

# Sports Injury First Aid Behavior of Martial Arts Student Club Members

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**Keywords:** First Aid, Knowledge, Martial Arts, Sports Injuries

**Abstract:** Introduction: The members of Universitas Airlangga's Martial Arts Student Clubs mostly have soft-tissue injuries. The purpose of this research was to explain the factors related to the behavior of Student Club martial arts members in the first aid of sports injury. Method: This research used descriptive analytics with a cross-sectional approach. The sampling technique used was cluster sampling with 60 respondents. Data collection: Data was obtained from the questionnaire and analyzed by descriptive and bivariate analysis using significance level  $\leq 0.05$  with Spearman's rho test. Results: Knowledge related with attitude ( $p = 0.000$  ( $p < 0.05$ )  $r = 0.459$ ). Knowledge related with subjective norm ( $p = 0.002$   $r = 0.390$ ). Knowledge related with perceived behavioural control (PBC) ( $p = 0.000$   $r = 0.452$ ). Attitude related with intention ( $p = 0.000$   $r = 0.498$ ). Subjective norm related with intention ( $p = 0.000$   $r = 0.593$ ). PBC related with intention ( $p = 0.000$   $r = 0.494$ ). There was no relationship of intention and action ( $p = 0.117$   $r = 0.205$ ). PBC related with action ( $p = 0.000$   $r = 0.579$ ) Discussion: The better the member's knowledge, the more positive their attitude. The athlete's knowledge, and perception and motivation to take action, was derived from the athlete's coach.

## 1 BACKGROUND

Martial arts are included in the body sports body contact group, which means sports between athletes who face each other directly without a barrier, causing a very high risk of injury (Usra 2012). The risk of sports injuries occurs in all ages and athletes' levels, with patients receiving medical care at sports injury clinics ranging from beginner to professional athletes. Although medical personnel can identify the mechanisms of injury and pathoanatomic relations or diagnoses, the consequences will differ greatly between athletes; for example, if the athlete is a professional these will be a great risk of loss of income and of losing the contract and even a career (Rolf 2007).

Sports injuries need to be treated with adequate first aid to minimize the symptoms of severity. According to Sumartiningih (2012) inadequate first handling of injuries and injury treatment can greatly harm the athlete, due to limitations of movement caused by the injury during exercise. Research Hurun'in (2016) at the student club of martial arts athletes Universitas Airlangga showed that most athletes when injured to massage directly on areas of soft tissue injury. The theory of planned behavior is

one theory that can analyze and predict the behavior of martial arts athletes in the first handling of injury. But until now the factors related to the behavior of martial art athletes at Universitas Airlangga in the first handling of sports injuries based on the theory of planned behavior has been unknown and has not been explained.

Preliminary study data through interviews about the first handling of sports injuries was collected from 20 martial arts athletes from student clubs of Karate Beladiri, Shorinji Kempo, Pencak Silat, and Taekwondo. On March 20-21, 2017, 30% of athletes performed a direct massage on the injuries, while 25% of athletes applied a cold pack, 25% of athletes let their injuries untreated, 15% of athletes did massage and applied a compress, and 5% of athletes did a dressing/bandaging to provide compression. According to a survey conducted by McPherson & Pickett (2010) in Canada, sports injuries on martial arts in terms of injury.

The four martial arts reported according to the type of injury that most often occurs; almost half are seriously injured in Karate and required care and follow-up. Research Hurun'in (2016) showed that in Universitas Airlangga that martial arts athletes most often experience sprain 26.7%, and injury fracture

1.7%. The results of the preliminary study by researchers on March 20-21, 2017, with the heads of martial arts, i.e. Karate, Shorinji Kempo, Pencak Silat PSHT, and Taekwondo, showed that 30% of athletes suffered sprain injuries, 25% of athletes had bruises, and 35% had bruises as well as sprains, and 10% of athletes had muscle cramps.

The cause of sports injury should be noted, so the athlete can avoid the possibility of a sports injury. The complex lateral ligament of the ankle is the most commonly injured structure in the body. Although sprain on the ankle is the simplest injury that does not cause long-term disability, if it cannot be completely resolved, it causes residual symptoms that can last for years and become the most reported symptoms.

