RESILIENCE IN SPORTS: CONSTRUCTION AND VALIDATION OF SPORTS SPECIFIC RESILIENCE TOOL

Thesis Submitted for the Award of the Degree of

DOCTOR OF PHILOSOPHY

in

Physical Education

By

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DECLARATION

I, hereby declared that the presented work in the thesis entitled "**Resilience in Sports Construction And Validation of Sports Specific Resilience Tool**" in fulfillment of degree of **Doctor of Philosophy (Ph.D.)** is outcome of research work carried out by me under the supervision of **Dr. Bhanu Partap**, working as **Assistant Professor**, in the **Lovely faculty of business and arts** of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

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CERTIFICATE

This is to certify that the work reported in the Ph.D. thesis entitled "**Resilience In Sports Construction And Validation of Sports Specific Resilience Tool**" submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph.D.)** in the **Lovely faculty of business and arts**, is a research work carried out by **Vimal Kishore**, **(11312977)**, is bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.

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ABSTRACT

Athlete's performance has been extensively researched over the years and have been concluded that natural, physical as well as psychological factors play a significant role in performance of a player (Illayasi, 2011). Researchers have found most of the athletes applying more mental efforts to enhance their performance (Thelwell, et al., 2010), few of them advocated the vitality of psychological skills as basic necessity for the achievement of peak performance and positive states in sports (Hardy, Jones & Gould, 1996), doing so not only results in their successful performance but increases personal well being too (Georgakaki, & Karakasidou, 2017). Sports constitutes a competitive environment in which athletes compete against each other to outclass the opponents thus relating it to the ever increasing and demanding stressful situations (Bardel, et al 2010; Darling, Caldwell, & Smith, 2005; Holt & Sehn, 2008; McLaren, Eys, & Murray, 2015; Smith, Smoll, & Cumming, 2007). It is also acknowledged that every time a player competes to achieve desired goals, have to deal with diverse potential stressors, comprised of pain, fear, lack of confidence, coach stress (Dale, 2000). Such stressors if not dealt with properly leads to the failure of athletes (Lazarus, 2000). Identifying and understanding these stressors in sport has become an important area in sport psychology research. Recent studies in sports psychology have delineated most frequently encountered stressors leading to adversity by athletes in their competitions. Some of these are inadequate preparation, injury, performance, finance, travel, interpersonal relationships, weather conditions, (Hanton, et al., 2005; Mellalieu & Neil, 2009), along with this the other stressor that has been included by the researcher is organizational stress (Fletcher & Hanton, 2003). This study has investigated the new insights in conceptualization of resilience in sports and has included both stressors leading to performance slump and protective factors leading to bounce back. Arnold & Fletcher (2010) were the first ones who were credited for introducing the concept of "Resilience" in sports. Resilience is the ability of an individual to bounce back from the adverse conditions (Jacelon, 1997; Windle, 2011). The more positive factors an individual possesses, more resilient they are supposed to be (Kumpfer, 1999). In fact, protective factors supposed to be the characteristics of an individual which tend to mitigate the influence of harsh conditions faced by them (Rutter, 1995). Various protective factors such as social support (Freeman & Rees, 2008), motivation (Fletcher and Sarkar, 2014), self-confidence (Chan, 2000, Kate et.al,2009),

Optimism (Kumpfer, 2002), hardiness (Kobassa, 1979, Gucciardi, et al 2009), and focus have been identified and added by researcher to frame this scale through intense literature review.

The first objective of the study was "to construct and standardize a sports specific resilience assessment tool for sports person" and second objective was "to develop norms for the constructed scale". All objectives had been successfully achieved by the process briefed in coming lines. The present study was delimited to 1031 male and female sports person ranging between the age group of 18-28 years of age from two States i.e; Punjab and Jammu and Kashmir. It was further delimited to All India University level players. To accomplish the first objective, researcher had made intense review of literature and also held discussions with eminent personalities from the field of sports and physical education and based on it, 37 variables were identified initially, from these 37 selected variables, 26 were protective factors and 11 were stressors. Then the selected variables were discussed with all stakeholders and on the basis of their suggestions and recommendations 17 variables were finalized for framing items. All these variables have been considered as basic components which leads to the construct of resilience in sports, out of these 17 variables, 10 were stressors and 07 were protective factors. From these 17 variables a set of 171 items were framed for establishing content validity, thereafter, these items were personally discussed with 16 experts of the field. After their valuable suggestions and recommendations, the items were reduced to 111 and the variables were reduced to 14, out of which 07 were protective and 07 were stressors.

In next phase as part of pilot study, the 111 items framed scale was administered on 100 samples for data collection and for the determination of item analysis. After performing item analysis on SPSS version 22, it was found that all the constructed items were independent to each other. Therefore, to check the normality of data, researcher have further applied the technique of descriptive statistics in which with the help of skewness and kurtosis it was found that data of 61 items were not normal, in consequence to this the 61 items were deleted and a 3rd draft comprised of 50 items was constructed, further, during this process of item analysis, one variable named injury was also deleted. This 50 item constructed scale was assessed through content validity index in which 05 more items were deleted and finally a 4th draft comprising of 45 items was developed. Then finally constructed scale was administered on 1031 samples for establishing the norms and validation of the scale.

The statistical technique used for the conduct of this study were item analysis, factor analysis, Pearson's Product-moment Correlation, Percentile Scale, descriptive statistics (Skewness and Kurtosis). The statistical analysis for the study was done by using SPSS 22 version software.

The results of the study were as expected by the researcher. As earlier studies concluded that this is a very vast topic to work on (Arnold & Fletcher, 2012). After studying intense literature and figuring out the mistakes of the studies carried out in the past researcher have tried to develop a reliable, and valid construct initiated by figuring out factors (irrespective of positive and negatives) responsible for the resilience of an individual. In the process all objectives of the study were successfully fulfilled by the researcher. After applying factor analysis, it was found that the samples were adequate to apply factor analysis, however strong relationship was found among the items extracted to develop the scale. On the basis of PCA and Eigen value obtained from factor analysis, the items having value above 1 were kept while the items having the values below were deleted. In this process 13 variables were extracted. After this the researcher applied item analysis in SPSS 22 where it was found that all items were independent to each other and were contributing to resilience in sports. Hence, all 45 items were kept for development of final scale. The 13 variables extracted by factor analysis contribute 52 percent to classify resilience in sports through this scale, which means that these 13 variables explained 52 percent variation to explain the dependent variable i.e.; resilience in sports. The result indicates that this scale can be considered to apply on sports person ranging between the age group of 18-28 years from the games of hockey, wrestling, judo, athletics, handball, badminton, boxing, volley ball and cricket to check the resilience. However, reliability of this scale established through Cronbach's Alpha is 0.76, which means this tool is good for use. Whereas, the validity coefficient obtained through subjective judgement method was 0.88 which is very high, thus this scale is considered highly valid for use in sports.

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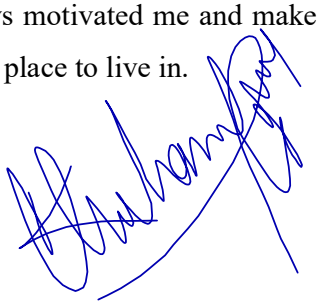

Date INVESTIGATOR

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Introduction

The perception about sports has been enhanced since its origin more than several centuries ago. Along with procuring the better usage of leisure time, it helps in the socialization of societies also. “Moreover, with emergence of research in sports, its role has been changed from merely leisure activity to development of emotional, physical and intellectual welfare of an individual” (Arslan, et al 2012). Understanding of sports in widespread population, across the world is emerging swiftly, entire perspective and texture of sports has been revolutionized. “Earlier it was believed that participation and performance in sports simply require physical toughness and enormous physical activities” (Santomier, 1983). Although, as a result of relentless efforts put by various eminent sports psychologists, this perception has been changed now, “it is well established that to perform better at elite level every athlete must possess the skills of brawn and brain simultaneously” (Vealey, 2007; Hardy, Jones and Gould, 1996). In other words, along with important physical skills which are necessary for successful execution, “appropriate psychological factors are also required for accomplishment of goals” (Weinberg and Gould 2018). However, it is noted globally that athletes who fails to achieve their competitive goals are likely to feel unhappy and angry after competition, to cope with this, “a lot of sport psychologists and educationists have been trying to narrow the gap between success and failure caused by head and heart” (Balamurugan and Gowdhaman 2009).

It is also acknowledged that every time a player competes to achieve desired goals, “deal with different types of potential stressors, comprised of pain, fear, lack of confidence, coach stress” (Dale, 2000). “Such stressors if not dealt with properly leads to the failure of athletes” (Lazarus, 2000). Therefore, sports psychologists have globally admitted and accepted the necessity of coping with such performance stressors so that athletes may be able to optimize their performance ability and performance errors they commit. Meanwhile, with the formation of International Society of Sport Psychology in 1965, field of sport psychology broadly began to acquire status. Sport psychologists are primarily concerned with the effect of such

psychological factors which influences participation and performance of sports person. Various aspects influencing an athlete's performance have been extensively researched over the years and have been concluded that natural, "physical as well as psychological factors play a significant role in performance of a player" (Illayasi, 2011). Every player commits frequent errors while performing at various stages of their career, therefore, sometimes take hold of a player from achieving success at major competitions. "The players who take these errors as part of their routine and carry on to learn and improve from such mistakes are the resilient ones" (Halden & Brown, 2003). Theory of resilience speeches about the strengths that people and organizations demonstrate that enables them to rise above adversity. Being resilient would not ensure success in all the situations but will preserve energy for everyday challenges and obstacle as well as a self-development attitude towards difficult, stressful or unsuccessful events. Some instances from the past reflect about relation of resilience ability and success. "Paul Elbert Hamm's performance to become 2004 Olympic all-round champion is considered among the greatest comebacks in Olympic history" (Sarkar, 2000). In that event his first three rotations were almost good and had earned him a better position in the tally, but his fourth rotation which almost landed him on to the judge's table, dropped him to twelfth position. In order to win medal, he had to perform extremely well in remaining two rotations. With immense pressure of performing well on parallel and high bar rotations, Paul was able to bring his ever best performance on parallel bar and therefore jumped to fourth position.

To win medal at Olympics, an enormous performance was required in high bar, likewise his performance in parallel bars he followed an equally weird show on high bars resulting him the gold medal. However, "sports have been considered as a natural platform for the researchers to identify how athletes behave and perform under enormous challenging situations" (Sarkar & Fletcher 2014). Researchers have found "most of the athletes applying more mental efforts to enhance their performance" (Thelwell, et al., 2010), few of them "advocated the vitality of psychological skills as basic necessity for the achievement of peak performance and positive states in sports" (Hardy, Jones & Gould, 1996), "doing so not only results in their successful performance but increases personal well being too" (Georgakaki, & Karakasidou, 2017). It has galvanized the sport psychologists to find out those hidden psychological

factors which are indispensable to sports performance at any level. “Specially to perform at elite level, dexterity of athletes is essential to make appropriate use of their wide range of psychological attributes so that they remain firm while facing pressure situations” (Fletcher and Sarkar, 2012; Gould, Dieffenbach & Moffett, 2002). One of such buzzing psychological concept that has been studied the most and has become cynosure for researchers in sports is resilience. Resilience is the ability, which assists an individual to successfully transform their depressive circumstances and threatening situations to achieve positive results. In other words, “ability to bounce back from the adverse conditions” (Jacelon, 1997; Windle, 2011). It is an umbrella term which encompasses the stressors encountered and protective factors assisting to resist against these stressors by the athletes. “Sports constitutes a competitive environment in which athletes compete against each other to outclass the opponents thus relating it to the ever increasing and demanding stressful situations” (Bardel, et al 2010; Darling, Caldwell, & Smith, 2005; Holt & Sehn, 2008; McLaren, Eys, & Murray, 2015; Smith, Smoll, & Cumming, 2007). “Stressors are pervasive in sports and athletes come across through a lot of stressors regularly in respective games they play” (Mellelieu, Hanton & Fletcher, 2006). Mistakes and failures are part of the games and sport. Furthermore, research supports that athletes withstand more stressors than rest of the population, “as in addition they are required to maintain equilibrium between schoolwork, practices and games” (Fullerton, et al 2008, Mann, 2007). However, (Coutu 2002) quoted, "More than education, experience, training, a person's level of resilience determine who succeeds and who fails."

1.1 Background

Resilience has been widely researched and studied in a variety of fields including developmental and clinical psychology, “yet in comparison there have been relatively few investigations of this desirable construct in sport settings” (Watson, 2016). “Sports incorporate stress and in order to perform better every athlete requires the efficiency to successfully cope these stressful situations” (Holt & Hogg, 2002 & Sanz, et.al; 2023). “Except few, all sports person experience stress during their sporting career” (Scanlan, Stein, & Ravizza, 1991). “Whereas, the players who are not being open to the element of risk or distress in their life, are still performing better and

achieving success in different aspects of their career can be described as successful in various fields of life and may be considered to be victorious or capable players to a certain extent but cannot be considered as resilient one" (Luthar, et al 2000). "It is not necessary for everyone to encounter major disasters to be considered as resilient but for someone they may be the modest disruptions that are present in our daily life events" (Davis, et al 2009). Identifying and understanding these stressors in sport has become an important area in sport psychology research. To date, "many research studies have examined specific forms of stress or sport-specific stressors which includes organizational stress" (Fletcher & Hanton, 2003), self-presentational stress (James & Collins, 1997), stress during the football World Cup (Holt & Hogg, 2002), golf-related stress (Giacobbi, et al., 2004), stress in elite figure skaters (Gould, Jackson, & Finch, 1993; Scanlan, et al., 1991) and in Australian footballers (Noblett & Gifford, 2002). Recent studies in sports psychology have delineated most frequently encountered stressors leading to adversity by athletes in their competitions. "Some of these are inadequate preparation, injury, performance, finance, travel, interpersonal relationships, weather conditions", (Hanton, et al., 2005; Mellalieu & Neil, 2009).

Most of the earlier researchers suggested that resilience is an individual quality which some have and some do not have, in other words it was considered as a personal trait, "however, it is not a trait that individuals have or do not have, rather a dynamic process" (Rutter, 2012), "involving behaviors, thoughts and actions that can be learned and developed in anyone". (Block and Block, 1980, Luthar, et al., 2000, and Conar & Davidon, 2003,). By the endeavors of researchers, "it has been put forth that resilience is not a personal trait rather a process that can be developed in an individual" (Hjemdal, et al., 2006; Egeland, et al., 1993; Masten, 2001), "also there is no single universal factor which explains it" (Glantz & Sloboda, 1999; Smith & Prior 1995). "It enables a person to enhance the personal assets by comprising numerous factors which assist to negotiate well, adapt, and manage the substantial source of stress protecting from negative situations" (Windle, 2011, Fletcher & Sarkar, 2013). "It is the successful acclimatization and adaptation to adverse conditions" (Norouzinia, et al 2020, Zautra, Hall and Murray, 2010), "application of positively oriented human strengths and psychological capacities which can be developed and

effectively managed for improvement and maintenance of performance" (Luthans, 2002), can also be explained as a component of positive behavioral psychology and therefore narrated as the ability of a person to rebound or bounce back from adversity, conflicts and failures. Along with their ability to bounce back from negative situations, "resilient individuals are also able to digest the positive events, progress and increased responsibility in their life" (Luthans, 2002). "Resilience is largely influenced by an individual's environment" (Malik, 2013), "a prerequisite for sportsperson as it enables them to adjust pressure and stress, therefore enhancing performance and thus promotes the physical and mental health of an individual" (Burton et al., 2010**).**

In the field of sports, it is believed that along with physical prowess and dexterity, mental abilities are obligatory for a sportsperson to be successful. Sports psychologists advocate for resilience as an imperative mental attribute that every individual or team player must have. "Resilience plays an imperative role to adequately adjust the stressors" (Friborg, et al 2003), "assists a person to remain determined and prosper further on even when encountered by adversities" (Hoover, et.al,2005). "People with resilience are highly motivated, have higher level of self-confidence" (Chan, 2000) "and are able to better employ social coping strategies" (Qiu, et.al, 2008; Yi-Frazier et.al,2010), "whereas the individuals with low level of resilience fail to thrive out of with stressful situations" (Lee et.al,2011). It has been noticed frequently that some players thrive out of stressful situations easily while others sink down; "this variation indicates that resilience depends on the influence of some factors" (Fergus & Zimmerman, 2005; Legault, Anawati, & Flynn, 2006; Pinquart, 2009; Skinner, et.al,2009). In this context (Troy et al 2013), revealed that the variation in resilience must be due to the aftermaths of some internal and external factors which are protective and related to the level of resilience in people, "therefore resilience is not merely a passive resistance to the threats of situation but the resilient person is an active participant of the environment" (Waller, 2001). In order to perform their best at elite level, the players, coaches and teams come across with so many challenges which are psychosocial and psychological in nature. "The challenges encountered are very much diverse that can be realized through so many examples from the history of sport at elite level" (Wylleman et.al,2013).

1.2 Origin of resilience

Resilience is the competence, being developed within a sports person which allows them to acclimatize at the time of misfortune, shock, suffering, adversity, and constant considerable existing stressors in day to day life or sports events, so that positive results can be achieved in spite of hard times. “Concept of resilience was discovered about 45 years ago through its theoretical and operationalization” (Kaplan, 1999; Olsson, et.al, 2003). Historically, the concept of resilience arose from the observation of children and young people growing under unfavorable conditions of life. “The root for the English word ‘resilience’ is the word “resile”, which means “to bounce or spring back” (from re- “back” and salire- to jump, leap” (Agnes, 2005). “The concept of resilience came into existence in early 1970’s when researchers were studying the impact of risk factors on the children suffering from poverty, trauma or chronic stressors in the field of psychopathology and traumatic stress” (Garmezy, 1971; Rutter, 1979; Werner & Smith 1982). They were astonished by the findings which revealed that majority of children vulnerable to these stressors not only survived but thrived in spite of risk. This shifted the focus of researchers from investigating the impact of risk factors to find the latent qualities or factors which enabled those children to thrive successfully. “Since then psychologists also started to focus on identifying the strengths or positive factors inhibiting the effect of these risks on the individual” (Garmezy, 1991; Rutter, 1990; Werner & Smith, 1992). “From the early 90’s there was a shift of paradigm in the research of resilience which involved the identification of factors responsible for overcoming adversities that an individual withstand” (Luthar, cicchetti, & Becker, 2000). “Such factors which assists a person to negotiate positively and moderate the impact of negative situations are generally described the protective factors” (Masten, 1994; Ryff & Singer, 2003). “The more positive factors an individual possesses, more resilient they are supposed to be” (Kumpfer, 2002). In fact, “protective factors are the characteristics of an individual which tend to mitigate the influence of harsh conditions faced by them” (Rutter, 1995). “Since then various protective factors have been identified and added by the sports psychology researchers such as social support” (Freeman & Rees, 2008), motivation (Fletcher and Sarkar, 2012), self-confidence (Chan, 2000, Kate Hays, Owen Thomas, Ian Maynard & Mark Bawden,2009), “Optimism” (Kumpfer, 2002),

"hardiness" (Kobassa, 1979, Gucciardi, et al 2009), and focus. Since the emergence of resilience, from last three decades' theories have been propounded by the researchers (Denz & Murdoch, 2008, Palmer, 2008, and Fletcher & Sarkar, 2012) "argued resilience as a dynamic process which changes over the passage of time and results from the person-environment interaction" (Egeland, Carlson, & Sroufe, 1993). Till now what has been discussed about resilience delineates, as the quality of an individual to thrive out of the difficult situations. "Researchers have put forth that 40-60% of youth are vulnerable to various adversities" (Kessler et al., 1995; Yehuda, 2004), still only few of them (8% American Psychiatric Association, 2000) are being able to confront successfully. Participation in sports leads to development of resilience in players and also contributes in their overall psychological well-being (Sheng et al., 2024).

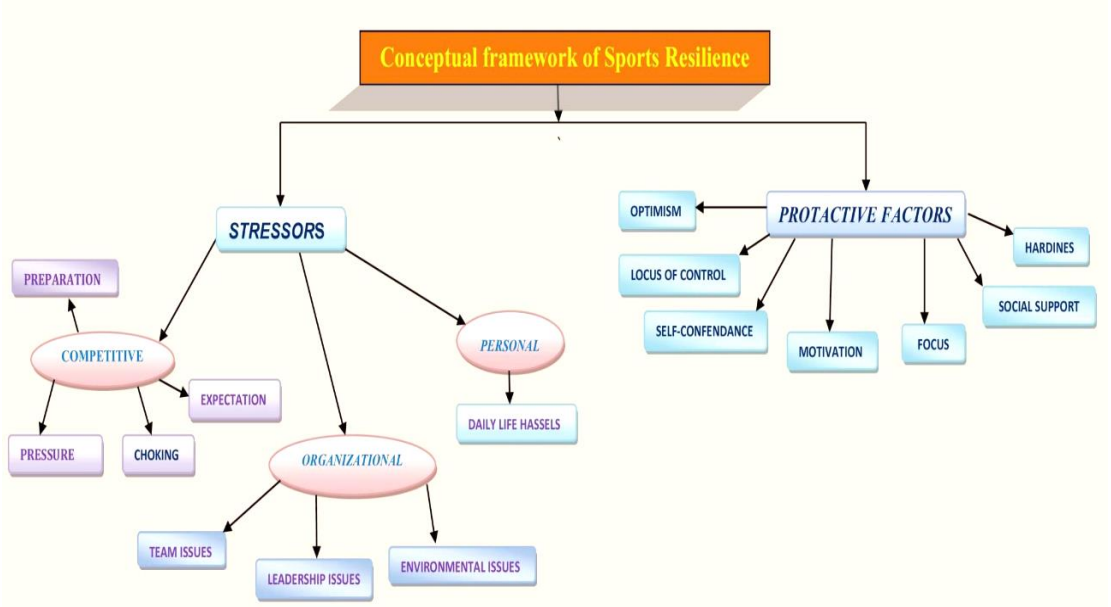

Figure: 1.1 Conceptual framework of Resilience in Sports

1.3 Protective Factors

Positive factors are the resources, of which an individual takes help from to cross over the finishing line. In other words, all such factors which enables a player to overcome the negative impact of an event and allows them to move on in their particular sports is termed as protective factors. Protective factors normally pass on to personality

distinctiveness and environmental possessions that support in preventing maladjustment within an individual to defiant the effect of risk (Punamaki, Quota & El-Sarraj, 2001), and is also considered as an asset or resource against adversity (Hobfoll, 1991). They are indispensable to positive adaptation; nevertheless, provide assistance in preventing psychological disturbances (Waktaar & Torgensen, 2010). Resilience results from the interactions between individual characteristics and the environment thus impeding the hindrances (Gonzalez, 2007), hence is a dynamic process (Gonzalez, Valdez & Zavalla, 2008) and mechanism leading towards positive results, notwithstanding, the stressors accounting for notable risk (Hjmedal, et.al,2006). Such individual and environmental reserve that assists a player to avoid and deal with maladjustments is referred to as protective factors (Smith & Osborne, 2007).

