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ELECTRONIC CIGARETTE USE AMONG ADOLESCENTS: A SYSTEMATIC REVIEW

Edi Junaidi*, Budi Hidayat

Public Health Sciences Program, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

*Corresponding author's e-mail: edi.junaidi@ui.ac.id

ABSTRACT

Background: *The innovation of the cigarettes industry leads to evolved into an electric cigarette. US General Surgeon in 2016 reports that 13.5% of junior high school students, 37.7% of high school students and 35.8% of young adolescents in America have used electric cigarettes. This study aims to identify the use of electric cigarette among adolescent*

Methods: *This study utilized systematic reviews using PRISMA (Preferred Reporting Items for Systematic Reviews & Meta-Analyzes) to identify all published literature using relevant keywords. The selection process is based on the literature of which the population is human, published in the last 5 years, and there is a complete text form, then selected back by title and abstract. The journal used is the selected journal based on the inclusion and exclusion criteria.*

Results: *Electric cigarettes are used by adolescents influence through social media or commercial advertisement. One type of electric cigarette that is widely used is the Electronic Vapor Product (EVP) that can easily to obtain from retail stores, kiosks, malls, and the internet. Electric cigarette users were led to increasing the symptoms of bronchitis and asthma in adolescents.*

Conclusions: *The use of electric cigarettes in adolescents has increased mainly among male adolescents. The current study revealed the use of electronic cigarette was influenced by the several factors: lifestyle, electric cigarette prices, and the teenager's pocket money. Therefore, serious efforts needed to control the factors that affected the teenage users of electric cigarette. Campaign on ruthless effects of the electric cigarette among adolescents should be implemented in the school, furthermore in several places related to teenagers.*

Keywords: *Use, Electric Cigarette, Adolescent*

INTRODUCTION

In the 21st century, it is estimated 1 billion people died due to tobacco [4]. In 2017 it was stated that active smokers have 942 million men and 175 million women with age 15 years or more [1,2]. The amount will continue to increase along with the product and promotion of cigarette advertisements and supporting industries. Active smokers are also expected to increase by 2 billion people by 2030 [4].

Moreover, adolescence is one of the increasing smokers since the industrial innovations support the type of electric cigarette. WHO 2014 mentions the use of electric cigarettes in North America, the European Union (EU) and Korea doubled from 2008 to 2012. US Surgeon General in 2016 reported that 13.5% of junior high school students, 37.7% of high school students and 35, 8% of young adolescents in America had used electric cigarettes [3].

In many countries around the world, the categories of electronic cigarette classification vary, there are countries that classify them as tobacco products, drug products, consumer products, nicotine delivery devices and some even classify them as poison or harmful substances (poisons of hazard substances). For example, Brazil has banned total sales, imports, and advertising of electronic cigarettes while Finland incorporated electronic cigarettes into drug products and banned any form of advertising of those products. The status of electronic cigarettes in some ASEAN countries is different. SEATCA 2014 states that Singapore, Brunei Darussalam, and Cambodia have banned total electronic cigarettes. Malaysia and the Philippines are still limiting the use of electronic cigarettes while Indonesia still has no regulation on electronic cigarettes. There are currently 466 variations of electronic cigarette brands with more than 7,700 flavors (flavoring), most of which are flavored fruit or candy. [3] [4]. By knowing the data that electric cigarette increases, it is essential to know the effect of electric cigarette on adolescence so that when the effect is known, then we can appropriate steps to respond to the effects.

METHOD

Search Strategy

Several search strategies are used to identify appropriate journal searches. Searching data and information via electronic, making the site as a data source. The results of the article search are used PRISMA instruments (Preferred Reporting Items for Systematic Reviews & Meta-Analyses) and used flowcharts prepared under the PRISMA 2009 checklist guidelines to set aside articles that do not match the identification, screening, eligibility criteria, and finally download the appropriate articles. First done by opening a PubMed database in <https://www.ncbi.nlm.nih.gov/pubmed/> use the advanced search.

Document Selection

Used search engine with keyword "Cigarette") AND adolescent "through Pub Med, obtained 9700 documents, selected by publication free full text, human, languages, Child: birth - 18 year, male, core clinical journal then result in 318 documents. Selection based on title and abstract obtained 13. Then we limit based on the relevance of the 13 documents into three documents considered feasible.

Inclusion Criteria

The document inclusion criteria we deem appropriate (feasibility) for a systematic review are as follows: journal derived from research, a journal of systematic review result using English and Indonesian language, published one last year from January 2017 2017 until April 2018 The inclusion criteria for the respondents were all cigarettes and adolescents.

Exclusion Criteria

Design of RCT (Randomized Controlled Trial); using languages other than English and Indonesian; articles published before 2017; cigarettes and teens.

Data extraction and analysis of each article downloaded by the author. The results are then analyzed, and the data are prepared by the theme analysis and arranged in the form of a narrative paper.