The first handling of injury and adequate injury care is a behavior undertaken to prevent athletes from re-injury at any given time (Sumartiningsih 2012). The simplest first handling is do P.R.I.C.E.D. (Protect, Rest, Ice, Compress, Elevate) no H.A.R.M. for soft-tissue injuries such as muscles or tendons and ligaments. If this injury is not treated properly, it can cause chronic disability or recurrent injuries (Norris 2011). It is necessary to immobilize fracture injuries and await expert handling (Kaur 2016). According to Arovah (2010) first handling of bruising injuries and muscle cramps require compression, ice, and rest. Dislocation injuries should be repositioned by experts, and after repositioning can be fixed on the joints' (Meeuwisse 1994; Arovah 2010).

Based on the theory of planned behavior, intent is required to perform a behavior. Intention to conduct a behavior can be measured through three main predictors that influence the intention of attitude toward behavior, which in this research are called attitude, subjective norm, and perceived behavioral control (Ajzen 2005). The purpose of this study was to reveal the factor that affects the action and directs the intention [or 'the factors that affect the action and direct the intention'] for the first treatment of injury to martial artists so that the treatment will be adequate and the risk of recurrence injury can be prevented for maximum performance.

## 2 METHODS

This research used descriptive analytics design research with a cross-sectional approach. It assesses the relationship or correlation between independent and dependent variables one at a time (Nursalam 2016). The independent variables were background factors (factors of cause/support) and information factors (knowledge), and the dependent variables

were three factors and main predictors (attitude toward the behavior, subjective norm, perceived behavioral control) and intention in behavior of martial arts injury handlers.

## 3 RESULTS

The results of the research that has been done include the general description of the respondents' location and the characteristics of the respondents, and the specific data include knowledge, attitude toward the behavior, subjective norm, perceived behavioral control, intention/action, and athlete's action in the first handling of sports injury. The research was conducted at Campus C Student Center in the martial arts divisions of Student Club, Universitas Airlangga, consisting of Jujitsu, Kempo, Taekwondo, PSHT, Tapak Suci and Perisai Diri, Merpati Putih, and Karate.

Most of the martial arts athletes are active students of Universitas Airlangga. Student Clubs also accepts athletes who are not students of Universitas Airlangga such as alumni, students other than those of Universitas Airlangga, junior high school students, high school students, and workers, but non-university student athletes member of Universitas Airlangga Student Club, but only has the interest of practicing martial arts for other class matches. The trainers are Student Club alumni who have a lot of experience in training and martial arts. Most of the trainers have attended the upgrading of local and senior student club trainers, for example athletes who are not actively competing and becoming assistant coaches.

Every Student Club does martial arts training twice a week. The duration of the exercise is 2-3 hours depending on the training materials to be delivered. The frequency and duration of the exercise can increase or increase in intensity during game preparation. The exercise routine is twice a week, and the preparation for the practice game goes up to six times a week. The Student Club martial arts training ground in the Student Center has been provided with a mattress room with a schedule according to the agreement of all martial arts chairmen. When match preparation and use of the mattress room is not scheduled, then martial arts athletes can practice anywhere around the Student Center building.

Each martial arts Student Club division has been equipped with martial arts protective equipment such as headgear, body protectors, protective foot padding/shinguard/foot-protectors, fingers protection (gloves), and hand-protectors. Most of the protective equipment in the Student Club martial arts division

Table 1: The number of injuries experienced by martial arts athletes.

Type of Injury	n	(%)
Sprain and strain	10	16.7
Muscle Cramp	16	26.7
Bruise	26	43.3
Dislocation	6	10
Fracture	2	3.3
Total	60	100

Table 2: Variables measurement.

Variable	n	(%)
<b>Knowledge</b>		
Poor (<60%)	12	20
Average (60-75)%	23	38.3
Good (75-100)%	25	41.7
<b>Attitude</b>		
Positive	28	46.7
Negative	32	53.3
<b>Subjective Norm</b>		
Low (6-36)	7	11.7
Moderate (37-66)	49	81.7
High (67-96)	4	6.6
<b>PBC</b>		
Weak (6-36)	17	28.3
Moderate (37-66)	41	68.3
Strong (67-96)	2	3.3
<b>Intention</b>		
Weak (6-12)	7	11.7
Moderate (13-18)	37	61.7
Strong (19-24)	16	26.7
<b>Action</b>		
Poor (6-12)	15	25.0
Average (13-18)	40	66.7
Good (19-24)	5	8.3

is not sufficient for the number of athletes, so there are athletes wearing old protectors, and conditions are not perfect.