1.3.1 Social Support

Social support means the existence of some people, "including family, friends who care and support in times of need" (Bnanno, 2004), "has been described as a protective factor protecting athletes from various stressors they encounter in sports" (Gould, Finch & Jackson, 1993; Rees & Freeman, 2011), "has also been stated as the process of cooperation between two or more than two individuals in which there is interchange of ways and means to aid receiver to reach a desired goal" (Bianco & Eklund, 2001; Duncan, Duncan & Strycker, 2005). "People having strong relationship in their life will face the adversity successfully and come back to their normal life as compared to those who do not possess any such relationship" (Pivnic & Villegas, 2000). "Plethora of research conducted on the relationship between social support and performance of athletes revealed that athlete's performance has been improved positively when they received support from their parents, friends, coaches and teammates" (Freeman & Rees, 2008; Freeman, Rees & Hardy, 2007; Rees & Freeman, 2011). "Social support in athletes was also related with improved motivation and self-esteem level of the athletes" (Cranmer & Sollitto, 2015; Sheridan, Coffee & Lavallee, 2014).

1.3.2 Optimism

Optimism is a factor contributing to resilience, “it also has been identified as the most influential adolescent cognitive factor to temper the effects of life stressors” (Tusaie-Mumford, 2001). Dictionary definitions of optimism encompass two related concepts. The first is a hopeful disposition or a conviction that good will ultimately prevail. The second broader conception refers to the belief, or the inclination to believe, that the world is the "best of all possible worlds." In psychological research, “optimism has been referred to hopeful expectations in a given situation” (Carver, et al 1989) and recently “has referred to general expectancies that are positive” (Scheier & Carver, 1993). It is a very positive force for a sportsperson; “athletes with optimistic behavior are associated with higher level of motivation to work hard whenever they withstand obstacles and difficulties” (Buchanan & Seligman, 1995), “are more satisfied and have high levels of aspiration” (Smith, et.al,2008). Optimism accompanies resilience in stressful situations and “appears to be an individual difference variable that reflects the extent to which people hold generalized favorable expectancies for their future” (Carver, Scheier, & Segerstorm, 2010). “It is an important aspect of resilience as it reflects an individual’s positive attitude towards adverse situations” (Yu & Zhang, 2007). Optimists have a great capacity to quickly adjust themselves to big challenges and “show more resilience while confronting a challenge even if progress is difficult and slow” (Synder & Lopez, 2003). “There exists a causal relationship between resilience and optimism as both accompany each other in adverse events” (Hosein, 2011), and an interactive relationship between these two variables; “resilience results in optimism and optimism leads to resilience” (Carver, Scheir & Segerstorm, 2010, Tsuaie- Mumford, 2001 & Bonanno, 2005). “Optimism has been linked to various aspects of psychological and physical well-being in adults” (Lai, 1995; Schweizer, Beck-Seyffer, & Schneider, 1999). “It was found to be positively associated with psychological functioning” (Achat, et.al,2000), “effective in coping with stress” (Billingsley, Waehler, & Hardin 1993); “positive attitudes to mental health, adjustment, achievement, problem-solving, and health-related benefits” (Carver, Spencer & Scheier, 1998; Peterson & Bossio, 2001; Scheier, Carver, & Bridges, 2001); “when experiencing adversity, optimists tend to continue to strive toward their goals rather than giving up” (Carver, et al., 1998). Optimists tend to engage in

adaptive problem-focused coping, constructive thinking and acceptance of uncontrollable situations while maintaining goal pursuit (Aspinwall, Richter & Hoffman, 2001). “Optimism (a mental tendency that construes situation as being best) and social support (existence of some people, including family, friends who care and support in times of need) are two dominating factors influencing the level of resilience” (Bonanno, 2004; Dawson & Pooley, 2013; Rutter, 2006; Tugade & Friedrickson, 2007). “Both are the mental skills that can be improved, taught and learned” (Carver & Connor- Smith, 2010; Fresco, et.al,2009; Meevissen, Peters & Alberts, 2011). “Individuals with high optimism report fewer depressive symptoms, greater use of effective coping strategies, and fewer physical symptoms than do pessimistic individuals” (Scheier & Carver, 1993).

1.3.3 Locus of Control

Julian Rotter is credited for introducing the concept of locus of control. Locus of control reflects whether an individual perceives the cause of behavior to be within his/her personal control. “Locus of control can be defined as the perceptions one holds regarding personal responsibility for success or failure” (Wood & Olivier, 2004). Locus of control means the extent to which individuals believe that they can control events and causes of their actions. “It is a personality construct which refers to an individual’s perception of the locus of event as determined internally by his/her own behavior versus fate, luck or external circumstances” (Onu, et al., 2013). “When the locus of control is internal, it is said to be autonomous, while external causality can be controlled (by others) or it can be impersonal” (under the influence of a coincidence or luck, Marijana, 2010), focuses on the ability to cope with uncertainty. While the individual who have less tolerance resist to the change, the ones with high tolerance can adapt to the change more easily. Individuals who are external in the light of locus of control, have a lack of control on their life and they believed that what happened for them is a result of external factors such as chance, fate, other people and like them. In other words, they don’t have any active role in their life. Individuals, who have internal control, know themselves as a ruler on their fate and undertake responsible of their success and defeat. Internals are more dominants on the behavior flow and have active manner while externals are more passive and non-active. The

internal locus of control is accompanied with recognition, justice and realistic. While external locus of control has sentimental, lack of recognition, no justice against events or causes of behavior. Therefore, the believers to the internal control at reaching purposes more attempts are spending and in addition to the more self-respected, "they thought the control of their life affaires from their inside" (Samaei, et.al, 2012). It has been noted that internal control beliefs are an ability to handle stress in general life and at work. Persons who are internally oriented make more attempts to acquire information, are less rootless, and display greater work motivation. They tend to expect that hard working leads to good performance, and feel more control over their time.

1.3.4 Self- Confidence

Role of confidence in world's successful sports performers was first investigated by (Hays, et.al, 2007). Self-confidence influences the "behavior, attainment and attitude of athletes" (Cox, et.al,2010) and hence is "associated with successful sports performance" (Vealey & Chase, 2008). Athletes possessing high self-confidence are supposed to be "more resourceful and focused to resolve issues at the time of adversity" (Bandura & Wood, 1989), as it influences the coping process of players during "stressful conditions in competitions" (Cresswell & Hodge, 2004), "having a positive effect on the performance of athletes" (Martens, Vealey, & Burton, 1990) self-confidence is significant for "optimum performance of athletes" (Feltz, 1988, Kate et.al,2009), "whereas lack of confidence results in anxiety, depression and dissatisfaction" (Hanton, Mellalieu, & Hall, 2004; Mellalieu, Neil, & Hanton, 2006) "eventually leading to performance slump" (Hays, et.al., 2009). Athletes with high confidence make persistent efforts to achieve their goals, "thus are expected to succeed because of their productive achievement behaviors" (Gernigon & Delloye, 2003).

1.3.5 Hardiness

Gone are the days when success in sports was merely related with physical prowess, in fact along with physical dexterity there are so many psychological factors of the players which eventually count for success, depending on the requirement of specificity of the sports they compete, "as in high spirited conditions when physical

components arrive at their maximum capacity psychological abilities of a player plays an important part to come out and thrive against tough situations" (Mehrparvar et.al,2012). Hardiness is one of these psychological factors of the athletes "which leads them towards success in challenging conditions" (Gucciardi, et al 2009), "it involves three specific traits i.e., commitment, challenge, and control over situations" (Kobassa, 1979), these characteristics of a hardy individual helps them to appraise any threatening circumstances as positive and they believe they can control any tough situation in their life, "hence associated with enhanced performance of players" (Golby, et.al,2003). "Person with ability of hardiness has the ability to be more resilient at the time of pressure situations" (Bartone, et.al,2010) and "thus safeguards them from depressing outcomes of stress" (Kobassa 1979). "Is a most important characteristic of successful players which incorporates with successful performance" (Maddi & Kobassa, 1994), "comprises set of distinguishing attributes acting as resistance to demanding occasions thus person with hardiness considers living as an opening in spite of menace" (Darvishzadeh & Bozorgi, 2016).

1.3.6 Motivation

Motivation plays vital part in achievement of desired performance at elite level. It is a mental situation which forces an act into a most wanted goal, an individual with greater level of motivation will perform better regardless of the situation and can be ever ready to give his all. Further it was emphasized that motivation is the prerequisite to performance in sports, "how much a player is confident, focused, intensified or emotionally balanced does not make any worth if he is not motivated" (Abdul, R, 2015)**.** Motivation in general "describes as a need, drive or force that directs an individual to move on further" (Reeve, 2015), "it can be intrinsic or extrinsic" (Johnson, Ekman & Friesen, 1975). In sports athletes withstand so many stressors in the form of fatigue, injury, physical stress, pain, so on and so forth which can easily lead distraction of athletes from their targeted goals, "those who will be highly motivated can overcome such stressors whereas those with less level of motivation tends to withdraw" (Cucui & Cucui, 2014), "it is the athletes most important characteristic associated with durability in sports perspective and execution of skills" (Rigby & Ryan, 2018).

1.4 Stressors

Stressors are those negative occurrences (physical or mental), which are the main causes in a player's performance slump. Moreover, it is not as simple as it looks to participate and be successful at elite level, "in fact, for this athletes have to begin preparing themselves from a younger age" (Gould & Whitley, 2009), "also have to undergo lot of rigorous and substantial training schedule and demands" (Manzi, et al., 2010; Scott, et.al, 2013). During this process of preparation and participating at different levels, "every athlete faces numerous personal, organizational and competition stressors throughout their career" (Neil et.al,2007; McKay, et.al,2008; Sarkar & Fletcher, 2014).

1.4.1 Organizational stressors

Organizational stressors are those factors which are being encountered and become burden for an athlete thus are capable of deteriorating the performance of a player. In sports organizational stressors have been emerged swiftly in the recent decade, "which encouraged to study and look at the difficulties encountered by athletes" (Simbolon, et al., 2020), "is the constant transaction among a person and the environmental hassle related mostly and straight forwardly with the organization in which the player is functioning" (Fletcher & Sarkar, 2013). Four main types of organizational stressors "team, environmental, personal and leadership issues confronted by the players have been suggested" (Woodman & Hardy, 2001). These lead to the arising of issues "like role conflicts and work overload" (Finney, et al., 2013), "has the possibility of origin to various unwanted outcomes for athletes" (Simbolon, et al., 2020).

1.4.2 Preparation

Preparation in this study means to the psychological preparations of athletes, how they prepare themselves for their respective competitions. Preparation is prerequisite to get anything equipped and all set to bring into play and is also essential part of any activity to be accomplished" (Serrano, et al., 2013); in sports preparation includes "intellectual, physical, technical and tactical preparation of athletes to enhance the knowledge of a player on all these aspects" (Lacobini, 2013). Especially the

psychological preparation is of utmost imperativeness, “as it plays key role in accomplishing top performance of a player in sports” (Butler, 2020). Preparation enables to prevent a player from confusion, stress and injuries, and also gives clarity of the role he has to play in a team.

1.4.3 Expectation

It is a well-built faith so as to something will come about; in the field of sports every stakeholder (spectators, parents, friends, team mates, society, etc) has expectations from a player or a team (Mothes, et al., 2017). This high amount of expectation adds more pressure on a player, eventually resulting in performance deterioration (Mesagno, Amp & Beckmann, 2017). Especially young players seem to be more vulnerable to it, “as they get excited by the recognition given by their fans” (Cohn, 2000), “but even the elite players get stuck to this pressure of expectation” (Graham, et al., 1993). Andy Murray, a legend of Tennis, one of the elite athletes from Great Britain had been prey to the expectations of his country-men and it took eight years for Murray to win his maiden Grand Slam. A player begins to think about investments made from all stake holders on him. If this negative thought process cannot be rectified on time the player suffers from lean performance in spite of his talent, but if such little things can be corrected, it follows better performance and eventually better results can be achieved.

1.4.4 Daily Hassles

Daily hassle is a minor event that arises in the course of a normal day of an athlete’s daily routine. Often they are diminutive in existence but can hang around if set aside unsettled, thus intensify when assimilated with successive hassles. Stressful events can range from the hassles we experience in day-to-day life to traumatic and impairing events. Hassles include things such as having a disagreement with your roommate or spouse or missing a deadline for a project, “while a traumatic experiences include things such as being sexually assaulted or death of a loved one” (Barber, et al., 2014), “experiencing daily hassles significantly predicts mental health concerns” (Lu, 1991). Hassles are categorized as irritating, frustrating, and distressing demands that occur within the everyday environment. Lazarus (1984), conceptualized daily hassles as experiences in daily living that are salient and harmful or threatening

to individuals' well-being. These are common 14 concerns consistently reported across many populations, "including: concerns about a family member's health, lack of enough time or energy, and having too many things to do at once" (Chamberlain, Amp & Zika, 1990). However, it is important to note that daily stressors vary according to environment and situation. "Individuals experiencing daily hassle stress are at an increased risk for depression, anxiety, cognitive deficits, illness, and decreased overall life satisfaction" (Brougham, et al., 2009; Mahmoud, et al., 2012).

1.4.5 Pressure

The word pressure in sports is often employed to express any close-tight circumstances in a match playing condition, "which leads to the imperativeness of performing well at a given situation required mostly" (Baumeister, 1984). Pressure usually refers to the feelings an athlete has about performing in a sporting situation.

1.4.6 Choking

It is the worst performance given by a player that is not expected, as he/she is much more capable of performing better as compared to the performance given by them in tough conditions. In the field of sports, even most of the top players do not know how to deal with or prevent the pressure situation leading towards decreased performance or choking. "The condition of choking in sports is usually associated with pre performance anxiety of a player" (Wang, 2003), "in which an athlete assumes the situation in negative sense causing below level performance at the time of adverse conditions" (Gropel & Mesgno, 2019), "because of which faulting of motor actions and motor tasks occurs" (Leith, 1988). "Increased physiological state, negative thoughts, pre-competition state of the players are the various factors which act as sources of choking in sports" (Murayama, et.al,2010).

1.4.7 Injury

Any physical complaint sustained by an athlete which results from a match or training thus holding back a player to practice or participate is an injury. "Injuries are pervasive throughout the career of a player" (Smith, 1990), thus can hinder regular practice and participation of athletes in their respective sports, "causing mental blow on players" (Rotella and Heyman, 1986). It (injury), act as a stressor which along with

physical troubles can also cause mental disturbances to the athletes concerned with, and it is quite evident that athletes suffering injuries (minor/major) are more vulnerable to depression and anxiety, eventually resulting in low self-confidence and esteem, "there exists more occurrence of psychological distress in players with injury which sometimes could be serious enough for medical interferences" (Leddy, et.al., 1994). "Hence, the stress caused by injuries proliferates tension leading to thought alteration, anxiety and diversions which affects the performance of player and is also a major reason for athletic injuries" (Wiese, 2010; Ivarsson, et.al, 2014). "Whereas, athletes exhibiting resilience characters are more likely to deal with stress, anxiety and depression in a controlled way" (Gerber, et.al, 2013). "Daily life hassles tend to manipulate the occurrence of risk of injuries in players, while support from family, friends, coach or team mates can act as a buffer to stress, causing injuries to the players" (Junge, 2000), it has been revealed that players under stress and without any kind of social support were more exposed to injuries compared to the players who were under same level of stress and were getting social support by any means were less susceptible to injuries.

1.5 Significance

1. Despite receiving considerable empirical and theoretical attention in other fields, the investigations of resilient qualities are rare in the sports context. Resilience had been considered very vital for mental and physical health (Burton, et al., 2010). Psychological resilience in sports has been considered imperative as sports person constantly have to face a more range of pressures to achieve and maintain high performance (Sarkar & Fletcher 2012). Therefore, there existed an urgent need to develop a sport-specific measure of resilience among sports person.

2. In sport context the availability of a psychometrically sound measure of resilient qualities will provide a platform for researchers to investigate other processes or mechanisms by which athletes experience positive adaptation to adversity and can assist in framing and measuring the intervention programs applied in the sports context.

3. The study will contribute to know the variables that enabled sports person to withstand stressors. Identification of factors related to risk for sports person will allow

to facilitate the adjustment of those who experience more severe problems, help to understand the concept of resilience in sports and find out other resilience concepts that sports person encounter, has provided vital information about how resilient sports person manage unique stressors.

4. The study will be significant to make a profile of the resilient characteristics in elite combat, team and individual game players to enhance resilience process.

5. The study will also assist for the identification and development of talent as well (Holt & Dunn 2004).

6. This study will help the coaches, teachers, sports psychologists to understand the importance of resilience in sports.

7. The study assists to know why some sports person withdraws and why some of them move on in stressful situations.

8. It will enable the sports person to identify and become aware of their own weaknesses and strengths with respect to stressors and bouncing back.

9. The tool will be beneficial for all the stakeholders of sports as they come to know the vitality of resilience for success in their domain.

10. It will also enable coaches, physical educations and sports psychologists to develop relevant coping strategies to overcome poor performance.

1.6 Statement of the problem

Literature reviewed on Resilience in sports, shows that there is no specific tool of measuring resilience among sports person. All the resilience inventories to date have been developed for use in non-sport contexts, such as (Connor-Davidson Resilience Scale, CD-RISC 2003, Brief Resilient Coping Scale, BRICS 2004 & Resilience Scale RS 1993). For development and understanding of any concept in a subject, it is required to make enhancement of knowledge of that particular construct, so that proper evaluation can be done. For this purpose, a tool that could measure a specified objective is required to be framed. The term resilience in sports is still in its infancy stage, therefore, to evaluate it in sports, a tool which measures the same is required to be developed, which as mentioned in earlier lines above is not developed yet. Thus

"there exists an urgent need to develop a sport-specific measure of resilience" (Sarkar & Fletcher, 2014) so that the concept can get a broader view. The investigator has made an attempt to find out the solution through the construction of a standardized tool hence the problem has been entitled as: Resilience in sports: Construction and Validation of sports specific resilience scale.

1.7 Objectives

1. To construct and standardize sports specific resilience assessment tool for sports person.

2. To develop norms for sports specific resilience tool.

1.8 Limitations of the Study

1. The everyday life activities of subjects were not taken into consideration.

2. The evaluation relied on honest responses provided by the subjects themselves, who completed statements to the best of their truthfulness.

3. The study did not take into account various individual differences among the subjects, including their dietary habits, religious affiliations, and other personal factors.

4. Another limitation of this study is the possibility that very few of the subjects may not have approached the assessment with sufficient seriousness or attention, which may have affected the validity of the findings.

1.9 Delimitations

1. The study was confined to the All India University Players of age between 18-29 years.

2. The study was delimited to individual, team and combat games players.

3. The study was delimited to the nine games (cricket, hockey, handball, badminton, athletics, volleyball, judo, boxing and wrestling).

4. The study was delimited to the sample size of 1031 sports person.

5. Further the study was delimited to 700 male and 331 female athletes.

6. The study was delimited to both male and female players.

7. Data was collected from players who have participated in All India University for at least once in previous three years.

8. It was delimited to the States of Jammu and Kashmir and Punjab.

9. Before finalizing tool construction, the investigator followed the published and unpublished work of various universities.

10. As the samples for this study were from India, thus it is delimited to the Indian conditions and situations only.

11. In this study, researcher have taken optimism, social support, self-confidence, hardiness, motivation, locus of control as protective variables and organizational stressors, preparation, expectation, daily hassles, pressure, choking as stressors, so these are considered as delimited variables for the study.

1.10 Operational Definitions of the Terms

1. Resilience in sports: Sports resilience is the ability that enables to adapt and cope with adversity, trauma, hardship, and intense pressure during sports competitions, ultimately leading to successful outcomes despite challenging circumstances.

2. Scale: The scale is a list of events in the form of questionnaire. The sports resilience scale is a specialized instrument consisting of carefully designed statements or items intended to assess the resilience of a sports person to a specific event or situation. Respondents have to rate every question ranging from 1-5 on each spectrum.

3. Construction: It reflects the approach which involves resolving difference of opinion, actions, declarations and other elements through the act of interpretation, leading to a harmonized understanding.

4. Standardization: A standardizes scale is typically means that all respondents are asked the same questions, in the same order, with the same response options, to ensure consistency and comparability of results.

Chapter-II

Review of Related Literature

Sheng, et al., (2024), surveyed 67,281 players of different schools to find out whether participation in sports leads to improvement in resilience and mental health of these players. The players selected as samples included those who played sports regularly in schools. Results of study put forth by researchers showed that as the players enhanced their participation in sports, simultaneously there was an increase in their resilience level and eventually contributed to psychological well-being.

Sanz, et al., (2023), conducted a study on 4818 athletes belonging to mountain sports in order to assess the role of resilience in development of emotional intelligence and life satisfaction, result of study highlighted that resilience in spite of its adaptive nature during stress full situations can also play a positive and imperative role under immense pressure circumstances which shake performance of athletes in sports.

Hartigh, et al., (2022), reviewed the research contributions on resilience in sports, and suggested that it is very important to conduct sport specific studies on resilience in sports and that also must include separate studies on separate types of sports.

Westmattelmann, et al., (2021), conducted a research on 720 elite athletes to compare their resilience level and found that two psychological factors i.e., self-confidence and optimism are very closely associated with development of resilience in elite athletes.

Blanco, et al., (2021), conducted a study on 1047 athletes of different genders and ages to find out the relationship of resilience among them accordingly and they also compared their means to establish this, after completing their research they suggested that different strategies should be implemented to different age and gender categories to develop resilience.

Patsiaouras and Stribu, (2020), evaluated 48 (18 girls and 30 boys) national volleyball players to find out the level of resilience among both genders of same age group. Data was scrutinized by implementing one-way analysis of co-variance and results highlighted a clear positive difference in the level of resilience based on variables of self-efficacy and life style among male and female groups of same age. It was found

that self-efficacy in female athletes was higher as compared to their gender counterparts.

Yesim, et al., (2020), aimed to explore the relationship of goal orientation and motivation on resilience level of the female football players. In order to establish this relationship one hundred eighty-three female athletes were considered as sample for study. After implementing the statistical technique of regression analysis and one-way analysis of co-variance it was revealed that there exists a significant and positive correlation between motivation and goal orientation on resilience level of female football athletes.

Patxi, et al., (2020), analyzed that in spite of being so many health related benefits from participation in sports, the encompassing adversities cannot be ignored, among such adversities is frequent happening of injuries in sports. This study extracted the relationship of motivation and occurrence of injury in runner athletes in relation to their level of resilience. For this One thousand seven hundred twenty-five athletes were taken as sample. In results it was found that athletes who were intrinsically motivated were associated with greater occurrence of injuries as compared to those who were motivated extrinsically. On the other hand, the athletes who were higher in resilience level had shown less association with frequency of injuries.

Trigueros, et al., (2020), conducted a study on two hundred seventy-six volleyball male athletes to examine the effect of motivation of players on their resilience and anxiety levels. In results it was said that athletes with higher motivation are higher in resilient qualities and shows fever level of anxiety whereas, the relation of resilience and anxiety was negatively associated with each other.

Farzaneh. M, (2018) purposively selected three hundred athletes to assess the association of resilience and stress perceived by them in relation with coping style. Results obtained through linear regression and Pearson coefficient test revealed that managing style had a positive outcome on resilience and stress of athletes. It was also stated that with coping strategies the athlete can easily overcome injury but on one the condition of having high in resilience level.

Felix, et al., (2017), analyzed the association of motivation and resilience among judo players comprising of both genders. A total of one hundred forty-eight players were taken as sample for this study, results showed a significant relationship between motivation and resilience level of players in both genders, further stated that sense of fulfillment and satisfaction was more in players who were highly motivated as compared to those who were less motivated.

Zachary J. Kunicki, (2017) evaluated a chain form representation of resilience and found six components (meaning of life, sense of worth, life achievement, cognitive elasticity, positive coping and social support) of that model pointing towards resilience.

