



The Influence of the Disc Triage Assessment Media on Triage Skills in Australasian Triage Scale (ATS) Among Nursing Students

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ABSTRACT

Triage Australasian Triage Scale is a tool used by triage nurses in emergency departments to assess patient severity and provide priority services based on the severity of the patient's condition. This study aims to evaluate the effect of using learning tools in the form of visual aids in the form of Disc triage assessment as learning media in increasing understanding and accuracy in determining triage by students using ATS triage. The research method used is quasi-experimental. The research sample was 44 students with educational treatment using Disc triage assessment media. Measurements were carried out using a pre-test and post-test 1 month later which included accuracy in determining patient priorities using ATS. Data analysis was performed using Wilcoxon test. Based on bivariate analysis, the p value is 0.000 (<0.05), which means that there is an influence of the Media Disc triage assessment on the Australasian Triage Scale (ATS) triage skills. That mean has a significant positive influence on improving students' skills in determining ATS, which shows that the use of this media can help nursing students understand and apply triage ATS better.

Keywords : *Disc Triage Assessment, learning media, triage skills, Australasian Triage Scale (ATS)*

1. INTRODUCTION

The Australasian Triage Scale (ATS) is a patient priority assessment tool used by triage personnel in emergency units in various countries, including Australia and New Zealand. ATS is used to assess the severity of a patient's condition and prioritize patient care based on the severity of their condition (Australasian College for Emergency Medicine, 2019).

Typically, triage training is conducted in person through lectures or face-to-face training methods. However, with the advancement of information technology, the use of instructional media such as videos or e-learning can also be used as an alternative

method for triage training (Pradanie et al., 2021)

The implementation of the ATS Triage in Indonesia has been carried out in several hospitals, including tertiary referral hospitals. One of the studies conducted in Indonesia was by Yusuf & Handayani, (2020), who implemented ATS in the emergency room of a referral hospital in Indonesia. The study's results indicate that ATS can be effectively implemented in Indonesia and can improve triage performance by reducing service time and increasing patient satisfaction. However, the study also identified some challenges in the implementation of ATS, such as a lack of sufficient training and understanding of the triage scale by the staff.

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Based on research conducted by Varndell et al. (2019) in Australia, only 35% of nurses correctly performed triage, 45% of nurses under-triaged, and 20% of nurses over-triaged.

A study conducted in Australia indicates that training in triage using videos is more effective in enhancing the knowledge and skills of triage personnel compared to in-person training. Meanwhile, another study conducted in New Zealand shows that the use of e-learning is also effective in improving the understanding and skills of triage personnel in using ATS (Boland & Staines, 2019; Pradanie et al., 2021).

Several studies have been carried out to evaluate the effectiveness of using instructional media in triage training, including the use of videos and e-learning. These studies demonstrate that the use of instructional media can enhance the understanding and skills of triage personnel in prioritizing patients using ATS (Pradanie et al., 2021).

In the use of instructional media, it is important to pay attention to the appropriate design and development of learning materials in order to achieve the intended training goals. Therefore, further research is needed to evaluate the most effective design and development of instructional media in triage training using ATS (Taylor et al., 2019)

A study conducted by Retnayu Pradanie and her team in Indonesia in 2021 aimed to evaluate the effectiveness of using videos as instructional media in triage training using ATS. This research was conducted on 42 triage personnel in the emergency unit of the Gatot Soebroto Central Army Hospital in Jakarta, using a pre-test and post-test research design (Pradanie et al., 2021).

The research results indicate a significant improvement in the skills of triage personnel after training with video. Furthermore, the majority of respondents also stated that video is an effective instructional medium and facilitates the understanding of the material (Haines & Long, 2013).

One of the learning methods that can be used to enhance the understanding and skills of triage personnel in using ATS is through the use

of teaching aids. Several studies have been conducted to evaluate the effectiveness of using teaching aids in triage training using ATS. These studies show that the use of teaching aids can improve the understanding and skills of triage personnel in prioritizing patients using ATS (Haines & Long, 2013).

A study conducted in Australia indicates that the use of teaching aids is more effective in enhancing the skills of triage personnel in using ATS compared to in-person training without teaching aids. The study also shows that the use of teaching aids can boost the confidence of triage personnel in prioritizing patients (Bhanji et al., 2010).

A preliminary study conducted among the 2020 cohort of Diploma Three Nursing students at Kusuma Husada University showed that triage material had been presented to the students. However, the average accuracy when determining patient triage was 60%, and most students had limited prior experience with the ATS triage method. Additionally, this study indicates that the use of teaching aids has the potential to improve the effectiveness of learning the ATS triage method among students, with the aim of identifying whether the use of teaching aids can enhance the effectiveness of ATS triage method learning for students.