Demographic data of members of the Student Club martial arts division, Universitas Airlangga, as follows: Taekwondo has the highest number of athletes with 15 (25%); this is because Taekwondo athletes are very active in practicing. A small number of martial arts athletes from Perisai Diri Student Club have very few athletes who exercise,

of the 60 athletes who are the most athlete respondents with 38 athletes (63.4%) and most of the 18-20 year old athletes with 34 (56.7%) who have martial learning experience for more than 5 years since the martial art athlete of Universitas Airlangga is a female athlete who has become an athlete before becoming a student of Universitas Airlangga and become a member of student club.

Table 1 shows that most martial arts athletes had bruise sports injuries with 26 athletes (43.3%), due to frequent physical contact both during training and during matches. Broken bones were experienced by martial arts athletes at Student Club Universitas Airlangga, as many as two athletes (3.3%), when training and competing using the protective equipment that has been provided.

In Table 2 results show that most athletes of Student Club of Universitas Airlangga have a good knowledge in the first handling of sports injuries with 25 athletes (41.7%). A small number of martial arts athletes have poor knowledge in performing the first treatment of sports injuries with a total of 12 athletes (20%). Then the attitude shows that most of the martial arts athletes of Universitas Airlangga have a negative attitude towards the habit of doing the first handling of sports injuries, with 32 athletes (53.3%); there were some athletes with positive attitude towards the habit of doing the first handling of sports injuries, totaling 28 athletes (46%).

The subjective sections of the norm indicate that the athletes' confidence in the other person and the motivation derived from others in the athletes' environment are in the moderate category with 49 athletes (81.7%), whereas a small percentage of athletes are categorized as having confidence and high motivation from others in the environments of athletes, amounting to four athletes (6.7%).

PBC showed that the perception of controlling athletes' behavior was mostly in the moderate category with 41 athletes (68.3%), whereas a small percentage of athletes (3.3%), only two athletes, had perceptions that controlled strong athlete behavior.

Intention distribution data showed that most of the athletes' intentions in performing the first treatment of exercise injuries were moderate with 37 athletes (61.7%); some had weak intentions in the first treatment of injuries (seven athletes). The Action section shows the results that athletes' actions in the first handling of sports injuries are mostly in the average category with 40 athletes (66.7%). A small number of athletes have fewer skills or actions, with three athletes (5%), while martial arts athletes of Student Club of Universitas Airlangga who have good skills or actions amount to five athletes (8.3%).

Table 3: The variable statistical test.

Correlation test between variables (Spearman's rho test)		p value	r
Knowledge	Attitude	0.000	0.459
Knowledge	Subjective Norm	0.002	0.390
Knowledge	PBC	0.000	0.452
Attitude	Intention	0.000	0.498
Subjective Norm	Intention	0.000	0.593
PBC	Intention	0.000	0.498
Intention	Action	0.117	0.205
PBC	Action	0.000	0.579

Table 3 shows that knowledge relates to the attitude of martial arts athletes of Universitas Airlangga Student Club with the strength of medium and positive relationship. Knowledge relates to the subjective norm of martial arts athletes of Universitas Airlangga's University Student Club with weak strength and positive relationship direction. Knowledge relating to PBC of athletes in performing the first handling of sports injuries with positive direction indicates the more knowledge then the higher the controls that shape the first handling behavior of sports injuries.

Attitudes related to the intent of the athlete in performing the first handling of sports injuries with moderate strength in a positive direction show that the more positive the attitudes of athletes, the stronger their intentions. The subjective norm relates to the intention of the athlete in performing the first treatment of moderate strength exercise injury in a positive direction, and the higher the subjective norm, the stronger the athlete's intention.

PBC is associated with the athlete's intention in performing the first treatment of moderate-strength exercise injury in a positive direction. Controls have an important role in generating intentions. The athlete's intentions are not related to the athlete's actions in the first handling of sports injuries.

