

A COMPARISON OF STATE ANXIETY LEVELS AMONG  
AGES, GENDERS AND SKILL LEVELS AT  
PRACTICE AND PRE-COMPETITION IN  
AGE-GROUP SWIMMERS

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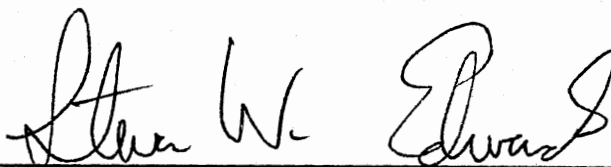
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Scope and Method of Study: Anxiety and the relationship to athletic performance has been a topic of considerable interest to coaches and athletes in many sports. With a large number of American youth involved in competitive sports programs, it is important for researchers to study anxiety and the age group athlete. The purpose of this study was to compare the state anxiety levels among ages, genders and skill levels at practice and pre-competition. The study included 137 athletes. Each subject completed the Spielberger State Trait Anxiety Inventory A-State twice; once just prior to a practice session and again just prior to the State Age Group Swimming Championships.

Findings and Conclusions: The statistical procedure used was a 3 x 2 x 2 Repeated Measures Analysis of Variance. Mean comparisons were made using the Newman Keuls Multiple Range Test which indicated that the 15-18 age group had significantly higher state anxiety than the 9-11 and 12-14 age groups. Females had significantly higher state anxiety than males and significantly higher state anxiety was found at the pre-competition situation than at the practice situation.

ADVISER'S APPROVAL



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## CHAPTER I

### INTRODUCTION

In recent years coaches and athletes have become increasingly interested in the area of sport psychology. Coaches are aware that the psychological readiness of an athlete is a very important factor in the preparation for competition. In particular, anxiety and the role it plays in athletic performance has become a topic of considerable interest (Morgan, 1980; Gould, Weis and Weinberg, 1981). The physiological aspects of athlete preparation are of primary concern and are readily available to coaches; however, sport psychology information is not as readily available. Research conducted in this area has primarily dealt with elite college aged athletes; however, there have been a number of studies involving age-group athletes (6-18 years old) over the past decade (Daino, 1985; Harris, 1975). Competitive sport has been criticized for causing stress and anxiety in children. Therefore, this topic has become an area of interest for researchers (Gould, Horn, and Spreeman, 1983).

A number of studies have compared psychological profiles of successful and less successful elite college athletes with particular attention being given to anxiety

and tension levels (Morgan and Johnson, 1978; Silva, Shultz, Haslan, Martin and Murray, 1985). Such studies have attempted to draw a relationship between components of personality and performance level. The relationship between an anxious or tense personality profile and performance has been investigated with a great deal of interest (Morgan and Johnson, 1977).

Anxiety can be classified as either state or trait. State anxiety is a changing emotional state which is characterized by feelings of tension and apprehension and increased activity in the autonomic nervous system. Trait anxiety is related to personality and is a relatively stable tendency or disposition to perceive a wide variety of objectively non-dangerous situations as threatening (Spielberger, 1976).

Studies similar in design to those conducted with older athletes need to be performed to assess whether younger athletes react to anxiety-inducing situations in a similar manner. Information generated about competitive anxiety in age-group athletes will enable coaches to use sport psychology strategies to possibly enhance performance and keep children participating in competitive youth sport programs (Hogg, 1980).

#### Need for the Study

In order for age-group coaches to aid athletes in preparation for competition, they must learn more about

anxiety. Individual sports seem to elicit greater anxiety than do team sports (Simon and Martens, 1979). Since few studies have focused on age-group swimming, it is believed that the findings will be very helpful for swimming coaches and athletes.

Stress and pressure have also been factors related to attrition in age-group competitive sports. If athletes and coaches can learn to control stress, then drop-out rates may be decreased (McPherson, Marteniuk, Tiharyi, and Clark, 1980).

#### Statement of the Problem

The purpose of this study was to determine if there were differences in state anxiety among age-group swimmers. More specifically, the first problem was to determine if differences in state anxiety existed among three age levels, 9-11, 12-14 and 15-18. The second problem was to determine if differences in state anxiety existed between genders. The third problem was to determine if differences in state anxiety existed between two condition levels, pre-competition and practice situations. The fourth problem was to determine if differences in state anxiety existed among three skill levels, "A", "B" and "C" levels.

#### Hypotheses

The following hypotheses will be tested at the .05 level of significance.

1. There will be no significant differences in state anxiety among ages at either practice or pre-competition situations.

2. There will be no significant differences in state anxiety between males and females at either practice or pre-competition situations.

3. There will be no significant differences in state anxiety among the three skill levels at either practice or pre-competition situations.

4. There will be no significant differences in state anxiety between practice and pre-competition situations.

#### Delimitations

This study was delimited by the following;

1. Male and female athletes registered in United States Swimming were used in the study.

2. Only swimmers between the ages of 9 and 18 competing in Oklahoma age-group swimming programs and who volunteered to participate were used in the study.

