

MULTIDIMENSIONAL SPORT PERFORMANCE ANXIETY IN FEMALE ATHLETES

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ABSTRACT:

The prevalence of anxiety in adolescents range from 6% to 20%, worldwide and the prevalence rate is much higher in female athletes. Female athletes participating in sports experience different levels of stress from competitive sports. For most young athletes, generally 13 to 25 years old, i.e., high-school, college and university level sport participation is reported to be much stressful as compared to many other activities of daily routine. In general, the thought of competition provokes competitive anxiety in young people. A number of factors contribute to the development, severity, and persistence of anxiety related to sport participation. This research paper reviewed different theories of anxiety and a few limitations of the existing anxiety measuring tools. Finally SAS-2 was used to measure three different dimensions of anxiety i.e. somatic anxiety, worry and concentration/disruption. Participants' age ranged from 19 to 34 years ($M = 23.76$ years; $SD = 3.31$). After testing the measurement invariance of, across type of sport, latent mean comparisons were investigated statistic was computed to obtain the corresponding effect sizes Significant differences were detected between male sports types. The results of this research provided evidence that anxiety is appraised differently by athletes based on their type of sport.

Keywords: Sports, Females, Anxiety, Worry, Concentration

Introduction:

Sports is an ideal context within which to study anxiety is vital, as athletes of all ages are frequently exposed to the stress of competition, allowing for the study of both trait and state anxiety (Roksa, J. 2011).

Consistent with results in other evaluative domains, research

on sport-specific anxiety scales using high school and adult athletes has consistently revealed separate cognitive and somatic anxiety factors, indicating that older aged athletes are discriminating between the two classes of events (Smith et al., 1990).

However, there is uncertainty as to whether younger athletes make the same discriminations of cognitive and somatic components of anxiety that older populations do. One indication comes from a study by Smith, Smoll, and Barnett (1995) using the SAS.

Based on the previous research work indicating a few limitations of Psychometric tools to measure sports related anxiety, there was a need to develop a new scale.

As a result, Sport Anxiety Scale-2 (SAS-2) was developed by Smith et al., (2006) with the objective to provide researchers with a reliable and valid multidimensional measure of sport performance anxiety that would mirror the factor structure of the original SAS, but measure its dimensions more precisely.

So, the scale was developed within the context of a coach and parent intervention project in which sport related anxiety was one of the several outcome variables.

The SAS-2 was constructed from items from the original SAS

that were deemed appropriate for young children as well as older age groups with the proviso that the revised items had readability levels of grade four or below as well.

The 15 items of the SAS-2 were designed to reflect possible responses that young athletes may have before or while they compete in sports. Smith et al. (2006) reported internal consistency (Cronbach's alpha) coefficients exceeding .80 for all subscales and .91 for the total score.

For each item, participants indicated how they typically felt based on a 4-point Likert scale, ranging from not at all (1) to very much (4). The SAS-2 subscale scores were derived by summing scores on the individual items for each subscale (somatic anxiety, worry, and concentration disruption).

The SAS-2 Concentration Disruption scale excludes items that refer to cognitive interference produced by worrisome thoughts, as such items tended to cross-load on both the Worry and Concentration Disruption sub-

scales of the original SAS (Fletcher, 2005).

This multidimensional anxiety measure was developed in samples of high school and college athletes.

Replicated exploratory and confirmatory factor analyses (CFAs) in the USA and other countries consistently yielded a three-factor model of anxiety involving one somatic factor and two cognitive anxiety factors labeled worry and concentration disruption (Smith & Smoll, 2004).

Somatic anxiety involves physiological aspects of arousal, particularly muscle tension and stomach discomfort (Gould et al., 2002). Worry is defined as negative concerns about potential negative personal and social consequences of poor performance.

Concentration disruption involves difficulties in focusing on task-relevant cues and thinking clearly in the competitive situation (Sagal, 2006).

Literature review

Albeit once the focal clarification for the anxiety execution relationship in the previous 20 years the inverted U theory has gone under expanded examination and analysis (Weinberg, 2000).