Rachel, et al., (2016), explored wide range of stressors tackled by 18 para-olympian players by questioning them through semi-structured interviews. Findings revealed 316 types of stressors faced by the para-olympian players, which were then categorized into four main categories (headship and personnel problems, cultural and player's concern logistical and environmental problem, and performance and personal issues). This study not only provides the first illustration of the prevalence of organisational stressors for athletes with a disability, but also significantly points to salient similarities and distinct differences between the stress experiences of performers with and without a disability.

Rachel, et al., (2016), accepted that organizational stress can affect athlete's performance gender wise at various levels of competitions. As not enough was known regarding the amount and extent of effect of these stressors in accordance with gender, nature of sport and level of performance. To prove this, 1277 participants were observed through responses made by them on organizational stressor indicator for sport performers, the findings which came by using multivariate analyses of covariance reflected that statistical differences were obvious in proportions of goals and progress, planning and execution, team and society, coaching, and selection were such few organizational stressors that sport performers encounter.

Vora, et al., (2016), evaluated 51 players comprising of both male and female to gain information about their motivation level on the basis of different genders. In results, it

was found that male players were higher in motivation level as compared to their counterparts

Abdul, R, (2015), motivation as a mental situation which forces an act into a most wanted goal. He stated that an individual with greater level of motivation will perform better regardless of the situation and can be ever ready to give his all. Further it was emphasized that motivation is the prerequisite to performance in sports, how much a player is confident, focused, intensified or emotionally balanced does not make any worth if he is not motivated. Motivation is a driving force.

Trigueros, et al., (2015), conducted a study on two hundred seventy-six volleyball athletes to determine the relationship of motivation with resilience. In findings it was suggested that motivation is positively related with resilience of volleyball players.

Vitali, et al., (2015), investigated the players from athletics and swimming to scrutinize the role of resilience on their motivation level. For this purpose, 87 para-athletes were selected and were divided into two groups i.e., controlled and autonomous. In results it was found that there exists a positive correlation of resilience with motivation level of both groups.

Mariana Tisma & Radovan Cokorilo (2015) empirically looked for mental reasons accountable to mounting stress among sports person. For this a list of 27 items was prepared to identify which among them can actually be the sources and how often athletes consider them as real stressors being responsible to alter their performance during competition. This study included 361 athletes as samples in which both male and female participants were taken from football (202) and swimming (159). After using correlation technique, positive relationship was established among sources and level of stress of athletes. In addition, it had been asserted firmly that situations like crowd behavior, period of quarantine, rough time in performance, complex training, repetitive training schedule, training environment, media pressure, not being selected as playing member of team by coach, not being supported by near ones, and not being able to coordinate between academics and training can induce stress in players. Therefore, it was suggested to tackle these situations according to potential of athletes as every individual differs from another in respect of their capabilities.

Morgan, et al., (2015) inquired eight winner athletes of 2003 world cup Rugby championship in order to be familiar with their mental aspects as a team. During study five such mental aspects (positive emotions, team learning, shared team leadership, social identity, and transformational leadership) were traced which according to them acted as catalyst for these athletes in the process of team cohesion. It was also stated that summative assessment technique was also used at the time of desperations due to setbacks.

Morgan, et al., (2015) while conducting a case study on rugby union world cup winning team identified transformational leadership, social identity, shared team leadership, positive emotions, and team learning as main processes used by team players as a resource to overcome stressors for achieving peak performance.

Sarkar, M. And Fletcher, D., (2014) revealed the kind of stressors (competitive, organizational, and personal) being faced by athletes and the protective ways (positive personality, motivation, confidence, focus, perceived social support) which assist them to thrive out from adversities. It was assumed that this intense review of psychological resilience will act as a medium to develop sports specific tool on resilience and also help athletes to realize the significance of resilience in field of sports. This research had made it easy for future researchers to study the interaction among stressors and protective factors.

Sarkar, M. & Fletcher, D.(2014) narrated critically by reviewing diversity of definitions and construct of resilience, therefore, described that resilience encompasses of adverse situations and considered it as a process in spite of an inherited trait. Further it was stated that to tackle with everyday stressors and hassles, every athlete must undergo the process of developing resilience in them. Resilience also assists players at tough times to come out from and give best at top level of competitions. In conclusion part it was suggested to include this mental aspect in consideration while implementing policies. Also a meticulous approach was required to deal with every athlete according to their environment so that various positive protective factors can be developed within to cope proactively.

Hill, D. M., & Shaw, G. (2013) questioned eight team games players who usually become prey to choking while performing in tough situations. Athletes agreed that

past experiences of particular situations and the mechanisms followed were quite closely related to their cause for choking. This study also suggested that choking of athletes in sports may take place by disturbances due to various means and fear of losing, which finally results in failing to perform when it counts the most. Eventually, this study provides additional information for future researchers and coaches functioning with team players to deal with this grave concern of choking under pressure.

Palmer, et al., (2013) described frequency, severity, and causes of sports injuries and illnesses as the quantifying risk to athletes. They applied Injury/Illness Performance Project (IIPP) on 322 Olympic athletes (males: 172; female: 150) from 10 Great Britain Olympic sports and concluded that sports injuries cause time loss and performance restriction which can be a stressor for the athletes suffering from it.

Fletcher. D, & Sarkar. M, (2013) thoroughly reviewed the concept, definition and theory of resilience in sports and described it in a sequence of three separate divisions. In first section, it was stated that along with complexity and optimistic adjustment, regular hassles encountered by athletes were also essential to be included as another factor of adversity. Second part of this description asserted resilience is a process which had an interactive impact on mental characteristics of athletes at the time of stress. Whereas, last section advocated for inclusion of other stressors confronted by a person which influences the relation of resilience and stress. In suggestions some inferences for future policy makers, researchers, a precise and meticulous process was demanded to develop resilience in athletes.

Sarkar. M & Fletcher. D, (2013) discussed intellectual traits possessed by athletes which helps in resisting adverse situations, and also put forth the causes which lead a player to such adversities. Moving ahead, on the basis of confrontation with the causes of adversities by athletes, such causes were categorized as personal, organizational and competitive stressors. On the other hand, the mental attributes like positive personality, motivation, confidence, focus, perceived social support were pointed out as the positive traits which assisted athletes to thrive out of these stressful and adverse conditions. By means of this research a meticulous and precise base for advancement as well as construction of sport specific tool in resilience was provided.

Fletcher. D, & Sarkar. M, (2012) found various mental factors of optimistic personality such as self-confidence, focus, motivation and social support which assist the players of elite level to confront with depressive effects of stressors. For this purpose, 12 Olympic champions including men and women were interviewed and was ascertained that management of stress is a precondition to attain excellence in sports. This study had given a better knowledge and understanding of the vitality of resilience in sports, from which every stakeholders of sports can take benefit for achievement of optimal performance.

Arnold. R & Fletcher. D, (2012) analyzed numerous organizational stressors and environmental hassles confronted and reported by athletes, accordingly provided their generalized and orderly categorization. For this purpose, 1809 subjects were collectively observed from thirty-four studies by qualitative method. Findings of study categorized all environmental hassles reported by athletes into four main categories (leadership and personnel, cultural and team, logistical and environmental, and performance and personal issues) whereas the organizational stressors enlisted were 1287. This was first of its kind of study in sports which provided so valid, complete, accurate and economical classification of environmental hassles and organizational stressors till date. The results of study were applicable on both male and female athletes belonging to various categories of sports of any age group and belonging to any part of this planet.

Fletcher & Sarkar, (2012) explored the relationship between psychological resilience and optimal performance by interviewing twelve Olympic champions, revealed various factors related to positive personality, confidence, social support, focus, and motivation which assisted them to negotiate negative effect of stressors encountered by them.

Johnson and Ivarsson, (2011), located some psychological aspects that could result in more susceptibility of risk of injury within football players. During investigation one hundred eight football players of both sexes were interviewed and result proposed that daily life hassles, trait anxiety, having doubts and inability to deal with life happenings were the main concerning factors related to injury of athletes in sports.

Marijana, (2010) assumed that players and coaches with internal locus of control could be better in handling the stressful situations in their life as compared to those who are high on external locus of control. To support this argument, a sample size of 122 coaches were interviewed and results established that coaches with autonomous type of locus of control were good in management, supportive to athletes, have well controlled behavior, and ready to push themselves hard. Further, it was recommended to explore the personal and environmental factors which are involved in development of internal locus of control in coaches and athletes.

Gill. W, (2011) analyzed the conceptual framing of resilience by providing its definition through the approach of methodical review, thought examination, and discussion with in person meetings. In this course of action resilience was defined as the procedure to deal successfully, adapt to, and to administer positively the means of stress. It was recommended that such research work should be done in future to contribute in scrutinizing the dynamic nature of resilience in broader sense.

Kristiansen & Roberts, (2010) demonstrated the vitality of social support between elite players by studying stressors and managing strategies of 29 elite athletes. In this process it was notified that elite athletes greatly depend on various kinds of social support especially they get from their coaches. Results of study also mentioned the imperativeness of social support to maintain healthy state of mind of athletes during such big events where every athlete lacks emotion and social support.

Mohammad Ali Salehi Nezhad & Mohammad Ali Besharat (2010) established a highly significant relationship among resilience and hardiness, whereas with distress an insignificant relation was found. In turn, this study carried on the impact of resilience and hardiness on intellectual status and achievement in the particular sport the athletes play, by assessing 139 players of both genders. In results it was stated that by developing the qualities of hardiness and resilience in athletes can generate positive emotions, thus helps them to bounce back easily from stressful situations.

Johnson, (2010), described the factors causing injury in sports, except the physical collision psychological background of players was also responsible for injury. In thus study 20 athletes were interviewed to know regarding their experience related to association of mental attributes and injuries in sports. In findings it was revealed that

individual issues, past stressors, and management resources of stress were among those factors leading to increased vulnerability to injury of athletes.

Mellalieu, et al., (2009) investigated six non-elite and six elite level players to find out different kind of performance and organizational sources of stress confronted in competition environment. It was found that preparation, injury, expectations, self-presentation and rivalry were performance stressors whereas, sport relationships, interpersonal demands, career development issues, and organizational structures were the organizational stressors encountered by athletes. Moreover, it was put forward that stressors relevant to performance were higher than stressors related to organizational environment which were encountered by athletes before competition, and suggested to consider every aspect of stress while planning and implementing these observations highlight that all the demands faced by athletes should be considered when preparing and put into practice any intervention for handling stress in competition.

Galli, N. & Vealey, R. S. (2008), Investigated ten elite sports person to be familiar with various extreme hard ships they have gone through to thrive out of difficult situations in their career. Outcome of the study mentioned that elements including extent and time, socio-cultural manipulation, personal resources, and positive outcomes were among the awareness factors experienced by elite athletes which helped to develop resilience.

Galli. N, (2008) interviewed ten athletes to identify the adversities that athletes face during their career. He founded that seven out of ten athletes described injury, illness and transition the greatest adversity rather than poor performance.

Mckay, et al., (2008) interviewed twelve elite UK track athletes regarding the sources of strain they experienced. In their findings of study, they founded few and categorized the sources of strains into three domains: competitive, organizational and personal.

Richard. C Thelwell & Neil J.V, (2007) observed nine elite cricket players through a semi-structured interview to assess their response about the various sources of stress encountered by them in relation with strategies being employed to counter these stressors. Eventually, 25 stressors and 23 coping strategies were reported by athletes

which they face and use to thrive out to perform better respectively. It was further suggested for future researches to consider both stressors and managing ways according to the specific requirement of sports the athlete play.

Raees, et al., (2007), while conducting a longitudinal study on 117 elite level golf players stated that there exists a considerable relationship between social support and performance level of these athletes. They found that in spite of different stressors encountered by these players there was an improvement in their performance level when they got support either from family, friends, team mates, coaches or any one among the society.

Kate, et al., (2006), conducted a study on 14 elite athletes among which 7 were male and remaining 7 were females to find out what were the sources and types of their confidence which have taken them to this level. During investigation they found training, performance achievement, coaching, inborn factors, societal support, familiarity, competitive benefit, self-awareness, and belief as nine sources whereas, ability to execute, success, bodily factors, emotional factors, dominance to opponents, and strategic alertness as six types of confidence respectively being possessed by athletes which assisted them to perform better from their counterparts when demanded.

Hanton, et al., (2005) interviewed ten international players related to the sources of stressors encountered by the elite athletes. Athletes were asked about the competitive stressors, organizational stressors and personal stressors they face, results revealed that elite athletes encountered all of these stressors but the most frequently recalled was organizational stressors.

Holt & Dunn., (2004) conducted their research on Canadian international male youth soccer players to find out the psycho-social competencies of these elite players. After analyzing the data critically four psycho-social competencies (discipline, commitment, resilience and social support) were found which assisted these male soccer players towards success.

Gould, et al., (2002), interviewed ten US Olympic champions to identify their psychological characteristics. The findings suggested that these athletes were

characterized by the qualities of confidence, resiliency, have the ability to focus, ability to achieve goals and optimism. They further revealed that the psychological characteristics of athletes were influenced mainly by family and coach.

Schinke, R. J., & Jerome, W. C. (2002), designed a schedule to train athletes and coaches for resilience. After imparting training, it was observed that performance of both groups was improved at difficult situations. The findings also suggested that resilience in players and coaches can be developed and improved through cognitive skill development program and common optimism skills which leads to accomplishment of targeted goals and achievements. Further, it was recommended that researchers fascinated to know the underlying process of resilience which assists players to thrive out from adverse conditions and want to add more knowledge how these players can improve their performance in challenging situations can take help from this study.

Holt, (2002), inspected different management strategies adopted by an athlete to deal with everyday hassles occurring in the sports they play. Based on the case study of a cricket player, this study pointed towards evaluation of stress, planning about opponents, confidence building and self-talk as part of thriving techniques being employed by a player to deal with these day to day stressors in their profession.

Gould, et al. (2001), examined the psychological characteristics of U.S. Olympic Champions. They interviewed ten successful U.S. Olympic champions in various sports in order to determine their psychological characteristics. And have found some psychological characteristics of the champions to be common which included high level of motivation and commitment, a positive or optimistic outlook, the ability to focus/concentrate, resiliency and sport intelligence as vital aspects which assisted such players to perform better in Olympics.

Woodman. T & Hardy. L, (2001), interviewed 15 elite athletes from UK to understand diverse sources of organizational stress experienced during preparing for international events. Meanwhile four major organizational stressors were identified: environmental stressors (selection, the training environment, and finances), personal stressors (nutrition, injury, and goals and expectations), leadership stressors (coaches, and coaching styles) and team stressors (team atmosphere, support network, roles, and

communication). Further, it was suggested to include such organizational stressors for enhancing knowledge on managing strategies implemented by elite athletes to perform better at major international events.

Junge, (2000), reviewed numerous studies to establish the role of mental factors on injuries in sports and agreed that life incidents tend to manipulate the occurrence of risk of injuries in players, while support from family, friends, coach or team mates can act as a buffer to stress, causing injuries to the players.

Andrew J. N & Gifford. S M, (2000), employed group discussion and one to one interviews method on professional football players in order to gain information about the sources of stress within these players. In results it was found that fear to perform low on their abilities, not getting proper feedback and guidance, and unable to maintain a balance between games and academics were among few sources of stressors experienced. Further it was suggested that complete profiling of athletes should be done by researchers and policy makers while building up and implementation of stress management strategies in future.

Mark H. Anshel & Bruce Wells (1999), assessed the sources of stress among basketball players, while conducting interviews on 20 male basketball players twenty-five different sources were recognized which were further divided into five main categories such as conflicts with their team mates, decisions given against by referees, thinking about own performance, thinking more about the opponents, and team behaviors

Mark B. Andersen & Jean M. Williams (1999), considered 196 players from ten different sports to assess their way of perception, level of anxiety and response to reaction at the time of adversity in response to social support. Findings revealed that players under stress and without any kind of social support were more exposed to injuries compared to the players who were under same level of stress and were getting social support by any means were less susceptible to injuries.

Matthew et al., (1994), examined three hundred forty three college male athletes from ten different games on their mental reactions to injuries suffered during participation in different games. Results shown that athletes suffering injuries (minor/ major) were

more vulnerable to depression and anxiety, eventually resulting in low self-confidence and esteem. It also endorsed the findings that there exists more occurrence of psychological distress in players with injury which sometimes could be serious enough for medical interferences

Gould et al., (1993), interviewed 20 wrestlers of 1988 U.S. Olympic team to explore how they tackle and prepare themselves against stressors they withstand to attain this level. During investigation, qualitative analyses revealed that all wrestlers used various coping techniques, mostly in combination as reported by them: self-talk, positive focus, social support, pre-competitive mental preparation, hard training, and avoiding media. This study for the first time put forth the association between various sources of stress and coping strategies applied by athletes to thrive out of stressful situations caused by the stressors.

Daniel et al., (1993), investigated seventeen male skating athletes to know the type and level of stress they encountered after winning the championship title, for it, qualitative method approach was applied and have found that concerns about relation management, expectations, and stress of performing well in major competitions were some psychological sources of stress which resulted in turning down the performance among athletes.

Tara et al., (1991), studied 26 national title holder players of figure skating through an interview to identify the basis of stress encountered at the time of main competitions. Meanwhile, the outcome of study showed that even best players exhibit competition and non-competition stress equally, although the cause of stress among players differ from one another. Findings of study also revealed parallel competition associated stressors in case of both youth and elite level of players.

Madden et al., (1989), examined the coping processes within the competitive sport environment and used the 66-item Ways of Coping Checklist by implementing it to sport. It was assessed on 21 elite middle-distance runners who predicted how they would handle themselves at times of stress they experience, responding accordingly they acknowledge social support, increase their effort, and use problem-focused coping to make a plan of action.

Gould et al., (1983), attempted to determine the major sources of stress in elite junior wrestlers and found performing up to one's ability, improving on one's last performance, participating in championship meets, not wrestling well, and losing were being the major sources of stress. These sources of stress seemed to be associated with fear of failure, feelings of inadequacy, and social evaluation.

Werner & Smith, (1982), during four-decade longitudinal study on children of Hawaiian island observed that approximately one third of total children at high risk established decent results by adolescence. However, the same participants lead a successful life in their adult age by the time they reached thirty.

Rutter, (1979), while conducting research on children of mentally retarded parents revealed that in spite of growing up in difficult circumstances almost half of the children managed to overcome the situations and were having positive development instead of becoming mentally ill.

Garmezy, (1971), was the first who propounded the existence of protective factors and resilience among the children of parents who were suffering from schizophrenia, during investigation it was founded that in spite of vulnerability of developing the disorder majority of children did not show any susceptibility of this illness.

2.1 Research gap

Resilience is the ability to pick your-self back up, the ability to fight back despite adversity. How is it that some athletes keep calm and perform at the moments of extreme stressful and pressure situations and others cannot? For top level sports person, it is not the skill and athleticism that counts, so often it is mind that matters. Every team now a day has a sports psychologist alongside them. It is so because they value them equally valuable as strength and conditioning coach. At elite level the difference between glory and failure is the finest of margin. Understanding what makes athletes cope or panic at those crucial moments is an ever growing obsession in professional sports. It is a multibillion dollar question that sports psychologists are trying to answer. Maximum of our knowledge regarding resilience has come from the literature of developmental psychology which extensively considered the population

of children and adolescent under risk or exposure (Werner, 1982; Garmenzy, 1991; Rutter, 1995). Although, sports also possess potential for trauma, stress, negativity and adversity, still very little literature on resilience is available in sports, till date. Therefore, it is a huge necessity to clarify the construct of resilience, its dimensions and underlying processes in sports context. There is a consensus in sport psychology literature and among all the authors (Fletcher & Sarkar, 2012; Galli & Vealy, 2008; Gucciardi, et al., 2011) who initiated to investigate resilience in sports context that there is need for a measure of psychological resilience for sports performers to advance sports psychologists understanding of this area. From the literature reviewed by researcher on Resilience in sports, there is no specific tool of measuring resilience among sports person. All the resilience inventories to date have been developed for use in non-sport contexts, such as (Connor-Davidson Resilience Scale, CD-RISC 2003, Brief Resilient Coping Scale, BRICS 2004 & Resilience Scale RS 1993). The most widely used resilience scale till now is Connor-Davidson Resilience Scale. However, psychometric examination of Connor-Davidson Resilience Scale shows that its factor structure had failed to support its originally hypothesized 25-iteam, five-factor model (Burns & Anstey 2010). In India also there is no tool for measuring Resilience in Sports, however the measuring of this component among sportsperson will reveal out various unknown facts, as this plays an immense part in the performance of sportsperson. In the field of Sports, resilience is newly emerging construct which will contribute in the enhancement of athletes, thus for the betterment of sportsperson it is of immense importance to work in this area. There is no clarity over the concept of resilience in the sports fraternity. The researcher tried to extract the underlying concept of resilience in sports along with its utility

Chapter-III

Design and Methodology

Methodology applied to carry out any research plays a very important role to decide the value and generality of the findings. To recognize and define the nature of population, procedure opted for deciding the representative sample and effectiveness of the procedure in use to analyze data are very essential progressions of a research. This chapter illustrates the arrangements by means of which the research for this study was carried out, the purpose of which was to develop a tool for the measurement of sports specific resilience in sportspersons. The study was an exploratory investigation because of the fact that nothing was known about the number of factors to be extracted, the number of variables included in each factor and percentage of variability explained by these extracted factors. The researcher had taken all those variables under study which were suggested by the review, subject experts or guided by the researcher's own knowledge to study the resilience.

The main aim of the present study was to construct and validate a resilience tool for the sportspersons. Therefore, the study was entitled as "Resilience in Sports: Construction and Validation of Sports Specific Resilience Tool".

Construction of Test

This part of study spotlights the entire process followed by researcher from beginning to end for construction and validation of sports specific resilience scale. At the very beginning, through the process of intense review of literature related to resilience in general and sports resilience in particular, researcher identified 37 variables which according to literature were vital for composition of resilience in sports, among which 26 variables were protective in nature (as shown in table 3.1) whereas, remaining 13 variables were considered as stressors (mentioned in table 3.2). Once the variables were established through intense knowledge gained from already available literature, they were thoroughly discussed with different stakeholders, and on the basis of their precise suggestions the variables were delimited to 17 (as shown in table 3.3). Thereafter, the process of drafting of items (questions) on each of these 17 variables was initiated, during this, 171 items (as shown in table 3.4) were framed as first draft

of items for construction of sports resilience scale. Following course of action was applied for construction of test:

3.1 Procedure of sampling.

3.2 Selection of variables.

3.3 Construction of Items for preliminary tool.

3.4 Establishing Content validity for preliminary tool.

3.5 Items analysis.

3.6 Data collection.

3.7 Content validity Index.

3.8 Detailed representation of final samples.

3.9 Procedure to establish construct validity

3.10 Statistical techniques

3.11 Norms

3.12 Summary

3.1 Procedure of Sampling

The population for the construction of sports specific resilience scale was All India University (AIU) sports persons, ranging from 18-28 years of age, of both male and female genders from the region of Punjab and Jammu and Kashmir. Sampling is considered as vital part of any research, players ranging from 18-28 years of age, from both male (700) and female (331) genders, who have participated in All India University competitions at least once in last three years, from different games [Cricket 110 (Male=83, Female=27), Hockey 84 (Male=59, Female=25), Handball 128 (Male=85, Female=43), Badminton 110 (Male=70, Female=40), Athletics 141 (Male=91, Female=50), Volleyball 126 (Male=77, Female=49), Judo 119 (Male= 87, Female=32), Boxing 93 (Male=65, Female=28), and Wrestling 120 (Male=83, Female=37)] from the states of Punjab and Jammu and Kashmir were selected purposively as samples for this study. Sampling was done in two different phases for this study. In first phase the sampling was done for construction of sports specific

resilience scale whereas in second phase sampling was done for standardization and development of norms for the constructed scale. For first phase 100 athletes were taken as samples, only those players were chosen as samples that had shown their willingness for this study. In second phase the data was collected from the sample size of 1031 sportsperson for standardization and development of norms, samples were selected through purposive sampling technique.

