

THE ANXIETY LEVEL OF HOCKEY ATHLETES AS THE COMPETITION PROGRESSED

By

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Abstract

This study aimed to examine if there was any significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence of hockey players as the competition progressed from the semi-finals to the finals. The instrument, Competition State Anxiety Inventory-2 (Marten, Vealey & Burton, 1990), was a set of questionnaire consisting of 27 items equally divided into 3 sub-scales of cognitive anxiety, somatic anxiety and self-confidence. It was administered to 67 hockey players in the competition site, 1 hour before the semi-finals and the finals of the competition. The data was analyzed using the paired t-test for dependent samples. The findings showed that there was no significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence as the game progressed from the semi-finals to the finals.

Introduction

Anxiety in different forms permeates the lives of many, whether they are emotionally balanced or maladjusted (Sonstroem in Silva & Weinberg, 1984). And for those school-going athletes who compete in sports activities, they may be expected to experience anxiety before or during competition. Hence, pre-competition sport anxiety is an area of major interest to teachers, coaches, athletes and counselors.

In my work as an applied sport psychologist, many of the sports performers who have approached me for help and advice have done so because they have had problems coping with the pressure of competition, experiencing intense anxiety symptoms before or during competitive performance (or both).

(Jones & Hanton, 1996, p. 4)

The above observation is also a commonly observed phenomenon among athletes in sporting competitions held in teacher training colleges. Some athletes have

approached their coaches, counselors or teachers with their pre-competition sport anxiety problems with the hope of reducing their anxiety. For those who did not approach them, their anxiety could be observed from their expressions and actions. And for those athletes who choose to camouflage their anxiety with other behaviors, their anxiety is still noticeable, as shown in the following report:

It is also interesting to note that brave-acting athletes, taking part in sports that require courage are not always free from high levels of anxiety. Such athletes may be “whistling in the dark” and may have selected a brave-appearing activity to prove to themselves and to others that they are not the fearful individuals they may feel to be.

(Cratty, 1973, p.186)

For whatever type of athletes, be those who can share freely or those who cannot, once being approached caringly and probed skillfully with counseling techniques, they would open up and their anxiety would be shared and anxiety reduction plans could be discussed.

Anxiety is an important area of study in sports psychology. An athlete might not achieve the desired result because of excessive nervousness, anxiety and tension (Jones in Bridle, 1995). Heightened arousal enhance performance to a certain point, after which continued increases in arousal would lead to a detriment in performance. Thus the predicted relationship between arousal and performance was curvilinear, taking the shape of an inverted-U (Yerkes & Dodson in Gould & Krane ,1992). In addition, the inability to cope with the pressure in competitive sport can lead not only to decreased performance but also to physical illness and mental distress (Weinberg & Gould, 1995).

Studies have shown that pre-competition sport anxiety does exist (Weinberg & Gould, 1995; Marten, Vealey & Burton, 1990). The athletes in the Malaysian teacher-training colleges may be expected to experience pre-competition sport anxiety too. In

view of the existence of competition sport anxiety and the great effect it has upon performance and the physical and psychological well-being of the athletes, a study of the anxiety level of hockey athletes as the competition progresses is proposed. This study was undertaken to find out if there was any significant difference in the level of pre-competition sport anxiety as the competition progressed from the semi-finals to the finals so that anxiety reduction strategies could be planned and be incorporated into the counseling program.

Rationale

Researchers got contradicting conclusions towards anxious and non-anxious subjects in competition (Singer, 1980). Anxiety has been reported as detrimental to performance in some studies such as Burton (1998; in Wiggins & Brustard, 1997) and Martens, Vealey & Burton (1990), whereas in others such as Jones & Swan (1995; in Wiggins & Brustard, 1997) and Wiggins & Brustard (1997), anxiety appears to facilitate performance. Apart from that, the level of anxiety has been found to be significantly different at different times before competition (Huddleston & Gill, 1977; Ussher & Hardy in Edwards & Hardy, 1996). At the same time, it has also been found to be not significantly different at different times before competition (Wiggins & Brustard, 1997; Marten, Vealey & Burton, 1990). In short, the findings of the above studies are very varied. In view of such differing findings, this study was done in the Malaysian context to examine if there was any significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence of the hockey athletes as the competition progressed from the semi-finals to the finals of the Malaysian Teacher-training Inter-college Hockey Meet.