3. The Spielberger State Trait Anxiety Inventory for Children (STAIC) was used to determine state anxiety levels.

#### Limitations

1. There was no control over factors outside of the practice and pre-competition situations which might influence state anxiety in these two conditions.

2. The Spielberger State Trait Anxiety Inventory for Children (STAIC) was administered by several trained testers.

#### Assumptions

The following basic assumptions were accepted:

1. Subjects would respond honestly to the STAIC.
2. Subjects would be able to adequately comprehend the questions on the STAIC.

#### Definitions

In order to understand the terms used in this study, the following definitions are provided:

Practice - a scheduled period of time in which, a coach controls and manipulates learning variables with the objective of improving the skills and conditioning of athletes.

State Anxiety - "a changing emotional state which is characterized by feelings of tension and apprehension and increased activity in the autonomic nervous system" (Spielberger, 1976).

Trait Anxiety - "related to personality and is a relatively stable tendency or disposition to perceive a wide variety of objectively non-dangerous situations as threatening" (Spielberger, 1976).

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this chapter is to offer a review of literature which is related to this study. The review will include research conducted in the following areas: (a) participation motives in competitive youth sports; (b) anxiety studies involving successful versus less successful college aged athletes; (c) anxiety levels of specific sports; (d) anxiety and the age group athlete.

#### Participation Motives in Competitive Youth Sports

Competitive youth sports participants have motives for involvement. These motives must be recognized by coaches and parents for continued youth interest. Gould, Feltz and Weiss (1985) assessed participation motives of 365 competitive youth swimmers ranging in age from 8 to 19 years of age. Results indicated that swimmers rated fun, fitness skill improvement, team atmosphere and challenge as the most important motives for participation.

McPherson, Marteniuk, Tiharyi and Clark (1980) found that a majority of coaches, swimmers and parents felt that some changes in the social system of age group swimming need

to be made. More fun should be included in practices, heavy training and competition should be de-emphasized, while current motivational techniques and learning principles need to be adhered to by coaches.

Klint and Weiss (1986) studied participation motives of current and former youth gymnasts. Competence, fitness and challenge were the motives for competitive gymnasts; competence, fitness, fun and situational factors for the recreational gymnasts; and competence, action, challenge and fun for the former gymnasts.

Anxiety Levels Involving Successful  
Versus Less Successful College  
Aged Athletes

There have been a number of studies conducted comparing successful college athletes to less successful college athletes. With increased emphasis being placed on the psychological readiness of these athletes, differences in tension and anxiety levels shown by them should be important to them and the coaches. Apitzsch (1975) conducted a study with eight varsity college swimmers measuring state anxiety at four points prior to the start of competition at the National Championships. The individual state anxiety profiles differed widely. Although not successively increasing in state anxiety, five of the eight swimmers had the highest score on the day of competition. The anxiety levels were



then compared to performance of the individual swimmers so that coaches might be able to draw some information on optimal levels for specific swimmers.

Craighead, Privette, Vallianos and Byrkit (1986) compared a group of 61 starters and non-starters on six teams immediately before the 1982 basketball season. The Profile of Mood States (POMS) failed to show significant difference, although the high school athletes were significantly higher than the university players on both the tension and anger ratings.

Morgan and Johnson (1978) administered the Minnesota Multi-phasic Personality Inventory (MMPI) to 50 college oarsmen during their freshman year. The athletic records of these athletes were identified four years later to allow a comparison of psychological profiles to be made to distinguish successful and less successful oarsmen. Successful athletes were found to possess more favorable scores on each of the eight clinical scales of the MMPI.

The Profile of Mood States has been used by a number of researchers in an attempt to identify successful and less successful athletes. Morgan (1980) used psychological profiles to predict nine of ten wrestlers who made the 1972 Olympic wrestling team from a group of 40 wrestlers. In a related study, he identified 10 of the 16 finalists for a berth on the 1974 U.S. rowing team. Through Morgan's studies with the POMS, he has coined the term "iceberg

profile" which characterizes successful athletes as producing well above average scores on vigor and below average scores on tension, anger, depression, fatigue and confusion.

Demers (1983) found that the iceberg profile existed in all competitors in the 1981 U.S. Outdoor Diving Championships. The POMS was administered to 101 competitors, (45 men and 56 women), however, significant differences occurred within the profile. The top 10 performers in the men's one meter competition scored significantly lower on anger-hostility than the bottom 10. In the women's competition, the top 10 scored higher on vigor and lower on fatigue and confusion than did the lower 10. In the women's 10 meter, the top 10 scored lower on confusion.

Reilly (1979) administered a mood adjective checklist to 24 cross country runners drawn from 12 clubs prior to competing in the English National Senior Cross-Country Championships. The checklist was given one hour prior to the start of the race. Subjects rated each mood factor to their current feelings on a four point differential scale from minus to double plus. Results indicated that mean values were high for surgency, concentration and vigor while subjects had negative results in aggression, fatigue and sadness. A significant positive correlation was observed between finishing position and surgency and between finishing position and vigor.

