

Construction of psychological stress

sources scale for **BOWLING** *players*

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The research aims to construction of psychological stress sources scale for bowling players, and to identify differences in the sources of psychological stress between the Egyptians and Arabs bowling players.

Where descriptive method was used on a sample of 48 athletes who participated in the Sinai International Championship fourteenth 2012

There was extracted 9 dimensions of the scale:

“psychological stresses associated with personality, psychological stresses associated with colleagues, psychological stresses associated with competition, psychological stress associated with the public / media, psychological stress family-related / friends, psychological stresses associated with the arbitration, psychological stress associated with the administration, psychological stress associated with the coach, psychological stress associated with the nature of the training”,

includes 71 statement have been verified the validity and reliability scale and prepare tables standards and levels of its own, as results revealed no statistically significant differences for all dimensions of scale, as well as the total scale with except dimensions stress associated with arbitration and stress associated with the coach for the benefit of Arab players, though located in the middle level.

Introduction And Research Problem

Stress is most often seen to occur when an outcome is important to a person but they perceive an imbalance between the demands placed upon them and their ability to cope with these demands. Taking this view it can be seen that it is not the environment (21: 259).

The transactional model of stress, originally proposed by Lazarus (1966) suggests that the stress process consists of four stages: Stage "1" Environmental Demand, Some sort of physical or psychological demand is made of an individual. Stage "2" Individual's appraisal/perception of the environmental demand, this could be viewed as the amount of 'threat' the individual perceives. Not all people will see the same demand with the same degree of threat. Stage "3" Physiological and/or psychological response, if an individual perceives the demands to outweigh their resources to cope then they are likely to experience increases in arousal ,state anxiety, muscle tension and negative changes in attention. Perceived coping resources are therefore integral to the stress response. Stage "4" Behavioral consequence, this stage refers to the actual behavior the individual exhibits in response to the environmental demand. It may be that an increase in state anxiety causes a decrement in performance, or the individual may have

skills for managing the increase in state anxiety and therefore performance remains unchanged or improves (11:227) (21:259).

Competition can cause bowlers to react both physically (somatic) and mentally (cognitive) in a manner which can negatively affect their performance abilities that have been worked so hard to develop during training. Stress, arousal and anxiety are terms used to describe this condition.. They must accept that the stress coming from part of the competition experience will be a good source for improving there performance. (23).

Through the scientific surveys of related studies researcher reached the following:

First: there are many studies of stress sources for the different sporting activities players, such as the study of Ghada Yousef 2010 (8), Walid Fathy 2006 (15), Mohamed Ibrahim 2005 (10), Gamal Abdel Nasser 2001 (5),

Ahmed Mahmoud 2001 (2), Adel Hosny 2001 (7).

Second: Studies examined the effect of some psychological variables to the results of the bowling players, such as the study of Hend Soliman & Rasha Ashraf 2006 (14), Michael Paiva 2006 (20), Hill, K.L.; Borden, F 1995 (25).

Despite the fact that the phenomenon of psychological stress in sports have been studied, have also been preparing scales of their own, and because the bowling has a special nature, modernity and the scarcity of scientific studies on bowling, researcher realized to prepare specific psychological stress sources scale of the bowling players as the important stage to objectively identify the sources and levels of stress sources, and then confront and evaluate whether the

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level of Egyptian and Arab bowlers, as well as propose fundamental axes that must be of interest to the coach and sports psychologist in the psychological

program Setup for bowlers, thus impacting positively on the face of the phenomenon of withdrawal from the bowling and performance upgrades to compete on the regional and international level.

Research Objectives:

1-Construction of Psychological Stress Sources Scale for Bowling Players.

2-Identify differences of Psychological Stress Sources between the Egyptians and Arabs bowling players.

Methods

Participants and procedures

The survey sample included 20 pilot participants Egyptian bowlers registered at the national team. While the study sample included 48 bowlers, 30 Egyptians and 18 of the Arab bowlers from Jordan, Iraq and Kuwait. The study was done during the Sinai International Championship fourteenth 2012.

The following illustrate demographic of the sample in terms of age and level of bowlers scour.

Table (1)

Demographic data

Properties	Sample	Unit	Egyptian bowler (N=30)			Arab bowler (N=18)		
			Mean	SD	Skew.	Mean	SD	Skew.
Age		year	23.87	10.28	1.35	37.00	8.55	0.43
level of bowlers scour		scour	190.93	11.27	0.33	216.67	21.01	1.94

Design and materials:

1- Review of psychometric assessment and analysis of previous studies associated with the study subject.

2- Survey of “9” experts in measurement and evaluation sports psychology and bowling with an exploratory open-ended question.

3- The experts' input was analyzed to determine the degree of agreement and the internal validity of the proposed scale.

4- Based on the results of the experts' input analysis, the scale was modified and administered to the pilot participants. Data from 20 of the pilot participants were used to establish the internal validity of the scale while data from the other 20 was used to establish the scale reliability.

