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Resilience Scale for Athletes

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Athletes continually face a variety of stressors and adversities that may become a hurdle in performing well. Resilience can help athletes to cope with such difficult situations. For this purpose the current study was designed to investigate the construct of resilience in athletes during their game. To explore the phenomenology of resilience coaches and players were interviewed. After interviews, a list of 27 items was retained in the Resilience scale for athletes. Afterwards, the scale was administered on 150 student athletes to establish the psychometric properties of the scale. Factor analysis revealed three factors of resilience in sports including self determination, physical toughness and emotional control and maturity. The results indicated that the resilience scale had high internal consistency of .80. Concurrent validity with indigenous Resilience Scale (Naz, Saleem & Mahmood, 2010) was also established and was found to be .44. Further the results were discussed in the cultural context.

Keywords: sports, student athletes, resilience

Sports have been regarded as a healthy way to channelize one's energies. Sport is enjoyed and played by individuals of all ages and both genders. With time sports has become a part of different cultures and societies all over the world. This significance is highlighted by different sports events such as, Olympic Games, Soccer's World Cup, tennis championship, Cricket World Cup, and American football's Super Bowl. Sports are also becoming a substitute of war among different countries. The countries which were once over wrought in wars and political turbulence now settle their differences in playgrounds, instead of battlefields. It has been seen that public of those countries also become aggressive while watching their national team play. This is why sports have captured so much attention of people and tremendous amount of energies are invested in enhancing the performance of sportspersons (Mahmood, 2010).

Santomier (1983) exclaimed that an athlete's life is based on extensive physical activity which requires great deal of physical toughness. In addition to physical exertion, there are a number of factors that could obstruct an athlete's performance in his games, such as low performance, preoccupation, pressure regarding crowd in the field, and about public and coach's expectations (Woodman & Hardy, 2001). Furthermore fear of injuries is also a crucial issue that could hinder an athlete's performance. Athlete's may also have to face financial problems, and this could lower their self esteem and obstruct their performance. Academic problems were also faced by the student athletes as they had difficulty in managing their academics and tough sports competitions. The extreme emotional states like anxiety and aggression have also been found to be among the probable factors in declining an athlete's performance (Kirker, Tenenbaum, & Mattson, 2000; Stephens, 2001; Tenenbaum, Stewart, Singer, & Duda, 1997).

All these factors can deteriorate an athlete's performance but there are some factors which have been found to enhance the performance such as taking responsibilities of one's errors, showing patience in pain and during illness, an ability to tolerate the victory of opponent, accepting the punishment from the coach, and so on. (Donahue, Rip, & Vallerand, 2009). All these factors may be the manifestation of a single factor i.e. resilience (Schinke, Peterson, & Couture, 2004).

Resilience is the ability to "bounce back" from stressful experiences quickly and efficiently (Carver & Scheier, 1998). Resilience is related with the positive progression, adaptive behavior and achieving the equilibrium level (Luthar, Cicchetti, & Becker, 2000; Masten, 2001). Initially, resilience was considered to be an individualistic characteristic but recently, it has been highlighted that resilience is a quality that develops and fosters as a result of interaction between individual and his/her cultural, social and political contexts (Arrington & Wilson, 2000; Gilligan, 2004; Luthar, 2003). In the light of latest empirical work, Ungar (2008) defined resilience as, "In the context of exposure to significant adversity, whether psychological, environmental or both, resilience is both the capacity of individual to navigate their way to health-sustaining resources including opportunities to experience feelings of well-being and a condition of the individual's family, community and culture to provide these health resources and experiences in culturally meaningful ways (p. 225). Thus, it appears that resilience is not only an individually determined phenomenon rather it is contextually and culturally determined.

The concept of resilience is of great importance for individuals working in all fields yet it is becoming all the more important with particular reference to athletes. This is because the athletes are frequently involved in competitive sports which is full of setbacks, obstacles, and failures that usually goes on a continuous basis in the ground while

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playing (Galli, 2005). An athlete possessing a high level of resilience is more likely to show better performance on the ground than the one who lacks this characteristic. Resilience enables an athlete to think about his performance outcome in a positive way which keeps him focused on his game. This also increases his motivation towards the game which leads to better performance (Masten, 1994).