Silva, Shultz, Haslam, Martin and Murray (1985) found qualifiers for the 1980 U.S. Greco-Roman and Freestyle Olympic Wrestling Teams to approximate the iceberg profile noted by Morgan (1980). The qualifiers were lower than non-qualifiers on the variables of tension, depression, anger, fatigue and confusion, while scoring higher than the non-qualifiers on vigor. In addition, non-qualifiers scored significantly higher than qualifiers on both the Spielberger State Trait Anxiety Inventory (STAI), state anxiety measure (A-State) and trait anxiety measure (A-Trait). The non-qualifier's state anxiety was almost a full standard deviation above the reported norm.

Bennett and Highlen (1983) examined anxiety in successful elite divers and wrestlers compared to their less successful counterparts. Successful divers reported higher anticipatory anxiety than the less successful competitors, however it peaked one day before competition while less successful competitors anxiety peaked one hour before. In contrast, successful wrestlers reported less anxiety one day and one hour before competition than the less successful wrestlers. Both successful divers and wrestlers experienced less anxiety during competition than non-qualifiers.

Scanlan (1978) investigated high and low competitive trait anxious men and how they responded to competition. The Sport Competition Anxiety Test (SCAT) and Mehrabian's Measure of Achieving Tendancy (MAT) were administered.

State anxiety was measured at rest, during non-competition and competition. High competitive trait anxious men perceived greater personal threat during competition than the low. Both groups preferred performing in the competitive situation and sought opponents of equal or greater relative ability.

#### Anxiety Levels of Specific Sports

Morgan and Costill (1972) attempted to define the psychological characteristics of selected marathon runners. The IPAT 8-Parallel Form Anxiety Battery (Form A) was administered with athletes scoring appreciably lower than the norm group for the anxiety variable. Morgan and Hammer (1974) also used the IPAT 8-Parallel Form Anxiety Battery in a study of 29 college wrestlers. Competitors responded at weigh-in, one hour before competition and between 15 and 30 minutes after competition. Comparison of means indicated anxiety increased significantly in the pre-match setting. Post match anxiety was significantly lower than weigh-in or pre-match anxiety levels.

Gruber and Beauchamp (1979) studied 12 varsity women basketballers' anxiety with the SCAT before and after two baseline practice sessions and before and after three easy and three crucial games. The team won the easy and lost the crucial games. State anxiety was reduced after the wins and

remained high after the losses. Anxiety was higher before the crucial games when compared to the easy games.

Huddleston and Gill (1981) investigated 19 female members of a university track and field team. State anxiety was measured 10 minutes before a regularly scheduled practice, prior to warm-up schedules, 45 minutes before competition and 5 minutes before the start of the first competitive event for each individual. Results indicated A-State increased as time to competition neared with pre-event measures significantly higher than other measures. The pre-practice and pre-meet measures, which did not differ from each other, were both significantly higher than the post-practice measure, suggesting that practice creates anxiety levels similar to those generated by a competitive meet.

Henschen, Edwards, Gordin and Ravizza (1984) attempted to identify psychological differences between male and female gymnasts. The POMS and Bem-Sex Role Inventory (BSRI) were administered. Results indicated that both groups roughly coincided with the iceberg profile reported by Morgan (1980). Females showed greater pre-competition tension and fatigue than did their male counterparts.

#### Anxiety and the Age-Group Athlete

In order for coaches to appropriately deal with anxiety in age-group athletes, studies need to be undertaken to determine if results are similar to those obtained from

older elite athletes. Gutmann, Knapp, Foster, Pollock and Rogowski (1986) studied the candidates for the 1984 Olympic Speedskating team to assess psychological response to high intensity training. Seventeen male and 15 female skaters ranging in age from 14-27 were followed. Results indicated the group as a whole had moderate levels of tension, depression, anger and confusion at the start of the summer, but showed a significant decrease in negative moods over the training period. Males and females did not differ in their emotional responses to training, but age and experience had a major effect on moods and training behavior (adherence). Skaters over 20 years of age were significantly less distressed with an accentuation of the POMS "iceberg" profile from June to September.

Hogg (1980) found within a group of club swimmers who responded to the STAI immediately before three different levels of competition, no differences between the A-State scores of the male and female competitors. The results indicated that swimmers of 15 years and over responded with higher A-States than the 14 year old and under swimmers. The anxiety data indicated that the older swimmers had a higher correlation between trait and state anxiety when compared with younger ages.

In 1980 Hogg also studied 275 swimmers and found females to be significantly higher than males at all age levels on the trait anxiety inventory. The 10 year old and

younger females were significantly lower than the rest of the female age groups. Male swimmers were similar to the norms, while the seventh and ninth grade females scored significantly higher on trait anxiety.

Harris (1975) administered the Spielberger State-Trait Anxiety Inventory for Children (STAIC) to 27 age-group swimmers who were between 10-14 years of age and were competing in swimming for the first time. Only the A-State scale was used. The STAIC was given just prior to the biggest meet of the season and three times prior to a practice session with the average being used. Results indicated that the pre-competition A-State was significantly higher for all swimmers while boys showed an increase in A-State levels from pre-practice situations to pre-competitive situations.