5- The scale was administered to the rest of the participants “48 bowlers” in order to establish the normative data.

Statistical analysis of the pilot data:

1- Validity Scale

(a) Content validity

The researcher surveyed experts'

opinions with personal interviews in order to extract a dimension for measuring Sources of bowlers stress and the same for the scale items. they suggest merging two dimensions “competitor and competition”, suggestive amendment was done, the results has to extracted 9 dimensions include 128 items based bowlers respond them through Triple scale estimate.

(b) The internal consistency:

The researcher calculates the Correlation coefficients between items of each dimension and between each dimension and total score. There were 17 item in the first dimension from 35 item, 9 items in the second dimension from 15 item, 5 items in the third dimension from 10 items, 3 items in the fourth dimension from 6 items, 6 items in the fifth dimension from 8 items, 3 items in the sixth dimension from 7 items, 11 item in the seventh dimension from 14 item, 7 items in the eighth dimension from 13 item and 10 items in the ninth dimension from 20 item correlation coefficients were statistically significant ($p < 0.05$) and all of which fulfill the conditions of internal consistency with the overall degree.

Table (2)

Correlation coefficients between dimensions and the total score

Scale Dimensions	# of items	Correlation
1-psychological stresses associated with personality	17	*0.914
2-psychological stresses associated with colleagues	9	*0.714
3-stresses associated with competition	5	*0.543
4-psychological stress associated with the public / media	3	*0.735
5-psychological stress family-related / friends	6	*0.726
6-psychological stresses associated with the arbitration	3	*0.600
7-psychological stress associated with the administration	11	*0.500
8-psychological stress associated with the coach	7	*0.537
9-psychological stress associated with the nature of the training	10	*0.490

N = 20

2- Reliability Scale:

(a) Split-half method:

Data collected from the 20 pilot participants was used to calculate

reliability coefficients by using Split-half method, which reflects the internal consistency validity, as shown the following table.

Table (3)

Scale reliability by Split-half method

Scale Items	As a whole		Odd words		Even words		Split-half Correlation	Spearman - Brown coefficient	Guttman coefficient
	Mean	SD	Mean	SD	Mean	SD			
71 Items	120.00	19.67	60.36	9.90	63.86	0.945	0.945	0.837	0.902

N = 20

The validity coefficients of the scale by split-half method, Spearman - Brown 0.837 and Guttman coefficient 0.902, reflect high reliability of the scale.

(b) Test-retest method:

Test-retest with a time lag of 8 days between tests was applied to the other half of the pilot participants (20 players).

The correlation coefficients of the repeated tests of all items ranged between 0.832 . 0.916, while the correlation coefficient of the scale as

a whole was 0.922. All correlation coefficients were statistically significant ($p < 0.05$), which reflects high reliability of the scale.

Standards and levels of scale:

The researcher applied the scale in its final form on a sample of 48 bowler of both sex "Egyptian & Arab "in order to build the standards and levels of the scale. The following table shows the mean values, standard deviation, and variation degrees of the basic study sample on the key dimensions and the total degree of the scale.

Table (4)

Descriptive statistics for research sample on psychological stress sources scale for bowling players

Scale Dimensions	# of items	Mean	SD	Skew.
1-psychological stresses associated with personality	17	30.750	6.557	0.304
2-psychological stresses associated with colleagues	9	17.000	3.679	0.417
3-stresses associated with competition	5	8.333	1.506	0.101
4-psychological stress associated with the public / media	3	5.208	1.487	0.598
5-psychological stress family-related / friends	6	10.208	2.388	0.467
6-psychological stresses associated with the arbitration	3	5.500	1.701	0.135
7-psychological stress associated with the administration	11	22.500	4.829	- 0.235
8-psychological stress associated with the coach	7	12.000	3.222	- 0.064
9-psychological stress associated with the nature of the training	10	16.792	4.063	0.412
Total	71	128.292	18.380	- 0.035

N = 48

The estimated levels of the scale:

We used the data collected by the application of the scale in its final form on the basic study sample in order to build scale standards by calculating the standard T-scores and percentile scores

of the raw data of the scale. The raw data and the normative scores were distributed on five estimated levels reflecting the self-motivation for the athletes through their response to items of multi-dimensional self-motivation scale.

Table (5)