PBC is related to the athlete's actions in the first handling of sports injuries with the strength of a moderate relationship in the direction of a positive relationship; the higher the athlete's PBC, the better will be the athlete's actions in performing the first handling of the sports injury.

## 4 DISCUSSION

Behavior with regard to the first handling of sports injuries is the most important part of determining the healing process of sports injuries experienced by athletes. With adequate first handling of sports

injuries, athletes can immediately return to training and matches with maximum performance.

The results of Spearman's rho statistical analysis showed that knowledge of athletes of Universitas Airlangga Student Club is related to attitude in first handling of sports injuries. The results of the data show that most martial artists have good knowledge and a positive attitude in the first handling of sports injuries. A small percentage of athletes have good knowledge with a negative attitude because the athlete knows how to do the first handling of sports injuries but keeps doing what is prohibited during the rehabilitation process. On item 7, things to avoid when suffering a sprain injury or strain of the knowledge instrument, eight athletes answered 'not rested', but there are other things that are also prohibited, that is, massaging and providing heat (balm, patch, etc.). According to Norris (2011), massaging on the part where there is a sprain or strain injury can cause bleeding to continue and adds to the congestion. This causes an increase in the duration of the healing process of a sports injury suffered, thus causing repetitive injuries because the injured part is forced to bear the same burden just before the injury.

Knowledge according to Notoatmodjo (2007) is everything that is known and believed. Attitude is a positive or negative evaluation of certain objects, people, institutions, events, behaviors, or interests (Ajzen 2005). Knowledge gained from all that is known and believed includes beliefs about behaviors displayed with certain results, or some other attributes such as costs or losses incurred during behavior due to lack of facilities (Ajzen 2005).

The athlete's correct knowledge of the first handling of a sports injury will get a positive outcome. Someone who believes that a behavior can produce a positive outcome will have a positive attitude in the first handling of a sports injury (Ajzen 2005). The better the knowledge that the athlete has about the first handling of sports injuries, the more the athlete will believe that this will have a positive impact, and the athlete will be positive.

The results of Spearman's rho statistical analysis showed that the knowledge of martial arts athletes of Universitas Airlangga Student Club is related to the subjective norms of athletes in the first treatment of sports injuries. The findings of data from 60 athletes who were respondents in this study who had a good level of knowledge with high subjective norms were only two athletes, meaning that only two athletes actually did what instructors or senior instructed. The subjective norm is a factor from outside the individual that contains a person's perception of whether others will agree or disagree with a behavior (Baron & Byne 2000). Subjective norms are determined by normative beliefs and motivation to comply. According to Ajzen (2005) beliefs concerning expectations of respected or influential individuals and groups such as parents, spouses, friends, or others depend on the behavior involved. The behavior in the first handling of sports injuries is the most important part of determining the healing process of sports injuries experienced by athletes. With adequate first handling of sports injuries, athletes can immediately return to training and matches with maximum performance.

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Motivational hierarchy explains the need to be rewarded (self-esteem needs) visible to the individual's need for reward, also called the "ego" need. This need is related to the desire to possess a positive image and receive attention, recognition, and appreciation from others (Abraham Maslow 1948). Based on subjective norms, most athletes have confidence in the perceptions and motivations of the trainers or senior. This indicates that the need for recognition that a coach or senior trainer should be made a belief as a consequence of the behaviors displayed, while athletes themselves have the need to receive trainer or senior attention when experiencing sports injuries. Negative attitudes of athletes with strong intentions will pose a high risk of inadequate handling of injuries, such as repositioning dislocated joints without waiting for experts to come up with the reasons the coach or senior has the same experience. Positively evaluating the perception and motivation of others around the athlete is necessary to establish a positive attitude of the athlete in performing the first treatment of a sports injury. The results of Spearman's rho statistical analysis showed that the subjective norm of martial arts athletes of Universitas Airlangga is related to the intention of the athlete in performing the first treatment of the injury.