In the use of teaching aids, it is important to pay attention to the appropriate design and development of these aids in order to achieve the intended training goals. Therefore, further research is needed to evaluate the most effective design and development of teaching aids in triage training using ATS, specifically utilizing the Disc Triage Assessment media.

2. RESEARCH METHOD

This research utilizes a quantitative method with a Quasi-experimental design, which is a type of quantitative research design with a pre-test and post-test group design. The population in this study consists of all students in the Nursing Program Diploma Three, Faculty of Health Sciences at Kusuma Husada University in Surakarta. The sampling technique employed is purposive sampling,

with inclusion criteria being students who have completed the triage course, have good reading and writing skills, are willing to voluntarily participate in the study and provide the necessary information, and do not have a history of diseases that can affect cognitive performance. Exclusion criteria include students who did not take the pre-test and/or post-test.

The univariate analysis of this study includes variables such as name, age, educational level, gender, and previous knowledge about ATS Triage. Therefore, the research sample consists of 44 respondents. The results can be presented in the form of pie charts, graphs, and other visual representations. Bivariate analysis is used to examine the relationship between two variables, and the statistical test employed is the Wilcoxon signed-rank test. Furthermore, the researcher has obtained ethical approval from Kusuma Husada University in Surakarta with reference number 062/UKHL.02/EC/IX/2022.

3. RESULT AND DISCUSSION

This research was conducted from February 13, 2023, to March 13, 2023. The research consisted of three phases: pre-intervention, intervention, and post-intervention. During the pre-intervention phase, data collection could be carried out using questionnaires or pre-tests. Additionally, observations were made to directly assess how students applied ATS triage in simulated cases. In the intervention phase, the Disc Triage Assessment instructional media was introduced. In the post-intervention phase, data was collected after the intervention to assess whether the level of triage skills in performing ATS triage had improved. The post-test was administered seven days after the intervention phase.

Based on research ethics, research subjects are provided with comprehensive information about the research's objectives and have the right to freely participate or refuse to become respondents. Regarding the confidentiality of identities, researchers can use coding or initials in place of respondents' identities. Additionally, researchers ensure the confidentiality of information, with only

specific data being reported. Researchers explain the research in accordance with research procedures to obtain useful results for the research subjects and consider the potential risks to respondents. Furthermore, researchers treat respondents fairly before, during, and after their participation in the study and do not discriminate if they are unwilling to be respondents or are withdrawn from the study.

Here is the design and description of the Disc Triage Assessment instructional media. Figure 1 shows the front view of Disc Triage Assessment, and Figure 2 shows the back view of Disc Triage Assessment.

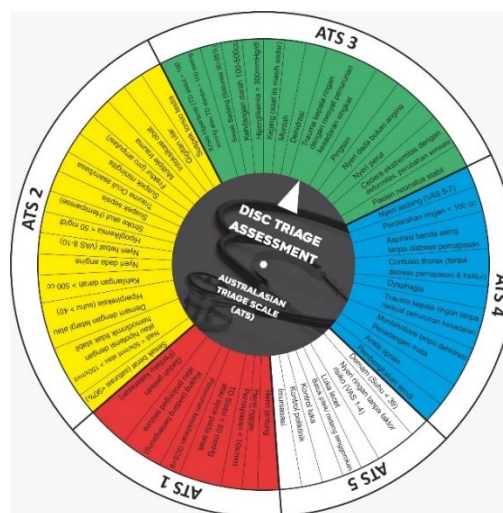


Image 1. The Front View of Disc Triage Assessment

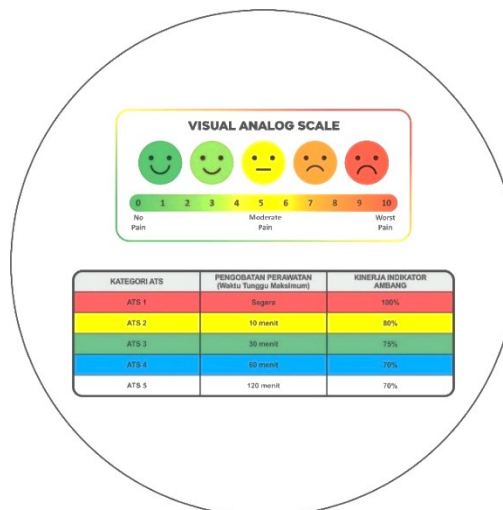


Image 2. The Back View of Disc Triage Assessment

Table 1 presents the distribution of respondent characteristics.

