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## Review Article

# Development of Fast Alcohol Screening Test Implementation and Electronic Nursing Interventions for Adolescents with Alcohol Abuse: A Literature Review

Rusmai Triaswati<sup>1\*</sup> | Rr. Tutik Sri Hariyati<sup>2</sup> | Novy Helena Catharina Daulima<sup>3</sup>

<sup>1</sup>RS Ketergantungan  
Obat Jakarta,  
Indonesia

<sup>2,3</sup>Fakultas Ilmu  
Keperawatan,  
Universitas Indonesia,  
Jawa Barat, Indonesia

### \*contact

rusmai.umay@gmail.com

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### Abstract

**Aims:** This literature review aims to theoretically analyze the rationale for developing this electronic application to cover all aspects of adolescent mental health life and as a promotive and preventive tool for adolescents with alcohol abusers.

**Methods:** The literature review method was carried out on ten articles which were obtained from five databases namely PUBMED, Google Scholar, ClinicalKey Nursing, ProQuest, Science Direct. The keywords for article search were "FAST (Fast alcohol screening test)", "electronic-based nursing care", "alcohol abuse", "adolescent". The criteria for articles considered included articles available in English and Indonesian and published between 2017 and 2023.

**Results:** This review shows that the use of FAST and electronic-based nursing care can improve the quality of nursing care.

**Conclusion:** The utilization of technology in the screening test process and electronic based nursing care in nursing care is one of the alternative problem solving and especially can improve the quality of nursing care.

### Keywords:

Adolescent, Alcohol Abuse, Electronic-Based Nursing Care, FAST (Fast alcohol screening test)

## INTRODUCTION

Adolescence is a period of transition that signifies the shift from childhood to adulthood, marked by notable psychological, physical, and sociocultural transformations. Adolescence spans from the age of 13 to 21 (1). These variable factors have the capacity to partake in undesirable activities, one of which is consuming alcoholic beverages. In this scenario, the normal progression of adolescent development is hindered by various factors, including experiencing emotions like disappointment, curiosity, and the desire to explore new things. Some adolescents may resort to using alcohol as a coping mechanism to escape from their problems and temporarily forget about the challenges they face in their everyday lives

(2). It is crucial to acknowledge that using drugs as a coping mechanism for stress carries severe repercussions that can result in the death of both the person and society at large. Reckless drug consumption can lead to mental and physical ailments, social issues, and perhaps fatal overdose. In order to tackle this issue, it is imperative to have a more profound comprehension of the experiences of those who resort to drug use as a means of dealing with stress or difficulties. Developing a comprehensive and efficient method to addressing these circumstances and offering suitable assistance to the individuals concerned is crucial. By comprehending their experiences and emotions, we can devise more effective and comprehensive intervention strategies to assist them in surmounting this issue. Previous studies

conducted in various countries have found that stress has a significant role in drug use as a way to cope with problems. Individuals experiencing emotional stress and facing high life pressure often seek ways to relieve the stress, and drug use is often considered as a temporary solution to the problems they are facing. In addition, social pressures, such as the presence of peers who use drugs, can also influence individuals to try drugs as a way to cope with the pressure (2).

In 2021, it is estimated that about 62% of those aged 21-25 in the United States will drink alcohol, the highest rate among all age groups. Those aged 21-25 also have the highest rates of concentrated alcohol use. While the legal drinking age in the United States starts at 21, unfortunately around 31% of those aged 18-20 are already alcohol users (3). In 2013, approximately 3.7 million individuals (i.e. 22% of the population) were identified as drug abusers in Indonesia. Then, in 2014, this figure faced an increase, with the National Narcotics Agency (BNN) estimating that around 3.2 million people in Indonesia (about 1.5% of the total population) had a history of drug use, with 46% of them related to alcohol consumption. According to data from the Office of Research and Development, alcohol consumption among adolescents ranging from 14 to 16 years old reached 47.7%, 17-20 years old reached 51.1%, and 21-24 years old reached 31% (1). With the high incidence of alcohol use among adolescents, promotive and preventive measures are needed, including early detection, prevention and education of adolescents with alcohol use. In cases of alcohol abuse, substance testing is also an important reference in determining medical and nursing diagnoses. Laboratory testing can be done as soon as possible, but it still takes time to wait for the results. Therefore, there is a need to develop electronic-based implementation in detecting alcohol abuse and determining appropriate interventions according to the patient's clinical problems, so nursing feels the need to develop rapid

