



The Comparison of Decision-Making Skills between Athletes and Non-athletes among University Students

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Abstract:

Cognitive skills are one of the components of mental skills. These skills deal with a high level of cognitive processing, including decision-making. Athletes with high cognitive skills have superior positive thinking and decision-making. The objectives of this study are to evaluate mental skills performance on athletes and non-athletes in university and to investigate the difference of mental skills among athletes and non-athletes in university. 229 active students from Bachelor of Sports Science, Universiti Teknologi MARA Perlis Branch participated in this study. Descriptive statistical methods were used using Microsoft Excel 2020 and the Statistical Package for the Social Sciences (SPSS 25.0 version). The significant value for determining the significant difference of the data gathered was valued as $p < 0.001$ and $p < 0.05$. All descriptive data calculated were presented in mean \pm standard deviation (SD). A statistically significant of the result for vigilance's approach showed that there was no significant difference between athletes and non-athletes. As for buck-passing and procrastination approach, there was a significant difference recorded as the test result indicated $p < 0.001$ and $p < 0.05$ respectively. Lastly, hypervigilance approach showed that there was a significant difference between athletes and non-athletes with the value $p < 0.001$. This study suggests that there is a significant difference of buck-passing, procrastination and hypervigilance between athletes and non-athletes among university students. Future study can consider investigating demographic and athletes' competitiveness factors to understand better on the underlying influences on how individual participation and exposure in sports affecting mental skills development.

Keywords: Decision-making skills; Mental skills; Athletes; Non-athletes; University students.

1. Introduction

Athletes with good mental skills or psychological skills perform better in tournaments and completing specific tasks in individual and team sports [1]. These improved mental abilities allow them to perform at their peak capacity, particularly in terms of self-confidence when competing in tournaments [2]. In addition, as compared to other athletes, these athletes have superior positive thinking capability and decision-making [3]. Hence, mental skills can help athletes enhance physical skills [4]. In numerous sports fields, there has been a growing interest in exploring direct or indirect relationships between mental skill and performance level. In fact, the ability of having mental skills itself associated with coping skills and confidence encompassing various dimensions such as stress reactions, fear control, focusing, refocusing and imagery coping skills [5]. These mental skills may come with experience, while the development of other mental skills may require interventions [6]. The experience of these athletes may come as a result of commitment and students' performance in physical education and sport [7]. In addition, consistent participation in physical activity and sport is associated with individual grit such as passion and perseverance [8]. Developing and maintaining effective mental skills may reach peak performance, success in competitive level in sports by focusing on the abilities of mental toughness, decision-making, and motor skill execution [9]. Comparing psychological skills between different levels of

competitiveness among athletes and non-athletes received numerous evidences [4], [10–12]. It includes exploring mental toughness [10] and imagery skills [6] between them as well as towards different categorization of sports such as open and closed-skill sports [5, 13–15].

Cognitive skills are one of the mental skills components [16]. These skills deal with a high level of cognitive processing, including decision-making [17]. Making a decision required an athlete to evaluate options based on their perception, attention, and memory [18]. This experience-based process was also part of developing mental skills. The other related component that may explain decision-making skills as part of mental skills is hypervigilance, which is associated with emotional stress [19]. This is linked to other emotional states that linked to mental skills like stress reaction, relaxation, and fear control [4].

Given evidence on the characteristics of those involving in sports, therefore this study intends to examine the comparison of mental skills by focusing on the decision-making skills between athletes and non-athletes. As for non-athletes, great decision-making skills may benefit them in school, work, and events which mental skills help in terms of critical thinking, goals setting, and attitude. Although non-athletes may fall into sedentary behavior, this study will focus on the participants from similar academic program which is sports science and recreation students. This will eventually control the variations from the amount of individual physical activity. Despite numerous studies conducted to compare mental skills among athletes and non-athletes, this study will employ the Melbourne Decision-Making Questionnaire (MDMQ) to highlight decision-making skills in the context of university athletes. The assessment using this instrument may extend the perspective of mental skills in the context of decision-making skills. The comparison will be undertaken with their counterparts.

