

Full Length Research Paper

Coping: A critical mediating factor of stress among athletes in West African universities

Olufemi Adegbola Adegbesan

Department of Human Kinetics and Health Education, Faculty of Education, University of Ibadan, Ibadan, Nigeria.

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This study examined coping, which is regarded as a critical mediating factor of stress among athletes in some West African universities using the ways of coping in sport sub-scales of problem focused coping; seeking social support general emotionality, increased effort and resolve, detachment, denial, wishful thinking and emphasising the positive. The descriptive survey research design was used in this study. A 4-point likert type questionnaire of ways of coping with sport with reliability coefficient of $r = .87$ was used to collect data from 587 participants selected for the study. Their mean age was $24.04 \pm 3.62SD$. The t-test analysis revealed a significant difference ($P < .05$) on the variables of problem focus coping and increased effort and resolved ways of coping when the athletes were compared by sex. While the analysis of variance also revealed a significant difference ($P < .05$) in the categorisation of the athletes' sports into three independent criterion variables on all the coping factors. While the correlational analysis revealed significant relationship $P < .05$ among the variables, with the exception of the relationship between the coping variables of detachment and emphasising the positive. The ways of coping techniques was found to be more utilised by athletes from the Anglophone universities when compared with their francophone counterparts. Also, the male athletes of both Anglophone and Francophone countries made use of the coping techniques more than their female counterparts. However, since the major factor in regulating the stressfulness of competition is on the individual athlete's ability to cope, coping techniques as a means of adjusting the effects of stress will assist to improve performance in sporting situations.

Key words: Coping, athletes, stress, sport groups, West African Universities

INTRODUCTION

The term stress involves a number of components such as the cognitive appraisal of a situation, perceived coping abilities and the subsequent stress symptoms. Research area of stress in the view of Martin (1995) has predominantly focused on the physiological effects of the stress response, the resulting symptoms and the effects on both the psychological and physical health status of individuals. One of the first studies to examine coping in sport was conducted in Germany by Krohne and Hindel (1988). In this investigation, 36 top table-tennis athletes were administered a variety of anxiety assessments to examine the relations between general and specific sport

trait anxiety, self regulatory techniques, emotional reactions to stress situations, coping disposition and athletic performance. This investigation was important because it showed that coping strategies influence athletic performance in top athletes. In addition, it studied coping and stress simultaneously and demonstrated that these variables interact (Hardy et al., 1996).

Unfortunately no follow-up investigations according to Hardy et al. (1996) were conducted to Krohne and Hindel's study. However, a number of investigations have used sport – specific versions of way of coping in sport to study coping (Crocker, 1992; Madden et al., 1990a). There are different ways in which individual athletes cope with competitive sport. Competition entails rivalry and striving to perform at one's peak and can be stressful in itself, quite apart from the stress caused by the performances or the behaviour of other competitors. Some athletes are challenged by competitive situations, while

others are overwhelmed by anxiety (Madden, 1995). Individual differences in knowledge, experience, skills, cognitive style or mental outlook can underlie differences in the ways athletes cope with the many and changing situations that occur in sports.

Coping is regarded as constantly changing cognitive, affective and behavioural efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the athletes (Crocker, 1992; Crocker et al., 1998; Lazarus, 1999). It is a complex process where individual athlete may use different strategies at different times as a stressful situation unfolds. The most widely used coping model in sport psychology is based on Lazarus and Folkman's (1984) transaction process perspective. This model assumes that the coping responses serve one of two important functions of problem focused coping and the emotional focused coping. Some considerable sport coping research in previous studies Dale (2000); Holt and Hogg (2002) and Dugdale et al. (2002) have been concerned with elite amateur athletes perceptions of stress and coping responses at major competitions. Also the appraisal and coping with stressful demands across a variety of sports groups were investigated (Crocker, 1992; Crocker and Graham, 1995; Holt and Hogg, 2002). Though, gender may be one of a number of individual difference variables that impacts how athletes cope with competitive stress (Giacobbi, 2000), it is significant to investigate whether the male and female athletes cope with stress in a similar way since gender differences are apparent in coping patterns.

Performance slumps, which is seen as decline in athletes' performance expectation are associated with stress, and may be experience by the athletes before, during or after the performance itself. The stressful situations, which are experience by these athletes during their sports involvements, are usually linked to the athletes' level of arousal. The bracing of large skeletal muscle groups of the athletes for example due to tension in the muscles parts of the athletes body can induce stress which may subsequently lead to impaired physical performance. The application of the techniques to modify the effects of the stress, which is regarded as ways of coping with stress was found to lead to improved performance in many sporting situations (Madden et al., 1990a).

