

PSYCHOLOGICAL PAIN TOLERANCE MANAGEMENT THERAPIES FOR OLYMPIC ATHLETES: CASE STUDY OF ATHLETES IN BENUE STATE SPORTS COUNCIL MAKURDI NIGERIA

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Abstract

Injuries which cause pain, either physical or psychological are detrimental to athletes health training and performance. But athletes usually deal with injuries and pains because of their higher pain tolerance. High levels for pain tolerance and control can improve performance and time for injury recovery. These are usually improved by utilization of psychological coping strategies by athletes (male and female) in soccer, basketball, volleyball and handball at different skill levels. The purposive sampling was done to sample two hundred and seventy seven (277) athletes in all. 202 male and 75 females; they were also categorized in different sports –soccer (105) basketball (12) volleyball (23) and handball (12). Also low skilled (93) average skilled (90) and highly skilled (94). All subjects were evaluated for pain intensity and utilization of psychological coping strategies (Stress Inoculation Therapy (SIT), biofeedback (BIO), Cognitive Restructuring (CR) and Imagery Techniques (IT) using a self-constructed questionnaire. Data was analyzed using analysis of variance (ANOVA) and Tukeys procedure for post hoc analysis at 0.05 degree of freedom. The result of one way ANOVA test conducted shows that, there is no significant difference in the use of psychological therapies for pain tolerance of athletes playing experience/status [$f(273) = 3.401, p > 0.05$]. The Tukeys procedure shows that there is no significant difference in highly skilled and average and low skilled athletes ($p > 0.05$). It is therefore recommended that seminars, workshops, lectures etc be organized for sports men and women across all sports/games and levels of playing for pain tolerance and athletes threshold by sport psychologist/therapist.

Keywords: Pain Tolerance, Management Therapies, Olympic Athletes, Athletes.

Introduction

Human beings often experience pain in different dimensions and degrees. But our ability to tolerate pain also varies from one individual to another. Injuries which cause pain either physical or psychological are detrimental to athletes health, training and performance. Sportsmen and women are constantly living with injuries and pain, but still practice or play which probably seems to be acceptable in their lives. According to Azevado and Samalski (2003), athletes seem to have pain threshold similar to non-athletes, even though

their tolerance to pain is higher. The authors maintained that high levels for pain tolerance and control can improve performance and time for injury recovery. Men have higher tolerance for pain than women. This means they (men) may be protecting their masculinity to maintain image.

In the view of Dye (2015), men handle pain better than women, but according to Calendar (2015) pain modulation system between men and women may differ, women may also have an additional system that uses estrogen. What seem to be fundamental are the biochemical differences in how men and women deal with pain (Dye 2015). Dye reiterates that the findings of research project at the University of Michigan helps to explain how women can deal with the excruciating pain at childbirth. The researchers, according to Dye, (2015) used non-invasive brain-imaging techniques to pierce inside the brain examining the chemical processes that occur in the presence of pain. With this they found that estrogen levels among women vary widely during the monthly menstrual cycle and during pregnancy, it also shows that estrogen plays a critical role in helping the brains natural ability to suppress pain.

When estrogen levels are high, the brains natural painkiller system respond more potently when a painful experience occur, releasing chemicals called endorphins or enkephalin that dampen the pain signals received by the brain. But when estrogen is low, the same system doesnt typically control pain nearly as effectively (Dye, 2015) reported. The same as when a womans ability to withstand pain changes repeatedly over time. In another report (Dye 2015) from researchers at the University of California, San Francisco found that while women may be less tolerant to the sudden onslaught of acute pain, there are no differences between men and women when it comes to dealing with chronic pain like cancer. Men and women were found to suffer equally with cancer of the bone. Though pain itself is subjective in nature. It is dependent on what an individual feels and says honestly and how much of the pain, therefore, it is still difficult to find out the difference in pain tolerance between male and females even with motivation to tolerate pain.

Athletes generally engage themselves in a variety of sports/games of their choices. The sports selected for this study are soccer, volleyball, basketball and handball. These sports have similarities in the vertical leaps-basketball [slam-dunk], volleyball (spikes), soccer (heading), and handball (jump shots), and it is a key skill in the aforementioned sports. Improved vertical leap will help athletes to elevate in jump shots over opponent (Milano, 2007). Good jumping ability helps in heading a soccer ball, spiking and blocking in volleyball, slam dunking, blocking and lay-up in basketball; and higher jumps in handball. Injuries that accompany pain are bound to occur in these sports. According to Frontera (2007), the differences among various sports in the percentage of injured athletes are foot and ankle in basketball, volleyball, soccer and handball. The most primarily sport related injuries are overused injuries. These results from wear and tear on the body, particularly on joints subjected to repeated activity. Such injuries include muscle pull, neck pain, shoulder impingement, lower back strain, tennis elbow, runners knee, shin splints, ankle sprain, Achilles tendinitis and arch pain.