screening of adolescent alcohol use detection and electronic-based nursing interventions. This was developed because in this era of society 5.0, gadgets/smart mobile are very commonly used by all parties. In this literature review, we will discuss several important points for developing this electronic application to reach all aspects of adolescent life and as a means of promotive and preventive for adolescents with alcohol abusers (4). This literature study describes the development of the implementation of early detection of FAST (Fast Alcohol Screening Test) and electronic-based nursing care for adolescents with alcohol abuse in improving the quality of nursing services including efficiency, patient-focused, effectiveness in order to develop promotive and preventive mental health nursing services on drug addiction.

## METHODS

This study applied the Literature Review method which refers to the interpretation of relevant literature references related to the subject of FAST (Fast Alcohol Screening Test), Electronic Based Nursing Care and adolescents with alcohol abuse through a systematic approach. The implementation of this search strategy had the objective of finding published articles, including the process of checking ten articles found through five different databases namely PubMed, Google Scholar, ClinicalKey Nursing, ProQuest, Science Direct. The terms used in the article search were "FAST (Fast alcohol screening test)", "electronic-based nursing care", "alcohol abuse", "adolescent". Acceptance of articles had a number of criteria applied, namely that the article must be written in English or Indonesian, and must have been published between 2017 and 2023.

To search for articles, keywords and Boolean logic operators such as OR, AND, NOT, and AND NOT were used. Keyword adjustments were in line with Medical Subject Heading (MeSH) such as FAST (Fast

alcohol screening test), electronic-based nursing care, alcohol abuse, adolescents. Critical appraisal was used to assess whether the articles were eligible. Articles met the inclusion criteria if they partially met (50%). To avoid bias in the validity of the review results and suggestions, the

authors excluded articles of poor quality. Based on the final screening, the articles used in the literature review totaled 10 articles. The results of the selection of review articles can be depicted in the diagram below:

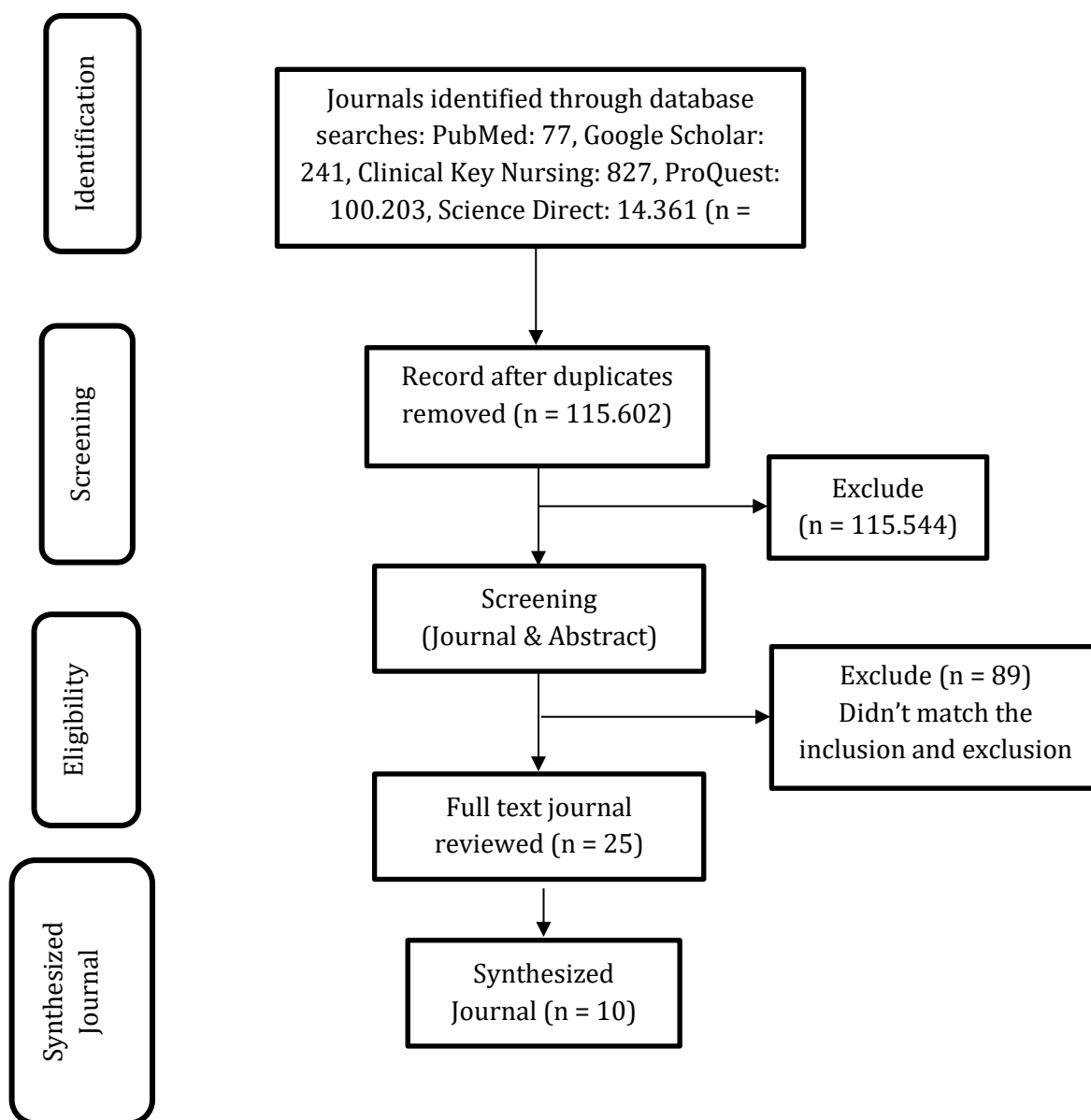


Figure 1. Literatur PRISMA

## RESULTS

### Data analysis

Systematic searches were conducted on PubMed, Google Scholar, ClinicalKey Nursing, ProQuest, and Science Direct databases. A search was conducted using the keywords "adolescent" or "teenager", FAST (Fast Alcohol Screening Test), electronic based nursing care, and alcohol abuse. This search yielded a total of 115,708 articles. These articles were then screened based on their type, year of publication, and availability of text. After excluding articles that were not relevant to the keywords and inappropriate results, a total of 115,602 articles were found. From these, 25 journals were identified as eligible. Out of them, only 10 journals satisfied the inclusion requirements.

### Critical Appraisal

Ten (10) articles that met the inclusion criteria were assessed by applying CASP. A

review of each article can be found in Table 1.

### Summary

The results of the literature review summary of the 10 articles accessed show that the development of FAST (Fast Alcohol Screening Test) implementation and electronic based nursing care can be effectively used in early detection of alcohol abuse in adolescents. The overview of the 10 articles has each advantages and disadvantages where the utilization of electronic tools in the delivery of nursing services is considered effective in improving service quality, efficient in time and cost and in accordance with developments in the current era of society 5.0. The disadvantages obtained from these articles include that not all of these electronic tools can be easily used in nursing service practice because it depends on the availability and capabilities of health facilities.