Pierce and Stratton (1981) attempted to identify sources and effects of stress on youth sport participants as perceived by the participants. A Sport Participation Questionnaire was administered to participants aged 10 to 17. The subjects indicated that worries related to their own performance, and not to what others think, were the greatest stress factors. The fact that 44.2% of those surveyed indicated that certain worries prevented them from performing their best is a strong indicator to the coach of the importance of the relationship between stress and performance.

Simon and Martens (1979) compared pre-event state anxiety among 9-14 year old boys participating in required school activities, non-required, non-sport activities and non-school sports. Highest A-State levels were exhibited by those in the non-required non-sport activities followed by non-school sports and then the required school activities. All three groups were significantly different from each other. Higher A-States were found among individual participants than team participants with highest A-States for those in individual contact sports and the lowest in team contact sports.

Ewing, Feltz, Schultz and Albrecht (1988) compared psychological characteristics of young hockey players. Subjects were 337 elite hockey players ranging in age from 15 to 19 years of age who were attending a week long training camp. Twenty players were selected from the camp to represent the United States in international competition. In contrast to Morgan's iceberg profile, both the qualifiers and non-qualifiers showed high levels of tension, depression and anger. High levels of vigor and lower levels of fatigue and confusion were indicated. There were no significant differences between the groups on the six POMS subscales.

Gould, Horn and Spreeman (1983) examined pre-competitive and competitive anxiety patterns of 464 junior elite wrestlers between 13 and 19 years of age. In contrast



to some previous studies, no differences in pre-competitive and performance anxiety patterns were found. There were no differences found between successful and more and less experienced wrestlers; however, significant differences were found between high and low SCAT wrestlers. No differences were found in anxiety patterns in relation to the age of the wrestler.

The review of literature related to anxiety and athletics indicated that most of the research was centered around college aged athletes in specific sports, successful versus less successful athletes and more recently age-group athletes. There are relatively few studies comparing anxiety levels in age-group swimmers.

## CHAPTER III

### METHODS AND PROCEDURES

#### Introduction

The purpose of this study was to see if there was a difference in state anxiety levels among ages, genders and skill levels at practice and pre-competition in age-group swimmers. The procedures were divided into two sections: (a) preliminary procedures, and (b) operating procedures. The preliminary procedures included (a) selection of subjects and (b) selection of an instrument. The operational procedures consisted of the collection of data.

#### Preliminary Procedures

##### Selection of Subjects

The subjects selected for this study were swimmers who belonged to the Moore, Norman, Kerr McGee, Stillwater, Ponca City, Tulsa, Bartlesville, Enid, Lawton, Weatherford, Altus and Harrah Aquatic Clubs. In order for the selected subjects to participate in the study, each athlete had to return an informed consent (see Appendix A) signed by his or her parent(s) or guardian. The consent forms were given to the team coaches, who gave them to swimmers to take home to

their parent(s) or guardian. This form explained the research study and the athletes' rights while being involved with the study. Although 165 swimmers returned consent forms for the study, 137 swimmers participated in the study. There were 57 male and 80 female subjects. There were 48 subjects, 9-11 years old; 43 subjects, 12-14 years old; and 46 subjects, 15-18 years old.

### Selection of Instrument

The Spielberger State-Trait Anxiety Inventory for Children (STAIC) was used in the study and can be found in Appendix B. The STAIC was initially developed as a research tool for studying anxiety in elementary children; however, it has also been used with older children. The STAIC was used because of its readability level for all subjects. The STAIC consists of two 20 item self report scales. The STAIC A-State scale consists of statements which ask the subjects how they feel at a particular moment in time while the STAIC A-Trait asks subjects to respond indicating how they generally feel. Only the STAIC A-State scale was used in this study. Individual STAIC items are similar in content to those included in STAI, but the format for responding has been simplified.

It was also selected because of the short time it takes to respond to the inventory. The internal consistency of the STAIC scale is reasonably good with the alpha reli-

ability of the A-State scale being .82 for males and .87 for females. Construct validity of the A-State scale in normal and test conditions indicated that each individual item significantly discriminated between the norm and test conditions. The mean scores were considerably higher in the test condition (males 41.76; females 43.79) than the norm condition (males 31.10; females 31.03) (Spielberger, 1976).

#### Collection of Data

Each subject was asked to complete the STAIC approximately 15 minutes prior to the start of one regularly scheduled practice session, and again after warm-ups and prior to the start of the state age-group swimming championships. In Oklahoma, these championships are divided into two meets. Those swimmers who are classified as "A" or "B" swimmers are eligible for the state Junior Olympic Meet while those with "C" level times are eligible for the state Division II championship meet. Therefore, data were collected at two swim meets depending on the skill level of the swimmer. As a swimmer could have an "A" or "B" time in one event and a "C" time in a different event, it was possible for some athletes to swim in both meets. For those athletes in this category, data were used from the meet in which the athlete swam the most events.