These reactions have concentrated on the absence of hypothetical underpinnings of the modified U relationship, the inability to unequivocally quantify focuses along the excitement continuum, the inability to think about the multidimensional idea of nervousness, just as various methodological and measurable impediments (Swain, and Cale, 2001).

Because of these constraints inborn in the altered U speculation, various new conceptualizations of the connection between anxiety and sports execution has been progressed as of late, including calamity hypothesis (Akey, L. D. 2002), inversion hypothesis, mystic vitality hypothesis, and multidimensional anxiety hypothesis (Hartig, T. 2003).

One of the frequently referred to approaches for discovering competitors' ideal degree of uneasiness is Hanin's Zones of Optimal Functioning (Hanin, 1989).

Created by Yuri Hanin, the zone of ideal working (ZOF) approach was initially created as a down to earth instrument to distinguish an ideal zone of nervousness wherein a competitor would perform at their ideal level. Hanin has given unmistakable information to help his ZOF theory utilizing swimmers and weight lifters.

Be that as it may, a portion of his system has been raised doubt about, particularly the utilization of a state tension measure three days preceding challenge since research has demonstrated that physical uneasiness increments as rivalry moves closer.

Tragically, the aftereffects of a considerable lot of these examinations have been raised doubt about the methodological or factual impediments.

For instance, ponders by Morgan and his associates utilizing tip top separation sprinters

and swimmers as members (Morgan, O'Connor, Sparling, and Pate, 1997; Raglin, Morgan, and Wise, 2001), apparently offered help for Hanin's thought of a ZOF.

Be that as it may, a nearby assessment of these investigations uncover that ZOF forecasts were not carefully tried.

In particular, in these investigations, zones of ideal working were inferred utilizing gathering implies as opposed to utilizing an intra individual methodology proposed by Hanin and accordingly an immediate trial of the speculation was unrealistic (Krane, 1993).

What's more, in the Morgan et al. ponders (1987, 1988), excitement, not state uneasiness, was surveyed, and Hanin's work depends on state nervousness estimations.

While trying to give more grounded help to Hanin's ZOF, a few analysts joined a multidimensional way to deal with the appraisal of tension (Dennis, Bartsokas, Lewthwaite, and Palin, 1993; Gould et al., 1993; Krane, 1993).

Past research has utilized the State-Trait Anxiety Inventory which gives a one-dimensional, nonsupport-explicit estimation of the tension develop.

Nonetheless, ongoing experimental and hypothetical work (e.g., Jones and Hardy, 1989; Martens, Vealey, and Burton, 1990) has proposed that nervousness is a game explicit multidimensional build comprising of both psychological and physical segments.

Moreover, various connections among nervousness and execution have been anticipated for subjective and physical uneasiness. In particular, subjective tension is anticipated to have a negative straight association with execution while physical uneasiness is anticipated to have an altered U association with execution (Martens et al., 1990).

At all evaluation levels, a 2-factor tension/discouragement model displayed a solid fit, showing that youngsters as youthful as age 7 separated between the emotional encounters of nervousness and misery.

In any case, Clark (2001) tripartite model, which hypothesizes separate elements of physiological hyper arousal, negative affectivity, and low positive effect, likewise fit the information well at all three age levels.

Since the negative affectivity factor has countless stress things (yet additionally no psychological excitement things), this discovering recommends a conceivable perceptual qualification among physiological and subjective parts of these feelings at even the third grade level.

An investigation of age-related stress by Muris, Merckelbach, Meesters, and van nook Brand (2002) likewise demonstrated that stress developed as a subjective reaction to worry as ahead of schedule as age 3 and turned out to be progressively expounded with expanding sequential age, however this examination didn't relate stress to physical nervousness. Hardly any examinations have investigated the subjective full of feeling segments of tension from a formative point of view.