**Tabel 1. Development of Implementation of FAST (Fast Alcohol Screening Test) and Electronic-Based Nursing Care**

NO.	AUTHOR	TOPIC	METHODS	RESEARCH PLACE	PURPOSES	RESULTS
1.	Forsythe, Marcus et al (2012)	The evidence for implementing alcohol screening and intervention in the emergency department – Time to act.	<i>Randomized controlled trials</i>	Australia	Drug use as a way to cope with stress has serious repercussions, both on the individual and society as a whole. It is therefore important to have a deep understanding of the experiences of individuals who use drugs as a mechanism to cope with stress. This is important for developing a comprehensive and effective approach to addressing this issue.	While the need for screening and BI in emergency departments is clear, which screening and intervention types are effective and evidence-based is less clear. Although many studies show limited benefit from IB, most are single treatment centres that use heterogeneous approaches and interventions and provide unexplained positive outcomes in these control groups (3).
2.	Esposito Smythers, Christiann e et al (2017)	Randomized pilot trial of a cognitive behavioral alcohol, self-harm, and HIV prevention program for teens in mental health treatment.	<i>Randomized pilot trial</i>	USA	This study integrated techniques from two cognitive-behavioural protocols to initiate a specific high-risk behaviour prevention programme. Specifically, a randomised, controlled, repeated measures design was used to evaluate the primary effectiveness of a self- and HIV-harm behaviour prevention protocol (ASH-P) versus a control-only condition (AO-C assessment) for adolescents receiving mental health treatment.	As found in one report, ASH-P compared to AO-C was associated with greater openness and comfort in parent communication regarding alcohol/drug use (medium effect), suicide (medium to large effect) and gender (small effect). At 1 and 6-month follow-up compared with parents (and not adolescents). Adolescents in the ASH-P condition compared to the AO-C condition showed significant increases in perceived parental disapproval of alcohol use at month one and sexual intercourse at month one and month six (weak effects), but not of cannabis use. No significant differences in parental monitoring between groups were reported (5).



3.	Aris Mustofa, Ahmad et al (2023)	Experiences of Individuals Using Drugs as Coping.	<i>Qualytative study.</i>	Surabaya	Investigating the reasons behind drug use as a stress coping mechanism in individuals. This research is considered relevant given the significant increase in drug use from year to year, and this study aims to delve into it further to understand why drug users choose it as a solution or perspective in coping with stress in their lives.	The conclusion of this study is that individuals start using drugs as a coping mechanism after engaging in social experiences with peers, as an attempt to deal with pressure and negative emotions arising from stress. Individuals' motivation in taking drugs as a way to cope with this problem involves emotional, social, and avoidance aspects. However, it should be noted that drug use as a coping strategy carries negative impacts, including on individuals' physical health, mental health and social relationships. Factors such as a lack of ability to manage emotions, deficiencies in the use of adaptive coping strategies, and the influence of a social environment that supports drug use also play a role in encouraging individuals to rely on drugs as an unhealthy coping mechanism (2).
4.	Barbosa, Carolina et al (2020)	Alcohol screening and brief intervention in emergency departments: Review of the impact on healthcare costs and utilization.	Literature Review	USA	To review the published evidence on the impact of alcohol screening and brief interventions (SBIs) conducted in emergency departments (EDs) on healthcare utilisation and costs.	This literature review suggests that SBI delivered in the ED may be a cost-reducing approach in addressing excessive alcohol consumption, a factor that policy makers and payers may consider in prioritising interventions (6).
5.	Riley, Victoria et al (2022)	Alcohol and physical activity screening in the	<i>Observationa l study.</i>	UK	National data for the National Health Service (NHS) Health Check programme (in England), collected by University College London, Public	Findings showed a large discrepancy between the way alcohol measurements were recorded in patients' medical records and the way they were assessed in