2. Methodology

A cross-sectional survey with a questionnaire was used to analyse this study's findings. Its purpose is to assess the decision-making skills difference among athletes and non-athletes which included quantitative studies. In this study, there are two sorts of variables: dependent variables and separate variables; Athletes and non-athletes act as independent variables and decision-making skills as dependent variable. According to Krejcie and Morgan (1970) [20], a total of 381 participants from Bachelor of Sports Science and it was estimated that 191 students as a sample size would be chosen to be evaluated in this study. 20% drop out was included in the study. Hence, 38 additional participants who made the sample size required were 229 from Bachelor of Sports Science of UiTM Arau, Perlis. The students were divided into two groups; athletes and non-athletes, whereby 115 participants represented the athletes' group, and 114 participants represented the non-athletes' group.

The inclusion criteria for the participants in order to participate in this study were categorized into two; for athletes and non-athletes. For athletes, an individual must be an active student in UiTM Arau, Perlis and is currently a student of Bachelor of Sports Science, had experiences in representing UiTM team in any sports during their study period and is consistently carrying out structured sport training program. For non-athletes, an individual must be an active student in UiTM Arau, Perlis and is currently a student of Bachelor of Sports Science, had no experience in sports and seldom involve in structured sport training program. The exclusion criteria for the participant's selection are individuals who had finished their study period in UiTM Arau, Perlis, and those who are not from Bachelor of Sports Science students.

The Melbourne Decision-Making Questionnaire (MDMQ) [19] was provided online to the selected students during assessment sessions that had taken place in the month of January 2022. The purpose of the study was explained to the students before the instructions were delivered to them, and various terms in the questionnaire were clarified as well. The respondents were told that the questionnaire examines how people typically approach decision-making and that the correct response is the one that is true for them. Students were asked to fill out a questionnaire which is the Melbourne Decision-Making Questionnaire in the form of an electronic copy (Google form). The questionnaire was expected to cover around 15 and 20 minutes to complete. The study used the (MDMQ) [19] to compare the decision-making skills among athletes and non-athletes. The (MDMQ) was designed to assess how individuals approach decision-making situations. It distinguishes between 4 approaches to decisions. Vigilance – 6 items (Sample item: 'I consider how best to carry out the decision'). Each of the six vigilance items relates to a process in making effective decisions, such as identifying goals, gathering information, weighing alternatives, and checking alternatives. Hypervigilance – 5 items (Sample item: 'I feel as if I'm under tremendous pressure when making decisions'). Buck-passing – 6 items (Sample item: 'I avoid making decisions'). The last scale is procrastination which consists of 5 items (Sample item: 'I put off making decisions'). The respondents respond to the items by checking 'True for me' (score 2), 'Sometimes true' (score 1), or 'Not true for me' (score 0).

To examine the data, descriptive statistical methods were used with Microsoft Excel 2020 and the Statistical Package for the Social Sciences (SPSS 25.0 version). An independent *t*-test was employed to examine the differences in decision-making skills between athletes and non-athletes. As a result, the significant value for determining the significant difference of the data gathered was about $p = 0.05$. All data calculated were presented in mean \pm standard deviation (SD).

3. Results

The descriptive results for each sub-scale showed that the first sub-scale, vigilance, indicated the mean and standard deviation, $M = 1.24 \pm .38$, for non-athlete is $M = 1.16 \pm .37$. The next sub-scale is buck-passing approach which indicated $M = 0.81 \pm .34$ for athlete group, and for non-athlete group, $M = 1.03 \pm .4$. The third approach is, procrastination with the lowest mean result which indicated $M = 0.74 \pm .42$ for athlete group, and for non-athlete group, $M = 0.88 \pm .41$. The last sub-scale is hypervigilance where for athlete group the mean indicated $M = 0.8 \pm .34$, for non-athlete group, $M = 1.01 \pm .39$.