The history of sports in Pakistan can be traced as far back as to 1947. Even though almost all kind of sports are played in Pakistan, cricket and hockey are more popular among the masses. Pakistan has also produced international level sportspersons in cricket, hockey, squash, tennis etc. Different academic institutes and clubs in Pakistan promote sports and had provided special aids and facilities to athletes. Pakistan has produced many great athletes in almost every game. But it was observed that usually the performance of our athlete's on ground is not very consistent. Pakistani players face many difficulties such as financial problems, familial problems, lack of support, and relationship with coach, difficulty in handling pressure, losing focus, anxiety and anger. All these factors can serve as risk factors leading to low levels of resilience in athletes and ultimately deteriorating their performance. In Pakistan, there has been a greater emphasis on building physical toughness in athletes but the psychological skill building has been a neglected area.

The need of studying psychological dimension of sports i.e. building mental toughness in athletes has been realized by experts as Lawson the former coach of Pakistani cricket team exclaimed it's very important for Pakistani team to have a sports psychologist for their constant grooming. But unfortunately no systematic empirical work has been initiated for this purpose. The purpose of this study was to develop an indigenous scale of resilience for athletes of our culture and thus bringing into forefront the issues faced by athletes. This study will focus on the development of the resilience scale which will help athletes and coaches in evaluating the factors that hamper or promote peak performances.

Method

This study was carried out in two phases:

Phase I: Exploring Phenomenology

The main aim of this phase was to explore phenomenology of resilience in athletes. In order to explore phenomenology 5 coaches and, 5 athletes were interviewed. They were related to both individual sports, such as, badminton and tennis, as well as from group sports, such as, basket ball, cricket and so on. The sampling strategy used was convenient sampling. A semi structured interview was conducted with the coaches and athletes to explore the domains of resilience in Pakistan. The basic question asked was, "What helps athletes to bounce back to their previous level of performance whenever they face any setback during their game?" The average interview took 20 minutes.

From the interviews 30 statements were collated. After omitting the slang and repetitive statements, a list of 27 statements was retained. The statements were transformed into the 4 point rating scale, measuring the intensity of resilience in athletes. The response scale was 0 = Not at all, 1 = very little, 2 = to some extent, and 3 = extremely. The high score on the scale meant high resilience.

Phase II: Establishing Psychometric Properties

The second phase of the study was aimed at establishing the psychometric properties of the scale.

Sample

The sample consisted of 150 athletes (male = 111, and female = 39,). All the participants were currently enrolled in academic institutions and were playing matches on the behalf of their institutes. These student athletes were selected from 3 universities of Lahore. The sampling strategy used in this phase was multi stage sampling. Mean age of the sample was found to be 21.98 (SD = 3.23).

Instruments

Resilience scale for athletes (RSA) consisted of 27 items. The participants of the study were asked to respond each item on 4 point rating scale, i.e., extremely, to some extent, very little and not at all.

Indigenous resilience scale for rescue 1122 (Naz, Saleem & Mahmood, 2010) was an indigenously developed scale to measure resilience of Rescue 1122. The scale consisted of 47 items. The scale had 4 point rating scale. This scale was found to have acceptable level of psychometric properties with the overall construct validity of 0.85 test retest reliability of 0.84 and Split half reliability of 0.71. The scale had four factors that enhanced resilience including Self Confidence, Self Control, Extraversion and Spirituality and one factor of vulnerability that was found to reduce resilience in rescue workers. This scale was used to establish the concurrent validity of Resilience Scale for Athletes.

Procedure

The participants were approached after getting the written permission from the directors and coaches of the sports complex of 3 universities of Lahore. The administration was carried out in a group form. The purpose of the study was explained to the participants and after getting their consent instructions were given. Those who do not want to participate were not included in the study. The participants were informed that the information was only taken for the research purpose and will be kept confidential. The instructions regarding the administration were given to the participants in the Urdu language. They were further requested to not to leave any statement unmarked. The average time of the administration was 20 minutes. After the administration participants were debriefed about the study.