In one occasion, be that as it may, White and Farrell (2001) regulated the Revised Children's Manifest Anxiety Scale to youngsters between the ages of 10 and 14 and utilized corroborative factor examination (CFA) to test a few models, all of which placed separate excitement and stress factors. Their examinations gave proof of psychological physical separation.

Nonetheless, the normal member in this examination was almost 12 years of age and no investigations were finished by age gathering, with the goal that we can't be sure of intellectual physical separation in the more youthful age gatherings.

Also, this inquiry has not been investigated inside the setting of execution tension. The accessibility of a quality scale with age-proper things could be a helpful research apparatus in deciding if and at what age level intellectual substantial separation in passionate experience develops in kids' game related tension responses.

In spite of the fact that the significant explanation we attempted to build up another scale

was the appraisal of multidimensional uneasiness in kids, ongoing improvements including the SAS provoked us to grow its scope of potential application to more established examples.

Aftereffects of a few investigations show that the factorial legitimacy of the SAS isn't as solid as initially recommended.

Examinations by Dunn et al. (2000) and by Fletcher (2005) repeated the fundamental 3-factor structure, however raised doubt about the factorial respectability of the Concentration Disruption scale.

In particular, two of the things on that scale either cross-stacked or stacked all the more emphatically on the Worry scale.

Using thing reaction hypothesis examinations, Prapavessis et al. (2005) additionally found that one of the things on the Somatic scale had negligible estimation properties.

The investigation yielded a five-factor arrangement with various cross loadings, demonstrating an inability to imitate the

three-factor structure so reliably found in more established examples.

Inability to recreate the three-factor SAS model in more youthful examples proposed two potential clarifications.

To begin with, it appeared to be conceivable that the things, initially created utilizing secondary school and school competitor tests, may have been excessively troublesome (i.e., had too high an understanding level) for more youthful respondents to comprehend, bringing about the breakdown of the SAS factor structure.

An ensuing appraisal of perusing level utilizing the Flesch-Kincaid meaningfulness measure (Harrison, 1980) uncovered that a large portion of the things had perusing levels over the ninth grade (13_14 years), and could well be hard for more youthful youngsters to grasp (Smith et al., 2006).

In another examination utilizing the SAS in a more youthful example, Weiss, Ebbeck, and Horn (1997), foreseeing this potential issue, erased three of the

21 SAS things and reworked six others to upgrade their understanding for youngsters.

Tragically, Weiss et al. didn't factor investigate their adjusted scale to decide whether their alterations brought about the accepted three-factor structure, so it isn't certain whether their changes were effective in curing the factorial breakdown experienced by Smith and partners (1995).

A subsequent conceivable explanation behind the disappointment of more youthful youngsters to replicate the three-factor SAS model of tension identifies with formative parts of enthusiastic self-discernment in kids and early teenagers. Small kids have a progressively constrained mindfulness of their musings and feelings, a procedure that slowly creates all through youth and puberty (Berk, 1994).

It was accordingly conceivable that the factorial foundation came about not from the idea of the things, however from a disappointment of youthful competitors to separate between things depicting the physical and sub-

jective segments of focused uneasiness.

In view of the hypothetical import of this second conceivable clarification, an increasingly

Methodology

A survey research was conducted and data was collected from female athletes of three different universities of Lahore, Pakistan. In this study, the SAS-2 was administered to a sample of female athletes between the ages of 19 and 32 in order to examine the good fit test and reliability of three-factor model of competitive anxiety.

It was also aimed to test three-factor models, of somatic, worry and concentration disruption factors and the other including an additional second order (total) anxiety factor across sport types.

Findings

The first step of the study was intended to assess the psychometric proprieties of the SAS-2 instrument. Assessment of model fit was based on multiple indicators (Hu & Bentler, 1999; Marsh,

point by point assessment of psychological and physical aggressive tension in youngsters and early youths appears justified.

Hau, & Grayson, 2005), namely: chi-square (χ^2).

Results indicated a good fit of all three dimensions of SAS-2 as depicted below in Table-1 below i.e.

