

First Aid E-book for Injuries in Karate

Danardono Danardono^{1,*} Nevita Ariani²

¹ Postgraduate, Sebelas Maret State University Surakarta

² Faculty of Sport Science, Yogyakarta State University

*Corresponding author: Danardono Email: dandono76@gmail.com

ABSTRACT

This study aims to develop a product in the form of an e-book on how to perform first aid on karate injuries, instructors, athletes, and the general public, and to provide information about the importance of performing first aid in karate. The research method employed in this study is Research and Development (R&D) with a 4D development model. The data are collected using the Delphi Technique method. The subjects in this study are ten people who are injury specialists and certified karate coaches. The results of the study and development of the first aid e-book for injuries in karate indicate that in aspect 1, the relevance in managing injuries with objectives shows the Aiken's V coefficient value of 0,966, in aspect 2, the clarity of pictures and videos shows the Aiken's V coefficient value of 0,866, in aspect 3, the clarity of the procedures in managing injuries shows the Aiken's V coefficient value of 0,966, in aspect 4, the media practicability shows the Aiken's V coefficient value of 0,866, and in aspect 5, the injury relevance with karate shows the Aiken's V coefficient value of 0,833. Because the minimum standard of the Aiken's V coefficient value for this study is 0,76, it can be concluded that all aspects are valid and the first aid e-book for injuries in karate is appropriate and can be used as a reference to perform first aid on injuries in karate.

Keywords: First Aid, Injury, Karate.

1. INTRODUCTION

Karate is a martial art originating from Japan. In the past, karate was a form of a fight that was modified into a martial art to protect oneself from dangers and unexpected attacks from enemies. Karate has been introduced since 1921 in Japan [1]. Karate develops rapidly in the modern era, because it is an interesting sport, can be done by everyone and everywhere, does not require any special equipment, and is an achievement oriented sport [2]. For the first time, karate is included in the 23rd Olympics which was held in Tokyo [3]. There are three stages that must be learned in karate which are, kihon, kata, and kumite. Kihon is basic movements that must be learned thoroughly in order to proceed to the next stages, kata is sets of movement that has been determined to be done without any opponent, and then kumite is a sparring between two karateka which includes offensive and defensive movements in order to win.

As other sports, to gain desired achievements, a karateka has to combine a good physical [5], technical, tactical, and mental condition in order to achieve maximum achievements [6],[7],[8]. Physical preparation

with systematic and programmed training can improve physiological potencies [9],[10] and athletes' bio motor to the highest standard. Therefore, karate coaches must pay attention to general and specific physical preparation, in a way that the performance of karate athletes can be achieved optimally. Moreover, athletes who have good physical conditions will be outclassed in mastering techniques and tactics, so that in the practice, a good physical condition will support techniques and tactics to prevent an athlete getting injured. The negative thing that needs to be considered in karate is injury, because it can obstruct an athlete to reach its peak of achievements. If karate athletes have injured their parts of the body, it will prevent the athletes from gaining their desired achievements. Injuries can occur anytime and anywhere. Injuries can occur during trainings, learnings, competitions, or during heavy daily activities [12]. It can also occur in any part of the human body from minor to major injuries. That can disturb activities, if it is not quickly and properly treated [13].

Factors that can cause injuries are collisions during training or competition, overuse, muscle fatigue, sparing opponents, lack of experience, performing wrong techniques, harmful facilities and infrastructures used

during training or competitions [14],[15],[16]. Moreover, generally, injuries can also occur during sports learning classes or informal competitions [17].

The lack of understanding about injuries and the ways to manage it can lead to damaging consequences. It can harm the karateka because of the slowness in managing the injuries that also can cause fatal effects to the people who do karate. In fact, there has been a source of information that can be used as a reference for karateka to understand types of injuries and ways to manage it correctly in the form of books or videos on social networks. However, that way of gathering information is still considered as difficult for some people. And, there has been a limited number of books written specially about types of injuries and ways to manage the injuries in karate. The appearances of other sources of information about types and ways to manage injuries are less appealing and it also needs an Internet connection to access it. The books which are printed conventionally are large in size in a way that it makes it less accessible to the reader to be carried everywhere to read it. There is also unequal understanding of technology and information among the general public.