Identification of the anxious athlete is not always an easy undertaking because an athlete will seldom directly inform his coach that he is scared (Cratty, 1973). For one

thing, it is not an appropriate masculine behavior, and most fearful athletes are not likely to express their fears openly since they are afraid of hearing themselves admitting weakness. Hence, coaches have been found to be inaccurate predictors of their athletes' anxiety levels or were inaccurate at estimating athlete's level of trait and state anxiety (Weinberg & Gould, 1999). Hence, this study was undertaken to examine accurately if there was any significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence of the hockey athletes as the competition progressed from the semi-finals to the finals.

A large number of sports performers who seek the help and guidance of sport psychologists do so because they experience problems coping with the intense pressure of competition (Jones in Briddle, 1995). The likely action of the sport psychologists in such circumstances will be to implement and educate the performers with some form of stress management technique designed to alleviate the symptoms of anxiety. However, in many cases it would be more appropriate and logical to adopt some preventive strategy that would preclude the onset of the symptoms in the first place. Hence, this research was done to find out the level of cognitive anxiety, somatic anxiety and self-confidence of the trainee teacher athletes in the local context as the competition progressed from the semi-finals to the finals so that preventive strategies or stress management could be done effectively later on.

Significance of Study

The study of anxiety and stress in sports can serve to aid the applied sport psychologists in providing a quality service to sport performers suffering from debilitating anxiety (Jones, 1995 in Briddle, 1995). Hence the findings in this study will help the hockey coaches cum lecturers to give more individualized and effective counseling to their individual athletes in the team who suffer from different levels of

anxiety as the competition progressed. They will then recognize when and with whom arousal and state anxiety need to be enhanced, maintained, or reduced.

The anxiety levels measured before the semi-finals and finals of the competition in this study will help coaches and team managers to identify exactly when the anxiety is significantly higher so that anxiety reduction strategies could be planned and carried out.

Apart from the coaches, team managers and teachers, the athletes themselves will benefit too. Having identified the directionality of the anxiety level and if their anxiety level were found to be higher at a particular time before competition, they could take corrective measures that have been taught and apply them to themselves, thus reducing the anxiety at the time that is most needed. They can even transfer this learning to their daily lives when they are faced with anxious situations.

Purpose of Study

The purpose of this study is to find out if there is any significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence of the hockey athletes as the competition progressed from the semi-finals to the finals of a hockey meet.

Statement of Problem

Heightened arousal enhanced performance to a certain point, after which continued increases in arousal would lead to a detriment in performance (Yerkes & Dodson, 1908 in Gould & Krane, 1992). Thus, the predicted relationship between arousal and performance was curvilinear, taking the shape of an inverted-U. Thus, slight over-anxiousness will result in slightly hindered performance.

Multidimensional anxiety theory predicts that cognitive state anxiety (worry) is negatively related to performance (Weinberg & Gould, 1999). That is, increases in cognitive state anxiety lead to decreases in performance. But it predicts that somatic

state anxiety (which is physiologically manifested) is related to performance in an inverted-U, with increases in the anxiety facilitating performance up to an optimal level, after which performance declines with additional anxiety.

In view of the important effect of anxiety upon performance, this study was undertaken to examine whether there was any significance difference in the level of cognitive anxiety, somatic anxiety and self confidence as the competition progressed from the semi-finals to the finals among the hockey players participating in the Malaysian Teacher Training Inter-college Hockey Meet.

Research Questions

The hockey athletes competing at the Malaysian national level may be expected to experience certain degrees of pre-competition sport anxiety and they may not achieve the desired results because of excessive anxiety. Therefore, this study was done with the following research questions in mind:

1. Is there any significant difference in the cognitive anxiety level of the hockey athletes before the semi-finals and the finals of the Malaysian Teacher Training Inter-college Hockey Meet?
2. Is there any significant difference in the somatic anxiety level of the hockey athletes before the semi-finals and the finals of the above Meet?
3. Is there any significant difference in self confidence level of the hockey athletes before the semi-finals and the finals of the above Meet?

Limitations

This research is limited to the athletes of the 4 teams that qualified to the semi-finals and the finals of the Malaysian Teacher Training Inter-college Hockey Meet, and it cannot be generalized to all the athletes in all the teacher-training colleges in

Malaysia. Other than that, the responses in the questionnaires were limited to the sincerity and truthfulness of the respondents.