Somatic Anxiety (.040), Worry (.042) and Concentration (.040). Internal consistency (reliability) of the constructs was assessed through composite reliability and followed the recommendations of Nunnally and Bernstein (1994) and Vaughn, Lee and Kamata (2012) to calculate composite reliability (CR), in which it is recommended that values ≥ 0.7 indicates a proper value of CR. A total number of 30 female athletes from three different universities of Lahore, Pakistan participated in the study.

The mean age of the participants (23.76). The participants were playing different sports in-

cluding Volleyball (n=11), Basketball (n=11), Table Tennis (n=6) and Badminton (n=2) as depicted below (Table-1).

		Frequency	Percent	Valid Percent
Valid	VB	11	36.7	36.7
	BB	11	36.7	36.7
	TT	6	20.0	20.0
	BM	2	6.7	6.7
	Total	30	100.0	100.0

Table-1

A comparison of mean scores of all three dimensions of SAS-2 and sport type were obtained, which are shown in Table-7.

Volleyball Players obtained a higher mean score in case of worry (9.0), Basketball players also obtained higher mean score in case of worry (12.0), Table Tennis players obtained higher mean scores in case of concentration (13.1) and mean score of Badminton players was high in case of somatic anxiety (Table-2).

Finally, Multivariate Analysis (GLM) was conducted to see the relationship between sport participa-

tion and total SAS-2 scores of female athletes, which is significant at 0.05 levels as shown in Table-8.

The scores show a significantly positive relationship between sport participation and somatic anxiety (p-value = 0.028), similar results were observed between sport participation and worry (p-value = 0.045) and finally, a significantly positive relationship between sport participation and concentration/disruption indicate (p-value = 0.016). Based on the results, it can be stated that sport participation may increase somatic anxiety, worry and disruptive thought

Table-2: Comparison of Means

Game		Somatic	Worry	ConceDisr
VB	Mean	8.5455	9.0000	8.0909
	N	11	11	11
	Std. Deviation	3.07778	3.63318	2.21154
BB	Mean	9.7273	12.0909	9.6364
	N	11	11	11
	Std. Deviation	3.63568	3.50584	4.12971
TT	Mean	9.6667	8.0000	13.1667
	N	6	6	6
	Std. Deviation	2.80476	2.89828	2.04124
BM	Mean	12.0000	6.5000	7.0000
	N	2	2	2
	Std. Deviation	4.24264	.70711	.00000
Total	Mean	9.4333	9.7667	9.6000
	N	30	30	30
	Std. Deviation	3.25559	3.72950	3.49975