		National Health Service Health Check programme: Comparison of medical records and actual practice.			Health England and NHS Digital, found that physical activity and alcohol were recorded in only 64.5% and 38.3% of patient records, respectively. We examined NHS Health Check video recordings of risk communication in the NHS Health Check study (collected in 2018 - 2019) to explore the measurement of alcohol and physical activity, comparing recorded and actual activity.	practice. Similarly, practitioners completed partial audits in less than half of the patients deemed eligible for further assessment. There was more consistency in the assessment of physical activity. The omitted questions, related to physical activity, were mostly around work-related physical activity (7).
6.	Hodgson, Ray J et al (2003)	Fast screening for alcohol misuse.	<i>Observational study.</i>	UK	The main focus of this study was on the Fast Alcohol Screening Test (FAST) questionnaire, developed from AUDIT, which was originally used in accident and emergency (A&E) departments, but has also been validated in various other settings.	A total of 2185 patients completed the questionnaire across 4 centres namely London (N=503), Southampton (N=852), Bristol (N=270) and Cardiff (N=560). The overall prevalence of alcohol misuse as determined by the AUDIT instrument in the study population was 843 out of 2,175 (38.8%). This is not representative of all A&E attendees as intoxicated patients were excluded from the study (8).
7.	Jin Bae, Sung et al (2022)	Validation of the screening test for at-risk drinking in an emergency department using a tablet computer.	<i>Cross sectional survey.</i>	Korea	This study aimed to evaluate the performance of STAD compared to other shortened versions of AUDIT for patients visiting the emergency department (ED).	For men, the optimal cut-off value on the STAD test was 3 points with a sensitivity of 83.1% (95% CI: 75.3-89.2) and specificity of 95.9% (95% CI: 91.2-98.5). For women, the optimal cut-off value was 2 points with a sensitivity of 95.9% (95% CI: 88.5-99.1) and specificity of 89.1% (95% CI: 83.9-93.0). The AUROC curve for STAD was 0.964 (95% CI: 0.934-0.983) for men and 0.980 (95% CI: 0.965-0.993) for women (9).
8.	Boucek, Lynn et al	Screening, brief intervention,	<i>Pre and post test</i>	USA	Aimed to evaluate the impact of SBIRT education on the knowledge	Nursing staff SBIRT screening knowledge scores increased from a mean of 3.05 pre-







	(2019)	and referral to treatment (SBIRT) education of residential care nursing staff: Impact on staff and residents			and attitudes of nursing staff regarding alcohol use, and alcohol use in the community.	training to a mean of 4.76 post-training (p<0.01). SBIRT brief intervention knowledge scores increased from a mean of 6.09 pre-training to a mean of 7.50 post-training (p < 0.01). SBIRT Nursing Staff Knowledge). The nursing staff's Alcohol and Alcohol Problem Perception Questionnaire (AAPPQ) scores increased significantly from pre-training to post-training for role adequacy (p = 0.014), role legitimacy (p = 0.001), and role support (p = 0.014). Their job satisfaction scores increased from pre-training to post-training to a lesser extent with a statistically significant increase (p = 0.049) (10).
9.	Naznin Sani, Mahbuba et al (2010)	Drug addiction among undergraduate students of private universities in Bangladesh	<i>Cross sectional study</i>	Bangladesh	To identify the current situation of drug abuse among students of private colleges. The researcher also wanted to find out the causes of drug addiction, what kind of drugs they use most often and whether they are really interested in undergoing treatment.	Out of 160 respondents, 15.62% of respondents experienced addiction due to failure in romance, 13.75% of respondents experienced addiction because they were trying to forget family problems, 38.75% of respondents experienced addiction because they were influenced by friends, and 31.88% of respondents experienced drug addiction because it was just an excuse to try something (11).
10.	Naumann B, Rebecca (2022)	Insights from system dynamics applications in addiction research: A scoping review	<i>PRISMA guidelines</i>	USA	Substance abuse and use disorders are dynamic and complex problems, situated within an interacting system of social, environmental, and neurobiological factors. System dynamics (SD) methods extend, test, and improve understanding of complex systems and can help inform effective action. We sought to	From a total of 59 articles with a median publication year of 2014. Besides using SD to understand the underlying complexities driving addiction-related trends, other frequently cited reasons for SD use included assessing the impact of potential actions (n = 35), predicting future trends (n = 28), and supporting strategic planning processes (n = 22). Most studies included



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systematically review the use of SD tools in addiction-related research.

simulation models (n = 43); however, some presented insights from qualitative SD diagrams (n = 9) and concept models (n = 6). The majority of studies focussed on stages leading to addiction potential: initiation/experimentation (n = 42) and onset of abuse (n = 38). A third (n = 20) involved people with direct experience or other stakeholders during the modelling process (12).