Table 1. Descriptive data of competition features

Variables	Athletes (n = 115)	Frequency
Years of involvement	1-3 years	38
	4-6 years	59
	7-9 years	11
	10 years and above	9
Level of involvement	School	11
	District	26
	State	58
	National	19
	International	3

Table 2. Comparison between athletes and non-athletes for four sub-scales of The Melbourne Decision-Making Questionnaire (MDMQ)

Sub-scales	<i>t</i>	Sig.
Vigilance	1.65	0.100
Buck-passing	-4.53	0.000***
Procrastination	-2.58	0.011*
Hypervigilance	-4.19	0.000***

* $p \leq .05$; *** $p \leq .001$

Table 1 shows the two variables which describe the background of the athletes' group. They also come from various types of sports such as archery, athletics, badminton, bowling, canoe, cricket, cycling, football, frisbee, futsal, handball, field hockey, judo, netball, rugby, sailing, Silat, squash, taekwondo, tennis, and volleyball. Meanwhile, Table 2 above shows the independent sample *t* test result of each sub-scale. The first sub-scale is vigilance approach on decision-making for athletes' and non-athletes' groups. There is no significant difference in vigilance approach between athletes and non-athletes, $t(228) = 1.65$, $p > 0.05$. The second sub-scale is buck-passing approach, from the data conveyed in the table, we can assume that there is a significant difference in buck-passing approach between athletes and non-athletes, $t(228) = -4.53$, $p < 0.001$. The third scale is procrastination approach, the result indicates that there is significant difference in procrastination approach between athletes and non-athletes, $t(228) = -2.58$, $p < 0.05$. The last sub-scale is hypervigilance approach, there is a significant difference on hypervigilance approach between athletes and non-athletes, $t(228) = -4.19$, $p < 0.001$.

4. Discussion

The aim of this study is to investigate the difference of decision-making skills among athletes and non-athletes in university. Individuals who participate in sports may have higher decision-making skills compared to those who do not. In this study, researcher analysed athletes' and non-athletes' mental skills by requesting them to take part in answering a questionnaire chosen by the researcher, which to perceive how individuals from athletes' or non-athletes' group approach decision-making situations.

The results of this study showed that there is a significant difference of decision-making skills among athletes and non-athletes in terms of buck-passing, procrastination and hypervigilance. In comparison to a previous scholar who also

focused on decision-making skills, found a significant positive relationship between athletic involvement in sport and the quality of deciding [3]. While evaluating decision-making skills among basketball athletes using computerised instrument at different conditions of low and high pressure, the author found the importance of avoiding thoughtfulness when making a decision under pressure [21]. Because decision-making is involved in the process of an athlete acting and responding to an uncertain situation and environment, it leads to the ability to manage the pace, which is particularly important in endurance sports [22]. This relates specifically to vigilance, as this subcomponent deals with available information and processes all the alternatives before acting [19]. Meanwhile, other explanation of higher trait emotional intelligence may help to anticipate better decision-making that is associated with athletic involvement [3]. It was supported by another study that found athletes have higher emotional intelligence than non-athletes because they must continually control and manage their emotions in various training and competitive situations [12]. Furthermore, in comparison to different categories of athletes, experts are found to make decisions faster, better, and more intuitively than less experienced people [23]. Athletes at the highest levels and most talented have superior tactical knowledge and behaviours when dealing with complex situations [14]. We can conclude from the previous study that athletes may make better decisions as a result of the sporting demand.

The participants in our study, which involved university athletes, found significant differences in comparison to non-athletes in three subscales, which are buck-passing, procrastination, and hypervigilance. At least half of the athletes had previously been represented at the state level. The components of buck-passing and procrastination are categorized under defensive which is associated within complete and often biased evaluation of information, leading in turn to faulty decisions [19]. Meanwhile, hypervigilance often hesitates between unpleasant alternatives. These three sub-scales contributed to the differences between athletes and non-athletes as they are associated with high psychological stress. In contradiction to vigilance, it often evaluates alternatives carefully before making a choice. This is associated with moderate psychological stress [19]. The different levels of psychological demand between those components may lead to the differences between athletes and non-athletes.

5. Conclusion

Individuals who are physically active may benefits themselves physically and mentally. When engaging in sports, it helps an individual to set his or her goals in what to achieve by participating in this activity. Individuals who participate in sports at a higher level have better decision-making skills to meet the demands of the competition. This study suggests that there is a significant difference of buck-passing, procrastination and hypervigilance between athletes and non-athletes among university students. Future study can consider investigating demographic and athletes' competitiveness factors to understand better on the underlying influences on how individual's participation and exposure in sports affect decision-making skills development. Furthermore, future research could include specific mental skill parameters to better understand the decision-making process as part of cognitive mental skills.

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