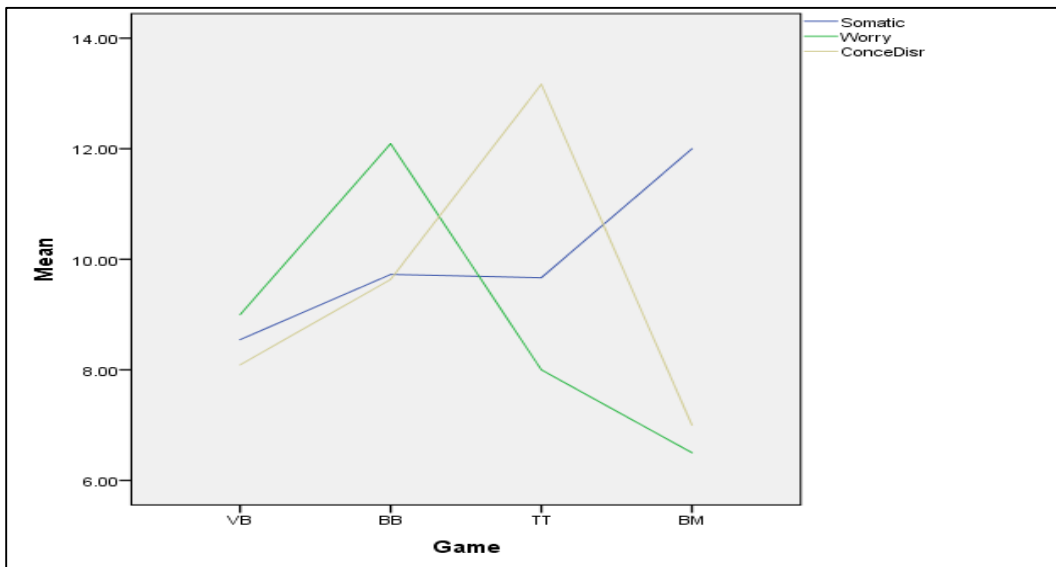


Figure-1: Comparison of Means

Discussion and conclusion

The main aim of this study was to examine the psychometric properties of the SAS-2 and whether athletes with different contextual factors such as type of sport differed regarding their sport anxiety appraisals.

The higher-order sport anxiety construct was investigated, as well as its three specific dimensions. The present study contributes to the sport psychology literature in two main ways.

The first contribution is a good psychometric proprieties of the sport anxiety scale (SAS-2), being a valid and reliable tool to use in sport contexts. Internal consistency and convergent and discriminate validity were all achieved.

The results of this study provided evidence in support of the notion that the measurement

model exhibits a good fit to the empirical data, supporting the original factor structure proposed by Smith and colleagues (1990).

Measurement invariance was accepted from all groups in comparison (e.g., configure, metric, scalar, and partial strong), providing evidence that the instrument of measurement is operating exactly in the same way, and that the underlying construct has the same theoretical structure for each group under study. Only after this critically important assumption is tested statistically is it possible to attain meaningful group comparisons (Byrne, 2010; Chen et al., 2005).

The second contribution is to provide valuable information regarding the distinctive appraisals of sport anxiety among different athletes' type of sport.

The analyses of the latent mean differences between sport types revealed significant differences for the second-order con-

struct of sport anxiety (i.e., general sport anxiety). Female athletes presented significantly higher levels of general sport anxiety.

Considering each sport anxiety factor, female athletes presented significant higher levels for worry followed by concentration and for somatic anxiety.

With respect to type of sport, athletes reported significantly higher values of general sport anxiety.

Confirming these results, several studies reported that athletes of individual sports tend to be more influenced by competitive anxiety than those in team sports (Terry, Cox, Lane, & Karageorghis, 1996; Ramis, Torgosa, Viladrich, & Cruz, 2010), suggesting that when athletes compete as individuals, the pressure to achieve the desired outcome will be borne by the individual alone, intensifying anxiety symptoms (Kirkby & Liu, 1999; Ramis et al., 2015).

However, the worry subscale demonstrated a contradictory result, where team sports presented significantly higher values than individual sports. Accordingly, athletes in team sports experience more worry than athletes in individual sports.

Good performances will enhance the acceptance and approval by team-members leading to positive interpersonal relationships (Turman, 2003).

Along with spectators, parents, and coaches, team members are constantly judging and evaluating each other's performance and contribution to the team's success and failure.

Thus, this added pressure is likely to prompt feelings of anxiety, particularly worry. Taken together, these findings represent an important effort to understand how sport anxiety and its dimensions vary between gender and sport type in female athletes.

There are several limitations to this study that deserve to be mentioned, since they may have influenced the results and should be accounted for in future research.

Firstly, the sample has a disproportionate number of male compared with female athletes. This should be expected to have some influence on the accuracy of estimated parameters. Similarly, the large age range of the participants should also be considered a limitation.

Despite the good psychometric properties provided in this study, further work is needed to estimate whether the SAS-2 may be suitable not only for basic research on the cognitive and somatic aspects of anxiety, but also to provide a psychometrically sound tool for assessing the efficacy of interventions designed to reduce anxiety in athletes.

The findings shed light not only on general sport anxiety, but also on the unique meaning of specific lower order dimensions of anxiety in the sports domain.

The consequences of sport anxiety may be appraised differently by athletes depending on their type of sport practiced. Therefore, a true understanding of sport anxiety among athletes is vital for enhancing their well-being, quality of engagement, sporting performance and social development.

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