Table 1. Frequency Distribution of Characteristics

No	Characteristics	Categori	f	%
1	Gender	Male	2	4,5
		Female	42	95,5
		Total	44	100,0
2	Age	19 years	1	2,3
		20 years	4	9,1
		21 years	31	70,5
		22 years	6	13,6
		23 years	2	4,5
		Total	44	100,0
3	Experience in BTCLS	Yes	44	100,0
		No	0	0
		Total	44	100,0
4	Clinical Practice Experience	< 1 years	0	0
		1-2 years	44	100,0
		> 2 years	0	0
		Total	44	100,0

In Table 1, the frequency of respondents in this study by gender shows that there are 2 male respondents (4.5%) and 42 female respondents (95.5%). The distribution of respondents by age is as follows: 1 respondent (2.3%) is 19 years old, 4 respondents (9.1%) are 20 years old, 31 respondents (70.5%) are 21 years old, 6 respondents (13.6%) are 22 years old, and 2 respondents (4.5%) are 23 years old. Regarding the experience in BTCLS, all 44 respondents (100%) have undergone Basic Trauma & Cardiovascular Life Support (BTCLS) training. In terms of clinical practice experience, all 44 respondents (100%) have clinical practice experience for 1-2 years.

Based on a study of nurses in Canada and the United States, there is a similar distribution of gender among nurses, with female nurses comprising the majority of active working nurses, ranging from 90.9% to 95% (Meadus R, Twomey J., 2017). Furthermore, the research results show no significant relationship between knowledge of triage, work experience, training that includes triage, BLS, ALS, BTLs, ACLS, and Disaster Management,

and triage decision-making. However, a significant relationship exists between skills, level of education, General Emergency Life Support (GELS) training, and triage decision-making (Rahmanto et al., 2021).

Table 2. Frequency of ATS Triage Skills Before the Introduction of the Disc Triage Assessment Media

Criteria	Total	Percentage (%)
Adequate	7	15,9
Inadequate	37	84,1
Total	44	100,0

Based on Table 2, it is evident that the frequency of ATS Triage Skills before the introduction of the Disc Triage Assessment media falls into two categories: Adequate, with 7 respondents (15.9%), and Inadequate, with 37 respondents (84.1%).

One of the factors that can enhance respondents' knowledge is education and information media. Public knowledge about a particular subject can be improved through education and information dissemination (Budiman, 2013). This research can explain that providing education and imparting skills regarding the technique of determining triage using teaching aids. Innovative, creative, and enjoyable teaching methods make it easier for students to understand the material. Improved accuracy in patient triage can help enhance the survival rate of patients in hospitals.

This is because the majority of nurses working in the emergency department have not received specific training in triage knowledge, and nurses' work experience can contribute to their knowledge. However, the current results are lower than those found in a study conducted in Sweden, where nurses' work experience was a contributing factor to triage knowledge. In this study, 79.2% of the respondents had less than 3 years of work experience in the emergency department. This conclusion aligns with the findings of a study in Pakistan, although the results are lower than those in that study (Fathoni et al., 2013).

Table 3. Frequency of ATS Triage Skills After the Introduction of the Disc Triage Assessment Media

Criteria	Total	Percentage (%)
Good	27	61.4
Adequate	17	38.6
Total	44	100,0

Based on Table 3, it is evident that the frequency of ATS Triage Skills after the introduction of the Disc Triage Assessment media falls into two categories: Good, with 27 respondents (61.4%), and Adequate, with 17 respondents (38.6%).

According to Notoatmodjo (2005), one of the factors influencing the success of learning is the selection of appropriate teaching methods. The choice of teaching method can be influenced by the size of the participant group. These methods can be divided into three categories: individual, group, and mass education. The selection of the teaching method depends on the goals, the trainer's or teacher's capabilities, the size of the target group, the duration of teaching, and the available facilities.

On the other hand, research conducted by Khairina (2018) on factors related to nurses' accuracy in triage decision-making found that length of work experience is the most dominant factor, with a p-value of 0.012 and an odds ratio of 17.856 (Khairina et al., 2018)

Table 4. Wilcoxon Test Results on the Influence of the Disc Triage Assessment Media on the Skill of Determining the Australasian Triage Scale (ATS)

Variable	P Value	N
Pre	0,000	44
Post		

Based on Table 4, it is evident that the p-value is 0.000 (<0.05), indicating an influence of the Disc Triage Assessment Media on the skill of determining the Australasian Triage Scale (ATS) among students at Kusuma Husada University, Surakarta. The analysis

shows that the Disc Triage Assessment Media has an impact on the skill of determining the Australasian Triage Scale (ATS) among students at Kusuma Husada University, Surakarta.