Results

Psychometric Properties

In order to establish the psychometric properties of Resilience Scale for Athletes (RSA) exploratory factor analysis, Chronbach's alpha, item total correlations and percentile analyses and concurrent validity were computed.

The scree plot with Varimax rotation was used to explore the factor structure of Resilience Scale for Athletes. The scree plot identified three factors of the scale.

Factor analysis

An exploratory factor analysis was carried out and it depicted the four factor solution which also carried many dubious items. So, for the clear picture two, three, and four factor solution were carried out. It was found that the three factor solution had least number of dubious items. So three

factor solution was retained where the factor loading was equal or greater than .30 included.

Figure 1. Scree plot of Resilience Scale for Athletes

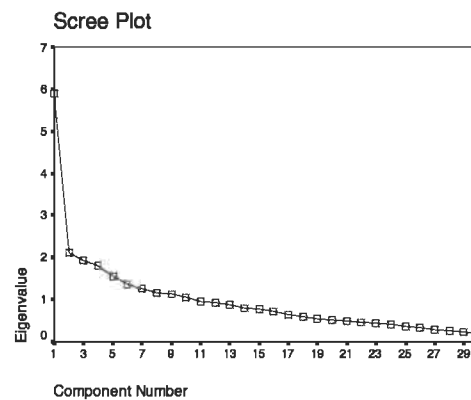


Table 1
Factor Loading for RSA with Varimax Rotation

Items #	Statements	Factor 1	Factor 2	Factor 3
2	I can play consistently.	.36	.21	-.26
3	In difficult times in play, I do have the courage to excel.	.62	.20	.12
4	I try to fulfill assigned tasks, even when I am unable to perform well.	.50	.12	.11
7	I feel confident about my decisions during the game.	.37	.11	.13
9	I maintain my interest in the game.	.33	.23	.28
10	During the game, I remain focused on the targets.	.60	.16	.13
11	In face of difficulty in game, I focus on my positives.	.43	.22	.23
12	Despite of the fear of losing, I invest my energies in performing better.	.50	.21	.20
14	In difficult times during game, I put in my maximum effort.	.66	.22	.25
15	The support of the coach is very helpful in game.	.37	.17	.23
16	I do have the decision making ability in tough situations during the game.	.54	.12	.10
18	I play with confidence even in the difficult times during the game.	.60	.24	.23
19	Faith in God during the game, gives assurance of winning.	.30	.13	.22
23	In difficult times during the game, co-players are the source of support.	.50	.15	.16
25	I remain confident of winning even in difficult time of the game.	.65	.16	.12
27	I play with responsibility even in difficult time of the game.	.47	.10	.24
1	I can concentrate during the game.	.25	.39	-.15
8	I complete my training before the game.	.11	.80	.22
17	I do my practice before the game.	.21	.78	.22
22	I take care of my nutritional needs.	.20	.56	.11
28	I try to amend my mistakes during the game.	.29	.40	.30
5	I overcome my anger during the game.	.16	.13	.64
6	I play tranquilly.	.18	.21	.66
13	I keep in mind the weaknesses of the opponent team.	.29	.19	.37
20	I readily accept my mistakes during the game.	.23	.18	.58
21	During the game, I can overcome my fear of losing.	.23	.16	.34
30	I use my anger constructively during the game.	.20	.18	.65

Table 1 describes the factor structure of 27 items of RSA. On the basis of the scree plot, a three factor solution was retained. The description of three factors was given below:

Factor 1: Self determination

The factor one consists of 16 items comprising of determination, focused, attentive, decision making, completion of tasks, self confidence, support from coach, and spiritual belief. So, the factor 1 was named as "self-determination". Some of the items of this factor were "In

difficult situation still I have courage to move on", "I keep my goal in my head during the game", "I put my full efforts whenever I face problems during game" and "In the difficult situation of game I play confidently".

Factor II: Physical toughness

The factor two consists of 5 items comprising of preparedness, completes training and taking care of one’s health. So, factor 2 was named as “physical toughness”. Some of the sample items included in this factor were “I have taken complete training of the game”, “I have completed my practice before the game”, “I take care of my diet” and “I quickly try to correct my faults during the game”.