Operational Definitions

Anxiety involves a diffuse apprehension of some vague threat that is characterized by feelings of uncertainty and helplessness (May, 1977 in Willis, 1992).

Cognitive anxiety is the mental component of anxiety caused by negative expectations about success or by negative self-evaluation (Martin, Vealey & Burton, 1990).

Somatic anxiety refers to the physiological and affective elements of the anxiety experience that develop directly from autonomic arousal (Martin, Vealey & Burton, 1990).

Self-confidence refers to the believe that one can successfully perform a behavior (Weiberg & Gould, 1995).

Semi-finals refer to the time 1 hour before the semi-final matches of the Malaysian Teacher Training Inter-college Hockey Meet.

Finals refer to the time 1 hour before the final matches of the Malaysian Teacher Training Inter-college Hockey Meet.

Hockey athletes refer to the 18 hockey players of a hockey team officially registered in the Malaysian Teacher Training Inter-college Hockey Meet.

Literature Review

Willis (1992) states anxiety differs from worry in that the source of anxiety is not specific and according to May (1977; in Willis, 1992), anxiety involves a diffuse apprehension of some vague threat that is characterized by feelings of uncertainty and helplessness. According to Silva III & Weinberg (1984), anxiety has been conceptualized as having both a trait and state component. State anxiety has been

defined as an emotional state characterized by apprehension and tension — in essence a ‘right now’ reaction that is transitory in nature (Silva III & Weinberg, 1984). Trait anxiety refers to a predisposition to perceive certain situations as threatening and to respond to those situations with varying degrees of anxiety (Silva III & Weinberg, 1984). Thus, an athlete’s anxiety before or during an event will be determined by an interaction of his general or usual level of anxiety (i.e., trait anxiety) and the specific situational constraints of the event (i.e., state anxiety).

Sport psychologists define self-confidence as the belief that one can successfully perform a desired behavior (Weinberg & Gould, 1999). Confidence can help an athlete in positive emotions, concentration, goals, effort, game strategy and momentum (Weinberg & Gould, 1999). Highly confident athletes who believe in their ability to acquire necessary skills and competencies, both physical and mental, to reach their potential experienced less state anxiety (Weinberg & Gould, 1999). Less confident athletes doubt whether they are good enough or have what it takes to be successful and thus create a self-fulfilling prophecy (Weinberg & Gould, 1999). Negative self-fulfilling prophecies are psychological barriers that leads to actual failure, which lowers self image and increases expectations of future failures.

Just like the relationship between state anxiety and performance, the relationship between confidence and performance can be represented by the form of an inverted-U (Weinberg & Gould, 1999). Performance improves as the level of confidence increases — up to a certain optimum point, whereupon further increases in confidence produce corresponding decrements in performance i.e. performance problems can arise with either too little or too much confidence.

Theoretical Framework

The literature review shows that there are various theories related to pre-competition sport anxiety viz.: the inverted-U hypothesis, the catastrophe theory and the multidimensional anxiety theory. In view of the varied anxiety theories, this study was done upon the theoretical framework of the multidimensional anxiety theory.

The multidimensional anxiety theory conceptualized competitive anxiety to contain two sub-components, cognitive and somatic anxiety. Cognitive anxiety is characterized by negative thoughts, inability to concentrate, and disrupted attention. Somatic anxiety is one's perceptions of their physiological arousal such as rapid heart rate, tense muscles and butterflies in the stomach. Somatic anxiety differs from physiological arousal in that arousal is measured through actual physiological indices, while somatic anxiety reflects one's perceptions of the physiological arousal (Gould & Krane, 1992).

It is important to delineate between cognitive and somatic anxiety because they have been proposed to differentially relate to athletic performance and have different antecedents (Martens et al., 1990). Cognitive anxiety is expected to negatively affect athletic performance while somatic anxiety will have a curvilinear relationship with performance (Martens et al., 1990). Weinberg and Gould (1999) states multidimensional anxiety theory predicts that cognitive state anxiety (worry) is negatively related to performance. That is, increases in cognitive state anxiety lead to decreases in performance. But it predicts that somatic state anxiety (which is physiologically manifested) is related to performance in an inverted-U, with increases in the anxiety facilitating performance up to an optimal level, after which performance declines with additional anxiety.