The researcher or a trained tester (see Appendix C) administered the inventory on the pool deck in both

settings. Athletes responded to the inventory in a small group situation. The reasons for this study were verbally outlined to the athletes by the tester so that a non-threatening environment would prevail. Subjects were assured that there were no right or wrong answers, and that the final results would compare state anxiety among ages, genders and skill levels on a group basis. Individual names would not be mentioned, nor would coaches receive results on an individual basis, only a group set of results.

#### Research Design and Statistical Analysis

A comparative survey was used to determine the state anxiety among ages, genders and skill levels at practice and pre-competition in age-group swimmers. The original independent variables were the age intervals, genders, skill levels and situations. The dependent variable was the score from the STAIC completed by the subjects. Skill level was deleted from the final analysis due to the low number of 15-18 year old male "C" level swimmers. The statistical analysis used was a 3 X 2 X 2 ANOVA with age at three levels, genders at two levels, and situation at two levels. The .05 level of significance was used for all statistical tests.

## CHAPTER IV

### RESULTS AND DISCUSSION

The purpose of this study was to compare state anxiety levels among ages, genders and skill levels at practice and pre-competition in age group swimmers.

In order to investigate this comparison, age-group swimmers were asked to participate voluntarily in this study. Consent forms were signed by parents or legal guardians of these swimmers. The Spielberger State-Trait Anxiety Inventory for Children (STAIC) was administered twice to each subject in a small group situation. Swimmers responded to the questionnaire just before entering the water for a practice session approximately two weeks before the State Age-Group Championships, again after warm-up and prior to the beginning of the State Age-Group Swimming Championships. The results of the various subgroups were then compared to see if any differences occurred. This chapter is divided into the following sections: (a) analysis of hypothesis of data and (b) discussion of results.

## Analysis of Hypothesis of Data

Four hypotheses were tested for significance at the .05 level in this investigation. Each of the stated hypotheses was examined to see if a difference occurred between the selected groups and to see if an interaction existed among the groups.

### Hypothesis 1

The first hypothesis stated that there would be no significant differences in state anxiety among ages at either practice or pre-competition situations.

### Hypothesis 2

The second hypothesis stated that there would be no significant differences in state anxiety between males and females at either practice or pre-competition situations.

### Hypothesis 3

The third hypothesis stated that there would be no significant differences in state anxiety among the three skill levels at either practice or pre-competition situations.

#### Hypothesis 4

The fourth hypothesis stated that there would be no significant differences in state anxiety between practice and pre-competition situations.

Due to low numbers of 15-18 year old male "C" level swimmers, a preliminary analysis of variance of the third hypothesis stating that there would be no significant differences in state anxiety among the three skill levels at either practice or pre-competition situations was completed. This revealed no significant difference. An analysis of variance was employed again after collapsing cells across the two skill levels. No statistical significance was found. Skill level was deleted from further analysis then, the statistical procedure used was a 3 x 2 x 2 repeated measures ANOVA. Mean comparisons were made using the Newman-Keuls multiple range test with the results shown in Table I.

As indicated by Table II, there was a significant difference among the three age categories when the analysis of variance was used. A post hoc analysis revealed that the 15-18 year age group experienced significantly more state anxiety than did the two younger age groups. There was no significant difference between the 9-11 and 12-14 age group. Therefore, the first hypothesis was rejected.



TABLE I  
 MEAN SCORES AND STANDARD DEVIATIONS OF AGE  
 INTERVALS, GENDERS AND SITUATIONS

Age	9-11	9-11	12-14	12-14	15-17	15-17	Marginal Mean
Gender	Male	Female	Male	Female	Male	Female	
Practice	28.8 ±4.26	27.7 ±3.46	28.5 ±5.74	31.9 ±6.05	31.3 ±3.22	34.2 ±6.02	30.43
Pre-Comp	30.5 ±6.78	30.5 ±4.23	30.8 ±5.25	33.3 ±6.18	34.2 ±5.09	37.9 ±6.12	32.94
Marginal	29.63	29.15	29.63	32.55	32.72	36.02	31.69
Count	18	30	15	28	24	22	137

TABLE II  
ANALYSIS OF VARIANCE OF STATE ANXIETY FOR  
AGE INTERVALS, GENDERS AND SITUATIONS

	SS	df	M	F
Age	1164.36	2	582.18	14.55 <sup>a</sup>
Gender	235.45	1	235.45	5.89 <sup>b</sup>
Age x Gender	193.26	2	96.63	2.42
Error	5241.21	131	40.00	
Condition	402.59	1	402.59	26.65 <sup>a</sup>
Condition x Age	22.32	2	11.16	0.74
Condition x Gender	2.21	1	2.21	0.15
Condition x Age x Gender	13.71	2	6.85	0.45
Error	1978.99	131	15.10	

a p < .01  
b p < .05

Table II also indicates that there was a significant difference in state anxiety between genders. Female swimmers exhibited significantly more anxiety than did the male swimmers. Therefore the second hypothesis was rejected.

Table II indicates that there was also a significant difference in state anxiety exhibited in practice and pre-competition situations. Athletes showed significantly greater state anxiety in the pre-competition situation than they did at practice. Therefore the fourth hypothesis was rejected.