3.2 Selection of Variables:

Entire study was carried out in separate parts. In initial phase, after an intense review of all kind of related literature available on the particular topic, on the base of views, suggestions and judgments provided by the subject experts of the field, the researcher identified 26 protective variables (shown in Table 3.1) and 11 stressors (as shown in Table 3.2) below:

Table: 3.1 Initially identified protective variables

1.	Self-efficacy
2.	Motivation
3.	Confidence
4.	Focus
5.	Social support
6.	Caring relationships
7.	Trust
8.	Cohesion
9.	Relational reserves
10.	Coping strategies
11.	Determination
12.	Confidence
13.	Hard work ethic
14.	Optimism
15.	Love for sport and Competitiveness
16.	Family support
17.	Hardiness
18.	Team environment
19.	Positive attachment relationships
20.	Adaptability

21.	Staying focused under pressure
22.	Handling unpleasant feelings
23.	Emotional support
24.	Close bond with at least one caregiver
25.	Good peer relationship
26.	Internal locus of control

Table: 3.2 Initially identified Stressor variables

1.	Preparation
2.	Injury
3.	Expectations
4.	Self-presentation and rivalry
5.	Leadership issues
6.	Team issues
7.	Environmental issues
8.	Performance slump
9.	Chocking under pressure
10.	Emotional abuse
11.	Pressure.

Thereafter, the identified variables were discussed with my supervisor, other scholars and experts, mentioned in (table 3.7), after discussions and interactions made with various experts and scholars the variables were merged, deleted and changed into 17 variables for development of preliminary tool.

Table 3.3 All 17 variables selected for development of preliminary tool

S. No	**All 17 variables selected for preliminary phase**
Stressors	
01.	Preparation
02.	Pressure
03.	Choking
04.	Expectation
05.	Daily Hassles
06.	Team Issues
07.	Leadership Issues
08.	Environmental Issues
09.	Rivalry

10.	Injury
Protective variables	
01.	Optimism
02.	Hardiness
03.	Motivation
04.	Self-Confidence
05.	Locus of Control
06.	Social Support
07.	Focus

Table 3.3 shows all 17 are variables comprising of both stressors and protective variables. As indicated in this table the variables from serial number 01-10 are stressors and in next series from 1-07 are protective variables.

3.3 Construction of Items for preliminary tool

In next step, researcher further constructed and developed a 171-items preliminary Likert scale as the first draft by following a systematic process for this purpose. Various valuable suggestions were pointed by the experts and each suggested point was think about and assessed. Then the items were discussed with supervisor and on the basis of their suggestions researcher had made various modifications in which items were reviewed and few of them were deleted whereas few were retained. The items constructed for particular variable are mentioned in the table below:

Table 3.4 (1st draft of 171 Items framed from 17 variables)

I.	**Preparation**
1.	I am confident with the preparations I do for the competition.
2.	I take my preparations as a burden.
3.	I remain satisfied with my technical preparations.
4.	My tactical preparations are not good enough to meet the challenging situations in a game.
5.	I consider preparations as an important part of competition.
6.	I work hard on physical fitness to face the demands of competition.
7.	My mental preparations before the start of competition are not appropriate.

8.	I practice my game regularly as a daily routine.
9.	I train myself by keeping match situations in mind.
10.	Rigorous training schedule disturbs me.
II.	**Pressure**
1.	Fear of failure pushes me to work hard.
2.	I feel extremely tensed during the knock out stages of a tournament.
3.	I do not feel the pressure of tight match schedule.
4.	Pressure of performing well in a competition makes me nervous.
5.	Fear of committing errors during crucial stages in a game bothers me.
6.	I never feel any pressure of facing a stronger opponent.
7.	Over expectation to perform well during the game adds more burden on me.
8.	I am excited to play in higher tournaments.
9.	The pressure of playing for a reputed club forces me to commit errors.
10.	I play well under pressure situations.
11.	Travelling from my home to the place of practice irritates me.
III.	**Choking**
1.	I commit errors in response to opponent's sledging during the game.
2.	I am not able to perform better at crucial situations of the game.
3.	I fail to deliver in must win situations of the game.
4.	I get pressurized to do everything right at critical situations in a game.
5.	I can select the correct plan of action during pressure but cannot execute it.
6.	Committing errors repeatedly leads me towards choking.
7.	I feel quite resourceful to meet the challenging demands during the competition.
8.	I fail to meet the self-imposed expectations when it counts the most.

9.	The earlier experience of facing difficulty helps me to get through my difficult times.
10.	My technique fails down under difficult situations.
IV.	**Rivalry**
1.	Competing against better opponents makes me worried.
2.	Competing against arch rivals does not affect my performance.
3.	Rivalry against the opponents enhances my performance.
4.	During play I enjoy rivalry with my opponents.
5.	Competing against the more aggressive teams makes me nervous.
6.	Rivalry with my opponents makes me mentally tough.
7.	Against my arch rivals I want to win at any cost.
8.	During rivalry I show my real character on the field.
9.	I am desperate to give it back to my arch rivals after a loss.
10.	I losses my temper while playing against my rivals.
V.	**Optimism**
1.	I always enjoy and remain enthusiastic in training sessions
2.	I enjoy the role being assigned to me by the team management.
3.	I believe one by himself is the creator of his/her destiny.
4.	I have doubts about a successful comeback after being eliminated from the team.
5.	I strategize a plan to make the necessary corrections for the future.
6.	I consider my errors as an opportunity to improve.
7.	I prefer to quit the task if I face the initial failure.
8.	During failure I accept that things would not always go in my favor.
9.	Failure in competition does not discourage me, I am able to bounce back and overcome it

10.	I believe there is another level and I am going to achieve it.
11.	I have never taken sports as my future I play sports only to gain points.
VI.	**Competitiveness**
1.	Challenging situations in the competition makes me think more about victory.
2.	In spite of all odds I still move on to pursue my goal.
3.	I enjoy competing against stronger opponent.
4.	I feel the psychological pressure created by the opponents during the game.
5.	I try to understand why I made the mistake.
6.	I continuously work hard and do not rest or stop until I achieve my goal.
7.	I am desperate to prove myself.
8.	I fight strongly till the last second of the game.
9.	Every time I step on the ground I am extremely ready.
10.	After being cut from the team I work hard for the next time.
VII.	**Focus**
1.	I remain focused for a longer period of time.
2.	I remain aware about the situations around me.
3.	I can easily shift my attention as required by the situations.
4.	At the time of difficulties I am unable to focus on the tasks in my hand.
5.	If I am unable to achieve a short term goal I still manage to remain focused about my final target.
6.	I can usually find my way out of difficult situations.
7.	During hard competitions it is difficult to maintain concentration.
8.	I focus myself on returning better than before.
VIII.	**Motivation**
1.	I believe my team is my family, they keeps me going.

2.	Winning is my goal I am not here for fun.
3.	No matter how many times I fail I keep going.
4.	I have to do it at the cost of sweat, blood and tears.
5.	I am striving to be the best I can.
6.	I play sports to gain my status through sports.
7.	I have the hunger to do the best.
IX.	**Self-confidence**
1.	In new challenging situations I enjoy myself and feel comfortable.
2.	I know how to deal with challenges.
3.	During difficult situations I have the ability to maintain belief in myself.
4.	Even when I do not perform well I does not lose my confidence.
5.	I believe I can execute my necessary physical and mental abilities appropriately at the time required.
6.	I believe I can deal with a setback.
7.	As the competition progresses my self-confidence starts fluctuating up and down.
8.	I have the ability to adapt when time demands.
X.	**Locus of control**
1.	Without the help of others I cannot succeed.
2.	With my hard work and abilities I can do everything I want to do.
3.	Reasons for my failure are the mistakes I have committed in my past.
4.	My hard work is the only thing responsible for my achievements.
5.	I do not make plans in life because I know a lot depends on destiny.
6.	I depend on myself more than others.
7.	I feel by conquering myself I can conquer everyone.
8.	I have the desire to dominate and be the best.

9.	I do not think more about the things which are not in my control.
10.	My success and failure entirely depends on my fortunes.
XI.	**Expectation**
1.	Pressure of expectations hinders my performance.
2.	Expectation from family creates tension on me during the game.
3.	I understand what others expect from me.
4.	I want to start the competition on the winning note.
5.	Being a favorite before the start of competition adds pressure on me.
6.	The expectation to perform on my abilities imposes pressure on me.
7.	I want myself to stay at the top of the ranking table.
8.	My chances of winning gets weaker while playing against better opponents.
9.	I always compete to achieve the top ranking at a competition.
10.	I underestimate my opponents.
XII.	**Social support**
1.	My parents opposed the sport I am playing.
2.	During my odd days I have been supported my family.
3.	My friends encourage me regularly during my rough times.
4.	I get regular feedback from my support staff at the time of bad performances.
5.	I do not consider my team as a valuable social group.
6.	I change my strategy if others do not support me.
7.	My parent’s sacrifice causes a lot of tension for me.
8.	My performance improves when I practice with the team.
9.	I feel resourceful while practicing as a team.
10.	I strongly get attached to a group whom I am part of.
11.	I do not take the suggestions of my supporting staff positively.

12.	My family sacrifices a lot so I could play the sport I am playing.
XIII.	**Daily hassles**
1.	I feel the difficulty to maintain a balance between my family and game.
2.	I am not able to maintain a balance between academics and training of my game.
3.	I do not have enough money to maintain a healthy diet as required by the game I play.
4.	Overloaded family responsibilities create an obstacle for my game.
5.	I am not able to accomplish my daily routine task.
6.	Travelling a longer distance for practice puts a lot of load on my body.
7.	I struggle to manage the increasing training demands.
8.	I feel financially insecure.
9.	I cannot afford for good quality equipments required for my game.
XIV.	**Team issues**
1.	There is lack of feedback from my coaching staff.
2.	I have good relations with my management team.
3.	I have good interaction with my coach.
4.	There is lack of individual roles in the team.
5.	I enjoy the role given by my coaching staff.
6.	I get enough support from my coach.
7.	There is lack of communication while preparing for the competition.
8.	I take positive attitude towards myself.
9.	Behavior of training partners is negative.
10.	I feel quite resourceful at hard times.
11.	I use to talk to myself what I am capable of.
12.	I face lack of communication from my pair partners.

XV.	**Leadership issues**
1.	Shouting of negative comments by coach during play hinder my performance.
2.	I never hesitate to make bold decisions.
3.	I am not able to use my resources in best possible manner.
4.	I am able to maintain interpersonal relationships with my coach and coaching staff.
5.	The unsuited coaching style of my coach weakens my performance.
6.	I am not able to enhance my technical skills due to technical incompetency of the coach.
7.	Tension between me and my coach makes my preparations worse for the competition.
8.	I lack guidance from my coach on technical errors I commit.
9.	A difficult situation pushes me to be more determined.
10.	Coach does not manage the task conflicts carefully.
XVI.	**Environmental issues**
1.	Athletes receive information about their selection at very close to the competition.
2.	There is favoritism at the time of selection.
3.	I have been dropped from the team due to favoritism.
4.	Financial assistance provided for the treatment of injuries is not sufficient.
5.	Accommodation facilities provided at the time of competition are not hygienic.
6.	The facilities in the training camp are inadequate.
7.	Training facilities do not meet the demands of competition.
8.	There is monotony in training session during different training programs.
9.	Training schedule used during the camps does not meet the individual demands.
10.	The food provided during the time of competition is nutritious.

11.	Long duration camps are more stressful.
12.	I lose my cool on bad decisions given by officials during the game.
XVII.	**Injury**
1.	First injury of my athletic career still acts as a stressor to me.
2.	In spite of sustaining an injury during game I still want to compete.
3.	I never bother about minor injuries suffered by me during the play.
4.	I think after suffering an injury I would not be able to continue my game.
5.	The recovery time after injury frustrates me.
6.	When I get injured I feel I am losing something valuable.
7.	After injury I worry about the number of days I could not participate in sports.
8.	I feel injury will shatter my hopes and dreams.
9.	If you are injured you are worthless.
10.	I feel the stress of being eliminated from the tournament due to an injury.
11.	Risk of being deliberately injured by an opponent hinders my performance.

The above mentioned items were framed as draft 1st of item constructions for this scale. The items were framed on the basis of intense literature review by the researcher on resilience and factors comprising resilience in sports. A total of 17 variables were selected in which 10 variables were of Stressors encountered by athletes whereas, 07 variables were of protective factors which assist a player to thrive out of these stressors.

3.4 Establishing Content Validity for preliminary tool

Next step in the process of construction of sports specific resilience tool and the establishment of content validity. It (content validity), assesses whether the test being constructed is representing all the aspects of the construct. To achieve valid results, the content of a test must cover all relevant parts of the subject it aims to measure. If some aspects are missing from the measurement the content validity is threatened. Content validity measures whether the test include the entire range of possible items

that test should cover. The researcher initially endeavored his efforts to find out all such factors or variables which encompass resilience in sports by having thorough interactions with players of different sports, and also have consultations with subject experts, during the process a total of 37 variables were identified, in which 26 were protective variables and 11 were stressors (Shown in Table 3.1 & 3.2), which after their suggestions were reduced to 17 (10 protective and 07 stressors) (Shown in Table 3.3). Then researcher moved towards next step of framing preliminary items for different finalized variables to construct sports specific resilience scale. In this process 171 items (Shown in Table 3.4) were framed as first draft of preliminary tool. Then 171 framed items were reduced to 111 during the process of content validity, which involved an in depth discussion with various eminent experts of the field. Sixteen experts (Shown in Table 3.7), from the field of Physical Education and Sports consisting of coaches, academicians and other stakeholders were considered to test out the appropriateness, significance and representativeness of the preliminary framed items. All these 111 items for pilot study is mentioned below as Table 3.5

Table 3.5 (2nd draft of Items framed after content validity)

1. I enjoy and remain enthusiastic in training sessions
2. I believe one by themselves is the creator of his/her destiny.
3. I have doubts about a successful comeback after being eliminated from the team.
4. I strategize a plan to make the necessary corrections for the future.
5. I consider my errors as an opportunity to improve.
6. I prefer to quit the task if I face the initial failure.
7. During failure I accept that things would not always go in my favor.
8. I am able to bounce back and overcome failure.
9. After being defeated I believe there is another level and I am going to achieve it.
10. I cannot remain focused for longer period of time during competition.
11. During competition I remain aware about the situations around me.
12. I can easily shift my attention as required by the situations.

13. At the time of difficulties I am unable to focus on the tasks in my hand.
14. If I am unable to achieve a short term goal I still manage to remain focused about my final target.
15. I can easily find my way out of difficult situations.
16. During tough competitions it is difficult to remain focused.
17. Fear of failure pushes me to work hard.
18. I feel tensed during the knock out stages of a tournament.
19. I do not feel the pressure of packed match schedule.
20. Pressure to perform well in a competition makes me nervous.
21. Fear of committing errors in crucial stages during a game bothers me.
22. I never feel pressure of facing stronger opponents.
23. Over expectation to perform well during the game adds more burden on me.
24. I play well under pressure situations.
25. I think without the help of others I cannot succeed.
26. With my hard work and I can do everything I want to do.
27. I feel reasons of failure are the mistakes which I have committed in my past.
28. I believe hard work is the only thing responsible for my achievements.
29. I do not make strategies for competition because I know a lot depends on destiny.
30. I depend on myself more than others.
31. I feel by conquering myself I can conquer everyone.
32. I have the desire to dominate and be the best.
33. I do not think more about the things which are not in my control.
34. I think success and failure entirely depends on my fortunes.
35. Expectations from family create tension for me during the game.
36. I wish to start the competition on winning note

37. Being a favorite before the start of competition adds pressure on me.
38. I only compete to achieve the top ranking at a competition.
39. The expectation to perform on my abilities imposes pressure on me.
40. My chances of winning gets weaker while playing against better opponents
41. In new challenging situations I enjoy myself and feel comfortable.
42. Negative thoughts distract me from concentrating on my game.
43. During difficult situations I have the ability to maintain belief in myself.
44. My confidence shatters when I didn't perform well.
45. I believe I can execute my skills at the time required.
46. Coming back from a break bothers me about giving my best.
47. As the competition progresses my confidence starts fluctuating.
48. I have the ability to adapt when time demands.
49. I am confident with the preparations I do for the competition.
50. I take my preparations as a burden.
51. I remain satisfied with my technical preparations.
52. My tactical preparations are not good enough to meet the challenging situations in a game.
53. I consider pre game routines as an important part of competition.
54. I work hard on physical fitness to face the demands of competition.
55. I do feel mental preparations are of no more use for competitions.
56. I practice my game regularly as a daily routine.
57. I train myself by keeping competition situations in mind.
58. Rigorous training schedule disturbs me.
59. Challenging situations in the competition makes me think more about victory.
60. In spite of all difficulties I still move on to pursue my goal.

61. I enjoy competing against stronger opponent.
62. Psychological pressure created by the opponents distracts me during the game.
63. I try to understand why I made the mistake.
64. I continuously work hard and do not rest or stop until I achieve my goal.
65. I am desperate to prove myself.
66. I fight strongly till the end of the game.
67. Every time I step on the ground I am extremely ready.
68. After being dropped from the team I work hard for the next time.
69. I feel it difficult to maintain a balance between my family and game.
70. To maintain a balance between academics and training of game is difficult.
71. I have enough money to maintain a healthy diet as required by the game I play.
72. Family responsibilities do not create an obstacle to my game.
73. Daily travelling a longer distance for practice irritates me.
74. I struggle to manage the increasing training demands.
75. I afford for good quality equipments required for my game.
76. During my odd days my family stands along with me.
77. My friends get angry with me if I don't perform well.
78. I get regular feedback from my coach at the time of bad performances.
79. I feel depressed if others do not support me.
80. I overcome the tough time by support of my teammates.
81. I do not take the suggestions of my supporting staff positively.
82. I change my strategy if others do not support me.
83. There is monotony in training session during different training programs.
84. Facilities provided at the time of competition are adequate to meet competition demands.

85. Athletes receive information about their selection at very close to the competition.
86. It is difficult to adjust with harsh weather conditions on the ground.
87. Spectator's support boosts my performance.
88. To play in new conditions does not affect my performance.
89. I lose my cool on bad decisions given by officials during the game.
90. Failure to perform well frustrates me.
91. Competing against better opponent motivates me.
92. I feel desperate to come back after a loss.
93. I have hunger of doing the best in competitions.
94. I play sports to gain status through it.
95. I strive to be the best as I can.
96. Prize kept for every match motivates me to give my best.
97. I commit errors in response to opponent’s sledging during the game.
98. I am not able to perform better during crucial situations in the game.
99. I get pressurized to do everything right at critical situations in a game.
100. I cannot execute my game plan in pressure stages.
101. I feel quite resourceful to meet the challenging demands during the competition.
102. I do not get panicked when my strategy fails.
103. I feel tensed when chances of elimination increases in the tournament
104. I fail to meet the self-imposed expectations when it counts the most.
105. I feel lack of feedback from my coaching staff.
106. I have good relations with my management team.
107. After losing a game I never hesitate to interact with my coach.
108. Shouting of negative comments by coach during play hinders my performance.
109. I feel lack of guidance from my coach on technical errors I commit.

110. There is lack of communication while preparing for competition.
111. Behavior of training partner is negative.

Table- 3.6 Description of Preliminary 111 Item Chosen from the below given Variables of Resilience in sports.

S. No	Name of the Variable	No. of Items
1.	Preparation	10
2.	Pressure	08
3.	Choking	08
4.	Expectation	06
5.	Daily Hassles	07
6.	Organizational Issues	06
7.	Injury	06
8.	Optimism	09
9.	Hardiness	10
10.	Focus	07
11.	Motivation	09
12.	Self-Confidence	08
13.	Locus of Control	10
14.	Social Support	07

Table: 3.7 List of Experts concerned for Content Validity

S.No.	Name	Designation	Institute
1.	Sh. O.P Yadav	Wrestling Coach	NSNIS, Patiala
2.	Sh. Dinesh Singh Yadav	Hockey Coach	NSNIS, Patiala
3.	Dr. S. Bhattacharjee	Football Coach	NSNIS, Patiala
4.	Sh. V.K Gulati	Table Tennis Coach	NSNIS, Patiala
5.	Sh. Surinder Kumar	Football Coach	NSNIS, Patiala
6.	Sh. Ravish Vaid	Badminton Coach	University of Jammu
7.	Sh. Raj Kumar Bakshi	Cricket Coach	University of Jammu
8.	Dr. Lalit Sharma	Associate Professor	IGIPES, University of Delhi
9.	Dr. Deepak Kumar	Sports Psychologist	NSNIS, Patiala

10.	Mrs. Leela Day	Archery Coach	Lovely Professional University
11.	Dr. Priya Baghel	Asstt. Professor	Lovely Professional University
12.	Mr. Vineet Kumar Sharma	Asstt. Professor	Lovely Professional University
13.	Mr. Amit Kumar	Asstt. Professor	Lovely Professional University
14.	Dr. Dinesh Kumar	Physical Director	Hr. Edu. J&K
15.	Dr. Arjun Singh	Physical Director	Hr. Edu. J&K
16.	Sh. Nirmal Singh	Athletic Coach	DYSS, J&K

3.5 Item analysis

Establishment of item analysis is imperative part of tool construction. Pilot study is one of the most important part of any study which includes the technique with the help of which suitable items are accepted and the items which are not valid are removed or included only after some modifications. For the purpose of item analysis, a pilot study was conducted as the trial before proceeding or conducting the actual study. Sample size matters a lot for conducting a pilot study, as it is well established fact that 10% of the sample size must be included as part of pilot study, for the current study we have 1031 samples, so in that case the number of samples for pilot study has been taken as 100. The samples selected for pilot study were not considered as samples for main study**.** Out of 100 samples 50 (25 males and 25 females) were from Punjab and 50 (25 males and 25 females) were from J&K.

3.6 Data collection

In this study data was collected in two phases, for phase one data was collected for the process item analysis, which further involved pilot study on 100 samples, whereas, in second phase data was collected from all 1031 samples selected for this study. For the process of item analysis of 111 items, data was collected from 100 samples as part of Pilot study. Thereafter, the collected data was analyzed by using SPSS version 20. In item analysis, it was decided that the items ranging from the value of 0.30 to 0.70 were retained and remaining items below and above this defined value were deleted.

During this process four variables were deleted entirely. The items remained after this phase were 50, as mentioned in the table below.