Related Studies on Anxiety

Pre-competition sport anxiety has been reported as detrimental to performance in some studies (Burton, 1998 in Wiggins & Brustard, 1997; Martens, Vealey & Burton, 1990), whereas in others (Jones & Swan, 1995 in Wiggins & Brustard, 1997; Wiggins & Brustard, 1997), anxiety appears to facilitate performance. The positive or negative effects of anxiety upon performance depend upon the attentional demands of the task and the perceived probability of success (Edward and Hardy, 1996). However, self-confidence was found to be facilitative to performance (Carter & Scheier, 1986, 1988 in Edward & Hardy, 1996).

Time-wise, past studies shows that there are differences in the anxiety level at different times before competition (Mahoney & Avener, 1979 in Huddleston & Gill, 1997; Huddleston & Gill, 1997). Apart from that, the level of anxiety has also been found to be significantly different at different times before competition (Huddleston & Gill, 1977 & Ussher & Hardy in Edwards & Hardy, 1996). At the same time, it has also been found to be not significantly different at different times before competition (Wiggins, 1993 in Wiggins & Brustad, 1997; Wiggins & Brustad, 1997; Marten, Vealey & Burton, 1990). In short, the findings of the above studies are very varied.

Methodology

Research Design

This study is a quantitative research employing a survey method as the research design to collect the data. A set of questionnaires was used.

Sample

The sample of this research were all the players from the 4 teams that qualified for the semi-finals in the Malaysian Teacher Training Inter-college Hockey Meet which was held in a teachers' training college. Three of the teams consisted of 18 players (11 players and 7 reserves) each but the fourth team consisted of only 13 players. Hence, the total number of sample was 67.

Instrument

The level of pre-competition sport anxiety of this study was measured with Competition Sport Anxiety Inventory-2 (CSAI-2) developed by Marten, Vealey and Burton (1990). This test measured the existing states of cognitive anxiety, somatic anxiety and self- confidence 1 hour before the semi-finals and the finals of the competition.

The CSAI- 2 consisted of a total of 27 items of questionnaires equally divided into 3 sub-scales i.e. cognitive anxiety state, somatic anxiety state and self-confidence. Each sub-scale consisted of 9 items, all of which were evenly and sequentially distributed in the questionnaire. The responses were on a 4-point Likert scale.

The CSAI-2 was scored by computing a separate total for each of the 3 sub-scales, with scores ranging from a low of 9 to a high of 36 for each sub-scale. The higher the score, the higher the level of anxiety-state and self-confidence. No total score for the inventory was computed (Marten, Vealey and Burton, 1990).

A high degree of internal consistency for the sub-scales has been reported in several studies with alpha coefficients ranging from .79 to .90 (Edward & Hardy, 1996).

This test was translated to Bahasa Melayu and was checked by 2 lecturers proficient in both the languages. It was retranslated back into English by another

lecturer without referring to the original scale to ensure the translation did not alter the basic meaning of the individual items. It was administered to a group of 24 Semester-2 trainee-teachers taking the Malaysian Diploma of Education Course to check whether the language used was understandable.

Pilot Study

Prior to the actual study, the translated version of the test was administered to 4 semi-final teams in the Malaysian Teacher Training Inter-college Netball Games to examine the feasibility of the research procedures and data analysis so that corrections and modifications could be done in the actual study.

Procedures

The captains of the 4 teams administered the test to their own team members in the competition site one hour before the semi-finals and the finals. The subjects responded there and then. These captains then collected the completed questionnaires back immediately after that. The researcher in turn collected the test results from the captains, also immediately. Hence the 2 sets of test results were collected immediately after each set of test administration. The return was 100%.

Data Analysis

The data collected was analyzed using descriptive statistics. Mean and standard deviation were used to analyze the levels of cognitive anxiety, somatic anxiety and self-confidence before the semi-finals and the finals of the competition. The paired *t*-test for dependent samples was employed to identify any significant difference in the levels of cognitive anxiety, somatic anxiety and self-confidence before the semi-finals and the finals. The Statistical Package for Social Sciences (SPSS) version 10.0 was used to aid all the data analysis in this study.