#### Discussion of Results

The results of this study support findings from other studies. Hogg (1980) also found that 15-18 year old swimmers experience significantly more state anxiety when he conducted a similar study with a group of club swimmers.

Henschen, Edwards, Gordin and Ravizza (1984) found elite female gymnasts to be significantly more tense than male gymnasts prior to competition. Harris (1975) found swimmers to experience more state anxiety prior to competition than in practice.

The high A-State shown by the 15-18 year age group may be explained by the high expectancies placed on them by coaches, parents and themselves. These swimmers are usually experienced competitors by this stage of their career and

often have set high goals. College scholarships, junior and senior national qualifying standards, state records and personal best times may have an effect on state anxiety (A-State). The relationship between performance level and self concept is also very important. However, it is interesting to note that the youngest group, 9-11 year olds did not exhibit more A-State. These swimmers usually have not had much experience; therefore, the researcher thought the competitive situation would not be very comfortable for them. It would seem though that fewer expectancies are placed on these athletes.

Analysis revealed that female athletes were significantly more anxious than were males. These results might be explained by the way society has traditionally viewed athletic competition. Athletic competition has been inherently thought of as normal activity for males, while it has only been relatively recent that athletic competition for females has been thought of as being socially acceptable. Possibly males might be less anxious than females in athletic settings due to the familiarity and promotion of athletic competition in their lives. Females may not feel as comfortable because of traditional sex roles placed on them.

Even within the athletic arena, sex roles may be found. Henschen, Edwards and Ravizza (1984) found that male gymnasts associated themselves with the more masculine

qualities inherent with gymnastic activity while the females did the same for the more feminine qualities.

Gould, Feltz and Weiss (1985) found that females placed greater emphasis on friendship and fun as motives for participation than did the males. While both males and females were found to have the same achievement motivation, if females do not feel like they have friends or are not having fun, they might experience more stress than the males. This would seem to indicate that coaches may need to pay more attention to the female athletes prior to competition with respect to state anxiety. All athletes should be taught stress management techniques in order to promote optimal performance.

A significant difference was also found between state anxiety levels at practice and pre-competition. This finding might seem to be very logical as in most instances athletes would seem to be more concerned with athletic performance in competition than in practice. This finding would also suggest that coaches in Oklahoma do not promote pressure or competitive situations to the point of causing extremely high levels of state anxiety. Norm and test means in this study were comparable to the norm and test means listed in the STAIC Manual. However, this is not always the case in practice situations. Huddleston and Gill (1981) found a regularly scheduled practice to elicit state anxiety levels similar to a competitive meet.

In summary, subjects in the 15-18 year old age group exhibit significantly more state anxiety than the 9-11 and 12-14 age group. There was no significant difference between these two younger groups. Results also indicate that female swimmers in this study showed significantly greater state anxiety than did the males. Swimmers in this study also exhibited significantly more state anxiety at pre-competition than practice. However, the state anxiety scores exhibited by subjects in this study were comparable to those of similar aged children used to develop the norms for the State Trait Anxiety Inventory for Children in normal and test conditions. This indicated that the situations in this study did not cause extremely high levels of state anxiety.

## CHAPTER V

### SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to determine if significant differences existed among skill levels, ages, genders and situations with regard to state anxiety. State anxiety was measured by scores obtained from the Spielberger State-Trait Anxiety Inventory for Children (STAIC). Subjects were tested on a small group basis on the pool deck. A total of 137 subjects were administered the State-Trait Anxiety Inventory for Children just prior to a practice session, again after warmup just prior to the start of the state age group swimming championships. The subjects were classified according to age level, skill level and gender in the practice and pre-competition situations. There were 57 male and 80 female subjects. There were 48 subjects 9-11 years old; 43 subjects 12-14 years old; and 46 subjects 15-18 years old.

#### Findings

An analysis of variance with significance at the .05 level yielded the following findings.

1. There was a significant difference in state anxiety among ages. Hypothesis one was rejected as the 15-18 year old age group showed significantly more anxiety than did the two younger groups.

2. There was a significant difference in state anxiety between male and female subjects. Hypothesis two was rejected as females showed significantly more state anxiety than males.

3. There was a significant difference in state anxiety between practice and pre-competition situations. Hypothesis four was rejected as the pre-competition situation elicited greater state anxiety than did the practice situation.

4. Hypothesis three was not tested in the final analysis.

### Conclusion

Male and female age-group swimmers differ in levels of state anxiety between practice and pre-competition situations.

### Recommendations

The literature review, purpose, methods, procedures, and results of this study indicate that the following recommendations for further research should be made:



1. More studies need to be conducted in reference to sport psychology with age-group athletes.

2. More studies need to be conducted involving non-elite age group athletes.

3. A study similar in design to the present study should be conducted to examine the relationship between level of state anxiety and personal best times.

4. The study should be replicated to determine the differences in years of experience to state anxiety.

5. The study should be replicated in other states of the country.

6. A study should be conducted investigating the amount and type of feedback received by male and female swimmers in relationship to the gender of the coach.