According to Stanish, Tripp, Coady and Biddulph (2001), the likelihood of experiencing pain and injury increases as physical contact among athlete increases. The

authors maintained that sports such as boxing, and football would seem to require the ability to withstand pain from injury for an extended period of time. There is a relationship between contact level in sport participation and level of aggression (Ticker and Parks, 2001). Athletes participating in high contact sports also have significantly more aggressive responses in a non-sporting context than those in low contact sports (Huang, Cherek and Lane, 1999). This implies that psychological variables, such as aggressiveness, may in part contribute to lower pain ratings in high contact sports than non-contact sports. Ryan and Covalic (2015) noted that contact games athletes tolerate more pain than non-contact games athletes and may differ in pain tolerance.

Our behavior is influenced by information that surges through three different channels, viz: conscious, subconscious and the unconscious mind. The conscious mind is your awareness at the present moment\being aware of something on the outside as well as some specific mental functions happening within you. They include sensations, perceptions, memories, feelings and fantasies. According to Corsini and Wedding (2011), the subconscious mind (preconscious) consist of accessible information, you can become aware of this information once you direct your attention to it. This is sometimes referred to as memory recall. The author continued that the conscious mind consist of the primitive, instinctual wishes as well the information that we cannot access. These are the unconscious forces such as belief patterns, subjective maps of reality that drive our behaviors or form behaviors. Therefore the conscious mind is who you are, and the unconscious mind is the storehouse of all memories and past experiences. These together take care of our behavior and actions, to behave in one way or the other particularly for athletes who have to take instant decisions on the field of play.

Psychological therapies can alter your mind set or brain processes for pain sensation. It can also help you to make lifestyle changes that will allow you continue to participate in sports, recreational activities and of course, work. These psychological therapies can be learnt with the aid of a psychologist.

According to Sadigh (2012), the widespread prevalence and harmful effects of stress (pain inclusive) have resulted in the development of a variety of stress management techniques and strategies; the most widely used are cognitive restructuring, biofeedback, stress inoculation and relaxation training. Because of their national and international recognition and use, they have also being selected of this study.

Rationale

There are a number of studies in the literature that address the differences in pain tolerance and pain threshold among male and female athletes, athletes and active non-athletes; pain tolerance of athletes in contact and non-contact games and sports; and dominant leg\hand pain tolerance of athletes. But there are none or few studies in population of athletes in

Nigeria addressing the use of psychological therapies\management techniques in pain tolerance by athletes and their skill levels\status.

The evaluation of utilization of psychological coping strategies for pain in athletes should be frequent. Especially as the games selected involve jumping and landing with eminent injuries, and consequently pain. And the psychological therapies selected are the most effective and commonly used for pain tolerance. Therefore, its better management may promote significant performance enhancing and faster recovery from injuries and negate early exit from sport participating due to injuries and pain.

The purpose of this study was to evaluate the utilization of psychological coping therapies in pain tolerance among male and female athletes in contact games (soccer, basketball, volleyball, and handball) and different skill levels/status of athletes: low (local), average (state) and high (national/international).

Hypotheses

The following hypotheses were formulated for the study;

1. There will be no significant difference in the use of psychological therapies for pain tolerance of highly experienced, average experienced and low experienced male and female athletes in Benue state.

Methods

Participants

Two hundred and seventy seven subjects through purposive sampling took part in this study, 202 male and 75 female athletes. 133soccer players 24 basketball players 46 volley ball players and 74 handball players. The sample of athletes was also made up of 93 low average skilled (local), 90 average skilled (state) and 94 highly skilled (national and international) athletes between the ages of 15-39 years old. Subjects for the study were those athletes that practiced sports regularly seeking to enhance their performance and who took part in competitions at their various levels regularly.

Measures

Data collection was made with the use of questionnaire tools which was divided into two parts. In section (A), the subject should indicate his\her age, gender, type of sport participating, level of participating at present(skill level) playing experience and subjective perception of pain during and after playing to rate the intensity of pain out of 10 possible scores.

In section B, the frequency of use of the various psychological coping strategies for pain control was assessed. In the questionnaire a list of 4 pain psychological coping strategies were presented. In each strategy, the subject informed how often he\she used it when feeling pain. Six possible options were made presenting score; 0 related to never and 6 to always.

Tools for Data Analysis

The statistic analysis of analysis of variance (ANOVA) was used to analysed the data. A post hoc analysis was carried out using Turkeys procedure to find out exactly where differences lies. All results were considered significant on a level of 5% ($p < 0.05$). a polygon graph was plotted to clearly show the difference in the use of psychological therapies and playing experience.

Result

Hypothesis One: There will be no significant difference in the use of psychological therapies for pain tolerance among the highly experienced, averaged experienced and lowly experience athletes in Benue State.

Table 1: descriptive analysis of mean and standard deviation of the use of psychological therapies for pain tolerance among high, average and low experienced athletes in Benue State.

