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Comparison of attentional styles and anxiety levels of higher and lower rated male and female referees of women's soccer

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Abstract

The purpose of this study is to identify and compare attentional styles and anxiety levels of high and low rated male and female referees of women's soccer. The subjects involved in the study were currently rated referees of the Hellenic Soccer Association during the season 2011-2012. Rating levels ranged from apprentice to national. Four distinct groups were established: males, females, high rated and low rated. All subjects were speakers of English. They completed a questionnaire which was a composite of two tests: (a) Nideffer's Test of Attentional and Interpersonal Style (T.A.I.S.), (b) Spielberger's State - Trait Anxiety Inventors (S.T.A.I.). From the six attentional style variables assessed using the TAIS (OIT, OET, BET, BIT, NAR, and RED) the narrow effective attentional focus (NAR) was the only variable having a level of difference high enough to be statistically significant. In anxiety levels of male and female soccer referees, no significant differences have been found.

Keywords: concentration; decision making; state- anxiety; stress; trait- anxiety

1. Introduction

The sports world is influenced by a figure whose job is unique and critical to the well-played game, the sports official. The degree of possible danger to the officials and potential for injury to players increased demands for inter-official cooperation, preparation, and knowledge of rules and responsibilities. The type of athletic contest created differential demands on the referee due to varying time lengths, pace of contest, and frequency of official intervention. Soccer was listed third after wrestling and basketball as one of the most difficult of 16 varsity sports. Women's soccer, the sport of focus in this study, was ranked as the third highest among female sports and fifth highest of all sports.

The advancements of women's soccer have resulted in a huge increase of males refereeing the women's game. As the number of male referees in women's soccer is rising, the focus of investigative research can be enhanced in two areas: (a) identification of traits common to both male and female referees of women's soccer, and (b) psychological comparisons of male and female referees of women's soccer.

Researchers have proven that many sports, including soccer, require high levels of psychological skills [1]. Psychologists state that the ideal referee is basically an independent and dominant person who is self-reliant and does not need to seek assurance from others [2]. Attentional focus is a psychological construct referring to the degree in which stimuli from the environment are sampled [3].

Attentional focus theory posits two distinct attentional dimensions; width and direction. The continuum describing width can proceed from a very narrow focus, filtering out outside stimuli, to the point of over inclusion. The continuum describing direction can proceed from internal orientation, including feelings and thoughts, to an external orientation, reflecting environmental influences. There is a belief that attention is a variable essential to maximizing performance [4, 5].

Attentional focus is proved to be one of the most important aspects of referee performance [6, 7, 8]. When a referee is full- concentrated in the game, the speed and the accuracy of their decision will be extremely helpful, not only for their performance but for the proper Determination of the game as well.

According to Guillen ^[9], soccer players and athletes in general, are not the only ones who need psychological skills to perform successfully ^[10], but referees need them as much as players and coaches as well ^[11-13]. Soccer referees must have even much higher levels of attentional focus and concentration than soccer players, because during the game, they are acting under huge pressure, as they are the ones who can manage or lose control of the game. As a result, soccer referees have to cope with this pressure and the possibly mistaken decisions that they might make.

Instant and correct decisions can categorize and differentiate a good referee from an elite one. These decisions are the result of good attentional focus ability and concentration during the game. Although in soccer there are referees who have these skills developed, there are cases where external conditions make their work even more challenging. Those are the cases when an elite referee can stand by a good one and handle the situation. The majority of Norwegian elite soccer referees claimed that external conditions such as noise and disturbance had no effect in their refereeing, and aggressive behavior from players or fans did not affect their performance ^[14].

Anxiety is a variable that has been studied in many contexts relating to sport performance. There have been studies in terms of negative emotional effects, anxiety reduction techniques and its energizing qualities. Anxiety has been studied as arousal and how one's ability to focus on central and peripheral cues is affected ^[15, 16]. Competition raises tension, which, if already at optimum level for performance, could cause deleterious effects. As a result, anxiety levels must be assessed in order to determine how one will function under the pressure of competition ^[17].

