

## The effectiveness of web-based e-cigarette education for improvement of teenage self-esteem and attitude

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### Abstract

**Background:** E-cigarette education must be carried out differently from conventional cigarette education. E-cigarettes are growing and developing at a time when the digital world is the main communication channel today. **Objective:** The purpose of this study is to determine the effectiveness of media in gital with websites to remind adolescents of knowledge and attitudes about e-cigarettes. **Methods:** The research method used is qualitative with a case study approach. The research informants were 20 high school students. Data collection using in-depth interviews. The data analyst used the Milles and Hyberman methods. **Results:** The results of this study show that most users are very easy to access applications and want to try using them. Web applications make it easier to understand the material that is broadcast because it is in the form of images and sounds. The informant's knowledge can be measured after conducting a pre and post-test. **Conclusion:** The media on the website is very effective in increasing the knowledge of the user in understanding the material of E-cigarettes.

**Keywords:** e-cigarettes; cigarette; web; vaping.

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## INTRODUCTION

A World Health Organization (WHO) report in 2023 shows that smoking causes about 8 million deaths each year, including 1.3 million deaths from secondhand smoke, making it the leading cause of preventable deaths worldwide. Global cigarette consumption continues to increase, including in Indonesia, which is ranked third in the world with a prevalence of adult male smoking of 64.7%. The increase in the number of smokers does not only occur among adults, but also among the younger generation (1). According to the 2023 Indonesian Health Survey (SKI) report, the number of individuals who are active smokers is estimated to reach 70 million people out of 285.72 million people, this means that around 24.5% of Indonesia's total population are active smokers. 7.4% of them are aged 10 to 18 years.

The Ministry of Health of the Republic of Indonesia (Kemenkes RI) in the Indonesian Health Survey (SKI) report in 2023 revealed that the rate of e-cigarette use in Indonesia shows striking differences depending on age groups. In the age range of 10-14 years, around 1.8%, this number increases in the age group of 15-19 years, where the prevalence of e-cigarette use reaches 6.4%.

School-based e-cigarette countermeasures are very necessary in reducing the exposure of school students caused by peer harassment. Tobacco control efforts focus on improving adolescent self-control (2). School staff reported seeing vaping at school and some teachers reported recently catching their students vaping in the classroom. (3). Ensuring that young Australians are given the support they need to facilitate successful smoking cessation efforts is critical (4). Efforts to implement and enforce restrictions on adolescents' access to e-cigarettes in Indonesia are essential to prevent further use of these products (5). CMB content has been adapted for use in Canadian schools, and the implementation of this program can help reduce teen vaping (6). Our findings show that the delivery of messages to students should aim to increase the perception of the risk of e-cigarette use (7) The purpose of this study is to see students' views on the effectiveness of web sites in increasing knowledge about e-cigarettes.

## METHODS

The research method used is qualitative with a case study approach. The research informants were 20 high school students. Data collection using in-depth interviews. In-depth interviews are conducted according to the agreement with students during break times and outside school hours to obtain more accurate data. The results of the interview in transkrip after that were carried out by data analysts using the Milles and Hyberman methods.

## RESULTS

From the results of interviews with informants in the school it was noted that school students are easier to access materials through the web because they can see when and where they are doing. Through the web site they do not find it difficult to understand the materials provided in the form of educational videos that are aired on this web site and are provided by the following information:

*“... Material for e-cigarettes... We are easier.. e e to access with the web can be done anywhere (SM.06)”*

*“...We don't have much time to learn if it's on the web site.. we are easier to see ... (S.S. 17)”*

*“... If on our website... It is not difficult to open the web while other jobs can look around. (SM 12)”*

From the results of the interview with the informant, it was said that the features on the website application should not be too complicated to do because the student's views or students' desires do not want to be complicated and can be quick to access the website and it is easier to run the educational application which is given in the informant as follows:

*“.. If the features are too complicated, we have difficulty opening the web site because there are many steps to open the video.... (SM 02)”*

*“... If possible, it is easy to do so that we don't have any difficulties and it takes a long time to install the application... (S.S. 20)”*