Playing status	N	Mean	SD	Std Error
Highly experienced	94	9.58	5.19	.527
Average experience	84	5.12	3.931	.429
Low experience	96	4.463	4.096	.418
Total	274	6.48	4.950	.2950

Table 1 described the mean and standard deviation in the use of psychological therapies for pain tolerance among highly experienced ($M=9.58$; $SD=5.19$); averagely experienced ($M=5.12$; $SD= 3.931$) and low experience athletes ($M=4.03$; $SD=4.096$) in the use of psychological therapies for pain tolerance among high, average and low experienced athletes in Benue State. This means that, there was a significant mean difference in the use of psychological therapies for pain tolerance among highly experienced, averagely experienced and low experienced athletes.

Table 2: Summary of analysis of variance (ANOVA) for the difference in the use of psychological therapies for pain tolerance in high, average and low experienced athletes in Benue State.

	Sum of Squares	Df	Mean Square	F	Sig
Between group	1385.735	2	692.867		
Within group	5304.060	271	19.572		
Total	6689.795	273		35.401	000

$F(273) = 35.401$, $p < 0.05$

Table 3 presents the summary of analysis of variance (ANOVA) for the use of psychology therapies for pain tolerance in high, average, and low experienced athlete in Benue State. From the table, we can infer that, there was a significant difference in the use of psychological therapies for pain tolerance among high, average and low experienced athletes in Benue State ($F(2,73) = 35.401, p < 0.05$). The hypothesis which states that there will be no significant difference in the use of psychological therapies for pain tolerance among the highly experienced, averaged experience and lowly experienced athletes in Benue State was rejected.

Table 3: Summary of Turkeys procedure for post hoc test fir the specific difference in the use of psychological therapies for pain tolerance among high level, average level and low experienced athletes in Benue State.

(a) Playing strategy	(b) Playing status	Mean diff. (a-b)	Std Error	Sig
Low	Average	-.489	.661	.740
	High	-4.947*	.662	.000
Average	Low	.489	.661	.740
	High	-4.458*	.664	.000
High	Low	4.947*	.662	.000
	Average	4.458*	.664	.000
Total	274	6.48	4.950	.2950

Table 3 is a Turkeys procedure for post hoc analysis stated the specific difference in the use of psychological therapies for pain tolerance among average and highly experienced athletes ($M = -.489, p < 0.05$), low and high ($M = .489, p < 0.05$). But there was statistical difference between low and average experience athletes ($M = -4.947, p > 0.05$) in Benue State.

Discussion

Findings from the study revealed that there is no significant difference in the use of psychological pain tolerance management therapies among highly experienced, averagely experienced and low experienced male and female athletes in Benue State. Therefore, the hypothesis which states that there will be no significant difference in the use of psychological therapies for pain tolerance among highly experience, average experience and low experience male and female athletes in Benue state was rejected. There was a mean difference in the use of psychological pain tolerance management therapies between highly experienced, average experienced and low experienced athletes in Benue State.

The summary of analysis of variance for the difference in the use of psychological pain tolerance management therapies among highly experienced, average experienced and low experienced athletes that the probability is less than alpha (0.05). The Turkeys procedure (post hoc test) for the specific difference in the use of psychological pain tolerance management therapies among highly, average and low experienced athletes. The

difference was significant especially between the highly experienced athletes and the averaged experienced athlete, and the highly experienced athletes and low experienced athletes, but there was no significant difference among the average and low experienced athletes.

The result of this study implies that our athletes, especially the local and state (low and average) are not taught these psychological pain tolerance management therapies as they were upcoming in sports participation. And this is in part contributes to the early exit in sports due to pain in sports and of course injuries. Therefore, our athletes need to be conversant with many of the psychological skills at the very beginning of their sporting career. Hence psychological therapies enhance sports performance and sustain it for a longer period. We do not have to wait until only a very privilege few will graduate to the high levels of sport (international) before they either learn or read from psychological books and start practicing.

Conclusion

Based on the findings of the study:

- I. There was a significant difference in the use of psychological therapies for pain tolerance among highly experienced, averagely experienced and low experienced athletes.
- II. There were specific differences in the use of psychological therapies for pain tolerance among average and highly experienced athletes, low and highly experienced athletes. But there was statistical difference between low and average experienced athletes in Benue State.

Injuries in physical activity and sports are inseparable and unavoidable. Because sports is competitive in nature and involves physical and psychological contact among athletes. The result of this study clearly shows that athletes at local and state levels are not aware nor do they know the psychological pain tolerance management therapies that could be used to alleviate or cope with sporting pains and injuries.

Recommendations

1. All state councils, national sports commission and the Nigeria 'Football Association should be mandated to seek for the services of a sports psychologist to teach athletes the use of basic psychological therapies to enhance and sustain sports performance
2. Complete cognitive intervention strategies/therapies for pain tolerance and performance enhancement should be included in preparing all our professional athletes for national and international engagements.

3. There are many psychological therapies for enhancement of sports performance including pain tolerance. They include Cognitive Restructuring (CR) Biofeedback, relaxation training-imagery technique (IT), stress inoculation therapy (SIT) and host of others. The task of making the local and state athletes Olympic champions depend greatly on sports psychologists. They are trained professionals who can administer these psychological pain tolerance management therapies in different sports at varying degrees and situations. All stakeholders in sports management must avail themselves to this opportunity to enhance sports performance in our great country, Nigeria.

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