2. Materials and Methods

The purpose of this study is to identify and compare attentional style and anxiety levels of higher and lower rated male and female referees of women's soccer. The subjects involved in the study were currently rated referees of the Hellenic soccer federation. Ratings levels ranged from apprentice to national. Four distinct groups were established: a) males (n=20), b) females (n=50), c) high rated (n=52), and d) low rated (n=18). All subjects completed a questionnaire which was a composite of two tests: (a) Nideffer's Test of Attentional and Interpersonal Style (T.A.I.S.), and b) Spielberger's state – Trait Anxiety Inventory (STAI). Attentional style was assessed using the T.A.I.S., which was developed to determine ones' attentional strengths and weaknesses ^[4]. Nideffer viewed attention as a major predictor of performance in a competitive situation. The T.A.I.S. measures six categories important in focusing attention: (a) broad- internal, (b) broad- external, (c) internal overload, (d) external overload, (e) errors of under inclusion and (f) narrow effective focus. This format allows a reliable indicator of attentional focus. Anxiety was measured through the use of the Spielberg State- Trait Anxiety Inventory (STAI) ^[18]. He introduced two separate measures of anxiety, in order to create a more precise evaluation. The first, trait anxiety, represents a somewhat stable personality facet whereas the second, state anxiety represents a fluctuating, situational measure of stress. The STAI is one of the most frequently utilized measures whose validity and reliability qualify it for use in this study of soccer officials. It has been suggested that there are significant gender differences in perceiving and interpreting visual phenomena. It has also been suggested that individuals of higher and lower rating levels also differ.

The data files were run through the following statistics in the

Statistical Package for the Social Sciences (SPSS), (a) Frequencies, (b) Descriptive and (c) Pearson Product Moment correlation. The 0.5 level of significance was utilized for each statistical test. The first file listed the raw scores of 70 respondents in the seven categories to be compared; (a) anxiety score and (c) six variable attentional style scores. The second file was created by converting raw scores into categorical data. Using the frequency distribution, a median was established for the range of raw scores in each of the seven categories. The points at which 25% of the scores were above and below the median were determined using the statistical quartile formula. Quartiles will be referred by using the Qexp symbol. Chi square was used to investigate the hypotheses.

3. Results & Discussion

The subjects in this study included 50 females and 20 males. There were 52 higher rated referees and 18 with lower ratings. The female referees were slightly younger and with slightly less experience. This fact appears to indicate that age and experience, more than ability, help propel one to the top. The higher rated referees were also older and more experienced. The average age of all referees was 36, and the average years of experience were 12 (Table 1). Test results were recorded using a quartile formula and subjected to a chi square analysis ($P < 0.5$ at 2 DF). From the six attentional style variables (OIT, OET, BET, BIT, NAR and RED) only the narrow effective attentional focus (NAR) was the variable of significant differences of male and female referees ($X^2=8.63$, $p=.0134$). There were no significant differences in anxiety levels of male and female referees of women's soccer. Finally, there were no statistically significant differences found in the attentional style and anxiety levels of higher and lower rated referees of women's soccer.

The majority of the experienced referees have lower trait anxiety levels. This fact can be characterized as something positive for the referees and for the game, because referees with high levels of trait anxiety are often more easily stressed and anxious. Those with higher ratings do not show correlation with low anxiety. This indicates that the trait anxiety level does not necessarily get lower as one becomes more effective. Trait anxiety, as researchers have found, is a relatively stable characteristic.

A major result is that, beyond the attentional style factor of NAR, there appears to be no significant differences in the psychological abilities related to performance in male and female referees of women's soccer. (Figure 1). NAR scores for males had greater variability than those of the females. A higher percentage of males had high NAR and low NAR scores. The females' scores were grouped in the moderate range (Figures 2, 3).

3.1 Tables

Table 1: Age and Experience of soccer referees.

