutive afternoons after school hours. After a one-

day break, all respondents completed the post-test.

Data analysis

The hypothesis concerning the relationship between the independent and dependent variables was tested using bivariate analysis. Bivariate analysis was conducted to identify differences in knowledge improvement about the dangers of smoking between health education methods using PowerPoint and booklet media.

The normality of the data distribution was tested using the Kolmogorov-Smirnov test. The results indicated that some data were not normally distributed ($p < 0.05$). Consequently, non-parametric tests were conducted. The Wilcoxon Signed Ranks Test was used for within-group comparisons, and the Mann-Whitney Test was used for comparisons between the two independent groups [8].

Ethical considerations

Ethical clearance for this study was obtained from the Health Research Ethics Commission of Dr. Moewardi Surakarta Hospital. Approval was granted on June 20, 2024, with ethical clearance number 1.598/VI/HREC/2024.

Result

Characteristic of respondents

Table 1. Respondent’s Gender Frequency Distribution (n=63)

Sex	P		B	
	n	(%)	n	(%)
Male	18	56,2	14	45,2
Female	14	43,8	17	54,8

Based on Table 1, the results of the study show that in the PowerPoint media lecture group, 18 respondents (56.3%) were male, and 14 respondents (43.8%) were female.

Meanwhile, in the booklet media lecture group, 14 respondents (45.2%) were male, and 17 respondents (54.8%) were female.

Table 2. Frequency Distribution of Respondent’s Age (n=63)

Age	P		B	
	n	(%)	n	(%)
11	1	3,1	2	6,5
12	20	62,5	16	51,6
13	11	34,4	13	41,9

Table 2 shows that the majority of respondents in both groups were 12 years old: 20 respondents (62.5%) in the PowerPoint group

and 16 respondents (51.6%) in the booklet group.

The effect before and after being given health education

Table 3. Average Knowledge Levels Before and After Health Education Using PowerPoint (P) and Booklet (B) Media Lecture Methods

		Mean	Std.dev	ρ value
P	Pre	44,00	10,638	0,000
	Post	66,34	12,466	
B	Pre	44,58	13,349	0,000
	Post	76,16	14,980	

According to Table 3, the Wilcoxon test results indicate a ρ-value of 0.000 for both the PowerPoint and booklet groups,

demonstrating that health education using these methods significantly increased respondents' knowledge ($\rho < 0.05$).

Differences in average level of knowledge in the health education

Table 4. Differences in Average Knowledge Levels After Health Education Using PowerPoint (P) and Booklet (B) Media Lecture Methods

Intervention	Mean	Std.dev	N	ρ value
Post				
P	66,34	12,466	32	0,010
B	76,16	14,980	31	

Based on Table 4, the Mann-Whitney test results show a ρ-value of 0.010 ($\rho < 0.05$), indicating a significant difference in the average knowledge levels between the PowerPoint and booklet groups. This suggests that the booklet method was more effective in increasing respondents' knowledge compared to the PowerPoint method.

Discussion

The findings indicate that the majority of respondents in both groups were male (32 respondents or 50.8%). Male teenagers are more likely to smoke compared to female teenagers. Research by Timban [9] supported this, showing a correlation between gender and smoking, with male smokers having a higher prevalence than females. Cultural factors in Indonesia often normalize smoking among men, whereas smoking among women is considered inappropriate and shameful.

As Wijayanti [10] stated, male teenagers view smoking as a symbol of masculinity, power, and maturity. Adolescents often engage

in smoking to avoid being labeled as "cowards." Additionally, teenage boys are generally more willing to take risks, including experimenting with smoking.

The majority of respondents in this study were 12 years old (36 respondents or 57.1%). This aligns with research by Handayani [1] which shows that smoking habits often begin between the ages of 9 and 12. Hanifah [11] also found that early adolescence, particularly during junior high school, is a critical period for initiating smoking behavior. Peer influence and permissive parental attitudes further contribute to this trend.

Mirawati [12] also highlights the role of the social environment, such as parental, familial, and peer models, in initiating smoking behavior among adolescents aged 11–13. Once someone tries smoking, addiction often follows, with prevalence increasing with age.

The study's findings demonstrated significant differences in knowledge levels between the two methods. The booklet method showed a greater increase in knowledge, with pre- and

post-intervention scores rising from 44.58% to 76.16%, a 31.58% increase. In comparison, the PowerPoint group showed a 22.34% increase, from 44.00% to 66.34%.

Booklets have several advantages, including portability, attractive designs, and clear illustrations that enhance understanding. These features make booklets a practical and effective educational tool, as noted by previous studies [13],[14]. Previous research by Nurdewi [15] also supports the effectiveness of booklets over PowerPoint in increasing knowledge retention.

While PowerPoint remains a useful and engaging tool, especially for creating interactive presentations, its effectiveness may be limited by the technical skills of educators and the level of student familiarity with technology [16].

Limitations and Implications

The study faced several limitations, including time constraints and the physical layout of the classrooms, which may have allowed respondents to see each other's answers during tests. Additionally, other factors influencing students' knowledge prior to the intervention were not controlled.

Educational institutions and community health workers can use these findings as a reference for selecting effective methods to increase awareness about the dangers of smoking. Future research should explore additional techniques and diverse respondent groups to broaden insights and reduce bias.

Conclusion

This study demonstrates significant differences in knowledge levels between health education using PowerPoint and booklet media. While both methods effectively increased knowledge about the dangers of smoking, the booklet method showed greater effectiveness. These results provide valuable insights for educational institutions and health professionals to consider using booklets as a practical and impactful teaching tool. Future research should explore other techniques and settings to enhance the findings further.