Findings

Findings on Cognitive Anxiety Level

As shown in Table 3, the mean cognitive anxiety level of the athletes before the semi-finals and the finals of the competition were 28.32 and 29.08 respectively with a *SD* of 4.86 and 4.63 respectively. Applying this to a *t*-test with a *p* level of .05, the

Table 3

Results of cognitive anxiety level of hockey athletes before the semi-finals and the finals of the competition.

Competition level	<u>M</u>	<u>SD</u>	<i>t</i>	Significance*
Semi-finals	28.32	4.86	1.81	.08
Finals	29.08	4.63		

$n = 66$; $df = 65$; $*p < .05$

results indicated that the mean difference was not significant ($p > .05$). This shows that even though there was a difference in the mean, the cognitive anxiety level of the athletes before the semi-finals was not significantly different from the cognitive anxiety level of the athletes before the finals.

Findings on Somatic Anxiety Level

As shown in Table 4, the mean somatic anxiety level of the athletes before the semi-finals and the finals of the competition were 19.03 and 19.33 respectively with a *SD* of 5.33 and 5.37 respectively. Applying this to a *t*-test with a *p* level of .05, the results indicated that the mean difference was not significant ($p > .05$). This shows

Table 4

Results of somatic anxiety level of hockey athletes before the semi-finals and the finals of the competition.

Competition level	<u>M</u>	<u>SD</u>	<i>t</i>	Significance*
Semi-finals	19.03	5.33	.60	.55
Finals	19.33	5.37		

$n = 67$; $df = 66$; $*p < .05$

that even though there was a difference in the mean, the somatic anxiety level of the athletes before the semi-finals and the finals of the competition was not significantly different.

Findings on Self-confidence Level

As shown in Table 5, the mean self-confidence level of the athletes before the semi-finals and the finals of the competition were 25.51 and 26.29 respectively with a *SD* of 5.18 and 4.81 respectively. Applying this to a *t*-test with an *p* level of .05, the results indicated that the mean difference was not significant ($p > .05$). This shows that even though there was a difference in the mean, the self-confidence level of the athletes before the semi-finals and the finals of the competition was not significantly different.

In conclusion, this study found that there was no significant difference in all the 3 sub-scales of cognitive anxiety, somatic anxiety and self-confidence before the semi-finals and the finals of the competition.

Table 5

Results of self confidence level of hockey athletes before the semi-finals and the finals of the competition.

Competition level	<u>M</u>	<u>SD</u>	<i>t</i>	Significance*
Semi-finals	25.51	5.18	1.56	.13
Finals	26.29	4.81		

n =59; df =58; *p < .05

Discussion, Implications and Suggestions

Discussions

Cognitive anxiety.

The findings of the first research question and hypothesis indicate that there is no significant difference in the cognitive anxiety level of the hockey players before the semi-finals and the finals of the competition. This finding is in agreement with Wiggins and Brustad (1997) who found no significant difference in cognitive anxiety level 24, 2 and 1 hour prior to competition. It is also consistent with Marten, Vealey & Burton (1990) who found cognitive anxiety level changes of wrestlers overtime were not significant and thus was interpreted as essentially the same over the following times viz.: 48-64 hours, 20-24 hours, 2 hour, 1 hour and 15-20 minutes before competition. This study is also in consistency with Marten, Vealey & Burton (1992) who replicated the above study with gymnasts and found cognitive anxiety level did not significantly change over the time periods. However, this finding is in contrary to the findings of Krane and Williams (1987 in Alexander & Krane, 1996) who found a significant increase in cognitive anxiety immediately prior to

competition in inexperienced female high school gymnasts. It is also in contrary to the findings of Huddleston and Gill (1977) who reported increased cognitive anxiety prior to the athletes' meet and a significantly higher pre-event than pre-meet anxiety level.

A high perceived sport competence predicted a reduced tendency to report cognitive anxiety when competing in sport (Ommundsen & Pederson, 1999). Thus, the lack of significant difference in the cognitive anxiety level as the game progressed from the semi-finals to the finals of the competition may be due to the athletes having a sustained high perceived competence in their hockey skills, physical fitness level and or tactical play. They may have perceived themselves as having gone through a sufficient length of training period with efficient method of training.

Negative personal coach-athlete rapport is a significant predictor of total anxiety, concentration disruption and worry (Baker, Cote & Hawes, 2000). Hence, the constant anxiety levels as the competition progressed from the semi-finals to the finals of the competition might be due to the lack of negative personal rapport between the coaches and the athletes in this study. The coaches might not have harped on mistakes that these players made. They also might not have reacted negatively should their athletes lost the game.