Table 3.8 3rd draft of Fifty (50) items scale framed after Item analysis

1.	I believe one is the creator of his/her own destiny.
2.	I have doubts about a successful comeback after being eliminated from the team.
3.	During failure I accept that things would not always go in my favor.
4.	I remain focused for longer period of time during competition.
5.	During tough competitions it is difficult to remain focused.
6.	I feel tensed during knockout stages of tournament.
7.	I feel the pressure of packed match schedule.
8.	Pressure to perform well in a competition makes me nervous.
9.	Fear of committing errors in crucial stages during a game bothers me.
10.	Over expectation to perform well during the game adds more burden on me.
11.	I feel reasons of failure are the mistakes which I have committed in my past.
12.	I do not make strategies for competition because I know a lot depends on destiny.
13.	I do not think more about the things which are not in my control.
14.	I think success and failure entirely depends on my fortunes.
15.	The expectation to perform on my abilities imposes pressure on me.
16.	My chances of winning gets weaker while playing against better opponents.
17.	I enjoy myself in new challenging situations.
18.	Negative thoughts distract me from concentrating on my game.
19.	My confidence shatters when I didn't perform well.
20.	As the competition progresses my confidence starts fluctuating.
21.	I am confident with preparations I do for competition.

22.	I practice my game regularly as a daily routine.
23.	Rigorous training schedule disturbs me.
24.	I try to understand the reason for my mistakes.
25.	I fight strongly till the end of game.
26.	After being dropped from the team I work hard for next time.
27.	Psychological pressure created by opponents distracts me during the game.
28.	I feel it difficult to maintain a balance between my family and game.
29.	To maintain a balance between academics and training of game is difficult.
30.	I have enough money to maintain a healthy diet as required by the game I play.
31.	Daily travelling a longer distance for practice irritates me.
32.	I struggle to manage the increasing training demands.
33.	During my odd days my family stands along with me.
34.	My friends get angry with me if I don't perform well.
35.	I change my strategy if others do not support me.
36.	To play in new conditions affect my performance.
37.	I lose my cool on bad decisions given by officials during the game.
38.	Failure to perform well frustrates me.
39.	Competing against better opponent motivates me.
40.	I feel desperate to come back after a loss.
41.	I commit errors in response to opponent’s sledging during the game.
42.	I am not able to perform better during crucial situations in the game.
43.	I cannot execute my game plan in pressure stages.
44.	I feel quite resourceful to meet the challenging demands during the competition.
45.	I get panicked when my strategy fails.

46.	I feel tensed when chances of elimination increases in the tournament
47.	I feel lack of feedback from my coaching staff.
48.	Shouting of negative comments by coach during play hinders my performance.
49.	I feel lack of guidance from my coach on technical errors I commit.
50.	There is lack of communication while preparing for competition.

Table: 3.9 Remained 13 Variables after item analysis

S. No	**Name Variable**
Stressors	
01.	Preparation
02.	Pressure
03.	Choking
04.	Expectation
05.	Daily Hassles
06.	Organizational Issues
Protective Variables	
01.	Optimism
02.	Hardiness
03.	Motivation
04.	Self-Confidence
05.	Locus of Control
06.	Social Support
07.	Focus

3.7 Content Validity Index

In next phase of study, the developed scale was again sent to various experts of the fields for its content validity, during this process the scale was remained with 111 items (Shown in Table 3.8). These 111 items scale was then implemented on 100 samples as part of pilot study and assessing item samples selected for this study. After following the process, finalized 50 items were remained, this 50 items scale was further implemented on 1031 sportsperson comprising of both males and females, of individual, team and combat sports from the area of Punjab, and Jammu and Kashmir,

so that the scale can be efficiently validated and standardized to frame appropriate norms through the application of suitable statistical techniques required for this purpose.

Table 3.10: Calculation of Content Validity Index (CVI) For Items

ITEM	EXP 1	EXP 2	EXP 3	EXP 4	EXP 5	EXP 6	EXP 7	EXP 8	EXP 9	Expert in Agreement	I-CVI	UA
Q1	1	1	1	1	1	1	1	1	1	9	0.9	0
Q2	1	1	1	1	1	1	1	1	1	9	0.9	0
Q3	1	1	1	1	1	1	1	1	1	9	0.9	0
Q4	1	1	1	1	1	1	1	1	1	9	0.9	0
Q5	0	1	1	1	1	0	1	1	1	9	0.8	0
Q6	1	1	1	1	1	1	1	1	1	9	0.9	0
Q7	1	1	0	1	1	1	0	1	1	9	0.7	0
Q8	1	1	1	1	0	1	1	1	1	9	0.8	0
Q9	1	1	1	1	1	1	1	1	1	9	0.9	0
Q10	1	1	1	1	1	1	1	1	1	9	0.9	0
Q11	1	1	1	1	1	1	1	1	1	9	0.9	0
Q12	1	1	1	1	1	1	1	1	1	9	0.9	0
Q13	1	1	1	1	1	1	1	1	1	9	0.9	0
Q14	1	1	1	1	1	1	1	1	1	9	0.9	0
Q15	1	1	1	1	1	1	1	1	1	9	0.9	0
Q16	1	1	1	1	1	1	1	1	1	9	0.9	0
Q17	1	1	1	1	1	1	1	1	1	9	0.9	0
Q18	1	1	1	1	1	1	1	1	1	9	0.9	0
Q19	1	1	1	1	1	1	1	1	1	9	0.9	0
Q20	1	1	1	1	1	1	1	1	1	9	0.9	0
Q21	1	1	1	1	1	1	1	1	1	9	0.9	0
Q22	1	1	1	1	1	1	1	1	1	9	0.9	0
Q23	1	1	1	1	1	1	1	1	1	9	0.9	0
Q24	1	1	1	1	1	1	1	1	1	9	0.9	0
Q25	1	1	1	1	1	1	1	1	1	9	0.9	0
Q26	1	1	1	1	1	1	1	1	1	9	0.9	0
Q27	1	1	1	1	1	1	1	1	1	9	0.9	0
Q28	1	1	1	1	1	1	1	1	1	9	0.9	0
Q29	1	1	1	1	1	1	1	1	1	9	0.9	0
Q30	1	1	1	1	1	1	1	1	1	9	0.9	0
Q31	1	1	1	1	1	1	1	1	1	9	0.9	0

Q32	1	1	1	1	1	1	1	1	1	9	0.9	0
Q33	1	1	1	1	1	1	1	1	1	9	0.9	0
Q34	1	1	1	1	1	1	1	1	1	9	0.9	0
Q35	1	1	1	1	1	1	1	1	1	9	0.9	0
Q36	1	1	1	1	1	1	1	1	1	9	0.9	0
Q37	1	1	1	1	1	1	1	1	1	9	0.9	0
Q38	1	1	0	1	1	1	1	1	1	9	0.8	0
Q39	1	1	1	1	1	1	1	1	1	9	0.9	0
Q40	1	1	1	1	1	1	1	1	1	9	0.9	0
Q41	1	1	1	1	1	1	1	1	1	9	0.9	0
Q42	1	1	1	1	1	1	1	1	1	9	0.9	0
Q43	1	1	1	1	1	1	1	1	1	9	0.9	0
Q44	1	1	1	1	1	0	1	0	1	9	0.7	0
Q45	1	1	1	1	1	1	1	1	1	9	0.9	0
Q46	1	1	1	1	1	1	1	1	1	9	0.9	0
Q47	1	1	1	1	1	1	1	1	1	9	0.9	0
Q48	1	1	1	1	1	1	1	1	1	9	0.9	0
Q49	1	1	1	1	1	1	1	1	1	9	0.9	0
Q50	1	1	1	1	1	1	1	1	1	9	0.9	0

Expert's Agreement: The table above reflects number of experts be of the same opinion on the significance of all test items in the scale.

I-CVI: The Item-Level Content Validity Index (I-CVI) is calculated as the proportion of experts who rated each item as relevant (1). The I-CVI values for all items range from 0.7 to 1. The items with an I-CVI of 0.9 or higher are typically considered acceptable.

Note that I-CVI values of 0.9 or higher are generally considered acceptable for content validity.

Table 3.11: Number of Experts and Implications on Acceptable CVI Values

Number of Experts	**Acceptable CVI Values**	**Source of Recommendation**
Two experts	At least 0.80	Davis (1992)
Three to five experts	Should be 1	Polit & Beck (2006), Polit et al., (2007)
At least six experts	At least 0.83	Polit & Beck (2006), Polit et al., (2007)

Six to eight experts	At least 0.83	Lynn (1986)
At least nine experts	At least 0.78	Lynn (1986)

Table 3.12: Definition and formulas of CVI Indices.

CVI INDICES	DEFINITION	FORMULA
I-CVI (Item-level Content Validity Index)	The proportion of content experts giving an item a relevance rating of 3 or 4.	I-CVI = (Number of Experts Who Agreed on Item's Relevance)/ (Total Number of Experts)
S-CVI/Ave (Scale-level Content Validity Index based on the Average Method)	The average of the I-CVI scores for all items on the scale or the average of the proportion relevance judged by all experts.	S-CVI/Ave = (Sum of I- CVI Scores for All Items)/(Total Number of Items)
S-CVI/UA (Scale-level Content Validity Index based on the Universal Agreement Method)	The proportion of items on the scale that achieve a relevance scale of 3 or 4 by all experts. Universal agreement (UA) score is given as 1 when the item achieved 100% experts in agreement, otherwise, the UA score is given as 0.	S-CVI/UA = (Sum of UA Scores for All Items)/(Total Number of Items)

Table 3.13 Finally constructed 45 items for sports specific resilience tool

1.	I believe one is the creator of his/her own destiny.
2.	I have doubts about a successful comeback after being eliminated from the team.
3.	During failure I accept that things would not always go in my favor.
4.	I remain focused for longer period of time during competition.
5.	My confidence shatters when I didn't perform well.
6.	As the competition progresses my confidence starts fluctuating.
7.	I feel tensed during knockout stages of tournament.
8.	Fear of committing errors in crucial stages during a game bothers me.

9.	I feel reasons of failure are the mistakes which I have committed in my past.
10.	I do not make strategies for competition because I know a lot depends on destiny.
11.	I do not think more about the things which are not in my control.
12.	I think success and failure entirely depends on my fortunes.
13.	Over expectation to perform well during the game adds more burden on me.
14.	During competition I do not think about what others expect from me.
15.	I feel quite resourceful to meet the challenging demands during the competition.
16.	My chances of winning gets weaker while playing against better opponents.
17.	I enjoy myself in new challenging situations.
18.	Negative thoughts distract me from concentrating on my game.
19.	I am confident with preparations I do for competition.
20.	I practice my game regularly as a daily routine.
21.	Rigorous training schedule disturbs me.
22.	I try to understand the reason for my mistakes.
23.	I fight strongly till the end of game.
24.	After being dropped from the team I work hard for next time.
25.	Psychological pressure created by opponents distracts me during the game.
26.	I feel it difficult to maintain a balance between my family and game.
27.	To maintain a balance between academics and training of game is difficult.
28.	I have enough money to maintain a healthy diet as required by the game I play.
29.	Daily travelling a longer distance for practice irritates me.
30.	During my odd days my family stands along with me.
31.	My friends get angry with me if I don't perform well.

32.	I change my strategy if others do not support me.
33.	To play in new conditions affect my performance.
34.	I lose my cool on bad decisions given by officials during the game.
35.	Competing against better opponent motivates me.
36.	I feel desperate to come back after a loss.
37.	I commit errors in response to opponent's sledging during the game.
38.	I am able to perform better during crucial situations in the game.
39.	I execute my game plan in pressure stages.
40.	I get panicked when my strategy fails.
41.	I feel tensed when chances of elimination increases in the tournament
42.	During competitions I remain focused about the situations of game.
43.	Shouting of negative comments by coach during play hinders my performance.
44.	I feel lack of guidance from my coach on technical errors I commit.
45.	In spite of all difficulties, I still move on to pursue my sports goal.

Whereas, for second phase of this study, data was collected from finally developed 45 items sports specific resilience tool. After completing the part of item construction and analysis the next step was to collect data for second phase which included validation of tool by using the constructed sports specific resilience scale. For this purpose, 1031 samples were selected, all players who were approached by researcher, agreed to participate willingly in this study. Data was collected from the participants at their leisure time. Athletes were asked to fill their responses in front of researcher so that in case of any confusion the researcher shall be available to sort it out and a proper response can be selected by the respondent. In order to avoid any chaos researcher dictated every item to athletes prior to filling up a response. The athletes were asked to respond only one option out of the given five; any player having two responses of an item shall not be considered for scoring. Fortunately, no such case was found during scoring of items by the researcher. And prior to filling up of

responses, the participants were asked to remain honest while making a response to any item, further they were informed that the data collected shall only be utilized by the researcher for the purpose of research only and should be kept confidential in every sense.

Table 3.14 Description of Finally constructed 45 items sports specific resilience scale

S. No	Name Variable	Total number of items per variable	Serial number of items in the scale
Stressors			
1.	Preparation	04	19, 20, 21,25
2.	Pressure	03	7, 8, 15
3.	Choking	04	6, 37, 38, 39
4.	Expectation	03	13, 14, 16
5.	Daily Hassles	04	26, 27, 28, 29
6.	Organizational Issues	04	33, 34, 43, 44
Protective Variables			
1	Optimism	03	1, 2, 3
2	Hardiness	03	22, 23, 24
3	Motivation	03	35, 36, 45
4	Self-Confidence	04	17, 5, 40, 41
5	Locus of Control	04	9, 10, 11, 12
6	Social Support	03	30, 31, 32
7	Focus	03	1, 2, 3

Table-3.15 Scoring of Items according to Likert Scale

Serial number of items which are Negative	Serial number of items which are Positive
2,5,6,7,8,10,11,13,16,18,21,25,26,27,28,29,31, 32,33,34,37,40,41, 43,44	1,3,4,9,12,14,15,17,19,20,22,23,24,30,35,36,38,39, 42,45

3.8 Ethical Considerations

For any research to get accomplished, it must be done ethically, researcher in this study has taken following measures to ensure ethics for this study.

3.8.1a Consent of the participants

No researcher can compel any participant to act as a participant for sake of their research; neither can he/she hide any information regarding their research from the participants. In this connection, the researcher had framed an information page on which the consent of players was taken in advance for data collection. The consent form is highlighted in Annexure-I (A).

3.8.1b Research Deception

Deception in research resembles to any faulty information being procured or intentionally transferred to participants with the purpose of getting data or set of information concerned with their behavior and attitude in an unprejudiced way. Whereas, researcher in this study has not intended to make any such kind of deception, in fact everything was very well informed and shared in advance with subjects regarding the nature and objectives of research. They were also informed that the data provided by them will be kept confidential and will not be shared with any one by which they feel disgraced. Nothing was hided from the participants except few ethics of the researcher towards research. Deception form is given in Annexure-I (A).

3.8.1c Right to withdraw

All the subjects who participated in this research were kept free at their choice to exit from the process of research at their own judgment and nobody will compel them to participate further. This is also provided in Annexure-I (A).

Table: 3.16 Sample Response Ranking

For Positive Items	For Negative Items
1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always	1 = Always 2 = Often 3 = Sometimes 4 = Rarely 5 = Never

Table 3.17 Description of Negative and Positive Items in the Scale

Responses	Never	Often	Sometimes	Rarely	Always
Scores	1	2	3	4	5

Basically there are three types of scales which can be utilized for assessing the attitude through the responses of a person mentioned against every item of the scale. The three kinds of scales are: Likert Scale, Behaviorally Anchored Rating Scale, and Threshold Scale. Among all these the most widely used one is Likert Scale, which is generally applied to evaluate the attitude of the respondent by analyzing the responses made against every item (Cohen et al., 2000). Likert scale can be a 5-point scale or 7-point scale, depends on the choice of researcher. But mostly a 5-point Likert scale had been used by majority of the researchers. In this study the researcher has also used a 5-point Likert Scale, responses in 5-point Likert scale can be categorized in numerous ways, for this study it ranges from Never = 1, Often = 2, sometimes = 3, Rarely = 4 and Always = 5 for positive test items and vice versa for negative test items. Scoring of items was described in Table-3.6, whereas it's detailed description as mentioned in Annexure-II. The scoring system mentioned above is applicable to positive set of test items only whereas for negative test items the scoring would be in vice versa manner to positive items.

3.9. Detailed representation of samples:

A total of 1031 samples were chosen to conduct this research. A detailed version of selected samples had been mentioned below:

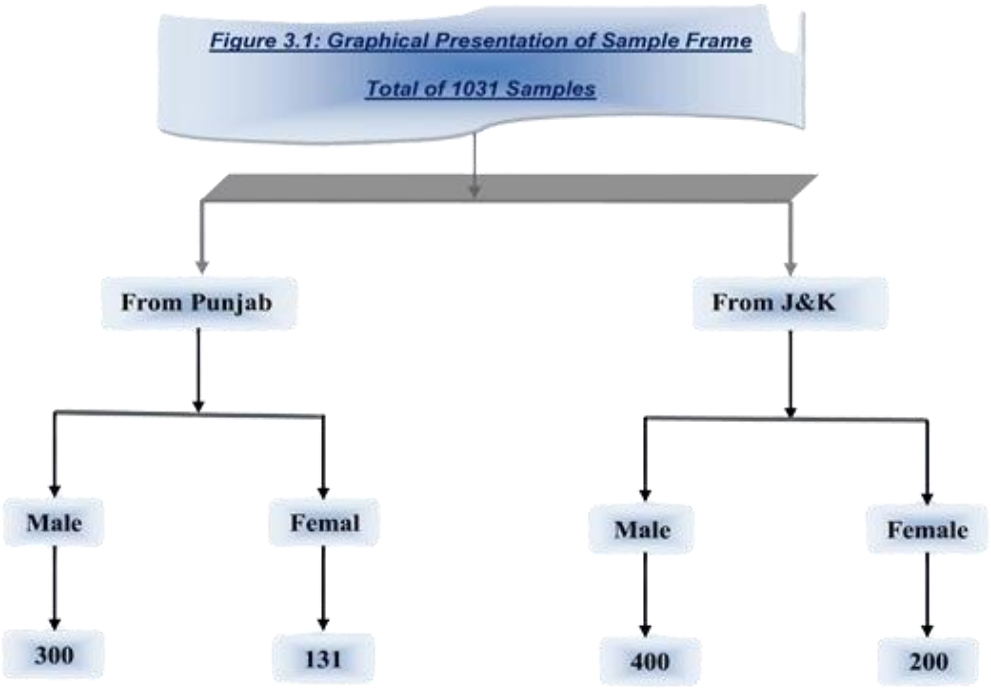

Figure 3.1: Graphical presentation of Sample Frame

Table 3.18: Detailed Description of Samples from Punjab

S.No	Name of Institute	Female	Male	Total
1.	LPU, Jalandhar	44	98	142
2.	PU, Patiala	23	49	72
3.	GNDU	35	73	108
4.	GNA University, Jalandhar	14	34	48
5.	DAV University, Jalandhar	06	23	29
6.	NSNIS, Patiala	09	23	32
	TOTAL	**131**	**300**	**431**

Table 3.19: Detailed Description of Samples from J&K

S.No	Name of Institute	Female	Male	Total
1.	University of Jammu	52	106	158
2.	SMVDU, Katra	37	97	134
3.	Cluster University, Jammu	31	92	123
4.	GDC Kishtwar	00	12	12
5.	GDC Doda	12	24	36
6.	GDC Udhampur	00	20	20
7.	GDC Ramnagar	09	07	16
8.	GDC Chatroo	00	02	02
9.	GCW Udhampur	17	00	17
10.	GCW Parade	23	00	23
11.	GCW Gandhinagar	19	00	19
12.	GDC Akhnoor	00	17	17
13.	GDC Khour	00	23	23
	TOTAL	**200**	**400**	**600**

Table 3.20: Detailed Description of Game wise total Samples (1031)

S.No	Game/Sport	Female	Male	Total
1.	Cricket	27	83	110
2.	Hockey	25	59	84
3.	Handball	43	85	128
4.	Badminton	40	70	110
5.	Athletics	50	91	141
6.	Volleyball	49	77	126
7.	Judo	32	87	119
8.	Boxing	28	65	93
9.	Wrestling	37	83	120
	TOTAL	**331**	**700**	**1031**

Table 3.21: Detailed Description of Samples from each Institute of Punjab and Jammu

S.No	Cricket		Hockey		Handball		Badminton		Athletics		Volleyball		Judo		Boxing		Wrestling		Total
Name of Institute	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
LPU, Jalandhar	1	16	7	23	9	8	5	7	11	24	2	8	2	6	3	4	4	2	142
PU, Patiala	3	5	0	3	0	7	0	4	13	1	0	7	0	5	0	6	7	11	72
GNDU	0	8	0	7	10	14	7	6	11	18	0	13	2	0	3	4	2	3	108
GNA University, Jalandhar	0	2	0	5	0	7	3	0	7	7	0	7	1	0	2	4	1	2	48
DAV University, Jalandhar	0	3	3	7	0	6	0	0	3	7	0	0	0	0	0	0	0	0	29
NSNIS, Patiala	0	4	0	0	0	4	0	3	2	9	0	0	0	0	3	0	4	3	32
University of Jammu	5	24	0	12	12	10	5	10	15	13	8	10	3	7	0	8	4	12	158
SMVDU, Katra	0	17	8	12	6	9	9	14	7	18	0	13	2	4	3	6	2	4	134
Cluster University, Jammu	0	8	7	16	12	18	2	12	4	10	6	13	0	6	0	4	0	5	123
GDC Kishtwar	0	2	0	0	0	0	0	2	0	3	0	1	0	0	0	1	0	3	12
GDC Doda	2	3	0	0	0	9	0	0	2	0	0	0	1	3	6	8	1	1	36
GDC Udhampur	0	4	0	1	0	2	0	7	0	2	0	0	0	2	0	1	0	1	20
GDC Ramnagar	0	1	0	0	0	0	0	3	3	2	6	0	0	0	0	0	0	1	16
GDC Chatroo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
GCW Udhampur	3	0	0	0	4	0	2	0	3	0	0	0	3	0	0	0	2	0	17
GCW Parade	2	0	2	0	4	0	3	0	0	0	4	0	3	0	3	0	2	0	23
GCW Gandhinagar	5	0	6	0	5	0	3	0	0	0	0	0	0	0	0	0	0	0	19
GDC Akhnoor	0	1	0	6	0	0	0	4	0	2	0	2	0	1	0	0	1	1	17
GDC Khour	0	2	0	2	0	2	0	2	0	7	0	2	0	3	0	0	0	3	23
	Total																		**1031**

3.10 Procedure to establish construct validity

After determining the content validity of items next step was to determine the construct validity. Construct validity determines the effectiveness of variables selected for a particular construct; therefore, to further minimize the variables comprising a particular construct. In other sense it assists in setting up of factor analysis, which eventually leads to upholding of factors on the basis of their effectiveness through statistical procedures and removes the factors which does not fit after applying statistical technique. Factor analysis involves establishment of homogeneity of items, then the grouping of these items into factors determined. Technique of Varimax was applied to determine factor analysis and correlation of each item with one another. According to factor analysis, items which indicated relevant significance could be retained while which shows irrelevant significance could be deleted.