Highly competitive athletes on some few occasions usually experience performance slumps, which create a source for worry for coaches and the athletes. Performance slumps associated with stress is very common with many athletes in West African Universities when compared with their colleagues in the developed countries using the World University Games as a baseline. These has created a considerable level of frustration and anxiety for the athletes because the mechanisms to cope are not always readily available to change the athletes – environment relationship which is problem focused and

also to address emotional regulation or reappraisal of stressful situations of the West African athletes which is emotional focused. It is in the light of this that the study examined coping, as a critical mediating factor of stress among athletes in West African Universities.

METHODS

Participants

The consent for this study was sought from the officials of the various universities delegation who participated in the West African Universities Games (2003) in Burkina Faso, and athletes from West African countries who also participated in Federal Africaine Du Sport Universitaire FASU (2004) in Nigeria. A total of (587) participants (Male = 319; female = 268) serve as sample for this study. Participants were drawn in the categories of Ball games, Racket and stick games, track and field and other sports, and their mean age was 24.4 ± 3.62 SD years.

Measures

The instrument used for data collection was a standardised 4-point likert scale questionnaire known as Ways of Coping in Sport (WOCS) developed by Madden Christopher. The questionnaire consists of 66 items with reliability value of .90. However, only the eight interpretable factors of problem focused coping, seeking social support, general emotionality, increased effort and resolve, detachment, denial, wishful thinking and emphasising the positive with (38 items) was finally used for the study. The (38 items) was also subjected to reliability using Cronbach alpha coefficient and a reliability value of .87 was found. There are no available norms for (WOCS) because it is a psychometric instrument that sees everyone compete at different levels, and they all have different responses at different times. Stone et al. (1992) was of the opinion that WOCS represented a significant development in coping assessment and had a major impact on studies in this field.

Procedure

The questionnaire was administered to the participants with the assistance of the coaches and other team officials after the completion of their events. Instructions were also given to the participants to guide them on how best to complete the questionnaire after the competitions.

Design

The descriptive survey research design was used for this study; this is because the researcher believed that the design helps to interpret all the conditions that exist in the study. This design was also adequate since no intervention programme was used.

Data analysis

The averages of the summated items on each of the coping variables based on the weight allotted to the responses were computed, and the data was analysed with the use of the percentage, mean and standard deviation for data description. The student t-test, Analysis of Variance (ANOVA) and Pearson correlation analysis were used to test for significance on the coping variables and the Scheffe post hoc test was used to determine where significant difference was found among the sport groups.

Table 1. Frequency and percentages of athletes involved in various sports.

Sports	Frequency	Percentage
Handball	60	10.2
Volley ball	76	12.9
Football	157	26.7
Hockey	30	5.1
Cricket	25	4.3
Tennis	8	1.4
Table Tennis	11	1.9
Badminton	12	2.0
Basketball	69	11.8
Swimming	18	3.1
Chess	8	1.4
Athletics	63	10.7
Taekwando	26	4.4
Judo	24	4.1
Total	587	100

RESULTS

Table 1, shows the frequency and percentage distribution of the sports involvement of the respondents used for this study. The sport with the highest frequency was Football, with 26.7%, while the sports with the least frequency were chess and tennis each recording 1.4%.

The results in Table 2 show the number of items on each of the coping factors, the descriptive statistics of mean and standard deviation and their internal consistency coefficient. The internal consistency of the sub-scales is relatively high and reliable.

The coping variables were also examined using comparison by sex on the West African universities athletes as shown in Table 3. Only two coping variables revealed significant differences which are problem focused coping, ($t = 2.22$; $df = 585$; $P < .05$), and increased effort and resolve ($t = 2.06$; $df = 585$; $P < .05$) respectively. While the other coping variables such as seeking social support, general emotionality detachment, denial, wishful thinking and emphasising the positive did not reveal any significant ($P > .05$) difference between the gender groups.

Table 4 also revealed another comparison of the West African universities athletes on the stress coping variables based on the division of the athletes' countries into Anglophone and francophone speaking areas. The analysis did not reveal significant ($P > .05$) differences on the coping variables between the Anglophone and Francophone groups.

The analysis of variance was used for the data in Table 5. The categorisation of athletes by sports into three criterion independent variables of three sport groups of Ball games, Racket and Stick games and Athletics and other sports necessitated the use of (ANOVA). Significant difference was revealed among the three sport groups on

the ways of coping variables ($F_{(2,584)} = 3.095$; $P < .05$).