Other than that, the athletes in this study might have experienced the ideal performance state i.e. calmness and attention, total relaxation and concentration, total freedom and body-mind unification (Syer & Connolly in Briddle, 1995). Even though these athletes were competing at the local Malaysian national level, they might have experienced the ideal performance state as supported by Jones (in Briddle, 1995) that athletes of different levels – not only top performers – can experience the ideal performance state.

Somatic anxiety.

The findings of the second research question and hypothesis indicate that there is no significant difference in the somatic anxiety level of the hockey athletes as the competition progressed from the semi-finals to the finals. This finding is in agreement with Wiggins and Brustad (1997) who found no significant difference in somatic anxiety level 24, 2 and 1 hour prior to competition. It is also in consistency with Marten, Vealey & Burton (1990) who found no significant difference in somatic anxiety level of high school wrestlers at 48-64 hours, 20-24 hours, 2 hours and 1 hour before competition. However, this finding is in contrary to Jones, Swain and Cale (in White & Zeller, 1996) who concluded that elevated levels of somatic anxiety prior to or during competition are quite common among athletes, regardless of gender. It is also in contrary to Krane and Williams (1987 in Alexander & Krane, 1996) and Ussher and Hardy (1986, in Edwards & Hardy, 1996) who found that somatic anxiety reached its peak close to the start of competition, reinforcing the multidimensional theory concerning the proximity to competition as a trigger to increase somatic anxiety.

Just like the discussion on the lack of significant difference in the cognitive anxiety level as the competition progressed from the semi-finals to the finals, the same phenomenon in the somatic anxiety level may be due to the athletes having a sustained high perceived competence and a lack of negative personal rapport between the coaches and the athletes in this study. Apart from that, the higher the ‘Type A personality’ of the athletes, the lower the sport competition anxiety (Yoo, 1996). So, the lack of significant difference in the level of somatic anxiety of the hockey athletes as the competition progressed from the semi-finals to the finals may be due to the samples selected having a high percentage of ‘Type A personality’ individuals characterized by extrovertness, assertiveness and aggressiveness.

Self-confidence.

The findings of the third research question indicate that there is no significant difference in the self-confidence level of the hockey players before the semi-finals and the finals of the competition. This finding is in agreement with Wiggins and Brustad (1997) who found no significant difference in somatic anxiety level 24, 2 and 1 hour prior to competition.

The lack of significant change in the self-confidence level as the competition progressed from the semi-finals to the finals may be related to perceived ability and performance expectancy (Gould et al, 1984). The athletes in this study may have read the abilities of their opponents from the first round of the competition, which was carried out in the league system among the groupings before the semi-finals. And this perceived performance expectancy is mediated by various situational variables including the importance of the competition (Matheson & Mathes in Thuot, Kavouras & Kenefick, 1998). They might have viewed this competition, even though is at national level, would not have much implication to their teacher-training program and so were not affected by the outcome of the competition. This performance expectancy is also mediated by various situational variables including the knowledge of an opponent's ability (Jones et al, 1991& Wandlitzak et al., 1982 in Thuot, Kavouras & Kenefick, 1998). They might have gathered data on the opponents' abilities in the earlier rounds of games and were thus confident in expecting their performance level be it before the semi-finals or the finals of the competition.

The higher the "Type A Behavior" of the athletes, the higher the sport orientation (competitiveness, win orientation and goal orientation); the higher the sport orientation the greater the sport confidence (Yoo, 1996). The lack of significant difference in the confidence level of the athletes as the competition progressed from

the semi-finals to the finals therefore, might be due to a high percentage of the athletes having “Type A Behavior”, as discussed earlier. They may also be high in sport orientation in that they were competitive, win-oriented, goal-oriented athletes. Moreover, it might be due to these athletes having a sustained, high concepts of their abilities and disabilities, their worth and their relationship with others, for low self-esteem athletes have less confidence and more state anxiety than do athletes with high self-esteem (Weinberg & Gould, 1995).