3.11 Statistical Techniques

The study was aimed to construct a sports specific resilience scale and to standardize it by establishing norms for the sports person of the age group ranging between 18-28 years. For this purpose, the statistical techniques applied are shown in table- 3.13

Table- 3.22 Statistical Techniques used for conduct of this study

S. No.	**Name of the statistical technique**	**Used for**
1.	Kurtosis and Skewness	For normality of data
2.	Factor analysis	To retain and delete variables comprising the construct of Sports resilience.
3.	Correlation Matrix for multi co linearity	Used to set up validity, reliability and objectivity of the constructed scale
4.	Item analysis	To retain and delete items of different encompassing variables of the construct of Sports resilience.
5.	Percentile Scale	Used in developing norms for Sports Specific Resilience Scale.
6.	Cronbach's Alpha	For establishment of reliability
7.	Content Validity Index	Establishment of content validity
8.	Varimax Rotation	For construct validity

3.11.1 Kurtosis and Skewness

Both skewness and kurtosis are considered and used as the measures of dispersion. Skewness had been used to measure the level of asymmetry in our data. It measures the asymmetry that occurs when our data deviated from normal, whereas kurtosis gives the degree of total outliers present in the data, it measures the weakness of the frequency of distribution.

3.11.2 Factor Analysis

Factor analysis, a factor reducing technique which involves a large set of variables and looks for a way that data can be reduced or summarized into smaller set of variables or components. It does this by looking for clumps or groups they have very strong inter correlations within a set of variables. Factor analysis technique is mostly used by researcher to develop and evaluate a test or scale that measures a particular construct. There are two major approaches for factor analysis, one is called confirmatory factor analysis and other is called exploratory factor analysis. Factor analysis examines the interrelationship among a large number of variables, and then attempts to explain them in terms of their common underlying dimension. And these common underlying dimensions are referred as factors. It is an interdependence technique. Factor analysis considered one of the foremost and very vital techniques that help in rotating of a scale from raw material available to the researcher. It gives concrete shape to any scale after its proper application. For this study Kaiser-Varimax rotation technique propounded by Kaiser in 1958 was implemented to dig out the appropriate factors contributing more towards sports specific resilience among athletes than their counterpart variables that had been removed after factor analysis. Varimax rotation technique enhances the level of correlation among the variables and their factors, which eventually leads to high factor loading for a smaller number of variables and low factor loading for the remaining ones. Principal component analysis was brought into play to decide the smallest amount of independent elements preferred to report for majority of variation in initial set of variables, an Eigen value of 1.0, and factor loading value of 0.50 and over was attained. However, the internal validity of the sports specific resilience scale was achieved through application of Cronbach's alpha.

3.11.3 Correlation Matrix for multi co linearity

It is the way to represent correlation coefficients; a convenient way to represent correlation coefficient is through a correlation matrix. Correlation matrix appears in the form of table which shows the correlation coefficients between sets of variables. Two variables are perfectly correlated when the correlation coefficient ranges between r= 0.9 to 1 or r= -0.9 to -1, whereas the two

variables has a strong correlation when the correlation coefficient ranges between r= 0.5 to 0.9 or r= -0.5 to -0.9, further it has been stated that if the r= 0.1 to 0.5 or r= -0.1 to -0.5 the correlation is weaker and if the r= 0 to 0.1 or r= 0 to -0.1then the correlation coefficient would be uncorrelated. Correlation matrix helps us understand the degree of association between variables.

3.11.4 Item Analysis

It relates to a set of techniques and procedures applied to know the indices for the truthfulness or validity of items (Singh, 2006). In other words, it includes the technique with the help of which the suitable items are accepted and the items which are not valid are removed or included only after some modifications. Therefore, it shows the effectiveness of a particular test item in the entire test. In fact, effectiveness of a test depends on the effectiveness of its test items. With the help of item analysis, it is easy to find out which item is contributing more effectively towards the main purpose of the test. Item analysis provides an index of difficulty value for each item by validating every item through discriminating index which determines the difference between superior and inferior item. Item analysis assists in determining why a particular item was not performing effectively and that can be modified or excluded from the test.

3.11.5 Percentile Scale

Percentile is considered as a statistical technique which commonly is used to assess the scores of one value with another in comparison to the scores from same data. Researcher has applied this technique to prepare norms so that the position of an individual's resilience can be measured with respect to its counterparts from the same group. Percentile is a value below which a certain percentage of observations lie.

3.12 Norms

None of the constructed tool can be applied on the general population until and unless its proper norms will be framed for comparing the results of the studies conducted with the results of already established norms. However, along with framing the norms, one of the objectives of present study was to develop norms for further applicability of the tool in a scientific manner. For this study the norms have been developed for the sports person ranging between the age group of 18-28 years, comprising of different genders. Percentile rank method was used to develop the norms, as this method can be easy to understand for every stakeholder (Barnett and Peters, 2004; Bruininks & Malle, 2005). In addition to that, with the help of percentile rank method we can readily compare different types of scores in a group (Chow & Henderson, 2003).

3.13 Summary

On the very onset of this research, researcher started to review literature and had conversations with all the stakeholders. By this process researcher identified 37 variables (shown in Table- 3.1 & 3.2), which from literature review and his point of concern were valuable for composition of resilience in sports. In other words, set of raw variables leading to resilience were identified by intense review of literature. Thereafter, the identified variables were discussed with my supervisor, other scholars and teachers and after discussions and interactions made with various experts and scholars the variables were merged, deleted and changed into 17 variables, out of these 17 variables 10 were protective and 07 were stressors. Then researcher started to frame items on each of the 17 variables and in this process a total of 171 items was framed (as mentioned in table 3.4). After framing items, the constructed 171 scale was discussed with 16 experts of the field for establishment of content validity. Various valuable suggestions were pointed by the experts and each suggested point was think about and assessed. Then the items were discussed with supervisor and on the basis of their suggestions researcher had made various modifications in which items were reviewed and few of them were deleted whereas few were retained. Thereafter, the framed 111 items scale was implemented on 100 subjects to assess the item analysis, and after item analysis, it was found that each of the framed item was independent to each other. Therefore, to check the normality of data, researcher have further applied the technique of descriptive statistics in which with the help of skewness and kurtosis it was found that data of 61 items were not normal, in consequence to this the 61 items were deleted and finally the scale for resilience in sports was constructed by comprising 50 items, the description of items framed for each variable of sports resilience scale are given in Table- 3.12. Then finally constructed scale was assessed through content validity index for establishment of its validity, the validity determined through this process was 0.88 and the items remained were 45, thereafter, the 45 items scale was administered on 1031 samples for establishing the norms and standardization of the scale. The statistical technique used for the conduct of this study were item analysis, factor analysis, Pearson's Product-moment Correlation, Percentile Scale, descriptive statistics (Skewness and Kurtosis). The statistical analysis for the study was done by using SPSS 22 version software. The results of the study were as expected by the researcher. As earlier studies concluded that this is a very vast topic to work on (Fletcher and Arnold, 2012). After studying intense literature and figuring out the mistakes of the studies carried out in the past researcher have tried to develop a reliable, and valid construct initiated by figuring out factors (irrespective of positive and negatives) responsible for the resilience of an individual. In the process all objectives of the study were successfully fulfilled by

the researcher. After applying factor analysis, it was found that the samples were adequate to apply factor analysis, however strong relationship was found among the items extracted to develop the scale. On the basis of PCA and Eigen value obtained from factor analysis, the items having value above 1 were kept while the items having the values below were deleted. In this process 13 variables were extracted. After this the researcher applied item analysis in SPSS 22 where it was found that all items were independent to each other and were contributing to resilience in sports. Hence, all 45 items were kept for development of final scale. The 13 variables extracted by factor analysis contribute 52 percent to classify resilience in sports through this scale, which means that these 13 variables explained 52 percent variation to explain the dependent variable i.e.; resilience in sports. The result indicates that this scale can be considered to apply on sports person ranging between the age group of 18-28 years from the games of cricket, hockey, wrestling, judo, boxing, volley ball and cricket to check the resilience. However, reliability of this scale established through Cronbach's Alpha is 0.76, which means this tool is good for use, as according to reliability index, the value <0.50 is unacceptable, the value ≥0.50 is poor, value ≥0.60 is questionable. Value ≥0.70 is acceptable. The value ≥0.80 is good and the value ≥0.90 is excellent. The validity coefficient obtained for this scale is 0.88 which is very high for use.

Chapter-IV

Results and discussion

4.1 Result and Interpretation pertaining to Sports Specific Resilience Tool

This Chapter represents the collection and analysis of data in the research design mentioned in the earlier chapter thus developed findings on the basis of data collected. Each feature of the construction of Sports specific resilience Scale, whether it may be framing of initial questions, research design or composition of ultimate tool has been discussed in detail. This study proposed to construct and validate a Resilience Scale for sportspersons. This particular chapter commence with brief explanation about how initial items of this scale were developed, refined and finalized through meticulous contribution of almost 16 experts from the field of sports and sports psychology. After consultation with various experts for content validity, and the suggestions provided by them, 111 items out of 171 items were retained, whereas, the variables were reduced to 13 (Shown in Table 4.1). For the process of item analysis of these 111 items, data was collected from 100 samples. Thereafter, the collected data was analyzed by using SPSS version 20. In item analysis, it was decided that the items ranging from the value of 0.30 to 0.70 were retained and remaining items below and above this defined value were deleted.

Table: 4.1 Case Processing Summary on Construction of Sports Specific Resilience Tool

Case Processing Summary			
		N	%
Cases	Valid	1031	100.0
	Excluded[a]	0	0.0
	Total	1031	100.0
a. Listwise deletion based on all variables in the procedure.			

This table of case processing summary supports that the analysis done on total number of samples taken for the study are exactly the same. Hence there is no error in the values or none of the value is missing.

Table: 4.2 Overall Reliability Statistics of Sports Specific Resilience Tool

Reliability Statistics	
Cronbach's Alpha	N of Items
.76	45

This table shows that reliability of this scale established through Cronbach's Alpha is 0.76, which means this tool is good for use, as according to reliability index, the value <0.50 is unacceptable, the value ≥0.50 is poor, value ≥0.60 is questionable. Value ≥0.70 is acceptable. The value ≥0.80 is good and the value ≥0.90 is excellent.

Table: 4.3 Summary Item Statistics of Sports Specific Resilience Tool

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	No of Items
Item Means	3.324	2.871	3.849	.978	1.341	.048	45
Inter-Item Correlations	.066	-.178	.329	.507	-1.843	.006	45

Table mentioned above reflects the value of mean which is 3.324, it means the average score of all the items is equal to 3.324, whereas in next column the values mentioned against minimum and maximum scores for each item is 2.871 and 3.849 respectively with variance of 0.048, which means the average minimum and maximum score of all items is 2.871 and 3.849 and the variance of all items is 0.048.

Table: 4.4 Item analysis and interpretation of Specific Resilience Tool

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
i1	145.7468	282.197	.236	.187	.756
i2	146.1086	285.646	.167	.104	.759
i3	146.5102	294.258	-.034	.124	.766
i4	146.0204	285.616	.154	.201	.759
i5	146.4985	284.905	.208	.163	.757
i6	146.2852	283.767	.214	.168	.757
i7	146.5441	286.204	.149	.179	.759
i8	146.4413	282.839	.226	.168	.756
i9	146.2163	285.271	.162	.137	.759
i10	146.1018	276.993	.340	.212	.751
i11	146.3686	284.942	.180	.131	.758
i12	146.1736	283.553	.190	.235	.758
i13	146.3792	285.082	.171	.157	.758
i14	146.4462	281.467	.271	.240	.755
i15	146.3647	282.552	.256	.181	.755
i16	146.3210	280.762	.276	.168	.754
i17	146.0456	276.325	.328	.312	.752
i18	146.3986	283.219	.227	.200	.756
i19	146.1057	277.023	.351	.293	.751
i20	146.2037	278.743	.306	.203	.753
i21	146.3695	279.629	.300	.162	.753
i22	145.9340	279.464	.295	.262	.753
i23	145.7886	278.128	.321	.323	.752

i24	145.7740	275.934	.390	.298	.750
i25	146.1154	282.520	.259	.160	.755
i26	146.0737	278.767	.305	.219	.753
i27	146.7245	285.912	.153	.139	.759
i28	146.3977	288.881	.081	.145	.762
i29	146.3608	288.458	.097	.103	.761
i30	146.0310	281.531	.244	.209	.755
i31	146.5984	286.629	.131	.129	.760
i32	146.4675	289.356	.065	.177	.763
i33	146.3996	293.644	-.022	.116	.766
i34	146.4064	287.717	.116	.110	.761
i35	146.1736	279.551	.286	.280	.754
i36	146.1600	280.995	.267	.204	.755
i37	146.2144	282.462	.251	.186	.755
i38	146.4180	283.494	.237	.147	.756
i39	146.2774	281.667	.269	.164	.755
i40	146.4442	287.505	.120	.165	.760
i41	146.5034	278.943	.328	.200	.752
i42	146.4491	279.298	.306	.198	.753
i43	146.3773	279.548	.307	.194	.753
i44	146.0980	279.494	.307	.269	.753
i45	146.3666	280.792	.271	.235	.754

The above table shows the mean and standard deviation of this scale, it also shows that if we delete a particular item from the scale what should be the value of entire scale, it also shows which item has to be deleted and which one to be retained, also shows if we change a particular item then how reliable the scale could be. According to the value of Cronbach's alpha in this table it means that every item is independent to each other. Therefore, none of the items can be removed henceforth.

Table: 4.5 Scale Norms of Sports Specific Resilience Tool

Statistics		
scale norms		
N	Valid	1031
	Missing	0
Mean		149.5907
Median		148.0000
Std. Deviation		17.15637
Variance		294.341
Range		110.00
Minimum		108.00
Maximum		218.00
Percentiles	10	129.0000
	20	135.0000
	30	139.0000
	40	143.0000
	50	148.0000
	60	152.0000
	70	158.0000
	80	164.0000
	90	173.0000

The Table above shows the overall mean, variance and standard deviation of the constructed scale. The mean/average of overall scale is 149.5907 and standard deviation is 17.15637. On the basis of 1031 samples selected for the study, it was observed that 10% of the samples have scored less than 129, 20% of the samples fall under the score of 135, 30% of the samples fall under the score of 139, 40% of the samples fall under the score of 143, 50% of the samples fall under the score of 148, 60% of the samples fall under the score of 152, 70% of the samples fall under the score of

158, 80% of the samples fall under the score of 164 and 90% of the samples fall under the score of 173 which means 90% of the samples comes under the score of 173 out of maximum score of 218.

4.2 Development of norms

None of the constructed tool can be applied on the general population until and unless its proper norms shall be framed for comparing the results of the studies conducted with the results of already established norms. However, along with framing the norms, one of the objectives of present study was to develop norms for further applicability of the tool in a scientific manner. For this study the norms have been developed for the sports person ranging between the age group of 18-28 years, comprising of different genders. Percentile rank method was used to develop the norms, as this method can be easy to understand for every stakeholder (Barnett & Peters, 2004; Bruininks & Malle, 2005). In addition to that, with the help of percentile rank method we can readily compare different types of scores in a group (Chow & Henderson, 2003).

Table: 4.6 Percentile Norms for the scores on Sports Specific Resilience Scale Minimum-Maximum score derived during the study=118-243

Percentile Range	Score	Interpretation of norms
10	129.0000	Worst
20	135.0000	Very poor
30	139.0000	Poor
40	143.0000	low average
50	148.0000	Average
60	152.0000	Satisfactory
70	158.0000	Above satisfactory
80	164.0000	Good
90	173.0000	Very good
90	Above 173	Excellent

4.3 Results and Discussion:

After analyzing the data, it was found that there does not exist any difference in resilience level among the players of different selected games, thus accepting the null hypothesis hypothesized to apply parametric statistical technique, which is in support of the study conducted by (Blanco, et al

2021). However, (Reche-Garcia et al., 2020) have found a significant difference in the resilience level of athletes of different sports categories, hence result obtained from this study does not support (Reche-Gracia, et al., 2020). Moreover, this study supports the findings of (Piskorska, 2017), that while assessing the mental attributes of players of any game, during competition stress and coordinative abilities of the players must be assessed so that we can come to a better conclusion, which was not done in this study, hence it is considered as one of the main limitations. As per the results of this study a scale for resilience in sports have been developed successfully by the researcher and has also emphasized how much importance resilience plays in performance level of players under the condition of stress.

The objectives mentioned in chapter-1 were: "to construct and standardize sports specific resilience assessment tool for sports person" and "to develop norms for sports specific resilience tool". Findings of study had significantly contributed to the athletes ranging between the age group of 18-28 years by developing Sports Specific Resilience Scale protocols as well as norms and scores for future comparisons. To date, many research studies have examined specific forms of stress or sport-specific stressors which includes organizational stress (Fletcher & Hanton, 2003), self-presentational stress (James & Collins, 1997), stress during the football World Cup (Holt & Hogg, 2002), golf-related stress (Giacobbi, et al., 2004), stress in elite figure skaters (Gould, Jackson, & Finch, 1993; Scanlan, et al., 1991) and in Australian footballers (Noblett & Gifford, 2002). Recent studies in sports psychology have delineated most frequently encountered stressors leading to adversity by athletes in their competitions. Some of these are inadequate preparation, injury, performance, finance, travel, interpersonal relationships, weather conditions, (Hanton, et al., 2005; Wilding, 2014). Thus considering the aim of present study at the very onset, researcher started to review literature and had conversations with all the stakeholders. By this process researcher identified 37 variables, which from his point of concern were valuable for composition of resilience in sports. In other words, set of raw variables leading to resilience were identified by intense review of literature. Thereafter, the identified variables were discussed with my supervisor, other scholars, coaches and teachers and after discussions and interactions made with various experts and scholars the variables were merged, deleted and changed into final 17 variables. Then researcher constructed a 171-items preliminary Likert scale for the selected variables as first draft of items by following a systematic process for this purpose. Then the items were discussed with 16 experts from the field and on the basis of their suggestions researcher had made various modifications in which items were reviewed and few of them were deleted whereas few were retained and second draft of items was prepared. As a result of this process 60 items and four variables were totally deleted, thus 2nd

draft comprising 111 items was constructed. Thereafter, this draft of 111 items was undergone for the process of item analysis. For item analysis data was collected from 100 samples (Bala, 2003, & Sharique, 2011). as part of pilot study. The data collected was analyzed through SPSS version 20 and the items ranging between the values of 0.30 and 0.70 were retained, whereas, the item values below and above this range were deleted. Following this, 61 items and one variable was deleted and 3rd draft from the remaining 13 variables comprising 50 items was framed. In next step for content validity of scale, 3rd draft of items was again discussed with experts, during this process 05 items were deleted and finally a 45 items sports resilience tool comprising of 13 variables was developed, thus accomplishing first objective of this study. The finally 45 items scale developed was implemented on 1031 samples. The reliability coefficient of scale established through Cronbach alpha was 0.76 which is considered as good, whereas, the validity obtained through CVI was 0.88 which means this scale is good for use in sports context. For accomplishment of second objective, next step was to frame norms for the constructed scale. Percentile method was used to develop norms. Moreover, this study supports the findings of (Piskorska, 2017), that while assessing the mental attributes of players of any game, during competition stress and coordinative abilities of the players must be assessed so that we can come to a better conclusion, which was not done in this study, hence it is considered as one of the main limitations. The results of the study were as expected by the researcher. As earlier studies concluded that this is a very vast topic to work on (Fletcher and Arnold, 2012). After studying intense literature and figuring out the mistakes of the studies carried out in the past researcher have tried to develop a reliable, and valid construct initiated by figuring out factors (irrespective of positive and negatives) responsible for the resilience of an individual. In the process all objectives of the study were successfully fulfilled by the researcher. After applying factor analysis, it was found that the samples were adequate to apply factor analysis, however strong relationship was found among the items extracted to develop the scale. On the basis of PCA and Eigen value obtained from factor analysis, the items having value above 1 were kept while the items having the values below were deleted. After this the researcher applied item analysis in SPSS 22 where it was found that all items were independent to each other and were contributing to resilience in sports. Hence, all 45 items were kept for development of final scale. The 13 variables extracted by factor analysis contribute 52 percent to classify resilience in sports through this scale, which means that these 13 variables explained 52 percent variation to explain the dependent variable i.e.; resilience in sports. The result indicates that this scale can be considered to apply on sports person ranging between the age group of 18-28 years from the games of cricket, hockey, wrestling, judo, boxing, volley ball and cricket to check the resilience. However, reliability of this scale established through Cronbach's Alpha is 0.76, which means this

tool is good for use. As per the results of this study a scale for resilience in sports have been developed successfully by the researcher and has also emphasized how much importance resilience plays in performance of athletes under the conditions of stress.

Chapter V

Summary, Conclusion and Recommendations

5.1 Summary

This chapter sum ups the result obtained and highlights the conclusion that has been attained from the consequences of this research work. Sports constitutes a competitive environment in which athletes compete against each other to outclass the opponents thus relating it to the ever increasing and demanding stressful situations (Bardel, et.al, 2010; Darling, Caldwell, & Smith, 2005; Holt & Sehn, 2008; McLaren, Eys, & Murray, 2015; Smith, Smoll, & Cumming, 2007). It is also acknowledged that every time a player competes to achieve desired goals, have to deal with diverse potential stressors, comprised of pain, fear, lack of confidence, coach stress (Dale, 2000). Such stressors if not dealt with properly leads to the failure of athletes (Lazarus, 2000). Identifying and understanding these stressors in sport has become an important area in sport psychology research. Recent studies in sports psychology have delineated most frequently encountered stressors leading to adversity by athletes in their competitions. Some of these are inadequate preparation, injury, performance, finance, travel, interpersonal relationships, weather conditions, (Hanton, et al., 2005; Wilding, 2014), along with this the other stressor that has been included by the researcher is organizational stress (Fletcher & Hanton, 2003). This study has investigated the new insights in conceptualization of resilience in sports and has included both stressors leading to performance slump and protective factors leading to bounce back. Fletcher & Arnold (2010) were the first ones who were credited for introducing the concept of "Resilience" in sports. Resilience is the ability of an individual to bounce back from the adverse conditions (Jacelon, 1997; Windle, 2011). The more positive factors an individual possesses, more resilient they are supposed to be (Kumpfer, 1999). In fact, protective factors supposed to be the characteristics of an individual which tend to mitigate the influence of harsh conditions faced by them (Rutter, 1995). Various protective factors such as social support (Freeman & Rees, 2001), motivation (Fletcher and Sarkar, 2014), self-confidence (Chan, 2000, Kate et.al, 2009), Optimism (Kumpfer, 2002;), hardiness (Kobassa, 1979, Gucciardi, et al 2009), and focus have been identified and added by researcher to frame this scale through intense literature review.

Historically, the concept of resilience arose from the observation of the development of children and young people growing under unfavorable conditions of life in early 1970's (Garmezy, 1971; Rutter,1979; Werner & Smith 1982). They were astonished by the findings which revealed that majority of children vulnerable to these stressors not only survived but thrived in spite of risk.

From the early 90's there was a shift of paradigm in the research of resilience which involved the identification of factors responsible for overcoming adversities that an individual encounter (Luthar, Cicchetti, & Becker, 2000). Such factors which assists a person to negotiate positively and moderate the impact of negative situations are generally described the protective factors (Masten, 1994; Ryff & Singer, 2003). Since the emergence of resilience, from last three decades, theories have been propounded by the researchers (Denz & Murdoch, 2008, Palmer, 2008, and Fletcher & Sarkar, 2012) argued resilience as a dynamic process which changes over the passage of time and results from the person-environment interaction (Egeland, Carlson, & Sroufe, 1993). Till now what has been discussed about resilience delineates, as the quality of an individual to thrive out of the difficult situations. The more positive factors an individual possesses, more resilient they are supposed to be (Kumpfer, 1999). Since then various protective factors have been identified and added by the sports psychology researchers such as social support (Freeman & Rees, 2001), motivation (Fletcher and Sarkar, 2014), self-confidence (Chan, 2000, Kate et.al, 2009), Optimism (Kumpfer, 2002;), hardiness (Kobassa, 1979, Gucciardi, et al 2009), and focus.