The objectives of this study is to test the first air e-book for injuries in karate, to provide a reference and knowledge for karateka and general public on how to perform first aid procedures for injuries in karate, and to inform the importance of performing first aid procedures for injuries in karate

2. METHODS

2.1. Study Design and Participants

This study is a research and development study in which it is done to produce a product and to test it [18]. In this development study, the product developed is a first aid e-book for injuries in karate. The authors focus on developing a source and learning media for people who do karate or public in general in the form of an e-book entitled First Aid E-book for Injuries in Karate. The development research model chosen is the research model developed by Thiagarajan which is a 4D model that procedurally includes define, design, development, and decimation [18].

2.2. Data Collection and Analysis

The data are collected using the Delphi Technique method. The subjects in this study are ten people who are injury specialists and certified karate coaches. The data collection technique uses the Likert scale (1 – 4) which is described into categories of Appropriate, Slightly Appropriate, Slightly Inappropriate, and Inappropriate.

The data is analyzed using Aiken’s V formula (1985). The Aiken V formula is presented as follows:

$$V = \frac{\sum s_n}{c-1}$$

$$s = r - l_o$$

Where :

l_o = The lowest validity score (1)

c = The highest validity score (4)

r = The score given by an evaluator.

After the calculation, it is resulted in index V. Aiken also provides guidelines for accepting or rejecting items being analyzed. It can be seen in Table V [19].

3. RESULTS

In the initial process of the development, the product is designed and produced as a product in the form of an first aid e-book for injuries in karate which aims to help provide understanding, knowledge, and references for karate coaches, athletes, and general public to perform first aid for injuries in karate, so that the injuries do not end badly or fatal. The process of making this e-book is through the procedures of research & development. The procedures include the process of planning, producing, and evaluating. Then, the product is developed using Microsoft Office and Corel Draw 2018.

After the process of development is done, the product is validated by 10 experts. The results of the expert assessment are as follows:

Table 1. The results of expert assessment

Penilai	Aspek 1		Aspek 2		Aspek 3		Aspek 4		Aspek 5	
	skor	s	skor	s	skor	s	skor	s	skor	s
A	4	3	4	3	4	3	4	3	4	3
B	3	2	3	2	3	2	3	2	3	2
C	4	3	4	3	4	3	4	3	4	3
D	4	3	4	3	4	3	4	2	3	2
E	4	3	3	2	4	3	4	3	3	2
F	4	3	4	3	4	3	4	2	4	3
G	4	3	3	2	4	3	4	3	4	3
H	4	3	4	3	4	3	4	3	4	3
I	4	3	4	3	4	3	4	2	3	2
J	4	3	3	2	4	3	4	3	3	2
Σ S	29		26		29		26		25	
V	0,96666667		0,86666667		0,96666667		0,86666667		0,83333333	

Based on Table 1, in aspect 1, the relevance in managing injuries with objectives shows the Aiken’s V coefficient value of 0,966, in aspect 2, the clarity of pictures and videos shows the Aiken’s V coefficient value of 0,866, in aspect 3, the clarity of the procedures in managing injuries shows the Aiken’s V coefficient value of 0,966, in aspect 4, the media practicability shows the Aiken’s V coefficient value of 0,866, and in aspect 5, the injury relevance with karate shows the Aiken’s V coefficient value of 0,833. Aiken’s V coefficient value ranges from 0 – 1. The minimum standard of the Aiken’s V coefficient value in this study is 0,76. It means that all aspects are valid or appropriate. According to those results, this e-book can be used as a reference to perform first aid procedures for injuries in karate, hence it is hoped that coaches or public in

general can perform first aid quickly and accurately in order to prevent further fatal injuries which can damage certain sides. The percentages of expert assessment results can be seen in Figure 1