From the results of the in-depth interview, the video material presented should not be too long in duration because it will result in boredom and students feel that they will use a lot of quota so that students do not watch until the end of the video prepared on the web site

*“.. The videos are already good on the website... Next, don't miss the video for a long time.. or duration... We are so excited to see it (SM.09)”*

*“If it takes a long time, sometimes our quota can run out... because it is limited sometimes with quotas.. It's good it's short and easy for us to understand.. (SM 05)”*

From the results of interviews with informants, it was stated that informants preferred videos that were aired in tiktok and contemporary video formats so that students were more interested in what was conveyed in the video. The format of tiktok videos can be entertaining and funny effects have an influence on the viewer's interest in the video that is aired.

*“... TikTok is more fun to watch..... The Spaniards are not too long either. (SM 17)”*

*“,,Tik Tok Video Pictures .. We are easier to understand than a video or documentary (SM 1)”*

From the results of the interview with the informant, the video that is aired must also display writings in accordance with what is conveyed in the video so that it will make it easier for the informant to understand what is conveyed in the video because there are voices and writings that can be seen in the video on the web site application. This is stated from most of the informants as follows:

*“... video added text so that ... kmai more mudang to remember what is shown.. (S.S. 20)”*

*“... On the video app... besides the voice narration is also better writing.. - Smashing Pumpkins (S.03)”*

## **DISCUSSION**

Media On the web makes it easier for students to understand the material E-cigarettes with the TikTok video format is more interesting in providing knowledge to students. The influence of education through video media on knowledge (8). The influence of multimedia-based health education on knowledge (9). health education videos as an appropriate intervention in improving public knowledge (10). Attention to Indonesian

women in digital access and the development of digital media literacy because women play an important role in educating children, improving the quality of families, and building their nation (11).

In this study, we present preliminary insights into the reach, acceptance, and impact of two tobacco education social media campaigns for teens and an innovative teen vaping cessation program delivered entirely through Instagram (12) It is time for the tobacco industry to be held accountable so that they stop promoting their products to young people on digital platforms such as social media. Strict policies that limit tobacco promotional content in the media social due to having a strong influence (13). Our study highlights that the e-cigarette industry is using tactics previously used, similar to the tobacco industry, to advertise and promote their products on social media. These findings show the growing importance of government cooperation in developing and implementing policies to limit the advertising and marketing of e-cigarettes on social media (14).

Recent research experimentally shows that vaping visual cues in e-cigarette industry advertisements can produce unwanted effects and increase support for vape-free policies (15). There is an increase in cigarette knowledge after being given animation video knowledge (16) Providing education using video media is better than using leaflet media in increasing the compliance of pregnant women with anemia to consume iron tablets (17). Videos on YouTube in Indonesia that generate high engagement are made by "e-cigarette reviewers" who try out different products on behalf of the seller. They used an episode format, in which the hosts reviewed e-cigarette devices and tried different flavors of e-liquids, while exchanging jokes.

On TikTok in Mexico, most videos feature the unboxing of an e-cigarette device with popular songs playing in the background; In one of the videos, viewers are told that this is a sign for them to quit smoking for good and suggest that the company recommend an "e-cigarette" device(18) TikTok, which is flooded with user-generated posts and e-cigarette promotions, has the potential to expose teens to harmful content related to teenage e-cigarette use. E-cigarette posts on social media, particularly on TikTok, require stricter regulations, including better enforcement by social media platforms of their policies prohibiting the posting and promotion of e-cigarette content (19). Rethinking media literacy should be considered as a global solution involving governments, media stakeholders, and educational leaders in schools and universities (20-25).

## **CONCLUSIONS**

Digital media with a website makes it easier for students to understand knowledge about e-cigarettes. The video in the application must be shorter with text to accelerate the understanding of the user.

## **CONFLICT OF INTEREST**

The authors declare no competing interests.

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## DECLARATION OF ARTIFICIAL INTELLIGENCE USE

We hereby confirm that no artificial intelligence (AI) tools or methodologies were utilized at any stage of this study, including during data collection, analysis, visualization or manuscript preparation. All work presented in this study was conducted manually by the authors without the assistance of AI-based tools or systems.

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