Most of our knowledge regarding resilience has come from the literature of developmental psychology which extensively considered the population of children and adolescent under risk or exposure (Werner, 1982; Garmenzy, 1983; Rutter, 1995). Although, sports also possess potential for trauma, stress, negativity and adversity, still we have very little literature available on resilience in sports, till date. Therefore, it was a huge necessity to clarify the construct of resilience, its dimensions and underlying processes in sports context. There was a consensus in sport psychology literature and among all the authors (Fletcher & Sarkar, 2012; Galli & Vealy, 2008; Gucciardi, et al., 2011) who initiated to investigate resilience in sports context that there was need for a measure of psychological resilience for sports performers to advance sports psychologists understanding of this area. In India also there was no tool for measuring Resilience in Sports, however the measuring of this component among sportsperson has revealed out various unknown facts, as this plays an immense part in the performance of sportsperson. In the field of Sports, resilience was newly emerging construct which will contribute in the enhancement of athletes, thus for the betterment of sportsperson it was of immense importance to work in this area. There was no clarity over the concept of resilience in the sports fraternity. The researcher had tried to extract the underlying concept of resilience in sports along with their utility. Literature reviewed on Resilience in sports, shows that there was no specific tool of measuring resilience among sports person. All the resilience inventories to date have been developed for use in non-sport contexts, such as (Connor-Davidson Resilience Scale, CD-RISC 2003, Brief Resilient Coping Scale, BRICS 2004 &

Resilience Scale RS 1993). There cannot be development in any field without proper evaluation, as this refines and motivate an individual throughout life, so for evaluating purpose it requires a tool that could measure a specified objective. Thus there existed an urgent need to develop a sport-specific measure of resilience so that the concept can get a broader view. The investigator has made an attempt to find out the solution through the construction of a standardized tool hence the problem was entitled as: **"Resilience in sports: Construction and validation of sports specific resilience scale"**. Finally, researcher was able to construct sports specific resilience tool, and has accumulated various imperative components, other underlying concepts and information which eventually can contribute significantly in composition of resilience in sports.

The first objective of the study was to construct and standardize sports resilience assessment tool for sports person. Therefore, understanding the underlying characteristics and specific components that comprising resilience in sports was the first thing to initiate with. Second objective was to prepare norms for sports specific resilience tool. So, the risk factors experienced by sports person, the related protective factors which assist sports person to bounce back from adversity were also taken into consideration. All objectives had been successfully achieved by the process briefed in coming lines. The present study was delimited to 1031 male and female sports person ranging between the age group of 18-28 years of age from two States i.e.; Punjab and Jammu and Kashmir. It was further delimited to All India University level players. In first phase of this study, first three objectives were accomplished. To accomplish the first objective, researcher had made intense review of literature and also held discussions with eminent personalities from the field of sports and physical education and based on this, 37 variables were identified initially, from these 37 selected variables, 26 were protective factors and 11 were stressors. Then the selected variables were discussed with all stakeholders and on the basis of their suggestions and recommendations 17 variables were finalized for framing items. All these variables have been considered as basic components which leads to the construct of resilience in sports, out of these 17 variables, 10 were stressors and 07 were protective factors. From these 17 variables a set of 171 items were framed for establishing content validity, thereafter, these items were personally discussed with 16 experts of the field. After their valuable suggestions and recommendations, the items were reduced to 111 and the variables were reduced to 13, out of which 07 were protective and 06 were stressors.

In second phase the other objective framed for this study was accomplished, as part of pilot study, the 111 items framed scale was administered on 100 samples for data collection and for the determination of item analysis. After performing item analysis on SPSS version 22, it was found that all the constructed items were independent to each other. Therefore, to check the normality of

data, researcher have further applied the technique of descriptive statistics in which with the help of skewness and kurtosis it was found that data of 61 items were not normal, in consequence to this the 61 items were deleted and finally the scale for resilience in sports was constructed by comprising 50 items. Thereafter, through content validity index 05 more items were deleted and finally a 45 items scale was developed. Then finally constructed scale was administered on 1031 samples for establishing the norms and standardization of the scale. The statistical technique used for the conduct of this study were item analysis, factor analysis, Pearson's Product-moment Correlation, Percentile Scale, descriptive statistics (Skewness and Kurtosis). The statistical analysis for the study was done by using SPSS 22 version software. The results of the study were as expected by the researcher. As earlier studies concluded that this is a very vast topic to work on (Fletcher and Arnold, 2012). After studying intense literature and figuring out the mistakes of the studies carried out in the past researcher have tried to develop a reliable, and valid construct initiated by figuring out factors (irrespective of positive and negatives) responsible for the resilience of an individual. In the process all objectives of the study were successfully fulfilled by the researcher. After applying factor analysis, it was found that the samples were adequate to apply factor analysis, however strong relationship was found among the items extracted to develop the scale. On the basis of PCA and Eigen value obtained from factor analysis, the items having value above 1 were kept while the items having the values below were deleted. In this process 13 variables were extracted. After this the researcher applied item analysis in SPSS 22 where it was found that all items were independent to each other and were contributing to resilience in sports.

The methodological part of the study included content validity, statistical design, item analysis, factor analysis, sampling, construction of test and collection of data. For Content Validity, initially twenty-six protective variables and eleven stressors were identified and 171 items scale was developed, which was then discussed with sixteen eminent experts of the field, after their suggestions these were reduced to seven protective and seven stressors variables, whereas, the 171 items were reduced to 111. As the study was aimed to construct a sports specific resilience scale and to standardize it by establishing norms for the sports person of the age group ranging between 18-28 years, for this purpose various statistical techniques: kurtosis and skewness for normality of data, factor analysis to retain and delete variables comprising the construct of Sports resilience, Correlation Matrix for multi co linearity used to set up validity, reliability and objectivity of the constructed scale, item analysis to retain and delete items of different encompassing variables of the construct of Sports resilience, percentile scale for developing norms, content validity index for establishment of content validity on subjective basis, and varimax rotation for construct validity

were applied. Players ranging from 18-28 years of age, from both male and female genders, who have participated at all India inter-university level competitions at least once in last three years were selected purposively as samples for this study. Sampling was done in different phases for this study. In first phase the sampling was done for construction of sports specific resilience scale whereas in second phase sampling was done for standardization and development of norms for the constructed scale. For first phase 100 athletes were taken as samples only those players were chosen as samples that had shown their willingness for this study. In second phase, for standardization and development of norms, the sample size was 1031 sportsperson.

After completing the part of item construction and analysis the next step was to collect data by using the constructed sports specific resilience scale. Data was collected from the participants at their leisure time. In order to avoid any chaos researcher dictated every item to athletes prior to filling up a response. The athletes were asked to respond only one option out of the given five; any player having two responses of an item shall not be considered for scoring. Fortunately, no such case was found during scoring of items by the researcher. And prior to filling up of responses, the participants were asked to remain honest while making a response to any item, further they were informed that the data collected shall only be utilized by the researcher for the purpose of research only and should be kept confidential in every sense.

5.2 Conclusion

Forty-Five items scale was finally developed which included 13 factors, extracted by factor analysis, contribute 52 percent to classify resilience in sports through this scale, which means that these 13 variables explained 52 percent variation to explain the dependent variable i.e.; resilience in sports. The result indicates that this scale can be considered to apply on sports person ranging between the age group of 18-28 years from the games of cricket, hockey, wrestling, judo, boxing, volley ball and cricket to check the resilience. However, reliability of this scale established through Cronbach's Alpha is 0.76, which means this tool is good for use. All scales till now had been named by the researchers either on their own names, on the name of their parents or on the basis of sports they develop scale. In this research also the researcher has decided to name the designed scale on the basis his supervisor and his own name along with the sports context, hence the scale has been entitled and be named in future as **"Vimal-Bhanu Sports Specific resilience scale".**

5.3 Recommendations for Future Research

The sports specific resilience scale, as developed from the research work, illustrated in this study, was the initial stride taken in extensive progression of validation planned in construction and

development of such an instrument which can measure resilience of an individual in context of sports. These conclusions about sports specific resilience scale had been developed after so much of supervision and administrations. On the other hand, potential research ought to be anxious in the midst of queries comprising, what amount to resilience in sports and how does it contribute in the performance of sports person. Very less data regarding resilience of sports person was available in this context, although it exists at every stage in every sports person. Resilience in sports is still in its infancy stage and from that aspect; there are so many opportunities which are required to be availed by every stakeholder for its optimum utilization. On the basis of conclusions made by the researcher below given recommendations are being suggested for future work:

1. While getting responses from the subjects, they were asked to the recall the events that were different from the actual time of event, in some cases it was a month, while for others it was six months, whereas for few subjects the time gap between the actual event and the time to recall was one year also. And we know that very few people are able to retain and narrate exact scene of happenings exactly after such a gap (Smith, et.al., 2007). This discordance may be enough to have adverse results of the findings of study. Hence, is strongly recommended for future researchers that they should try to obtain data from subjects at the very earliest of the completion of actual event.

2. This study has provided a platform for developing sports specific resilience scale, therefore, future researchers are suggested to develop some models of resilience in sports and test them through structural equation modeling, so that they may readily calculate resilience across greater variety of players.

3. Because of diverse characters of stressors and protective factors, the future researchers are recommended to assess them separately and then validate the different developed scales independently from the very beginning.

4. To study the umbrella term of resilience in sports, it is required to assess so many stressors and protective factors at various levels of investigation; therefore, it is recommended to utilize a longitudinal method of study to determine the interaction of stressors and protective factors with each other.

5. It is an interactive process involving adversities encountered, the protective factors helping to overcome such adversities, which leads to attainment of positive adaptation and behavior. Therefore, more stressors and protective factors should be identified to gain comprehensive information underlying resilience in sports.

6. The researcher in this study has studied adversities and protective factors, but for future researchers it is recommended to study positive adaptations also and assess all these three components collectively to frame a tool for measuring resilience in sports.

7. Exposure to stressor is mostly considered as adversity for a sportsperson. Whereas, according to definition of adversity, stressor is only assumed as an adversity if the problem existing or displayed by an athlete is typical from normal athletes. Therefore, future researchers are strongly recommended to ensure whether the stressor exhibited is an adversity in real or not. 8. To gain more information related to adversity in sports, future researchers are suggested to evaluate the notable life events and day to day occurring stressors simultaneously and analyze whether a particular protective factor matches best with a certain stressor.

9. It is recommended to evaluate various protective factors covering separate extent of analysis and further recommended to conduct same study in different geographical contexts.

10. Researcher has applied only descriptive statistics for the conduct of this study, as data obtained on each item had shown that every item is independent to each other. Therefore, it is recommended to apply other statistical means also.

11. Further training programs based on different age groups, at different levels, for different genders, and different games must be developed separately and implemented to inculcate the quality of resilience in sports person.

12. It is very well established fact that every athlete learns from their coaches and other associated staff, hence in this context, it is recommended to made interventions for these coaches and associated staff so that they can also be educated on the aspects of resilience in sports.

13. Resilience is a very vital perspective for sports person, therefore, resilience programs be implemented from grass root levels at different academies of sports nationally, so that a player may utilize his/her skills appropriately in most demanding, challenging and worst situations they face during a game.

14. The present study was conducted on the age group of 18-28 years, the future researchers are recommended to conduct the study on various other age groups also.

15. Research work in the field of resilience in sports may also be expanded to Para athletes. As majority of research work is focusing normal athletes and Para athletes are refrained by most of the researchers.

16. To explore its other underlying processes and characteristics, resilience in sports may also be collaborated with other allied fields of sports such as: sports anatomy, sports biomechanics, and sports physiology, so on and so forth.

17. While assessing the mental attributes of players of any game, during competition stress and coordinative abilities of the players must be assessed so that we can come to a better conclusion.

18. Future researchers are suggested to find a relationship in resilience level of players according to their age category.

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ANNEXURE-I

PRELIMINARY SPORTS SPECIFIC RESILIENCE SCALE

NAME: ……..

GENDER: ……..

AGE: ……..

GAME: ……..

INSTITUE: ……

E-MAIL: ……

ANNEXURE-I (A)

CONSENT FORM

I have been informed about and read carefully the below given conditions to carry out this research, hence, I give my consent to the following conditions:

I am participating in this research voluntarily and not by the influence of anyone.

I know Vimal Kishore, research scholar in the Department of Physical Education and Sports, at Lovely Professional University, Punjab, is collecting this information merely for the purpose of his research topic entitled "Resilience in sports: Construction and Validation of Sports-specific Resilience Tool" and series of questions related to the topic will be asked from me.

As I am voluntarily participating in it, therefore, I have been given full freedom to withdraw from

research project at any time without imposing any penalty to me.

I know the responses given against every item will be kept confidential and will not be unveiled under any circumstances, prior to intimating me. The results will be shown in the form of group findings instead of individually and my identity will also be kept confidential.

• I am aware about negligible risk involved in participating in this study, but still if I feel any kind of stress or anxiety about any question and I feel discomfort I am allowed to withdraw myself from further participation.

• I understand this study will be of a great importance to me, as it will assist me in understanding of resilience in sports and the ways by which I can enhance my performance at any level. More importantly it will help me to prepare mentally for my competitions.

Authority has been provided to me to raise any query regarding any kind of question related to this research.

• I was given freedom to contact at any time with Mr. Vimal Kishore bearing Mobile no. 8493831867 and Dr. Bhanu Partap bearing Mobile no. 790645899 regarding any questions related to this research project. I have read every point carefully and give my consent to participate in this research project.

Descriptive Statistics Result of Pilot Study conducted on 100 Samples

N	Mean Statistics	Standard Error	Standard Deviation	Skewness	Standard Error	Kurtosis	Standard Error

100	4.2800	0.07795	0.77954	-0.799	0.241	-0.064	0.478
	3.9400	0.10619	1.06192	-0.498	0.241	-0.868	0.478
	2.7900	0.11397	1.13969	0.132	0.241	-0.302	0.478
	4.3300	0.09217	0.92174	-1.420	0.241	1.564	0.478
	4.6000	0.06513	0.65134	-1.388	0.241	0.699	0.478
	2.1500	0.13808	1.38078	0.829	0.241	-0.606	0.478
	3.4100	0.10926	1.09263	-0.263	0.241	-0.326	0.478
	4.1600	0.09505	0.95049	-0.832	0.241	-0.061	0.478
	4.2500	0.10088	1.00880	-1.427	0.241	1.704	0.478
	3.0300	0.12428	1.24280	-0.058	0.241	-0.891	0.478
	4.4500	0.08689	0.86894	-1.587	0.241	2.139	0.478
	3.9300	0.09975	0.99752	-0.605	0.241	-0.407	0.478
	3.0500	0.11492	1.14922	0.023	0.241	-0.605	0.478
	4.0700	0.10565	1.05653	-1.033	0.241	0.291	0.478
	3.7700	0.10333	1.03333	-0.587	0.241	-0.087	0.478
	3.2700	0.11358	1.13578	-0.130	0.241	-0.291	0.478
	4.3000	0.10101	1.01005	-1.356	0.241	1.128	0.478
	3.4900	0.11590	1.15902	-0.134	0.241	-0.742	0.478
	2.9500	0.11492	1.14922	0.018	0.241	-0.524	0.478
	3.0800	0.11949	1.19494	-0.121	0.241	-0.509	0.478
	2.9000	0.11415	1.14150	0.033	0.241	-0.640	0.478
	2.9800	0.13482	1.34825	0.138	0.241	-1.020	0.478
	3.1500	0.12258	1.22578	-0.091	0.241	-0.713	0.478
	3.1200	0.14858	1.48583	-0.172	0.241	-1.377	0.478
	2.8400	0.14545	1.45449	0.043	0.241	-1.319	0.478
	4.3400	0.10845	1.08451	-1.638	0.241	2.101	0.478

	3.3000	0.11237	1.12367	0.035	0.241	-0.832	0.478
	4.3300	0.11811	1.18112	-1.835	0.241	2.337	0.478
	2.5400	0.13440	1.34405	0.384	0.241	-0.913	0.478
	4.1600	0.11256	1.12564	-1.190	0.241	0.584	0.478
	3.7600	0.11557	1.15575	-0.517	0.241	-0.605	0.478
	3.5400	0.14101	1.41006	-0.568	0.241	-0.935	0.478
	3.5000	0.12988	1.29880	-0.438	0.241	-0.825	0.478
	2.7300	0.12541	1.25412	0.058	0.241	-0.914	0.478
	2.9100	0.13416	1.34160	0.014	0.241	-1.014	0.478
	4.0400	0.11970	1.19697	-0.800	0.241	-0.364	0.478
	2.8600	0.13410	1.34104	0.030	0.241	-1.079	0.478
	2.9700	0.14175	1.41746	0.032	0.241	-1.256	0.478
	2.8500	0.10766	1.07661	0.157	0.241	-0.179	0.478
	2.9300	0.12165	1.21651	0.033	0.241	-0.798	0.478
	3.7200	0.10832	1.08321	-0.197	0.241	-1.085	0.478
	3.0900	0.11984	1.19844	0.003	0.241	-0.576	0.478
	3.9300	0.11393	1.13933	-0.822	0.241	-0.137	0.478
	2.7700	0.11446	1.14464	0.177	0.241	-0.485	0.478
	3.7900	0.11128	1.11278	-0.650	0.241	-0.255	0.478
	3.3000	0.13143	1.31426	-0.166	0.241	-1.026	0.478
	2.8900	0.13846	1.38458	0.131	0.241	-1.166	0.478
	3.9500	0.09886	0.98857	-0.731	0.241	0.119	0.478
	4.1000	0.10589	1.05887	-1.089	0.241	0.386	0.478
	2.3200	0.16323	1.63225	0.705	0.241	-1.233	0.478
	3.6800	0.12783	1.27826	-0.737	0.241	-0.487	0.478
	2.8500	0.12008	1.20080	0.152	0.241	-0.631	0.478

	4.2000	0.10541	1.05409	-1.151	0.241	0.454	0.478
	4.2700	0.09832	0.98324	-1.285	0.241	1.139	0.478
	2.4300	0.15522	1.55216	0.572	0.241	-1.199	0.478
	3.7000	0.11415	1.14150	-0.549	0.241	-0.233	0.478
	4.0700	0.09975	0.99752	-0.766	0.241	-0.267	0.478
	2.9100	0.11468	1.14676	0.179	0.241	-0.176	0.478
	3.8100	0.10415	1.04151	-0.430	0.241	-0.541	0.478
	4.1900	0.09608	0.96080	-1.090	0.241	0.866	0.478
	4.3100	0.10219	1.02193	-1.469	0.241	1.405	0.478
	3.0000	0.12060	1.20605	0.176	0.241	-0.597	0.478
	4.1700	0.10546	1.05462	-1.297	0.241	1.299	0.478
	3.9500	0.10766	1.07661	-0.593	0.241	-0.769	0.478
	3.7300	0.12859	1.28594	-0.787	0.241	-0.332	0.478
	4.3100	0.11780	1.17804	-1.764	0.241	2.155	0.478
	4.1700	0.09646	0.96457	-1.177	0.241	1.130	0.478
	4.3300	0.10056	1.00559	-1.801	0.241	3.109	0.478
	2.7500	0.13056	1.30558	0.255	0.241	-0.883	0.478
	2.9300	0.11913	1.19134	-0.009	0.241	-0.704	0.478
	3.0600	0.12045	1.20454	0.130	0.241	-0.750	0.478
	2.6300	0.14046	1.40457	0.353	0.241	-1.154	0.478
	2.9700	0.12906	1.29064	-0.058	0.241	-0.886	0.478
	3.1500	0.12175	1.21751	0.049	0.241	-0.847	0.478
	3.5100	0.12431	1.24312	-0.474	0.241	-0.533	0.478
	4.3400	0.11390	1.13902	-1.667	0.241	2.279	0.478
	3.1500	0.11839	1.18386	-0.036	0.241	-0.505	0.478
	4.0600	0.10232	1.02317	-0.757	0.241	-0.384	0.478

	2.9100	0.13787	1.37873	0.259	0.241	-1.134	0.478
	3.8100	0.10020	1.00197	-0.529	0.241	-0.217	0.478
	2.2000	0.12949	1.29490	0.815	0.241	-0.373	0.478
	2.7800	0.11771	1.17705	-0.053	0.241	-0.753	0.478
	3.0800	0.10316	1.03162	0.063	0.241	0.127	0.478
	3.3200	0.11624	1.16237	-0.142	0.241	-0.809	0.478
	3.6600	0.09972	0.99717	-0.454	0.241	-0.043	0.478
	3.1200	0.11035	1.10353	0.126	0.241	-0.606	0.478
	4.1400	0.11372	1.13725	-1.332	0.241	1.022	0.478
	3.0900	0.10833	1.08334	-0.182	0.241	-0.480	0.478
	2.9300	0.11215	1.12146	-0.079	0.241	-0.581	0.478
	2.8300	0.11981	1.19810	0.228	0.241	-0.520	0.478
	4.3900	0.09733	0.97333	-1.863	0.241	3.281	0.478
	3.6400	0.12514	1.25142	-0.483	0.241	-0.741	0.478
	4.4700	0.08582	0.85818	-1.960	0.241	4.336	0.478
	3.0300	0.14596	1.45959	-0.033	0.241	-1.317	0.478
	4.2200	0.10306	1.03064	-1.247	0.241	1.052	0.478
	3.2800	0.14639	1.46391	-0.205	0.241	-1.276	0.478
	2.9500	0.10481	1.04809	-0.006	0.241	-0.218	0.478
	2.8700	0.12032	1.20315	0.113	0.241	-0.653	0.478
	2.9600	0.11364	1.13636	-0.047	0.241	-0.662	0.478
	2.8700	0.12525	1.25251	0.125	0.241	-0.853	0.478
	3.2700	0.12215	1.22148	-0.433	0.241	-0.468	0.478
	2.9500	0.12092	1.20918	0.063	0.241	-0.859	0.478
	2.9900	0.11326	1.13258	0.020	0.241	-0.386	0.478
	2.7900	0.10664	1.06643	0.177	0.241	-0.334	0.478

	2.6700	0.13337	1.33375	0.369	0.241	-0.926	0.478
	4.0900	0.12561	1.25606	-1.234	0.241	0.403	0.478
	3.3600	0.14250	1.42503	-0.320	0.241	-1.237	0.478
	3.0700	0.12493	1.24928	-0.071	0.241	-0.722	0.478
	2.9800	0.11890	1.18901	0.039	0.241	-0.536	0.478
	2.7100	0.13204	1.32035	0.312	0.241	-0.826	0.478
	2.3200	0.13017	1.30175	0.531	0.241	-0.894	0.478

The above table shows the descriptive statistics and normality of data taken from 100 samples as part of pilot study by using Kurtosis and skewness for all items prepared for the study. The items whose value was ranging between twice of standard error were considered as normal items, whereas the items whose value was not ranging between twice of standard error were not considered normal (skewness and Kurtosis) items and therefore were removed. Thereafter by proceeding further, researcher applied Factor analysis and Product moment correlation coefficient for checking the multicolinearity among the variables. As evident from results of factor analysis as shown in Appendices, 37 items were reduced after applying factor analysis technique. Whereas, the results obtained from Product moment correlation showed that none of the items was falling within the ranging value of 0.30 to 0.70, which means all the framed items were independent to each other. Then data was analyzed on the basis of descriptive statistics to check its normality, in which after checking through Kurtosis and Skewness 61 items were deleted and a 50 scale items comprising of 13 variables were remained, which further after subjective judgement given by experts was reduced to finally constructed 45 items scale.

Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
VAR1	3.8487	1.31178	1031
VAR2	3.4869	1.25782	1031
VAR3	3.0854	1.22533	1031
VAR4	3.5752	1.33363	1031
VAR5	3.5199	1.24220	1031
VAR6	3.0970	1.15174	1031
VAR7	3.3104	1.24817	1031
VAR8	3.0514	1.28708	1031
VAR9	3.2357	1.24000	1031
VAR10	3.2939	1.27407	1031
VAR11	3.1542	1.29168	1031
VAR12	3.3792	1.33173	1031
VAR13	3.4937	1.36734	1031
VAR14	3.2270	1.27443	1031
VAR15	3.4219	1.38699	1031
VAR16	3.2163	1.30747	1031
VAR17	3.1494	1.24518	1031
VAR18	3.2308	1.19913	1031
VAR19	3.2745	1.28672	1031
VAR20	3.5500	1.45521	1031
VAR21	3.1969	1.24831	1031
VAR22	3.4898	1.32988	1031
VAR23	3.3919	1.34731	1031
VAR24	3.2260	1.29837	1031
VAR25	3.6615	1.32667	1031
VAR26	3.3482	1.30347	1031
VAR27	3.8070	1.34330	1031
VAR28	3.8215	1.29118	1031
VAR29	3.4801	1.19194	1031
VAR30	3.5218	1.35075	1031
VAR31	2.8710	1.29893	1031
VAR32	3.1979	1.33643	1031
VAR33	3.2347	1.28138	1031
VAR34	3.5645	1.34145	1031

VAR35	2.9971	1.33765	1031
VAR36	3.1280	1.38266	1031
VAR37	3.1959	1.27729	1031
VAR38	3.1891	1.26955	1031
VAR39	3.1145	1.29543	1031
VAR40	3.4219	1.35369	1031
VAR41	3.4355	1.30252	1031
VAR42	3.3812	1.22641	1031
VAR43	3.1775	1.18343	1031
VAR44	3.3181	1.23290	1031
VAR45	3.1513	1.27500	1031

Above table shows the total mean and standard deviation of each item independently which were prepared finally, the items are serially shown in the table under theheading Items serial number as 1-45 as indicated in the case of first item that the mean value is 3.84 whereas its standard deviation is 1.31 which shows the man and standard deviation for item no 1 is 3.84 and 1.31 respectively. And in the case of other items is also the same interpretation.

Inter Item Correlation

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	1.000	-.008	.143	.074	.064	-.052	.039	.019	-.017	.111	.041	.090	.140	.044	.122	-.002	.023
2	-.008	1.000	-.065	.047	.026	.063	.043	-.005	.017	.141	.063	.007	.159	.021	.106	.024	.101
3	.143	-.065	1.000	.076	-.064	-.106	-.044	-.052	-.167	-.062	-.133	-.016	-.082	-.030	-.022	-.061	-.085
4	.074	.047	.076	1.000	.017	-.010	-.040	-.178	-.083	-.062	.018	.094	.086	.070	-.082	-.031	-.061
5	.064	.026	-.064	.017	1.000	.111	.164	.111	.110	.211	.193	.097	.065	.008	.247	.180	.112
6	-.052	.063	-.106	-.010	.111	1.000	.045	.122	.223	.153	.096	.032	.052	.077	.075	.117	.148
7	.039	.043	-.044	-.040	.164	.045	1.000	.109	.094	.119	.073	-.017	.063	-.051	.120	.191	.062
8	.019	-.005	-.052	-.178	.111	.122	.109	1.000	.174	.170	.027	-.031	.111	.035	.063	.168	.042
9	-.017	.017	-.167	-.083	.110	.223	.094	.174	1.000	.209	.131	.037	.030	.067	.096	.103	.154
10	.111	.141	-.062	-.062	.211	.153	.119	.170	.209	1.000	.301	.050	.085	.001	.156	.170	.168
11	.041	.063	-.133	.018	.193	.096	.073	.027	.131	.301	1.000	.134	.145	.048	.113	.150	.163
12	.090	.007	-.016	.094	.097	.032	-.017	-.031	.037	.050	.134	1.000	.138	.128	.024	-.036	.055
13	.140	.159	-.082	.086	.065	.052	.063	.111	.030	.085	.145	.138	1.000	.100	.143	.077	.111
14	.044	.021	-.03	.070	.008	.077	-.05	.035	.067	.001	.048	.128	.100	1.000	-.02	-.01	.132

			0				1								0	4	
15	.122	.106	-.022	-.082	.247	.075	.120	.063	.096	.156	.113	.024	.143	-.020	1.000	.102	.133
16	-.002	.024	-.061	-.031	.180	.117	.191	.168	.103	.170	.150	-.036	.077	-.014	.102	1.000	.115
17	.023	.101	-.085	-.061	.112	.148	.062	.042	.154	.168	.163	.055	.111	.132	.133	.115	1.000
18	.099	.036	-.003	.091	-.087	.092	.089	.077	.033	-.012	.041	.008	.108	.091	.007	.007	.032
19	.034	.034	.038	.083	.079	.147	.207	.067	.109	.103	.046	-.011	.070	.069	.102	.174	.099
20	.256	.075	.017	.232	.009	-.039	-.035	-.015	-.033	.010	.070	.107	.189	.048	-.010	-.021	.086
21	.098	.037	-.070	.019	.171	.174	.093	.161	.087	.133	.118	.167	.117	.023	.110	.086	.151
22	.112	.046	.076	.136	-.021	.055	.081	-.007	-.006	-.046	.075	.086	.175	.188	.002	.018	-.025
23	.129	.033	.049	.122	-.027	.110	.032	.063	.082	-.036	.033	.055	.060	.121	.057	-.001	.036
24	.117	.031	-.002	.071	.053	.168	.073	.073	.084	.021	.087	.054	.048	.070	.064	.035	.124
25	.133	.013	.152	.150	-.019	.001	.058	.049	-.022	-.064	-.063	.064	.078	.114	-.016	.048	.002
26	.009	.056	-.064	.001	.099	.098	.168	.026	.176	.179	.150	.028	.005	-.078	.131	.148	.108
27	.143	.005	.058	.044	.017	-.062	.109	.167	-.004	-.013	-.027	.024	.134	.108	.048	.106	-.069
28	.211	.137	.072	.207	.088	.013	.043	.007	.006	.045	.146	.110	.200	.136	.035	-.014	.076
2	.08	.09	-	.03	.04	.11	.14	.11	.09	.11	.06	.03	.08	.00	.10	.08	.14

9	6	8	.019	1	2	3	6	3	0	4	1	4	7	2	0	2	7
30	.121	.109	-.037	-.035	.143	.084	.153	.040	.135	.174	.154	.080	.094	.030	.210	.105	.166
31	-.015	.041	-.027	.027	-.022	.105	.009	.100	.082	-.032	.027	-.074	.094	.014	-.039	.003	.017
32	.072	.032	-.041	.029	.111	.002	.101	-.066	.020	.115	.087	.055	.173	-.029	.197	.023	.101
33	.040	.096	-.101	.054	.111	.068	.034	.029	.144	.163	.127	.042	.033	-.042	-.025	.046	.080
34	.138	.038	.095	.129	-.043	.009	-.032	.019	-.054	-.074	-.033	.027	.118	.082	-.051	-.014	.068
35	.007	.076	-.028	-.080	.059	.087	.069	.112	.170	.102	.018	.030	.122	-.005	.130	.134	.076
36	.108	.015	-.009	-.176	.053	.010	.180	.077	.089	.136	.011	.066	-.038	.025	.088	.094	.056
37	-.018	-.046	-.025	.068	.132	-.016	-.003	-.083	.001	.074	.073	.070	-.044	-.001	.028	-.024	.085
38	-.028	-.024	-.033	-.055	-.016	.073	.060	.009	.073	-.001	.091	-.018	.032	.048	-.048	-.011	.057
39	.019	.059	-.048	-.026	.037	.131	.099	.131	.106	.045	.101	-.009	.116	.062	.034	.063	.104
40	.114	.023	.032	.174	-.054	-.007	.030	.039	-.059	-.119	.025	.065	.125	.148	-.099	.004	-.033
41	.095	.001	-.009	.166	-.119	.060	.003	.035	.001	-.064	.014	.085	.096	.165	-.058	.009	.001
42	-.034	.085	-.004	.034	.122	.069	.169	.020	.069	.149	.103	.028	.078	.052	.124	.071	.126
43	-.005	.138	.029	.048	.050	.056	.147	.121	-.028	.023	.020	-.058	.085	.017	.112	.121	.032

44	.016	.103	-.085	.074	.062	.072	.056	.072	.109	.084	.170	.062	.128	.009	.020	.043	.121
45	.061	.107	.031	.090	.004	.074	-.037	-.062	.036	.004	.048	.012	.127	.037	-.032	-.091	.112
46	.022	.120	-.065	.015	.077	.183	.055	.098	.145	.135	.110	.058	.099	.091	.115	.106	.224
47	.039	-.017	.016	.050	-.020	.114	.048	.063	.084	.006	.105	.019	.123	.090	.079	.048	.094
48	.089	.082	-.004	.101	.137	.090	.063	-.020	.107	.141	.103	.140	.168	.023	.077	.007	.182
49	.089	.083	-.047	.021	.200	.039	.122	.032	.071	.201	.127	.110	.123	-.002	.329	.135	.127
50	-.012	.021	-.066	.006	.030	.146	.085	.145	.132	.078	.040	-.013	.101	.073	-.043	.124	.239
	18	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
1	.099	.034	.256	.098	.112	.129	.117	.133	.009	.143	.211	.086	.121	-.015	.072	.040	.138
2	.036	.034	.075	.037	.046	.033	.031	.013	.056	.005	.137	.098	.109	.041	.032	.096	.038
3	-.003	.038	.017	-.070	.076	.049	-.002	.152	-.064	.058	.072	-.019	-.037	-.027	-.041	-.101	.095
4	.091	.083	.232	.019	.136	.122	.071	.150	.001	.044	.207	.031	-.035	.027	.029	.054	.129
5	-.087	.079	.009	.171	-.021	-.027	.053	-.019	.099	.017	.088	.042	.143	-.022	.111	.111	-.043
6	.092	.147	-.039	.174	.055	.110	.168	.001	.098	-.062	.013	.113	.084	.105	.002	.068	.009
7	.089	.207	-.035	.093	.081	.032	.073	.058	.168	.109	.043	.146	.153	.009	.101	.034	-.032
8	.077	.067	-.01	.161	-.00	.063	.073	.049	.026	.167	.007	.113	.040	.100	-.06	.029	.019

			5		7									6		
9	.033	.109	-.033	.087	-.006	.082	.084	-.022	.176	-.004	.006	.090	.135	.082	.020	.144	-.054
10	-.012	.103	.010	.133	-.046	-.036	.021	-.064	.179	-.013	.045	.114	.174	-.032	.115	.163	-.074
11	.041	.046	.070	.118	.075	.033	.087	-.063	.150	-.027	.146	.061	.154	.027	.087	.127	-.033
12	.008	-.011	.107	.167	.086	.055	.054	.064	.028	.024	.110	.034	.080	-.074	.055	.042	.027
13	.108	.070	.189	.117	.175	.060	.048	.078	.005	.134	.200	.087	.094	.094	.173	.033	.118
14	.091	.069	.048	.023	.188	.121	.070	.114	-.078	.108	.136	.002	.030	.014	-.029	-.042	.082
15	.007	.102	-.010	.110	.002	.057	.064	-.016	.131	.048	.035	.100	.210	-.039	.197	-.025	-.051
16	.007	.174	-.021	.086	.018	-.001	.035	.048	.148	.106	-.014	.082	.105	.003	.023	.046	-.014
17	.032	.099	.086	.151	-.025	.036	.124	.002	.108	-.069	.076	.147	.166	.017	.101	.080	.068
18	1.000	.072	.158	.120	.185	.181	.125	.096	.049	.165	.156	.099	.034	.064	-.121	-.010	.213
19	.072	1.000	.076	.024	.086	.117	.048	.118	.144	.153	.071	.121	.090	.107	.055	.012	.022
20	.158	.076	1.000	-.025	.259	.218	.118	.229	-.020	.194	.326	.027	.092	.076	-.009	.018	.190
21	.120	.024	-.025	1.000	.073	.132	.140	-.046	.053	.067	.078	.098	.130	.027	.074	.048	.008
22	.185	.086	.259	.073	1.000	.306	.184	.239	.034	.266	.251	.004	.025	.043	-.066	-.069	.179
23	.181	.117	.218	.132	.306	1.000	.167	.202	-.030	.213	.224	.045	.077	.073	-.034	-.020	.192

24	.125	.048	.118	.140	.184	.167	1.000	.192	.107	.100	.180	.108	.070	.085	.072	.033	.137
25	.096	.118	.229	-.046	.239	.202	.192	1.000	.101	.317	.191	.169	.114	.084	-.022	-.044	.182
26	.049	.144	-.020	.053	.034	-.030	.107	.101	1.000	.021	.013	.181	.158	.094	.128	.239	-.026
27	.165	.153	.194	.067	.266	.213	.100	.317	.021	1.000	.246	.143	.123	.027	.013	-.055	.108
28	.156	.071	.326	.078	.251	.224	.180	.191	.013	.246	1.000	.109	.086	.046	.019	.023	.265
29	.099	.121	.027	.098	.004	.045	.108	.169	.181	.143	.109	1.000	.189	-.015	.040	.065	.073
30	.034	.090	.092	.130	.025	.077	.070	.114	.158	.123	.086	.189	1.000	-.011	.107	.052	.076
31	.064	.107	.076	.027	.043	.073	.085	.084	.094	.027	.046	-.015	-.011	1.000	-.010	.151	.095
32	-.121	.055	-.009	.074	-.066	-.034	.072	-.022	.128	.013	.019	.040	.107	-.010	1.000	.030	-.065
33	-.010	.012	.018	.048	-.069	-.020	.033	-.044	.239	-.055	.023	.065	.052	.151	.030	1.000	-.067
34	.213	.022	.190	.008	.179	.192	.137	.182	-.026	.108	.265	.073	.076	.095	-.065	-.067	1.000
35	.003	.086	-.088	.090	.039	.008	.004	-.019	.061	.072	-.031	.057	.126	.098	-.024	.020	-.011
36	-.023	.075	-.084	-.002	-.021	-.004	.007	-.012	.103	.147	-.050	.039	.082	.026	.054	.052	-.014
37	-.121	.051	.058	-.053	-.003	-.048	-.060	-.041	.050	-.117	-.009	-.063	.102	-.071	.042	.013	-.083
38	.034	.009	.014	.144	.123	.034	.068	.018	-.009	.037	.016	-.008	.015	.052	-.033	.023	.081
3	.11	.09	.08	.15	.09	.10	.05	.04	.01	.05	.05	.08	.04	.01	-	-	.08

9	4	6	5	8	4	0	8	0	3	2	5	8	6	7	.014	.020	0
40	.226	.060	.316	.018	.283	.165	.132	.207	-.026	.277	.244	.072	-.023	.067	-.115	-.029	.252
41	.223	.032	.205	.009	.218	.156	.116	.151	.056	.176	.184	.081	-.004	.058	-.101	.002	.240
42	-.026	.181	.024	.019	.044	.065	.060	.107	.145	.108	.096	.217	.219	-.036	.087	.088	.011
43	.047	.153	.070	.038	.121	.034	.090	.074	.027	.119	.128	.096	.152	.054	.023	.020	.076
44	.135	.078	.096	.020	.082	.045	.083	.105	.028	.044	.188	.103	.153	.071	.014	.044	.079
45	.077	-.009	.150	-.001	-.022	.020	-.010	.063	-.064	-.075	.130	-.008	.034	.109	.023	.064	.036
46	.114	.082	.085	.150	.135	.137	.147	.009	.087	.020	.092	.100	.110	.093	.025	.072	.082
47	.098	.085	.086	.051	.160	.102	.142	.052	.077	.160	.012	.042	.087	.150	.010	.055	.060
48	.059	.137	.132	.151	.128	.113	.127	.013	.068	.035	.165	.046	.097	.016	.123	.048	.069
49	.038	.143	.091	.097	.054	.033	.071	.116	.134	.112	.059	.142	.264	.027	.121	.096	.001
50	.108	.100	.118	.011	.145	.071	.122	.130	.142	.097	.081	.107	.013	.161	-.016	.084	.065
	35	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	
1	.007	.108	-.018	-.028	.019	.114	.095	-.034	-.005	.016	.061	.022	.039	.089	.089	-.012	
2	.076	.015	-.046	-.024	.059	.023	.001	.085	.138	.103	.107	.120	-.017	.082	.083	.021	
3	-.028	-.009	-.025	-.033	-.048	.032	-.009	-.004	.029	-.085	.031	-.065	.016	-.004	-.047	-.066	
4	-.080	-.176	.068	-.055	-.026	.174	.166	.034	.048	.074	.090	.015	.050	.101	.021	.006	
5	.05	.05	.13	-	.03	-	-	.12	.05	.06	.00	.07	-	.13	.20	.03	

	9	3	2	.016	7	.054	.119	2	0	2	4	7	.020	7	0	0	
6	.087	.010	-.016	.073	.131	-.007	.060	.069	.056	.072	.074	.183	.114	.090	.039	.146	
7	.069	.180	-.003	.060	.099	.030	.003	.169	.147	.056	-.037	.055	.048	.063	.122	.085	
8	.112	.077	-.083	.009	.131	.039	.035	.020	.121	.072	-.062	.098	.063	-.020	.032	.145	
9	.170	.089	.001	.073	.106	-.059	.001	.069	-.028	.109	.036	.145	.084	.107	.071	.132	
10	.102	.136	.074	-.001	.045	-.119	-.064	.149	.023	.084	.004	.135	.006	.141	.201	.078	
11	.018	.011	.073	.091	.101	.025	.014	.103	.020	.170	.048	.110	.105	.103	.127	.040	
12	.030	.066	.070	-.018	-.009	.065	.085	.028	-.058	.062	.012	.058	.019	.140	.110	-.013	
13	.122	-.038	-.044	.032	.116	.125	.096	.078	.085	.128	.127	.099	.123	.168	.123	.101	
14	-.005	.025	-.001	.048	.062	.148	.165	.052	.017	.009	.037	.091	.090	.023	-.002	.073	
15	.130	.088	.028	-.048	.034	-.099	-.058	.124	.112	.020	-.032	.115	.079	.077	.329	-.043	
16	.134	.094	-.024	-.011	.063	.004	.009	.071	.121	.043	-.091	.106	.048	.007	.135	.124	
17	.076	.056	.085	.057	.104	-.033	.001	.126	.032	.121	.112	.224	.094	.182	.127	.239	
18	.003	-.023	-.121	.034	.114	.226	.223	-.026	.047	.135	.077	.114	.098	.059	.038	.108	
19	.086	.075	.051	.009	.096	.060	.032	.181	.153	.078	-.009	.082	.085	.137	.143	.100	
2	-	-	.05	.01	.08	.31	.20	.02	.07	.09	.15	.08	.08	.13	.09	.11	

0	.088	.084	8	4	5	6	5	4	0	6	0	5	6	2	1	8	
21	.090	-.002	-.053	.144	.158	.018	.009	.019	.038	.020	-.001	.150	.051	.151	.097	.011	
22	.039	-.021	-.003	.123	.094	.283	.218	.044	.121	.082	-.022	.135	.160	.128	.054	.145	
23	.008	-.004	-.048	.034	.100	.165	.156	.065	.034	.045	.020	.137	.102	.113	.033	.071	
24	.004	.007	-.060	.068	.058	.132	.116	.060	.090	.083	-.010	.147	.142	.127	.071	.122	
25	-.019	-.012	-.041	.018	.040	.207	.151	.107	.074	.105	.063	.009	.052	.013	.116	.130	
26	.061	.103	.050	-.009	.013	-.026	.056	.145	.027	.028	-.064	.087	.077	.068	.134	.142	
27	.072	.147	-.117	.037	.052	.277	.176	.108	.119	.044	-.075	.020	.160	.035	.112	.097	
28	-.031	-.050	-.009	.016	.055	.244	.184	.096	.128	.188	.130	.092	.012	.165	.059	.081	
29	.057	.039	-.063	-.008	.088	.072	.081	.217	.096	.103	-.008	.100	.042	.046	.142	.107	
30	.126	.082	.102	.015	.046	-.023	-.004	.219	.152	.153	.034	.110	.087	.097	.264	.013	
31	.098	.026	-.071	.052	.017	.067	.058	-.036	.054	.071	.109	.093	.150	.016	.027	.161	
32	-.024	.054	.042	-.033	-.014	-.115	-.101	.087	.023	.014	.023	.025	.010	.123	.121	-.016	
33	.020	.052	.013	.023	-.020	-.029	.002	.088	.020	.044	.064	.072	.055	.048	.096	.084	
34	-.011	-.014	-.083	.081	.080	.252	.240	.011	.076	.079	.036	.082	.060	.069	.001	.065	

35	1.000	.022	-.075	.091	.066	-.032	.031	.048	.073	.036	-.003	.113	.104	.043	.002	.102	
36	.022	1.000	.038	.035	-.029	-.038	-.035	.030	.004	-.048	-.146	.043	.015	.039	.176	-.048	
37	-.075	.038	1.000	-.043	-.047	-.053	-.027	.019	.040	.002	.008	.006	.076	.031	.060	-.047	
38	.091	.035	-.043	1.000	.205	.084	.120	.070	-.006	.009	-.007	.121	.129	.068	.000	.077	
39	.066	-.029	-.047	.205	1.000	.106	.063	.092	.070	.129	.034	.220	.114	.070	.038	.049	
40	-.032	-.038	-.053	.084	.106	1.000	.289	.036	.010	.114	.021	.084	.138	.033	-.009	.182	
41	.031	-.035	-.027	.120	.063	.289	1.000	.001	.055	.084	.035	.101	.159	.040	.003	.156	
42	.048	.030	.019	.070	.092	.036	.001	1.000	.177	.117	.041	.170	.069	.059	.188	.075	
43	.073	.004	.040	-.006	.070	.010	.055	.177	1.000	.148	.041	.111	.095	.062	.100	.018	
44	.036	-.048	.002	.009	.129	.114	.084	.117	.148	1.000	.162	.117	.158	.164	.110	.129	
45	-.003	-.146	.008	-.007	.034	.021	.035	.041	.041	.162	1.000	.155	.073	.150	-.039	.042	
46	.113	.043	.006	.121	.220	.084	.101	.170	.111	.117	.155	1.000	.164	.221	.082	.084	
47	.104	.015	.076	.129	.114	.138	.159	.069	.095	.158	.073	.164	1.000	.159	.167	.221	
48	.043	.039	.031	.068	.070	.033	.040	.059	.062	.164	.150	.221	.159	1.000	.189	.139	
49	.002	.176	.060	.000	.038	-.009	.003	.188	.100	.110	-.039	.082	.167	.189	1.000	.155	
50	.102	-.048	-.047	.077	.049	.182	.156	.075	.018	.129	.042	.084	.221	.139	.155	1.000	

The above Table shows that there is relationship between all the items constructed in the study. The p-value associated with all the items is .000 which is less than 0.05 level of significance, hence on the basis of results it can be concluded that all the items are independent to each other.