E-Health in the Prevention of Drug Abuse in Adolescents: A Literature Review

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Abstract

BACKGROUND: Electronic Health (e-Health) is the delivery of health services through the Web or on a computer. It has many advantages, and this application can be accessed in real-time. Therefore, with this system approach, drug abuse in adolescents can be prevented through smartphone devices. Various e-Health applications are also created, such as health literacy, e-health lifestyle, telemental health, and even suicide risk applications called crisis care.

AIM: This literature study aims to explore articles related to e-Health on the prevention of NAPZA.

METHODS: This literature search used the Pubmed database, Science direct, and Proquest through the keywords "e-health, drugs, and adolescents," the articles found are filtered over the past 10 years, open access, and not a type of review. The Pubmed, Science Direct, and Proquest databases found 55,654 articles and then filtered based on inclusion and exclusion criteria; then, a total of five articles were reviewed.

RESULTS: Several e-Health applications and their benefits considering intervention in adolescents certainly contribute to the main problems of adolescents. However, e-Health has advantages and disadvantages compared to direct systematic education

CONCLUSION: E-Health can reduce drug abuse, be easily accessible, low cost, real-time, and provide complete information. Therefore, adolescents and their parents can directly consult or practice health literacy that affects their knowledge growth.

Introduction

The concept of Electronic Health (e-Health) was first introduced in 2000 and is popularly known as telemedicine. Technological advances are in line with the development of e-Health applications, which will assist individuals in assessing and monitoring the symptoms of their illness [1]. Moreover, it has the potential to reduce patient barriers in accessing care and health services [2].

The use of e-Health applications in the handling of adolescents and drugs is no longer new. It has even been applied by developed countries and adopted by developing countries. However, drugs called Narcotics, Psychotropics and other Addictive Substances (NAPZA) [3]. Drug abuse outside of medical indications often or not leads to disorders of social function and physical health [4]. Therefore, NAPZA is a pharmacological substance that affects the body, nerves, and brain.

In 2020, the United Nations Office on Drugs and Crime (UNODC) reported that 5.6% of the world's population or 275 million people had used drugs. This data collection includes the Asia Pacific region. However, the UNODC has recently acknowledged its limitations in recording drug users in this region, but continues to launch a data collection program, specifically in the East and Southeast Asia [5]. The role of UNODC in carrying out prevention through monitoring and evaluation methods can bridge the decision-making and policies of countries in the world [6].

The number of drug-related deaths will increase from 2015 to 2018 [7]. UNODC reports on drug abuse in lower-middle-income countries with a scientific and practical approach that is believed to be a good intervention in the prevention of NAPZA [6]. In addition, Indonesia has high drug abuse, which is not relatively small. The official data from the National Narcotics Agency (BNN) and Novitasari's study stated that the number of drug abuse in adolescents had reached 3.6 million people in 2020 [8]. This is a threat to the nation, because it destroys morals and increases crime [9].

The age range for drugs consumption is at the adolescent stage, and this statement is supported by Nur'artavia, who stated that 54.5% of drug users are adolescents [10]. Other studies also mention things

related to 80.95% of adolescents using drugs. They are affected, because, at this age, there are changes in biological, social, and psychological conditions [11]. Adolescence is a productive age, and self-discovery is formed at this age [12]. Their desire to experiment, follow trends, and have fun with new things are the cause of abusing drugs [13]. Moreover, the pressures and problems in the household and economy are also the triggers [14].

The use of NAPZA in adolescents should be stopped immediately; direct education and counseling are considered less optimal; and many are more concerned with their activities than attending counseling both at school and in the neighborhood, in which they live. Adolescents and their parents want the e-Health method or often called e-Health. According to them, the time used in this system is not limited; therefore, they can carry out consultations any time. Moreover, the benefits of e-Health can provide information quickly and in great detail [15]. This literature study aims to explore articles related to e-Health on the prevention of NAPZA.

Literature Search

This study is a literature review that searches electronic databases through Pubmed, Science Direct, and Proquest, and the filtering is from 2011 to 2021. The keywords used in the Pubmed database are (e-health[Title/Abstract]) AND (drugs[Title/Abstract]) AND (intervention[Title/Abstract]), which found 72 articles, after being filtered from 2011 to 2021, 64 articles were obtained in the result. A search using the ScienceDirect database with the keywords e-Health, drugs, and adolescents with filtering 2011–2021, open access, and study articles found 49,226 articles. Meanwhile, a search using the ProQuest database with the keywords e-Health and drugs with a 2011–2021 filtering found 6,394 articles, and the number of articles in the Pubmed, ScienceDirect, and ProQuest databases were 55,664 articles. Furthermore, all articles were filtered based on inclusion and exclusion criteria. The following is Table Flow Chart PRISMA:

Finding

Based on Figure 1, PRISMA flow chart obtained five articles that fulfill the criteria of this study. Therefore, the article is shown in the following Table 1:

E-Health as an intervention to help adolescents overcome their problems in the world is no longer common. E-Health is one of the technological developments. It has the same goals as the direct
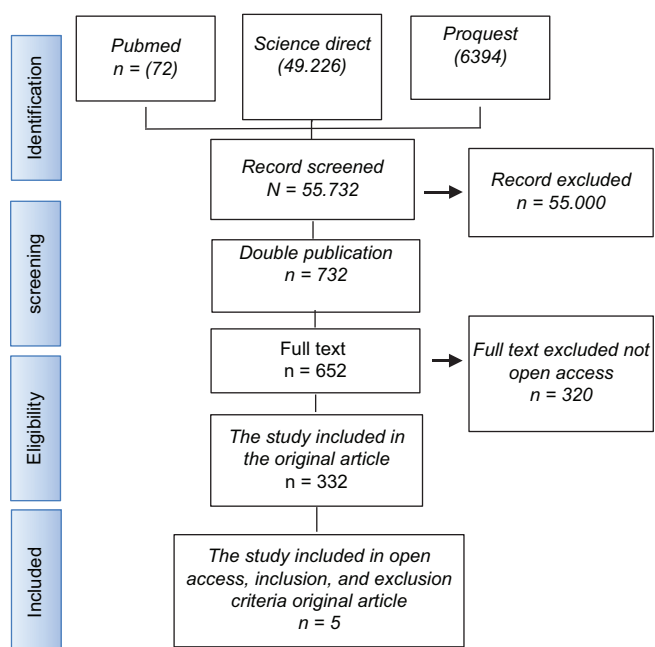

Figure 1: Flow chart PRISMA

approach, but the advantages are that it can be accessed anywhere, providing unlimited education and consulting services. Furthermore, it is used to prevent drug abuse, specifically in adolescents. Most of these technologies reduce and even overcome the triggering factors to use drugs, such as mental stress, lifestyle, environment, and risk for suicide.

The concept of e-Health in adolescents, for example, in India, using an application called YUVA, is designed as a solution for dealing with adolescent problems related to psychology [16]. The working process of this application is by providing health information to its readers, and with such habits, they

Table 1: Articles related to the use of e-health for the prevention of drug abuse

Author and Year	Title	Country	E-Health Platform	Findings and Recommendations
Srivastava *et al*. (2017)	An e-health model for dealing with the psychological issue of adolescents	India	YUVA	The e-psychology system in this application works to solve problems in adolescents
Eyimaya *et al*. (2021)	Determining the healthy lifestyle behaviors and e-health literacy levels in adolescents	Turki	e-Health lifestyle	The importance of a healthy lifestyle in adolescents through the process of health literacy
Turan *et al*. (20200	The effect of undergraduate nursing students' e-Health literacy on healthy lifestyle behavior	Turki	e-Health lifestyle	A healthy lifestyle in nursing graduates will have an positive impact on an individual.
Tregarthen *et al*.(2015)	Development of a smartphone application for eating disorder self-monitoring	California	A telemental health	This application works by monitoring the emotions and behavior of its users (Adolescents).
O'Brien *et al*. (2017)	A pilot study of the acceptability and usability of a smartphone application intervention for suicidal adolescents and their parents	USA	Crisis Care	Problems in adolescents are closely related to the risk of suicide—this application monitor by contacting the closest person of adolescents.

can increase their knowledge indirectly through the application. In addition, adolescent psychological problems are closely related to social problems such as mental stress and personal problems.

In Turkey, using the e-Health lifestyle application, which can be downloaded directly by a mobile phone, can promote adolescents to follow a healthy lifestyle. Therefore, they tend to think positively, avoid conflict, and always provide benefits for those around them [17]. In addition, other applications of a healthy lifestyle in this country are also applied to the Bachelor of Nursing and have a positive effect in using the concept of a healthy lifestyle [18].

An application called a telemental health includes social support and coping skills. This application works by allowing users to monitor their emotions and behavior [19]. The emotions and behavior of adolescents are closely related to the risk of suicide. Therefore, the e-Health application called crisis care is intended for adolescents at risk of suicide [20].

Discussion

E-Health is the use of technology for the health sector. In addition, e-Health provides benefits for the public to obtain information about health through the internet. In addition to providing benefits, e-health also has advantages and disadvantages. Advantages of e-health: As for the advantages of e-Health, the public can benefit from health education to prevent disease. In addition, e-Health can also provide accurate medical record information to reduce medical errors. While the weakness of e-health is that there is still a lack of experts, it requires a good network when people want to access it. In addition, many people do not understand the internet, especially people living in rural areas.