From the percentages, it can be concluded that there was an improvement in student learning activities from the first to the second meeting, and the percentage of activity in determining patient triage using ATS falls into the "good" category with a percentage range of 76%-100%. Therefore, the teaching and learning process in the classroom using the Disc Triage Assessment media falls into the "good" category. Consequently, students' active learning activities support and enhance the learning process, particularly in determining patient triage during class.

For a nurse working in the emergency department, it is crucial to undergo specialized training, particularly in the context of triage. The College of Emergency Nursing Australia (2007) provides guidelines that constitute the core components for nurse triage selection, including history, knowledge, and practical applied triage, such as the appropriate use of triage based on the hospital's conditions, communication skills, primary and secondary surveys, assessments, and triage decision-making related to patient conditions, such as trauma patients, pediatric patients, obstetrics, and gynecology (College of Emergency Nursing Australia (CENA), 2007).

High-level nursing education and competence enhance a nurse's ability to conduct rapid and accurate triage assessments. Nurses with advanced education and competence in triage-related areas can improve a nurse's ability to make triage decisions in the emergency department. This high level of education and competence serves as the primary foundation for nurses to assess the appropriate triage category according to the patient's condition, ultimately enhancing nurse performance and patient outcomes (Kerie et al., 2018).

A more detailed description of the improvement in the accuracy of students in determining ATS Triage categories is as follows:

Table 5. Rank Test Results on the Influence of the Disc Triage Assessment Media on the Skill of Determining the Australasian Triage Scale (ATS)

Criteria	Total	Percentage (%)
Negative Rank	0	0
Positive Rank	44	100,0
Ties	0	0
Total	44	100,0

The description of the improvement in the accuracy of students in determining ATS Triage categories, as shown in the Rank Test results of the Influence of the Disc Triage Assessment Media on the Skill of Determining the Australasian Triage Scale (ATS), indicates that there are no Negative Ranks, meaning there was no decrease in scores for the respondents. There are also no Ties, indicating that no pre and post intervention values were the same for each respondent. Instead, all 44 respondents (100%) experienced an increase in scores from pre to post-intervention.

According to the research by Patriani et al., (2021), the majority of their respondents (63.6%) had worked for less than 11 years, and most respondents (54.5%) possessed the necessary skills to perform triage. There is a significant relationship between years of experience and triage accuracy ($p < 0.002$; $\alpha < 0.05$), with an odds ratio of 0.28. This means that nurses with more than 11 years of experience tend to perform triage matching 0.28 times more accurately.

This change may be attributed to the frequent job rotations in research, causing nurses to spend less time in the emergency department. Classification training has a significant relationship with classification skills. This is demonstrated by how training can help nurses practice effectively. The knowledge and classification skills of the study participants are influenced by nurses' work experience, education, training, and classification experience. These results are consistent with other studies (Afaya et al., 2017; Carpenter et al., 2014; Fathoni et al., 2013). This is also supported by the fact that having experience,

higher education, triage training, and triage experience can enhance a nurse's ability to acquire skills.

Research involving 100 nurses in three teaching hospitals in Pakistan found that 69% of the nurses had poor knowledge of triage, and correct triage decision-making was at 43.22% (Ali et al., 2013). It is crucial to establish a continuous training program aimed at improving the knowledge of nurses working in the emergency department or nursing students.

CONCLUSION

The results of using the Disc Triage Assessment media show that the p-value is 0.000 (< 0.05), indicating a significant positive influence of the Disc Triage Assessment Media on the skill of determining the Australasian Triage Scale (ATS) among students at Kusuma Husada University, Surakarta. This signifies a positive and significant impact on the improvement of students' skills in determining the Australasian Triage Scale (ATS). It demonstrates that the use of this media can assist students in better understanding and applying the triage scale.

RECOMMENDATION

The integration of more engaging and relevant interactive or multimedia elements can be a focus for future development. Similar research should ideally be conducted on a broader population, including students from other educational institutions or healthcare professions. This would provide a more holistic understanding of the impact of the Disc Triage Assessment media on triage skills among students and healthcare professionals. The implementation of the Disc Triage Assessment media in nursing education curricula should be considered more broadly, including its integration into relevant learning materials and the allocation of adequate time. This can ensure that students have sufficient understanding and skills to apply the ATS in clinical practice.

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