The results of the data in Table 2 show that there are three athletes who have high subjective norms with strong intention strength. The subjective norm is not only determined by the referent but also determined by normative beliefs and motivation to comply (Ajzen 2005). There is a belief in the perceptions displayed by the athlete's referrals, i.e. to trainers or senior martial arts to carry out the first handling of sports injuries. The desire to fulfill the perceptions that are supported by the motivation of the coach or senior will give the athlete confidence in the first handling of sports injuries. Athletes who have high subjective norms and strong intention strength due to the individual most referents who approve individuals to perform behavior (Ajzen 2005). According to the theory of planned behavior, a person can act on his intention or intent only if he has control over his behavior (Ajzen 2002). This suggests that the subjective norms that come from the coach or senior will reinforce the intention being used as a link to show behavior.

Most martial arts athletes have the desire to undertake the first treatment of ideal sports injuries according to theory, but with the belief in the perceptions and motivations given by the trainers or senior SMEs in the martial arts groups at Universitas Airlangga. The greatest number of athletes who have subjective norms are with the intention of being. This is due to the base rate of the athletes' intentions by Ajzen (2005); the base rate is the level of probability of a behavior to be performed by the individual. Most referents who approve and support athletes then base rate will increase and influence the strength of intentions are becoming strong.

The results of Spearman's rho statistical analysis showed that PBC Universitas Airlangga Student Club associated with the intention of athletes in undertaking first treatment on sports injuries. The results of the data show that only two athletes have strong PBC with strong intention; most athletes have PBC with moderate strength intentions. The theory of planned behavior emphasizes not only individual rationality and behavior but also beliefs that behavior targets are under control when individuals have, for example, availability of resources and opportunities to display such behavior (Ajzen 2005).

Martial arts athletes of Universitas Airlangga Student Club have a desire to do the first handling of sports injuries but control such behavior as an opportunity to perform the behaviour. The density of the college schedule makes the rehabilitation process not optimal and causes athletes to have the power of moderate intention. According to Ajzen (2005), 'a person performs a certain behavior if the person evaluates the behavior positively, if the individual gets pressure from society to do the behavior, and if the individual believes it is normal and has the

opportunity to perform the behavior, with complete facilities and sufficient time on the sidelines. Through teaching an athlete can improve his behavior control and produce a strong intention to do the first treatment of sports injuries.

The results of Spearman's rho statistical analysis showed that the intention of martial arts athletes of Universitas Airlangga Student Club is not related to athletes' actions in the first handling of sports injuries. According to the theory of planned behavior, one can act on the intention or intent only if one has control over one's behavior (Ajzen 2000). This theory emphasizes not only rationality and human behavior but also beliefs that behavior targets are under control when individuals have, for example, availability of resources and opportunities to perform such actions (Ajzen 2005). The results of the data show that a small percentage of athletes have strong intentions with good action and that most athletes have moderate strength intentions with moderate measures. This is because some athletes have moderate knowledge with a negative attitude in which the athlete's negative attitude is also associated with a belief in what perceptions of the senior and athlete trainers are and the lack of completeness of the tools and the limited time to carry out the first handling of sports injuries. This leads to the inadequate first handling of sports injuries.

Martial artists intend to take action in the first handling of sports injuries properly and correctly, but athletes prefer to do what the coach and seniors do. According to the theory of planned behavior, which was proposed by Ajzen (2005), the accuracy of intention in predicting behavior is certainly not unconditional because it was found that the intention does not always result in behavior. Also, PBC can directly produce behavior without having to go through intention.

The results of Spearman's rho statistical analysis showed that PBC athletes of Universitas Airlangga Student Club associated with athletes' actions in the first handling of sports injuries. According to the theory of planned behavior, one can act on the intention or intent only if one has control over one's behavior (Ajzen 2000). This shows that the way a person acts and behaves is not based on his intention in all situations. PBC is a characteristic feature of this theory because PBC can be linked in two ways, i.e. indirectly through intermediate intentions, and the second way is the PBC directly connected resulting in action (Ajzen 2005). Most athletes have a moderate PBC with considerable skill or action. Perceived behavioral control is determined by individual past experiences as well as individual thoughts about the difficult or easy conduct of a behavior (Ajzen 2005). Most athletes who have a

moderate PBC with sufficient action due to athletes have resistance when first handling sports injuries; athletes strongly agree that very crowded lecture schedules resulting in lack of breaks and non-routine treatment is an obstacle for athletes to carrying out adequate care of sports injuries. Athletes also strongly agree that there is no guide to handling injuries in exercise and this is an obstacle to performing the first treatment of sports injuries.