Category	All referees N=70	Females N=50	Males N=20	High Rated N=52	Low Rated N=18
Age (in years)					
Mean	36.5	35.2	39.5	38.4	30.4
S.D	8.5	8.5	7.7	7.98	7
Experience (in years)					
Mean	12.7	11.96	14.5	14.6	6.1
S.D	7	7.5	6	6.8	3.5

Hypothesis 1.1 stated: There will be no significant difference in attentional styles of male and female referees of women's soccer. Each of the six attentional style variables was individually tested through chi square analysis (Table 2). The criterion established for acceptance of this hypothesis

indicated that no significant difference would appear in any of the six variables at the .05 level of significance. Narrowed Attentional Focus (NAR) was the only variable which demonstrated a significant difference.

Table 2: Chi Square Totals of Raw scores by Hypothesis

Hypothesis #	X ²	DF	Significance (p<.05)	Significant Difference
Hypothesis 1.1				
OET	1.26	2	.5321	
OIT	2.77	2	.2500	
BIT	4.43	2	.1802	
NAR	8.63	2	.0134	*
RED	.27	2	.8741	
BET	1.21	2	.5456	
Hypothesis 1.2				
Anxiety	.50	2	.79	
Hypothesis 2.1				
OET	1.01	2	.60	
OIT	.66	2	.72	
BIT	1.07	2	.59	
NAR	2.29	2	.32	
RED	.69	2	.71	
BET	2.50	2	.29	
Hypothesis 2.2				
Anxiety	.06	2	.98	

In Table 3 are presented the means, standard deviations and range of the scores on attentional style and anxiety. The scores of males- females and the higher- lower rated referees do not differ markedly from one another. The one statistically significant difference between males and females, NAR, is a

product of a greater variability in the scores of the males. More males were scoring either higher or lower on NAR while females were distributed closer to the mean for both females and all referees.

Table 3: Attentional style and Anxiety Variables

Variable	All referees N=70	Females N=50	Males N=20	High Ability N=52	Low Ability N=18
Attentional style					
OIT					
Mean	12	12.4	11.6	12	12
S.D	3.4	3.4	3.4	3	3.9
Range	5- 22	5- 22	5- 18	5- 20	7- 22
NAR					
Mean	24	24.6	22.6	23.9	24.5
S.D	5.4	4.8	6.6	5.5	5
Range	5- 38	11- 38	5- 22	5- 34	13- 38
RED					
Mean	22.4	22.2	22.9	22	22.9
S.D	4.3	4.6	3.7	4	5
Range	12- 3	12- 33	14- 27	14- 33	15- 33
BIT					
Mean	19.3	19.5	18.8	19	20
S.D	4.5	4.3	4.9	4.7	3.5
Range	5- 28	12- 28	5- 26	5- 28	13- 27
OET					
Mean	16.3	16.5	15.7	16	16.6
S.D	4.5	4.5	4.4	4.5	4.4
Range	5- 28	6- 24	5- 24	5- 28	6- 23
BET					
Mean	15.7	15.9	15.2	15.7	15.6
S.D	3.3	3.1	3.5	3.4	2.8
Range	5- 23	8- 23	5- 22	5- 22	11- 23
Anxiety					
Mean	30.9	30.6	31.6	30.8	31.1
S.D	7	6.8	7.8	7	7
Range	20- 49	20- 46	21- 49	20- 49	22- 44

Hypothesis 1.2 stated: There will be no significant difference in anxiety levels of male and female referees of women's soccer. The criterion established for acceptance of this hypothesis indicated that no significant difference would appear in chi square analysis of the trait anxiety score at the .05 level of significance. No significant difference was evidenced (Table 2), thus the hypothesis was retained.

Hypothesis 2.1 stated: There will be no significant difference in attentional styles of high and low-rated referees of women's soccer. Each of the six attentional style variables was tested through chi square analysis. The criterion established for acceptance of this hypothesis indicated that no significant difference would appear in any of the six variables at the .05 level of significance. No significant difference was evidenced (Table 2) thus the hypothesis was retained.