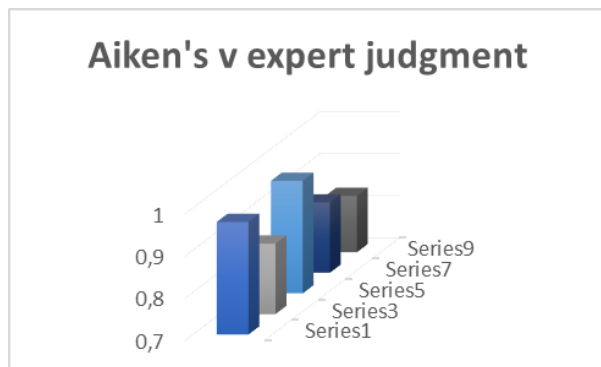


Figure 1. The results of expert assessment

In Figure 1, it shows that the minimum standard of Aiken's V coefficient value in this study is 0,76. It indicates that all aspects are valid or appropriate. The assessment also points out the strength and weak points found in the e-book from the experts. The Strength Points of the First Aid E-book for Injuries in Karate are as follows: a) It is accessible, b)The size of the file is small (8.5 MB), c. The design and the look are appealing, d. The look is simple and clear, d. It provides videos of procedures in managing injuries, e. It helps coaches or the general public (parents) to understand the first aid for injuries in karate.

The Weak Points of the First Aid E-book for Injuries in Karate are as follows: a) In order to play the videos in the e-book, it must be connected to an Internet connection. b) There are some terms that are less familiar and difficult to understand by people in general

4. DISCUSSION

Injuries are health problems that are often ignored [20],[21]. Nearly about 4,7 millions people are dead every year because of unintentional or intentional injuries. That number contributes 8,5% of total deaths globally [22],[23]. Non-fatal injuries happen more frequently than fatal injuries, and it leads to more significant impacts regarding disability, productivity, treatment cost, and rehabilitation [24]. From those explanations, it can be concluded that non-fatal occur more frequently and are usually ignored.

Performing first aid in injuries is a secondary preventive action which should be done immediately after the injuries occur by trained doctors and first responders, thus it results in better conditions for the injured victims. First Aid for a Safer Future (IFRC) states that emergency first aid cannot replace professional emergency health service, but it is an important initial response by doing it rapidly and effectively to reduce serious injuries and increase the

chances of survival [25]. To be effective, first aid must be given immediately after the incident. For example, cardiopulmonary resuscitation performed immediately after a heart attack can double a person's chances to live, because it helps maintain vital blood flows to the heart and brain [25]. Moreover, a direct application of cold running water for 20 minutes can stop burn processes and it affects positively on the burns [26]. Studies conducted in developed countries on non-fatal injuries have reported that first aid plays an important role in decreasing numbers of deaths [27]. In some developed countries, some studies have shown that first aid managed by non-trained rescuers (such as caregivers or bystanders) or trained rescuers is more important to prevent deaths and more serious impacts [27],[28],[29]. Studies on non-fatal injuries such as burns, blunt trauma, traffic incidents in high income countries have found a significant mortality rate when first aid is performed [76],[29],[30].

First aid may play an important role in reducing the severity of injuries and increasing the chances of survival [27]. First aid procedures from trained rescuers increase the chances of recovery among severely injured and hospitalized individuals. It implies that proper and correct first aid is important. First aid training for public in general is needed and the government should have a more dynamical approach to promote compulsory first aid learning in school, during applying for driver licenses, in workplace, in communities with more fresh and approachable courses [30],[31],[32],[33],[34],[35],[36].

In conclusion, the importance of performing first aid for athletes should be widely known. It is in line with the expected purposes of this study that it provides references and knowledge for karateka and the public in general about how to perform first aid for injuries in karate, and to provide an understanding about the importance of performing first aid for injuries in karate.

5. CONCLUSIONS

The relevance in managing injuries with objectives shows the Aiken's V coefficient value of 0,966, the clarity of pictures and videos shows the Aiken's V coefficient value of 0,866, the clarity of the procedures in managing injuries shows the Aiken's V coefficient value of 0,966, the media practicability shows the Aiken's V coefficient value of 0,866, and the injury relevance with karate shows the Aiken's V coefficient value of 0,833. The minimum standard of the Aiken's V coefficient value in this study is 0,76. It means that all aspects are valid or appropriate. Based on those results, the First Aid E-book for Injuries in Karate can be used as a reference to perform first aid procedures for injuries in karate.

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