The development of technology and information in the health sector in the future based on technology and information continues to be improved with many innovative health applications and services. Besides improving quality, digitization in the healthcare world also makes it easier for patients to access services. Therefore, apart from the need for internet facilities, many parties in one ecosystem are needed to realize an adequate internet infrastructure. They are specifically health workers, startups in the digital health sector, health facilities.

NAPZA

NAPZA including synthetic or natural substances, when they are consumed, they can cause addiction and can harm psychological and physical changes [21]. Narcotics are a hazardous type of NAPZA, and the use of this drug causes the problem in the world. This substance has a direct effect on brain function, specifically the striatal subsystem, and it is hazardous when continuously consumed [22]. Furthermore, narcotics also have an addictive impact on users, specifically in the family environment with an addiction history. The risk is 8 times higher [23]. Adolescents are at a very young age for consuming narcotics; hence, parental supervision, environmental support, and individual attitudes are needed [24]. A fact reveals that the adolescent age is more at risk than the adult age; therefore, the illustration of the adult who tends to oppose the risk of addiction can be adopted at the adolescent age.

Furthermore, psychotropics are part of NAPZA. According to Law number 5 of 1997, psychotropics are substances or drugs, both natural and synthetic, not narcotics with psychoactive properties through selective effects on the central nervous system that causes unprecedented changes in mental activity and behavior [25]. Another study found that the tendency to change attitudes and behavior for adolescents who abuse drugs are different from others. They, try to cover up by pretending to be users by showing a good impression [26].

E-Health and drugs in adolescents

There are different types of e-Health, including cellular technology (M-Health), smartphone (S-Health), and wireless (U-Health) [27]. Moreover, these applications can be downloaded through Google Play/ App Store on mobile phone devices [28]. Therefore, it is very rarely used through PC applications [22].

One of the advantages of e-Health is teleconsulting, and according to some study literature, teleconsulting can be used as a consultation medium with the advantage of optimizing resources [29]. This concept should be owned by hospitals and service providers, thereby facilitating patients in conducting discussions and consultations considering complaints and illnesses [30]. Furthermore, e-Health is a web-based intervention, and it has proven to be effective, inexpensive, and practical to implement [16], [17]. Its use is not limited and adopted not only in developed countries but also in low-income countries. For example, it is used to handle cases of patients with special needs [31], [32].

The use of the e-Health method in tackling drug abuse in adolescents has been applied by the National Narcotics Agency (BNN). Its advantages make it easier for the community in real-time, which provides a platform for the adolescents for direct consultations without going through the process of the planned activities [33]. Fauzi examines the concept of e-learning about the dangers of drugs in adolescents. This application provides direct education to adolescents and parents; hence, they can learn

independently about the effects and risks of drugs [34]. The advantages of e-Health in terms of time efficiency are very useful due to the tendency of adolescents to be lazy in attending counseling or education. Drug abuse in adolescents is dominant compared to other age groups. This is caused by pressure problems and the environment, leading to adolescents being depressed and anxious, and abusing drugs are an escape [35]. The a telemental health application can help them control their emotions, behavior, and get good social support [19]. Moreover, the presence of the crisis care application can be a solution to the risk of suicide in adolescents [20].

Studies in India support the use of e-Health using the name "YUVA" based on RWD (responsive web development) to address adolescent psychology [16]. This application helps users greatly with health, education, the latest health study, and government policies.

In Turkey, the use of e-Health using the name healthy lifestyle has been proven to affect the adolescents' lifestyle, which tends to perform positive things [17]. The application works using a measuring scale developed by Norman and Skinner. Another study in Turkey supports the application of e-Health among undergraduate nursing students. The results show that e-Health literacy is an important parameter in changing the healthy lifestyle of nursing students [18].

Psychological problems are often the cause of adolescents abusing drugs. Moreover, the adolescents' knowledge is very little, and health literacy is needed. E-Health related to literacy was also adopted in Turkey using health literacy [36].

Conclusion

It can be concluded that a healthy lifestyle in adolescents through e-Health supervision is believed to be a barrier and can motivate them continuously to perform good and right things, including avoiding NAPZA. Moreover, adolescents' propensity to abuse drugs is caused by various factors such as domestic violence, personal problems, environmental influences, and the desire to try. Furthermore, education through e-Health has many advantages compared to meeting directly on objects, specifically during a pandemic, which requires staying away from crowds. Therefore, this study recommends that e-Health be a tool and solution for technological and health advancements, specifically for preventing drug abuse in adolescents.

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