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Review of Related Literature
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The review of associated studies and reports of experts provide substantial background not merely in selecting unexplored area of research but also its verdict helps the researcher in updating his domain of knowledge and highlights the direction to carry out the proposed investigation without unwanted deviation. Since, research is based upon everything that is known about a problem the review of associated studies given of proof of researcher understands of the field and encourages in knowing what is known and what is unknown. The productive or effective research must compare the past knowledge with that of new one and thus the abstract of related literature helps to eliminate the chances of recurrence of what has already been undertaken and provides useful hypotheses and valuable suggestions for the investigation in hand. Keeping this fact in mind the researcher has exhaustively gone through numerous Journals published, dissertation, abstracts etc., in order to create a strong base for systematically perusing the present investigation. For present study there has not been enough reviews available especially with respect to sport so allied area is also taken in to consideration for this purpose.

Sensation Seeking

Hartman and Rawson (1992) investigated the differences in sensation seeking between male and female varsity and nonvarsity athletes, using the sensation seeking
scale developed by Zuckerman. This revised form separates reports of experiences from desired or intended future experiences on both Disinhibition and Thrill and Adventure Seeking factors. His study used volunteers (N=159) from a small, Midwestern liberal arts college. Males scored higher than females, regardless of athletic participation, and athletes scored higher than non-athletes, regardless of gender did. There were no interactive effects between gender and athletic participation. In another aspect of his study, the relationships between a number of variables and the sub-scores and total scores were investigated. Age was related to sensation seeking on only one of the subtests.

Schroth (1995) studied to compare the sensation seeking needs of different groups of athletes and nonathletes of both sexes. He took athletes from four male sport teams (lacrosse, rugby, crew, and soccer) and five female sport teams (soccer, Volleyball, softball, tennis and golf) from a local university participated in the study. Male and female nonathletes also served as subjects. All subjects were administered the Sensation Seeking Scale V (SSS). A major finding in contrast to his study was that male athletes scored higher on sensation seeking than male nonathletes. In another departure from previous findings, contact sport athletes (rugby and lacrosse) scored higher on SSS than noncontact male sport athletes (crew and soccer). In other results, female athletes had significantly higher SSS scores than female nonathletes and both groups of males (athletes and non-athletes) exhibited stronger SSS needs than their female counterparts. The discrepancies in findings, reported above were
explained by the different methods of measuring SSS and different groups of athletes involved in the studies.

O'Sullivan et al. (1998) in their study involved male members of two college teams, baseball and football, and female members of two teams, field hockey and lacrosse (combined) and equestrians, were compared on the five scales of the Zuckerman-Kuhlman Personality Questionnaire. All teams were significantly higher on the Activity and lower on the Neuroticism-Anxiety scales than the general college population of the University of Delaware. Lacrosse and field hockey athletes were higher on activity than equestrians and baseball players were higher than football players on this scale. Contrary to predictions, football players scored lower than the general university male population on Impulsive Sensation Seeking and the lacrosse and field hockey players did not differ from the general college females on Impulsive Sensation Seeking. The baseball players also scored lower on this scale. The hypothesis that body contact sports attract high sensation seeking and aggressive participants was not supported. Sensation seeking is more characteristic of participants in high-risk sports offering unusual sensation and personal challenges.

Malkin and Rabinowitz (1998) examined the relationship between high-risk recreational activities (i.e., extreme sports) and levels of sensation seeking. They also proposed that there might be some cultural and economic differences between high and low sensation seekers. Economic means may preclude
individuals of low socioeconomic status from participating in certain culturally appropriate methods of satisfying the sensation seeking drive simply because the cost is too high. They concluded that high sensation seekers demonstrate more participation in high-risk activities such as scuba diving, rock climbing, kayaking and skiing.

Kajtna et al. (2004) investigated personality traits of high-risk sports athletes. His aim was to investigate the personality dimension and compare the results of the non-risk sports athletes and non-athletes. Thirty-eight high-risk sports athletes participated in the research (alpinists, skydivers, paragliders, white-water kayakers, downhill mountain-bikers, motocross riders, downhill skiers and ski jumpers). The non-risk sports athletes consisted of 38 swimmers, track athletes, sailors, flat-water kayakers, rowers, Nordic skiers, sports climbers and karatekas. The non-athletes were equaled with both groups in age, education, and included 76 non-athletes. The Big Five Observer Scale was used. It was found that high-risk sports athletes scored highest in emotional stability, the non-athletes followed them and non-risk sports athletes achieved the lowest scores. The same order of groups was shown in conscientiousness and energy. Openness was highest in the non-risk sports athletes, followed by the non-athletes and the high-risk sports athletes achieved the lowest score.