Considering the 3 sub-scales together, the lack of significant difference in all the levels of cognitive anxiety, somatic anxiety and self-confidence of the athletes as the competition progressed from the semi-finals to the finals might be due to these athletes having a low achievement needs. They were not anxious and did not care whether they won or lost. Their anxieties did not apparently center on their success or failure in competitive situations. The subjects with low levels of anxiety and low achievement needs were not affected by competition. The same lack of change was seen in the subjects with high anxiety levels and low achievement needs (Cratty, 1973).

The findings of this study may be affected by the culture of the respondents. These respondents were all Malaysians comprising predominantly of Malays, whereas previous studies have mostly been foreigners like the English or the American. Furthermore, research on attribution theory has recognized the importance of cultural differences, for example, Duda (1986, in Edward & Hardy, 1996) found that perceptions of success and failure were differentially influenced by culture. Moreover, situations and events considered stressful in one country or culture might not be in a second (Cratty, 1973). The findings in this study could therefore be due to cultural differences.

Implications

This study found no significant difference in all the 3 levels of cognitive anxiety, somatic anxiety and self-confidence as the competition progressed from the semi-finals to the finals. From an applied perspective, it is important to recognize that these levels could remain significantly unchanged over time. These findings have provided additional evidence to the growing body of literature, which shows that there is no significant difference in those areas at different proximity to and level of the competition.

Multidimensional anxiety theory predicts that increases in cognitive state anxiety leads to decreases in performance (Weinberg & Gould, 1999). It also predicts that somatic anxiety is related to performance in an inverted-U with increases in the anxiety facilitating performance up to an optimum level, after which performance declines with additional anxiety. The fact that there is no significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence competition in this study therefore may not affect the performance. Then, the coaches need not be overly concerned about their athletes' anxiety levels as the competition progressed from the semi-finals to the finals and therefore no intervention strategies needed to be specially taken to increase or decrease the anxiety levels during these 2 times. Furthermore, these findings also contributed to the fact that it is important to inoculate psychological preparation well before competition rather than attempting to adjust the anxiety levels as the competition progressed from the semi-finals to the finals.

'Trouble shooting' interventions on a short-term basis, are in fact, a common way to introduce psychology into sport, but they are mostly ineffective and often cause more problems than they solve (Jones, 1995). In the case of the present study, the findings have shown that there is no significant difference in the level of cognitive

anxiety, somatic anxiety and self-confidence as the competition progressed from the semi-finals to the finals, therefore, intervention is practically not necessary and may in fact, cause disruption in the psychological preparation of the athletes. Furthermore, mental training should be incorporated into the normal training program, at least for a complete training season and for important championships, over a period of several years (Cratty, 1973). Hence, the coach should implement psychological preparation plans on a long-term basis, not before the semi-finals and/or the finals. And for the case of the hockey athletes cum trainee teachers, this long-term plan should start from Semester 1 through Semester 6 i.e. the whole of their teacher-training duration.

Suggestions / Recommendations

The results in this study may not be very accurate due to the methodological limitations. This study employed only a set of questionnaires i.e. the CSAI-2, as the instrument to collect the data. For future studies, the above phenomenon may be more accurately studied if interviews and observations were also conducted to triangulate it with the questionnaires.

Having identified the pre-competition cognitive anxiety, somatic anxiety and self-confidence level, follow-up studies could be done to identify the sources of anxiety in the local Malaysian context in order to be able to effectively find solutions to the problems. Follow-up studies could also be done on the athletes' anxiety management strategies. With an additional two aspects covered, the anxiety problem may be more thoroughly studied.

This study only focussed in finding if there is any significant change in the level of cognitive anxiety, somatic anxiety and self-confidence of hockey athletes as the competition progressed from the semi-finals to the finals. In future, similar studies

may also be done with other times before the competition, in other games and sports, in athletes of different culture, gender, age group, and in different positions of play.

Conclusion

Having conducted the study, it was found that the athletes in this study experienced no significant difference in the level of cognitive anxiety, somatic anxiety and self-confidence as the competition progressed from the semi-finals to the finals. These findings imply that since there is no significant difference in these levels, the coaches need not be overly concerned about their athletes' anxiety levels as the competition progressed from the semi-finals to the finals and therefore no intervention strategies needed to be specially taken.

This study will be useful to teachers, coaches, athletes, counselors and even parents. With a better understanding of the pre-competition sport anxiety level of the athletes at different levels of competition, it is hoped that the coaches and teachers will be able to carry out their task more effectively in producing student athletes that can perform at their optimum level.

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