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## DISCUSSION

In the US, screening and early intervention are key and recommended by the National Institute for Health and Clinical Excellence report and with promising results from brief interventions, there is much that national organisations including the American Medical Association and Centres for Disease Control and Prevention can do to recommend routine screening and intervention for alcohol problems in patients in the emergency department (3). The use of screening and electronic based nursing care certainly affects the quality of nursing services. This is explained in several studies that explain that the development of electronic implementation is able to give an effective and efficient, targeted, functional impression of the main role of nurses. In a study conducted by Mustofa, drug use as a way to cope with stress began through experiments conducted with peers. This is due to the subject's drive to overcome the pressure and negative emotions arising from stress. The motivation for individuals to use drugs as a solution to these problems involves emotional, social, and avoidance aspects. However, it is important to remember that drug use as a way to cope with stress brings negative consequences such as physical health problems, mental health, and impact on interactions. Inability to manage emotions, lack of application of effective coping strategies, and pressure from a social environment that supports drug use also have a significant impact on an individual's tendency to use drugs as a way to cope with stress. For this reason, nursing has begun to develop screening and electronic based nursing care to address several addiction problems, especially in adolescents (2),

Similar research was also conducted by Jin Bae, Sung (13), in his research entitled validation of screening tests in patients with risk of alcohol use in the emergency department using tablet computers. This study aims to evaluate the performance of STAD compared to AUDIT for patients

visiting the emergency department (ED) obtained data in men, the optimal cut-off value for the STAD test is 3 points with a sensitivity of 83.1% (95% CI: 75.3-89.2) and specificity of 95.9% (95% CI: 91.2-98.5). For women, the optimal cut-off value was 2 points with a sensitivity of 95.9% (95% CI: 88.5-99.1) and specificity of 89.1% (95% CI: 83.9-93.0). The AUROC curve for STAD was 0.964 (95% CI: 0.934-0.983) for men and 0.980 (95% CI: 0.965-0.993) for women. It was concluded that the use of alcohol screening tests in patients at risk of alcohol use is important and beneficial to use in emergency department services.

Barbosa, Carolina (14) also suggested similar research results that SBI (screening Brief Intervention) delivered in the ED can be a cost-reducing approach in addressing excessive alcohol consumption, a factor that policy makers and payers may consider in prioritising interventions. Boucek, Lynn (15) reinforced the findings that nursing staff SBIRT screening knowledge scores increased from a mean of 3.05 pre-training to a mean of 4.76 post-training ( $p < 0.01$ ). SBIRT brief intervention knowledge scores increased from a mean of 6.09 pre-training to a mean of 7.50 post-training ( $p < 0.01$ ). SBIRT Nursing Staff Knowledge). The nursing staff's Alcohol and Alcohol Problem Perception Questionnaire (AAPPQ) scores increased significantly from pre-training to post-training for role adequacy ( $p = 0.014$ ), role legitimacy ( $p = 0.001$ ), and role support ( $p = 0.014$ ). Their job satisfaction scores increased from pre-training to post-training to a lesser extent with a statistically significant increase ( $p = 0.049$ ).

The development of this electronic implementation greatly reduces the number or operational costs in providing nursing services. This is emphasised because it is paperless so that it can save nursing service costs more efficiently. Improving the quality of nursing services is also the main goal of developing this technology. However, from some literature results, it is also obtained data that not all patients and health facilities can be applied to the development

of these technologies due to constraints with regulations, the ability of health facilities and some obstacles in the delivery of nursing services.

## CONCLUSION

Based on the ten (10) results of this study, the utilisation of technology in the process of early detection of FAST (Fast Alcohol Screening Test) and electronic-based nursing care in nursing care is an alternative to problem solving and can especially affect the quality of services provided to patients.

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