The data on Table 5 was further subjected to the Scheffe post hoc analysis because of the significant difference that was revealed among the sport groups to find out where the significant difference was located.

Table 6, shows the result of the Scheffe post hoc test on the coping variables by the sport groups. The asterisk (*) on the data in Table 6 shows that the Ball games sport group, and the Athletics and other sport groups were the two groups where the significance difference was found. The analyses in Table 6 also further shows that the Ball games sport group has the highest mean value of 18.18, suggesting that these sport groups utilises the ways of coping examined in this study more than the other two sport groups.

The data on Table 7 shows the frequency and percentage distribution of the categorisation of sports into three independent variables. The Ball games group constitute 61.7%, Racket and Stick games, 14.6%, and Athletics and other sports 23.7% respectively.

A matrix to show the strength of the relationship among the coping variables was determined as shown in Table 8. The data analyses revealed significant relationship among the coping variables with the exception of the relationships between the variables of detachment and emphasising the positive ($r = .057$; $P > 0.01$), in which significant relationship was not found.

DISCUSSION

Any behaviour that assists an individual in dealing with challenging or stressful situations is considered to be a coping behaviour. This behaviour is highly individualistic and varied in nature. Comparison of the ways of coping of the West African universities athletes by sex on stress-ful situations in sports indicated that significant difference existed only between the two groups on problem fo-cused coping and increased effort and resolve ways of coping in sports. Significant difference was not found with the other coping variables. However, the male West Afri-can Universities athletes from both the Anglophone and Francophone countries used the ways of coping variables more than their female counterparts when the mean values for all the coping variables are compared. The study of Crocker (1992) examined how competitive athletes cope with stress using (237) male and female athletes representing variety of sports with the (WOCS) instrument. Part of the findings was that the athletes regardless of their sex used a wide variety of coping strategies and suggested that active coping and problem-focused coping are highly adaptive strategies, which athletes in slumps should utilise to alter the environmental circumstances that contribute to their stress. Comparison of the coping variables was also done with the division of the West African athletes into their official languages, which are French and English languages.

Since the countries in West Africa used for the study

Table 2. Descriptive statistics and internal consistency coefficient for the coping sub-scales.

Number of items	Mean	Sub-scales	SD	
7	29.95	Problem focused	3.385	.72
5	14.88	Seeking social support	2.843	.67
5	13.04	General emotionality	2.963	.60
5	15.81	Increased effort & resolve	2.877	.74
5	12.22	Detachment	3.269	.69
5	14.24	Denial	2.885	.64
3	8.91	Wishful thinking	1.916	.50
3	9.48	Emphasising the positive	2.091	.74

Table 3. Comparison of the athletes by sex on the coping variables

Variables	Group	N	Mean	SD	df	t-value	Sig.
Problem focused coping	Male	319	22.23	3.464	585	2.22	.026*
	Female	268	21.61	3.262			
Seeking social support	Male	319	14.96	2.790	585	.817	.414
	Female	268	14.77	2.907			
General emotionality	Male	319	13.18	2.947	585	1.21	.226
	Female	268	12.88	2.978			
Increased effort & resolve	Male	319	16.04	2.720	585	2.06	.039*
	Female	268	15.55	3.036			
Detachment	Male	319	12.26	3.308	585	.297	.767
	Female	268	12.18	3.227			
Denial	Male	319	14.35	2.855	585	1.02	.304
	Female	268	14.10	2.919			
Wishful thinking	Male	319	8.915	1.928	585	.031	.975
	Female	268	8.910	1.905			
Emphasising the positive	Male	319	4.470	2.167	585	.150	.881
	Female	268	9.496	2.002			

* t - value significant @ 2 – tailed. + level of significant is .05

are mainly English and French speaking countries. Significant difference was not found between the two groups on all the coping variables. However, the athletes from the Anglophone speaking countries utilised problem focused coping, seeking special support, increased effort and resolve, denial and emphasising the positive ways of coping more than their counterparts from the francophone countries, while the athletes from the francophone countries utilised general emotionality, detachment and wishful thinking ways of coping more than their Anglophone counterparts when all the mean values are com-

pared.