References

1. Handayani, L. (2023). Gambaran Kebiasaan

Merokok Pada Usia Dewasa di Indonesia: Temuan Hasil Global Adult Tobacco Survey (GATS) 2021 Description of Smoking Habit among Adults in Indonesia: Finding of Global Adult Tobacco. *Jurnal Wawasan Promosi Kesehatan*, 3(4), 193–198.

2. Selçuk Tosun, A., Altinel, B., Koçak Uyaroğlu, A., & Ergin, E. (2023). The prevalence of smoking and the levels of self-esteem and self-efficacy among adolescents in Turkey: A descriptive cross-sectional study. *Journal of Pediatric Nursing*, 73, e563–e569. <https://doi.org/10.1016/j.pedn.2023.10.034>
3. Tivany Ramadhani, Usna Aulia, & Winda Amelia Putri. (2023). Bahaya Merokok Pada Remaja. *Jurnal Ilmiah Kedokteran Dan Kesehatan*, 3(1), 185–195. <https://doi.org/10.55606/klinik.v3i1.2285>
4. Suryani Panjaitan, R. S. P., Aguslina Siregar, F., & Siagian, A. (2020). The Effect of Physical Activities and Smoking Habits toward Incidence of Stroke on Patients in Santa Elisabeth Hospital. *Britain International of Exact Sciences (BioEx) Journal*, 2(1), 156–161. <https://doi.org/10.33258/bioex.v2i1.121>
5. Listyarini, A. D., & Sri, H. (2017). Penyuluhan dengan media audio visual meningkatkan perilaku hidup bersih dan sehat anak usia sekolah. *Jurnal Stikes Cendekia Utama Kudus, February*, 112–117. <https://adoc.pub/penyuluhan-dengan-media-audio-visual-meningkatkan-perilaku-h.html>
6. Febriani, A. D., Atiqoh, N., Efendi, R. F., & Muyassaroh, Y. (2021). The Influence Of Health Education Using Video “SEMAR LARI” About Breast Examination On Knowledge, Attitude And Behavior In Adolescent Women. *Journal of Midwifery Science: Basic and Applied Research*, 3(1), 32–39. <https://doi.org/10.31983/jomisbar.v3i1.7496>
7. Fajurahman, A. N. (2022). Efektivitas Penyuluhan Kesehatan Dengan Video Dan Powerpoint Terhadap Pengetahuan Kesehatan Reproduksi Remaja. *Jurnal*

- Kesehatan Tambusai*, 3(1), 177–184. <https://doi.org/10.31004/jkt.v3i1.3938>
8. Nur Djannah, S., Hadayani, L., & Kesehatan Masyarakat Universitas Ahmad Dahlan, F. (2023). *The Indonesian Journal of Health Promotion MPPKI Media Publikasi Promosi Kesehatan Indonesia Efektivitas Media Edukasi Booklet terhadap Pengetahuan dan Sikap Ibu Balita Stunting Aceh*. 6(5). <https://doi.org/10.31934/mppki.v2i3>
 9. Timban, I., Kaunang, W. P. J., Kesehatan, F., Universitas, M., & Ratulangi, S. (2018). Determinan Merokok Di Indonesia Analisis Survei Demografi Dan Kesehatan Indonesia Tahun 2012. *Jurnal Kesmas*, 7(5), 1–11.
 10. Wijayanti, E., Dewi, C., & Rifqatussa'adah, R. (2017). Faktor-faktor yang Berhubungan dengan Perilaku Merokok pada Remaja Kampung Bojong Rawalele, Jatimakmur, Bekasi. *Global Medical & Health Communication (GMHC)*, 5(3), 194. <https://doi.org/10.29313/gmhc.v5i3.2298>
 11. Hanifah, S., & Hamdan, S. R. (2020). Gambaran Perilaku Merokok pada Mahasiswa di Kota Bandung. *Prosiding Psikologi*, 6(2), 700–703.
 12. Mirnawati, Nurfitriani, Zulfuarini, F. M., & Cahyati, W. H. (2018). Perilaku Merokok pada Remaja Umur 13-14 Tahun. *Higeia Journal of Public Health Research and Development*, 2(3), 396–405.
 13. Christie, & Lestari, N. A. (2019). Pengembangan Media Ajar Berdasarkan Penelitian Analisis Morfologi Durian Di Jawa Timur. *Jurnal Koulutus*, 2(September 2019), 21.
 14. Wahyuni, S., Wulandari, F., & Setyowati, R. (2022). *Learning in*. 6(2), 2071–2080.
 15. Nurdewi. (2014). Efektifitas KIE Melalui Ceramah Booklet dan Powerpoint Untuk Meningkatkan Pengetahuan Sub PPKBD (Kader) Tentang Penggunaan Alat Kontrasepsi di Kota Binjai Provinsi Sumatera Utara Tahun 2014. *UNIVERSITAS SUMATERA UTARA Poliklinik UNIVERSITAS SUMATERA UTARA*, 1(3), 82–91.
 16. Sambella, M., Aan Hendrawan, & Rudi Hariyadi. (2023). Efektivitas Media Pembelajaran Berbasis Powerpoint Interaktif Dalam Menumbuhkan Minat Belajar Anak Usia Dini. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, 9(5), 406–413. <https://doi.org/10.36989/didaktik.v9i5.1931>