Trainers or seniors in Student Club are always advised to do the handling of sports injuries as a role model. If the action has not been effective, then the coach and senior should always monitor the athlete during the healing process of the injury and give them a special program when training that does not put strain on injured parts of the body. Most athletes strongly agree that the target to be a champion is a driver to recover from injury; athletes believe that the training program created by trainers and senior SMEs will enable athletes to become champions. So there is a meaningful relationship between PBC and action in that the strength of the relationship is in a positive direction.

Martial arts athletes of Universitas Airlangga Student Club have a desire to do the first handling of sports injuries but control such behavior as an opportunity to perform the behavior. The density of the college schedule makes the rehabilitation process not optimal and causes athletes to have the power of moderate intention. According to Ajzen (2005), a person performs a certain behavior if the person evaluates the behavior positively plus the individual gets pressure from the social to do the behavior, and the individual believes normally and has the opportunity to perform the behavior, with complete facilities and sufficient time on the sidelines of an athletic lecture athlete can improve his behavior control and produce a strong intention to do the first treatment of sports injuries.

The results Spearman's rho statistical analysis showed that the intention of martial arts athletes of Universitas Airlangga is not related to athletes' actions in the first handling of sports injuries. According to the theory of planned behavior, one can act on the intention or intent only if one has control over one's behavior (Ajzen 2000). This theory not only emphasizes not only rationality and human behavior but also beliefs that behavior targets are under control when individuals have, for example, availability of resources and opportunities to perform such actions (Ajzen 2005). The results of the data show that a small percentage of athletes have strong intentions with good action and that most athletes have moderate strength intentions with moderate measures. This is because some athletes have moderate knowledge with a negative attitude in which the athlete's negative attitude is also

associated with a belief in what the perceptions of the senior and athlete trainers are and the lack of completeness of the tools and the limited time to carry out the first handling of sports injuries. This leads to the inadequate first handling of sports injuries. Regarding intent, martial arts athletes intend to take action in the first handling of sports injuries properly and correctly but prefer to do what the coach and seniors do. According to the theory of planned behavior, which was proposed by Ajzen (2005), the accuracy of intention in predicting behavior is certainly not unconditional because it was found that the intention does not always result in behavior. Also, PBC can directly produce behavior without having to go through intention.

The results of Spearman's rho statistical analysis showed that for martial arts athletes of Universitas Airlangga Student Club, PBC is associated with athletes' actions in the first handling of sports injuries. According to the theory of planned behavior, one can act on the intention or intent only if one has control over one's behavior (Ajzen 2000). This shows not in all situations a person acts, behaves based on his intensity. PBC is a characteristic feature of this theory because PBC can be linked in two ways, i.e. indirectly through intermediate intentions, and the second way is the PBC directly connected resulting in action (Ajzen 2005). Most athletes have a moderate PBC with considerable skill or action.

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## 5 CONCLUSIONS

Knowledge relates to the attitude of martial arts athletes of Universitas Airlangga Student Club with the strength of medium and positive relationship. Knowledge relates to subjective norm of martial arts athletes of Universitas Airlangga Student Club with weak strength and positive relationship direction. Knowledge relating to PBC of athletes in performing the first handling of sports injuries with positive direction indicates both knowledge the more and a higher degree of control that shapes the behavior in the first handling of sports injuries.

Attitudes related to the intent of the athlete in performing the first handling of sports injuries with moderate strength in a positive direction show that the more positive the attitudes of athletes, the stronger their intentions. The subjective norm relates to the intention of the athlete in performing the first treatment of moderate strength exercise injury in a positive direction, and the higher the subjective norm, the stronger the athlete's intention.

PBC is associated with the athlete's intention in performing the first treatment of moderate-strength exercise injury in a positive direction. Controls have an important role in generating intentions. The athlete's intentions are not related to the athlete's actions in the first handling of sports injuries.

PBC is related to the athlete's actions in the first handling of sports injuries with the strength of a moderate relationship in the direction of a positive relationship; the higher the athlete's PBC, the better will be the athlete's actions in performing the first handling of the sports injury.

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