Coping is a complex process in which an individual may use different strategies at different times as a stress-ful situation unfolds. Different sports involve different demands and skills, and hence may require different coping strategies. The same measurement device may be used in an attempt to explore difference in coping style across different sports. This study also examined the coping variables with the grouping of all the West African athletes' sports involvement into three criterion independent variables of Ball games, Racket and Stick games,

Table 4. Comparison of the athletes on the coping variables based on the division of countries into Anglophone and Francophone

S	Group	N	Mean	SD	df	t-value	Sig.
Problem focused coping	Anglophone	442	22.00	3.524	585		
	Francophone	145	21.79	2.927			
Seeking social support	Anglophone	442	14.89	2.996	585		
	Francophone	145	14.84	2.325			
General emotionality	Anglophone	442	13.02	2.989	585		
	Francophone	145	13.10	2.890			
Increased effort & resolve	Anglophone	442	15.93	2.953	585	1.66	
	Francophone	145	15.47	2.608			
Detachment	Anglophone	442	12.20	3.339	585		
	Francophone	145	12.29	3.055			
Denial	Anglophone	442	14.28	3.018	585		
	Francophone	145	14.11	2.438			
Wishful thinking	Anglophone	442	8.877	1.961	585		
	Francophone	145	9.020	1.773			
Emphasising the positive	Anglophone	442	9.486	2.146	585		
	Francophone	145	9.469	1.922			

+ level of significance is .05

Table 5. ANOVA Table of athletes' comparison on all the coping variables based on the categorisation of the sports involvements into three criterion independent variables.

Coping variables	Source	SS	df	MS	F – ratio
All the coping factors	Main effects	1186.088	2	593.044	3.095**
	Sports	1186.088	2	593.044	
	Explained	1186.088	2	593.044	
	Residual	111890.266	584	191.593	
	Total	113076.354	586	192.963	

Table 6. Scheffe post hoc test on the coping variables by the sport groups.

		G	G	G			
		r	r	r			
		P	P	P			
		1	2	3			
Mean	Sports groups						
18.18	G	r	P	1			
13.84	G	r	P	2			
15.03	G	r	P	3	*		

(*) Indicate significant difference, which is shown in the lower triangle. Grp 1, Ball games; Grp 2, Racket and Stick games, Grp 3, Athletics and other sports.

athletics and other sports. Significant difference was found in the categorisation by sport on the coping variables. The significant difference which was found in the result among the different sport groups may not be un-

Table 7. Frequency and Percentage distribution of the categorisation of sports into three independent variables.

Sports	Frequency	%
Ball games	362	61.7
Racket and stick games	86	14.6
Athletics and other sports	139	23.7
Total	587	100%

connected with the fact that the athletes coping profiles defers according to needs, and some of these athletes are better equipped on some of these psychological coping techniques than their other colleagues depending on their psychological training exposures. The same was also done in studies such as Madden (1987a); Madden et al., (1990a, b); Kello and Madden (1993) and the different ways of coping with sports profile obtained in the high-lighted studies reflect the relative frequency of the use of

Table 8. Correlation matrix for all the coping variables.

	Problem focused coping	Social support	General emotionality	Increased effort & resolve	Detachment	Denial	Wishful thinking	Emphasising the positive
Problem focused coping	1							
Social support	.536** .000	1						
General emotionality	.233** .000	.295** .000	1					
Increased effort & resolve	.453** .000	.403** .000	.194** .000	1				
Detachment	.087* .035	.143** .000	.502** .000	.118** .004	1			
Denial	.262** .000	.257** .000	.279** .000	.411** .000	.324** .000	1		
Wishful thinking	.344** .000	.334** .000	.246** .000	.355** .000	.192** .000	.455** .000	1	
Emphasising the positive	.414** .000	.350** .000	.120** .000	.373** .000	.057 .169	.295** .000	.559** .000	1

** P <0.01, two tailed significance. * P < 0.05 two tailed significance

these coping styles for different sports. A matrix of correlation to show the strength of the relationship among the coping variables was also examined in this study. The result revealed significant relationships among the variables, with the exception of the relationship between the variables of detachment and emphasising the positive.

In conclusion, since the major factor in regulating the stressfulness of competition is on the individual's athlete ability to cope, coping techniques as a means of adjusting the effects of stress will assist to improve performance in sporting situations. Hence, the implication of this study suggest that since differences on ways of coping in sport are apparent between

the male and female athletes and among sport groups, the sport psychologists and the coaches may utilise this findings to assist athletes to maximise their ability to cope effectively with stressful situations which may be encountered during competitive process. Also the information on the ways of coping in sport across cultures as reflected in this study provides insight for future direction on the appraisal or coping patterns of athletes from different cultures. The researcher acknowledged some limitations in this study.

Firstly, the paucity of literature in the comparison of coping patterns in sport across culture and secondly, the examination of different types of stressors in relation to these coping patterns

would have provided more information and give the sport psychologists and coaches further insight on the ways athletes from the West African universities can effectively cope with stressful situations in sports. However, future direction should be focused on this area.

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