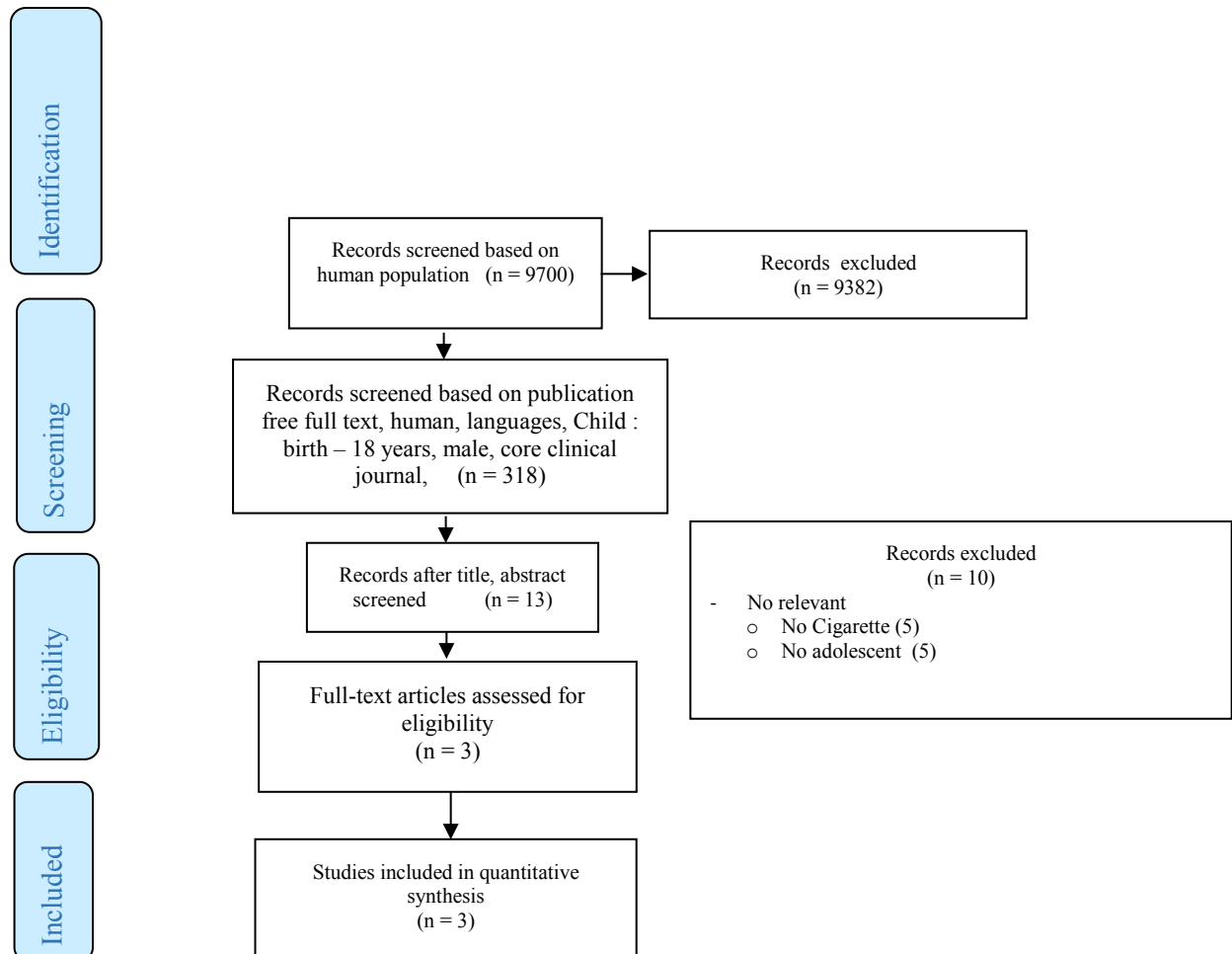


Figure 1. Preferred Reporting Items for Systematic Review and Meta-Analysis

RESULTS

Total studies were found starting with the keyword 9700 in English. Then screening based on the publication of free full text, human languages, child: birth -18 years, male, core clinical journal 318 focused on discussing e-cigarette and adolescent. Moreover, last filter by reading abstracts and found 13 journals and ended with three journals. Research into the analysis conducted three studies conducted in the Republic of Korea, Atlanta (USA), and California (USA). For research design, three studies used quantitative research design.