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**APPENDIXES**

APPENDIX A

PARENTAL CONSENT FORM

Dear Parent(s),

My name is Garry Bowyer and you may have seen me at various swim meets in Oklahoma serving as the head coach of the Stillwater Aquatic Club. This year I'm also completing my doctoral degree at Oklahoma State University. My research topic should be of interest to you and your swimmer.

The purpose of my study is to compare the anxiety levels among A, B and C level swimmers, among males and females and among ages at practice and pre-meet situations. I will be using a questionnaire that will measure the anxiety levels of age-group athletes and should take approximately 10-15 minutes to complete. Swimmers taking part in the study will answer the questions at one regularly scheduled practice either one to two weeks before a scheduled swim meet or one to two weeks after the swim meet. Swimmers will also be asked to respond to the same questionnaire approximately 15 minutes prior to the start of a swim meet. Both times the questionnaire will be administered on the pool deck by me or a trained tester.

Through my review of previous studies in this area, I cannot foresee any risks or discomforts for any swimmer taking part in this research. Results of this study will be sent to your team coach so that he/she may take advantage of any findings. Confidentiality will be maintained in this research with no names being associated with final results. I will be comparing data on a group basis with results pertaining only to ages, gender and skill level. However, no individual compensation will be given for participation in this study. Of course, your consent to allow your child to participate in this research is voluntary and refusal will not disqualify him/her from being aided by any results that might be sent to the coach. Your child may also discontinue with the study at any time and will still benefit from any of the findings.

Let me thank-you in advance for your help with my study. Through investigations such as this, we will better understand how anxiety effects age group swimmers. If you have any questions about the research or your child's participation please contact me at (405) 624-0496 after 7:00 p.m.

Yours Sincerely,

Garry Bowyer  
Head Swim Coach  
Stillwater Aquatic Club



I \_\_\_\_\_, voluntarily agree for my  
 (Both parents or legal guardians)  
 child, \_\_\_\_\_,  
 (name of minor)  
 to participate in this  
 study entitled: A Comparison of State Anxiety Levels Among  
 Ages, Genders and Skill Levels at Practice and Pre-  
 Competition in Age Group Swimmers.

_____	_____
Date	(Both Parents or Legal Guardians)
_____	_____
Date	Swimmer
_____	_____
Date	Witness
_____	_____
Date	Investigator

- \*Both parents must sign the consent form
- \*A person witnessing your signatures must also sign
- \*The questionnaire will be administered 10-15 minutes prior to the beginning of Junior Olympics and Division II Championships in March

APPENDIX B

SPIELBERGER STATE ANXIETY

INVENTORY FOR CHILDREN

### HOW-I-FEEL QUESTIONNAIRE

Developed by C. D. Spielberger, C. D. Edwards, J. Montuori and R. Lushene  
STAIC FORM C-1

NAME \_\_\_\_\_ AGE \_\_\_\_\_ DATE \_\_\_\_\_

**DIRECTIONS:** A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide how you feel *right now*. Then put an X in the box in front of the word or phrase which best describes how you feel. There are no right or wrong answers. Do not spend too much time on any one statement. Remember, find the word or phrase which best describes how you feel right now, *at this very moment*.

- |     |                  |                          |                 |                          |            |                          |                |
|-----|------------------|--------------------------|-----------------|--------------------------|------------|--------------------------|----------------|
| 1.  | I feel . . . . . | <input type="checkbox"/> | very calm       | <input type="checkbox"/> | calm       | <input type="checkbox"/> | not calm       |
| 2.  | I feel . . . . . | <input type="checkbox"/> | very upset      | <input type="checkbox"/> | upset      | <input type="checkbox"/> | not upset      |
| 3.  | I feel . . . . . | <input type="checkbox"/> | very pleasant   | <input type="checkbox"/> | pleasant   | <input type="checkbox"/> | not pleasant   |
| 4.  | I feel . . . . . | <input type="checkbox"/> | very nervous    | <input type="checkbox"/> | nervous    | <input type="checkbox"/> | not nervous    |
| 5.  | I feel . . . . . | <input type="checkbox"/> | very jittery    | <input type="checkbox"/> | jittery    | <input type="checkbox"/> | not jittery    |
| 6.  | I feel . . . . . | <input type="checkbox"/> | very rested     | <input type="checkbox"/> | rested     | <input type="checkbox"/> | not rested     |
| 7.  | I feel . . . . . | <input type="checkbox"/> | very scared     | <input type="checkbox"/> | scared     | <input type="checkbox"/> | not scared     |
| 8.  | I feel . . . . . | <input type="checkbox"/> | very relaxed    | <input type="checkbox"/> | relaxed    | <input type="checkbox"/> | not relaxed    |
| 9.  | I feel . . . . . | <input type="checkbox"/> | very worried    | <input type="checkbox"/> | worried    | <input type="checkbox"/> | not worried    |
| 10. | I feel . . . . . | <input type="checkbox"/> | very satisfied  | <input type="checkbox"/> | satisfied  | <input type="checkbox"/> | not satisfied  |
| 11. | I feel . . . . . | <input type="checkbox"/> | very frightened | <input type="checkbox"/> | frightened | <input type="checkbox"/> | not frightened |
| 12. | I feel . . . . . | <input type="checkbox"/> | very happy      | <input type="checkbox"/> | happy      | <input type="checkbox"/> | not happy      |
| 13. | I feel . . . . . | <input type="checkbox"/> | very sure       | <input type="checkbox"/> | sure       | <input type="checkbox"/> | not sure       |
| 14. | I feel . . . . . | <input type="checkbox"/> | very good       | <input type="checkbox"/> | good       | <input type="checkbox"/> | not good       |
| 15. | I feel . . . . . | <input type="checkbox"/> | very troubled   | <input type="checkbox"/> | troubled   | <input type="checkbox"/> | not troubled   |
| 16. | I feel . . . . . | <input type="checkbox"/> | very bothered   | <input type="checkbox"/> | bothered   | <input type="checkbox"/> | not bothered   |
| 17. | I feel . . . . . | <input type="checkbox"/> | very nice       | <input type="checkbox"/> | nice       | <input type="checkbox"/> | not nice       |
| 18. | I feel . . . . . | <input type="checkbox"/> | very terrified  | <input type="checkbox"/> | terrified  | <input type="checkbox"/> | not terrified  |
| 19. | I feel . . . . . | <input type="checkbox"/> | very mixed-up   | <input type="checkbox"/> | mixed-up   | <input type="checkbox"/> | not mixed-up   |
| 20. | I feel . . . . . | <input type="checkbox"/> | very cheerful   | <input type="checkbox"/> | cheerful   | <input type="checkbox"/> | not cheerful   |