Factor III: Emotional control and maturity

The factor three consists of 6 items comprising of controlling one’s emotions, utilization of one’s emotion into the game appropriately. So, factor 3 was named as “Emotional control and Maturity”. Sample items of this factor were “I can control my anger during game”, “I play my game in peace”, “I quickly admit my faults during my game”, and “I utilize my anger appropriately during the game”.

Table 2
Eigen Values and % of Variance of Three Factors of Resilience Scale for Athletes

Factors	Eigen Value	% of Variance.	Cumulative Variance
Self-determination	4.55	15.18	15.81
Physical Toughness	2.61	8.71	23.89
Emotional Control and Maturity	2.51	8.39	32.39

Table 2 also depicts the eigen values and percentage of variance of the three factors. The percentage of variance shows the high significance attached to first factor by the athletes as it has highest variance of 15.18 as compared to other two factors.

Internal consistency

To establish the internal consistency of Resilience Scale for Athletes, Cornbach Alpha reliability coefficient was computed.

Table 3
Cronbach Alpha of Three Factors and Total Items of RSA

Factors	No of Items	Alpha Coefficient
Self- determination	16	.81
Physical Toughness	5	.66
Emotional Control and Maturity	6	.66
Total RSA	27	.80

Table 3 indicates the alpha co-efficients’ of three factors constituting Resilience Scale for Athletes factors. The values of alpha co-efficient on factor 1 consistency was .81, then on factor 2 training was .66 the 3 factor emotional maturity was .66 and the overall value of alpha of Resilience Scale is 0.80 demonstrating high internal consistency of the scale.

Item-total correlation

Item total correlation was also computed to judge the internal consistency of the items in the scale.

Table 4
Item Total Correlation of RSA

Item No.	Correlation with Total RSA Score	Item No.	Correlation with Total RSA Score
1	.35*	15	.34*
2	.37*	16	.53**
3	.56**	17	.49**
4	.43**	18	.67**
5	.42**	19	.29*
6	.47**	20	.34*
7	.45**	21	.47**
8	.48**	22	.33*
9	.51**	23	.45**
10	.53**	25	.53**
11	.44**	27	.50**
12	.36*	28	.53**
13	.48**	30	.32*
14	.53**		

Table 4 indicates that each item of RSA correlates positively with the total score. The range of correlation was found to be between .29 to .67

Concurrent Validity

To establish the concurrent validity, the RSA and Indigenous Resilience Scale for Rescue 1122 were administered on athletes.

Table 5
Inter-correlations between Factors and Total of RAS and IRS for Rescue 1122

Factors	Self-determination	Physical Toughness	Emotional Control and Maturity	RSA Total	IRS Total
Self-determination	—	.40**	.39**	.91**	.41**
Physical Toughness	.40**	—	.32**	.61**	.29**
Emotional Control and Maturity	.39**	.32**	—	.68**	.27**
RSA Total	.91**	.61**	.68**	—	.44**
IRS Total	.41**	.29**	.27**	.44**	—
M	39.15	11.07	13.48	61.57	63.70
SD	5.74	2.48	2.85	8.35	8.71

Note. df, 48, **p<0.01,

Table 5 suggests that there is positive correlation between self-determination, physical toughness, emotional control and maturity, total score on RSA with total scores on IRS. It also shows means and SD on three factors of RSA with high mean 39.15 on factor 1, mean of factor 3 is 13.48 and lowest mean on factor 2, i.e. 11.07.

Discussion

The purpose of this study was to develop an indigenous tool for athletes to measure their resilience during the game. The rationale behind this study was that it has been seen that resilience plays significant role in the stability of any individual. According to Galli (2005), a competitive sport provides lots of setbacks, obstacles, and failures that usually go on a continuous basis on ground while playing. So, an athlete with high level of resilience is more likely to show better performance on ground than the one who lacks this characteristic. As this phenomenon was not explored in our culture yet so, this study helped in explaining the resilience for athletes.