Psychological Stress Sources Scale for bowling players

Scale Dimensions		Fair	Average	High
1-psychological stresses associated with personality	Raw score	17 – 28	29 – 40	41 – 51
	T-score	29.031-45.806	47.331-64.106	65.631-80.881
2-psychological stresses associated with colleagues	Raw score	9 – 14	15 – 21	22 – 27
	T-score	28.252-41.845	44.563-60.874	63.592-77.184
3-stresses associated with competition	Raw score	5 – 8	9 – 12	13 – 15
	T-score	27.873-47.787	54.425-74.339	80.977-94.253
4-psychological stress associated with the public / media	Raw score	3 – 4	5 – 7	8 – 9
	T-score	35.148-41.874	48.599-62.049	68.775-75.500
5-psychological stress family-related / friends	Raw score	6 – 9	10 – 14	15 – 18
	T-score	32.374-44.939	49.127-65.881	70.069-82.635
6-psychological stresses associated with the arbitration	Raw score	3 – 4	5 – 7	8 – 9
	T-score	35.303-41.182	47.061-58.818	64.697-70.575
7-psychological stress associated with the administration	Raw score	11 – 18	19 – 26	27 – 33
	T-score	26.185-40.681	42.752-57.248	59.319-71.744
8-psychological stress associated with the coach	Raw score	7 – 11	12 – 16	17 – 21
	T-score	34.483-46.897	50.000-62.414	65.517-77.931
9-psychological stress associated with the nature of the training	Raw score	10 – 16	17 – 23	24 – 30
	T-score	33.285-48.052	50.513-65.280	67.741-82.508
Total	Raw score	71 – 118	119 – 166	167 – 213
	T-score	18.83-44.4	44.94-70.52	71.06-96.09

To achieve second research objective, researcher applied the scale with its final form on a sample of volunteers involved championship Sinai

International Bowling. In order to study the differences between the Egyptian and Arab players,

Table (6)

Significant Differences for Psychological Stress Sources between Egyptian and Arab bowling players

Scale Dimensions	# of items	Egyptian (n=30)		Arab (n=18)		Mean difference	T.test
		Mean	SD	Mean	SD		
1-psychological stresses associated with personality	17	30.93	7.55	30.44	4.63	0.489	0.248
2-psychological stresses associated with colleagues	9	17.13	4.27	16.78	2.51	0.356	0.321
3-stresses associated with competition	5	8.47	1.43	8.11	1.64	0.356	0.788
4-psychological stress associated with the public / media	3	5.00	1.23	5.56	1.82	-0.556	1.261
5-psychological stress family-related / friends	6	10.27	2.69	10.11	1.84	0.156	0.216
6-psychological stresses associated with the arbitration	3	5.13	1.66	6.11	1.64	-0.978	*1.988
7-psychological stress associated with the administration	11	22.67	5.26	22.22	4.14	0.444	0.306
8-psychological stress associated with the coach	7	11.00	2.73	13.67	3.36	-2.667	*3.003
9-psychological stress associated with the nature of the training	10	16.47	4.55	17.33	3.14	-0.867	0.712
Total	71	127.07	19.96	130.33	15.72	-3.267	0.592

*T test indexed in the abstract 0.05= 1.645

BOWLING players

Results revealed no statistically significant differences for all dimensions of the scale, as well as the total scale with except dimensions stress associated with arbitration and stress associated with the coach for the benefit of Arab players, though located in the middle level.

The researcher claim the differences resulting between Egyptian and Arab bowlers in arbitration that was located in the middle level to Egyptian players accustomed to there judgment in all local tournaments, While Arab players depends on technological devices on arbitration and used to modify the results by himself if something goes wrong in its own lane. This is contrary to international law and which Listed need

for a judgment which oversees all of the tournament, and based upon, there are some players feel annoyed by the presence of judgment next hot play.

As for the sources of stress associated with the coach researcher has noted statistically significant differences for Arab bowlers, and was located in the middle level indicating increased stress than Egyptian bowlers, which may be due to the adoption of the Arab teams fully foreign coach and who cares about the results more than performance, and lack of attention to psychological preparation programs adequately, as the psycho and the player's mental Bowling is a key element to success in this sport is what is known as the mental Game.

Conclusion

There was extracted 9 dimensions of the scale: "psychological stresses associated with personality, psychological stresses associated with colleagues, psychological stresses associated with competition, psychological stress associated with the public / media, psychological stress family-related / friends, psychological stresses associated with the arbitration, psychological stress associated with the administration, psychological stress associated with the coach, psychological stress associated with the nature of the training", includes 71 statement have been verified the validity and reliability scale and prepare tables standards and levels of its own, as results revealed no statistically significant differences for all dimensions of scale, as well as the total scale with except dimensions stress associated with arbitration and stress associated with the coach for the benefit of Arab players, though located in the middle level.

Recommendations

Recommendations can be made for the current study at the theoretical level and practical level as follows:

A) Theoretical level:

- 1- Prepare more psychological scales and questionnaires for bowling players due to the scarcity of specialized scientific studies for the bowling.*
- 2- Prepare Arab knowledge structure of bowling, due to the lack of specialized scientific references for this sport and relying on some localized brochures to the law of the game and basic skills.*
- 3- Prepare mental training programs and psychological preparation of the bowling players following the scientific method.*

B) Practical level:

- 1- Need to disseminate scale prepared for the bowling players in order to be applied periodically to take advantage of them to identify the extent of pressures currently, or how he approached them to cope with the phenomenon of withdrawal from the practice of bowling.*
- 2- Use the standards in assessing the value of sources and levels of stress for bowlers.*
- 3- Emphasis on the importance of psychological preparation for bowling players through programs designed specifically for this purpose.*

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