Article Title	Author, year	Methods	The Goals	Conclusion	Suggestion
Is there differential responsiveness to a future cigarette price increase depending on adolescents' source of cigarette access	Jun Hincyun Hwang, at.al, 2017	Quantitative, Cross-Sectional survey with national representativeness	Knowing responses to future reases in cigarette prices on Adolescents in Korea	Our findings suggest that the source of the acquisition of cigarettes does not affect the response to rising cigarette prices.	The cigarette price policy is a comprehensive strategy to reduce smoking among adolescent smokers, regardless of the source.[5]
Adolescent Risk Behavior and Use of Electronic Vapor Products and Cigarettes	Zewditu Demissie, Ph.D., at all, 2018	Quantitative, Used 2015 national Youth Risk Behavior Survey data (N = 15 624) to classify students into four mutually exclusive categories of smoking and EVP use based on 30-day use: nonuse, cigarette smoking only	Knowing Cigarette-only smokers, EVP-only users, and dual users were more likely than nonusers to engage in several injuries, violence, and substance use behaviors; have ≥ 4 lifetime sexual partners; be currently sexually active, and drink soda ≥ 3 times/day.	EVP use, alone and concurrent with cigarette smoking, is associated with health-risk behaviors among high school students	Comprehensive efforts to address health-risk behaviors among adolescents, including prevention strategies focused on all forms of tobacco use, including EVPs. Additionally, educational and counseling efforts focusing on the harms associated with adolescent tobacco use, including EVPs, are critical.[6]
Electronic cigarette use and respiratory symptoms in Adolescent	Rob Mc Connel, at all, 2017	Quantitative, Cohort method, Participants were initially recruited into the CHS cohort in 2002–2003, when they were in kindergarten or first grade, from entire classrooms in schools in 12 communities in southern California	To investigate the associations of e-cigarette use with chronic bronchitis symptoms and wheeze in an adolescent population.	Adolescent e-cigarette users had increased rates of chronic bronchitic symptoms. Further investigation is needed to determine the long-term effects of e-cigarettes on respiratory health	Additional epidemiological and toxicological investigations of the effects of chronic e-cigarette exposure are needed. Therefore it is necessary to conduct further research related to the effects of exposure to electric cigarette.[7]

DISCUSSION

World cigarette users in recent years have known a new type of cigarette called electric cigarette (e-cigarette). This type of cigarette was initially made in China with the aim of helping conventional smokers or tobacco. From some sources, the pros and cons of the circulation and use of electric cigarettes. Moreover, plus the youthful generation of young introduce electrical cigarette. Many of us find on one social media that the electric cigarette is not dangerous and it helps conventional smokers to stop. They tried to explain that the Ministry of Health had misjudged the electric cigarette. However, these opinions are not supported by the data of the research results.

Electric cigarettes are better known in the high curiosity age group. As mentioned above that one of the supporting factors of social media promotion. So it is no wonder conventional cigarette manufacturers are starting to think about directing the production of electric cigarettes. This is done because it sees the potential market of users among teenagers who continue to increase. One example is the increase in the number of electric smokers in Bekasi, West Java. Of the total of 52 students who meet the criteria, there are as many as 88.5% of boys aged 17 years. With the presentation of male respondents as much as 84.6% while for female respondents of 15.4%. This figure illustrates that the number of male electric smokers is higher than the number of female electric smokers. [4]

Also, in North Jakarta area, 60 respondents were 51 people or 85% and nine female teenagers (15%). The presentation of teenage boys consumes more electric cigarettes than women. It begins with more users of tobacco smokers in men. As for adolescents who smoked electric age at the age of 15-18 years as many as 26 people (43.3%). At that age, the adolescents have the perspective that they will be more socially acceptable if they follow the behaviors that are crowded by their friends. So that electric cigarettes become an option in the association. [8]

Electric cigarette users have different psychological features when switching from tobacco smokers to electric smokers. This can be found from the results of interviews in the study conducted by the study program of nursing science at the University of Riau, Indonesia. Electric smokers feel more comfortable and confident in using electric cigarettes than tobacco cigarettes. By of reason of the odor issued by the electric cigarette does not disturb around due to its smell. [9]

Another study that explains the lifestyle of electric cigarette communities in Semarang City, Central Java Province, Indonesia, is motivated to use electric cigarette due to improve self-image and to increase self-confidence. Also, the affordability of buying electric cigarettes and buying refills of electric cigarettes that can be obtained from friends in communities that sell electric cigarettes. Other factors that affect the use of electric cigarettes are also from income and lifestyle. From the results of this study also explained that there are the majority of respondents have an income of Rp 1,000,000 to Rp 2,000,000 with a monthly electrical cigarette shopping total of 500,000. [10]

CONCLUSIONS

Based on the above described that the use of electric cigarettes in adolescents has increased mainly from male sex. It is influenced by the association, lifestyle, affordability of electric cigarette prices, and income from teenagers. By that, it needs serious efforts to control the factors that affect the teen users of electric cigarette. The need for a campaign on the introduction of electric cigarette further in the workplace or at school according to the daily location of the teenagers. So that effort is expected to bring a positive influence and impact on the collective consciousness of teenagers with the ultimate of the goal to stop using an electric cigarette.

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