Pakistan being a third world country, where inflation rate is on the rise and where the basic needs of general population are not fulfilled, the survival of athletes in such conditions is very difficult as they have to face many problems related to their basic and emotional needs. In the presence of such adverse circumstances, athletes need some personal qualities to survive and thrive in sports. One such quality is resilience. Although the construct of resilience has been studied in the west but as the athletes experience problems different from those experienced by the western athletes, the coping mechanisms and dimensions of resilience may also vary. Due to these variations, it was of utmost importance to study resilience indigenously. For this purpose phenomenology was explored from coaches and athletes. Factor analysis of the scale revealed three factors of self determination, physical toughness and emotional control and maturity.

The first factor of self determination had a special focus on the athlete's determination, abilities to focus, attend, decision making, completion of tasks, self confidence, support from coach, and spiritual belief. This factor corresponds to the view of resilience across cultures.

The distinguishing feature of this factor was the emergence of spirituality as an aspect of fostering resilience in an athlete. It emphasized that athletes in an attempt to deal with the stressors during the game do rely in the higher power of God in addition to relying on their own abilities. Recently, literature has focused extensively on spirituality and regarded it as an important source of resilience (Kim & Esquivel, 2011).

The factor two, Physical toughness is based on athlete's preparation, i.e., completion of the training and taking care of one's health. Athlete's physical preparedness for their game could enhance their resilience because the training makes them physically strong and prepare them to handle stressful situations before the game. Training and building physical toughness indirectly raises the confidence in self which is also an important indicator of resilience. Athlete's health and practice both were very crucial as down fall in any of these, could affect their performance. It has been seen

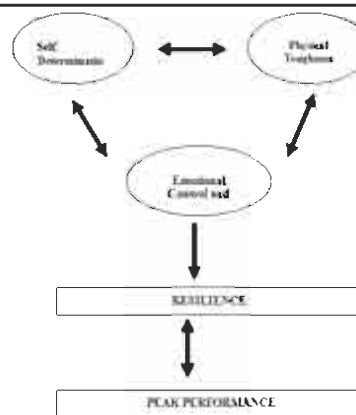
that better health may enhance athlete's performance because diet provides important nutrients that support and help the body to grow. Both training and nutritional care may increase stamina required for physical activity (Satter, 1987).

The factor three, emotional control and maturity is based on athlete's way of controlling their emotions, utilization of one's emotion into the game appropriately. The athletes control on their overwhelming emotions plays a strong role in boosting their resilience and in dealing with the obstacles during their game. Getting incharge of one's emotions enhances the athlete's emotional strength and develops regulation which further improves the performance during any setback in the game. In many researches it has been discussed that athlete's frequently face emotionally charged situations during their game. The extensive aggression further hampers the athlete's performance (Sacks, Petscher, Stanley, & Tenenbaum, 2003). So, control on this overwhelming state during the match is significantly important otherwise the performance of athletes will be effected (Kirker, Tenenbaum, & Mattson, 2000; Stephens, 2001; Tenenbaum, Stewart, Singer, & Duda, 1997). Further another overwhelming emotion is anxiety of athletes which also cause lower performance of athletes if it is not properly controlled (Woodman & Hardy, 2001).

Thus, it appears that the factor structure of resilience emerged in the current study may help the athletes to cope with adverse situations during game. Sports is an area in which an athlete has to face many pressure situations and in such situations they have to take decisions on their own. They have to develop a degree of control over their emotions and also a confidence in one's own self can aid in giving peak performance. It must also be kept in mind that an athlete who has got trained in a respective sport may be more confident of his tactics and skills and in control of his emotions.

Thus, the current research proposes a 3-dimensional model of resilience in athletes. Each one of the dimension serves as a building block in raising resilience and thus making peak performance an achievable target.

Figure 2: Three-dimensional Model of resilience for athletes



Conclusion

On the whole this study highlighted the manifestation of resilience as indicated by the athletes. The study revealed three major factors of resilience i.e. self-determination, physical toughness and emotional control and maturity. The study also proposes the interaction between the factors of resilience which can be tested in the future research. It can be concluded from the findings that for athletes of Pakistan self-determination, physical toughness and emotional control and maturity are the key determinants of resilience.

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