Hypothesis 2.2 stated: There will be no significant difference in anxiety levels of high and low-rated referees of women's soccer. The criterion established for the acceptance of this hypothesis indicated that no significant difference would appear in chi square analysis of the trait anxiety score at the .05 level of significance. No significant difference was evidenced (Table 2) thus the hypothesis was retained.

3.2 Figures

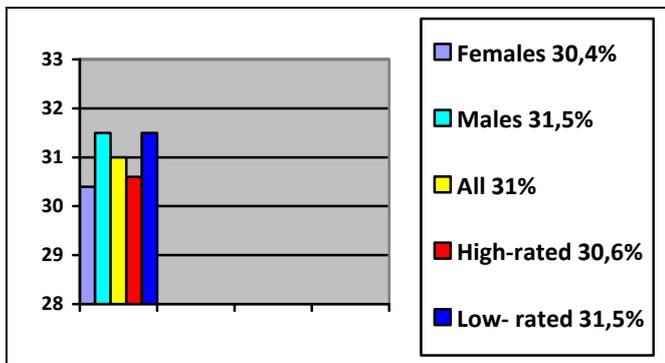


Fig 1: Comparison of Trait Anxiety Scores

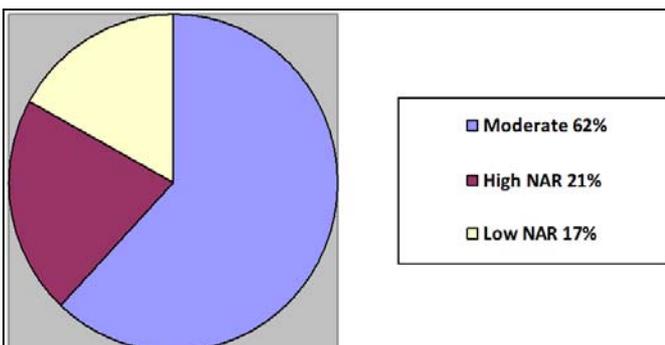


Fig 2: Narrow effective Focus of Female Referees

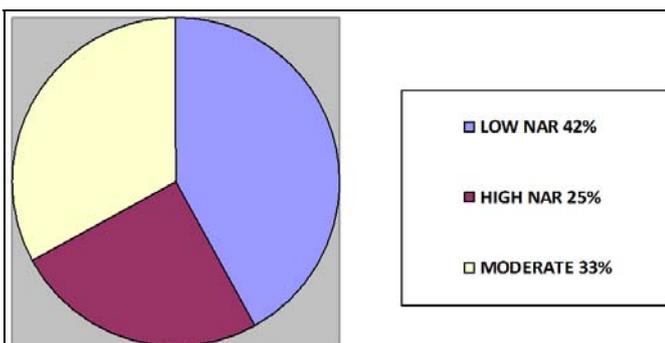


Fig 3: Narrow Effective Focus of Male Referees

4. Conclusion

In conclusion, higher and lower rated male and female referees of women's soccer are similar in terms of psychological profiles. A difference existed only in the narrowed attentional focus (NAR) of male and females. The males were more highly distributed in the high NAR and low NAR quartiles than were the females. The interpretation was that males demonstrated significant difference in the ability of narrowing attention effectively. There were no significant differences in the six attentional style variables of high and low-rated referees of women's soccer. There were no significant differences in the anxiety level of male and female referees and also of high and low-rated referees of women's soccer.

5. Recommendations

Future recommendations are listed as follows:

1. Differences between higher and lower rated referees should be investigated with a much larger, and equal numbered, sample size.
2. In the many organizations from which referees are procured for women's soccer, a commitment should be made towards training, providing and encouraging females to develop their ability in refereeing. Those females interested must expose themselves to the male as well as the female game to the gain that experience.
3. Case study research should be done utilizing logs and interview techniques to compare the development at a male and female novice soccer referee.

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