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APPENDIX C

GUIDELINES FOR TRAINED TESTERS

To the test administrator.

Please follow the directions and dialogue outlined when giving the questionnaire. If any questions are asked concerning meaning or pronunciation, read the word aloud but don't give any definition. Swimmers should respond by what they think the word means. Attempt to answer questions in a non-committal manner. Make sure the swimmers are sure that they are responding about how they feel right now, and that they don't watch how other people are responding. Please check to see that swimmers are answering all items and only circling one response to each question. Also check that they have the correct side of the questionnaire. All questions begin with "I feel...".

Please follow this dialogue:

My name is \_\_\_\_\_ and I am assisting with Garry Bowyer's research study comparing how swimmers feel at workouts and at swim meets. The How I Feel Questionnaire that I'm going to have you fill out has no right or wrong answers and simply asks you how you feel at this moment in time. Answer the questions about how you feel right now. Please answer honestly. I'm going to hand out the How I Feel Questionnaires but I have some further things to tell you before you begin. (Hand out the questionnaires and pencils.) The first thing I want you to do is put your first and last name in the space at the top of the How I Feel Questionnaire. (Pause.) Next put your age in the space provided. (Pause.) Now put today's date in the space provided. (Give them the date, February \_\_\_\_\_.) Now put just below your name, how many A, B, or C times you have. If you're not sure put whether or not you have an A, B, or C in your best stroke. (Pause.) Next put the name of your swimming team. (Pause.) I will read the instructions of the How I Feel Questionnaire aloud as you read them to yourself. (Read) Now I would like you to answer the questions by circling the word that tells how you feel right now. For each question circle only one word. Please check at the end to see that you have answered all 20 items. Be sure you have the correct side of the questionnaire. All the questions start with "I feel..." Any questions? Begin and when you have finished bring your pencil and sheet to me.

(When everyone has given you their sheet read the following)  
Just after warm-up at Junior Olympics and Division 2, we  
will ask you to fill out the same questionnaire. Thank you  
all very much.

APPENDIX D

INFORMATION LETTER FOR COACHES

Dear Coach,

I appreciate your positive response to the research study that I am going to conduct with our Oklahoma swimmers.

As you already know, the nature of my study is state anxiety levels exhibited by age-group swimmers. However, to complete the study I NEED YOUR HELP! Each swimmer participating in the study should return to you a consent form signed by parents or legal guardians. The questionnaire needs to be administered at a practice session approximately 2 weeks prior to competition and again 15 minutes prior to the beginning of the meet. I will make arrangements with you so that a trained tester will be able to administer the questionnaire at a practice session. I will administer the questionnaire at the swim meet.

Through studies such as this, we will hopefully be able to better prepare our swimmers and improve Oklahoma swimming.

At the conclusion of the study, I will be glad to furnish you with a copy of the results. Results will compare ages, genders, and skill levels on a group basis and will not mention individual names. If you have any questions, please don't hesitate to call me collect at (405) 624-0496. The best time to reach me is after 7 p.m. in the evening.

Yours sincerely,

GARRY BOWYER  
Head Swim Coach  
Stillwater Aquatic Club



VITA <sup>2</sup>

Garry Ronald Bowyer

Candidate for the Degree of

Doctor of Education

Thesis: A COMPARISON OF STATE ANXIETY LEVELS AMONG AGES,  
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