Diehm and Armatas (2004) studied whether the personality characteristics of sensation seeking and openness to experience and participation motives differ between participants in the high-risk sport of
surfing (n=41) and participants in a low-risk sport (golf; n=44) was investigated. Multivariate analysis indicated that surfers were characterised by higher levels of sensation seeking, as measured by the Sensation Seeking Scale-V and openness to experience, as measured by the NEO-Personality Inventory. Surfers also demonstrated higher levels of intrinsic motivation, measured by the Sports Motivation Scale than golfers did, while both groups demonstrated similar levels of Extrinsic Motivation. These results suggest that personality factors, together with types of participation motives, may be useful in discriminating between participants in low- and high-risk sports, which in turn could be used to promote surfing as a positive risk-taking pursuit.

Llewellyn (2003) investigated the psychology of risk taking, and in particular, the psychological profiles associated with different physical risk taking behaviours. It was hypothesised that there may be three fundamental approaches to risk: Risk avoiders avoid activities they perceive to contain risk, risk reducers participate in high risk activities in spite of the risks involved and risk optimisers who are motivated by the exposure to risk. An appropriate measure of subjective risk assessments was not identified in the existing literature, and the 27-item Physical Risk Assessment Inventory" or PRAI psychometric measure was therefore developed. After initial piloting, the PRAI was administered to 407 subjects. Subsequent analyses revealed that two oblique factors accounted for much of the variance in physical risk assessments, and these were initially identified as sports and health factors. A wide-ranging test battery as then administered to 113 subjects and further
analyses suggested that high-risk sports and health risk behaviours were associated with independent psychological profiles. Health risk behaviours were associated with an antisocial factor that was identified by high social and physical risk propensity, sensation seeking and psychoticism. The participation in high-risk sports loaded on a second Venturesomeness factor that was associated with high confidence, physical risk propensity, sensation seeking, peer behaviours and being male. A third Physical Risk Assessment factor was associated with high sports and health risk assessments, being female and low addiction scores. Multiple regression analyses suggested that 38% of health risk behaviours, and 60% of sports risk behaviours could be predicted by the variables included in this study. Convergent qualitative data provides additional support for the validity of these findings. The notion of a universal physical risk taking personality therefore appears to be limited to the role of sensation seeking and physical risk optimisation.

Buswell and James (2006) examined the students who were attending a mid-size university and majoring in health, physical education, recreation and elementary education concerning their sensation seeking behaviour interests and preferences. Three hundred thirty-two students completed a written survey consisting of a set of 10 demographic questions and 40 forced choice items from the Sensation Seeking Scale V (Zuckerman, 1994). Females accounted for 57.1% of the population, 69.5% were Caucasian and 74.6% were between 21-25 years of age. Analysis was completed using a two-way mixed model ANOVA, which indicated that males scored significantly higher than females
on the total scale score and on the disinhibition and boredom susceptibility subscales but not on, the thrill and adventure seeking or experience seeking subscales. All majors scored highest on the thrill and adventure seeking subscale and lowest on the boredom susceptibility subscale. These scores indicate that students make choices that may involve physical danger and high levels of risk and they do so not because they have nothing better to do but because they want to expand on their experiences. Analysis of specific questions on the instrument related to unhealthy behaviours raises a number of concerns for universities and demonstrates a need to provide alternative experiences for students to meet the needs of sensation seeking in more healthy ways.

Horvath and Zuckerman, (1993) intended to examined the sensation seeking as it is related to impulsivity, appraisal of risk and risky behaviours for college students. Impulsivity did not appear to predict taking physical risks related to dangerous sports. However, the results did indicate a predictor between student’s perception of peer risky behaviours and their own risky behaviours. Appraisal of perceived risk for such health related activities as smoking and STDs did not seem to be predictive of risk behaviors. The results indicated that the level of sensation seeking, as opposed to the level of risk that dictated the behaviour (i.e., high sensation seekers are more likely to engage in high-risk health activities even though they appear to appraise the risk as high). In addition, with increased experience and participation in the activity or behaviour, high sensation seekers tend to show a progressive decline in the
perceived risk and are more inclined to continue to participate in the high-risk activity or behaviour than low sensation seekers.

Rainey and Amunategui (1992) completed an interesting study in which they compared Sensation seeking and competitive trait anxiety among college rodeo riders, hang-glider pilots, baseball players and wrestlers. Analysis indicated that rodeo riders scored significantly higher than baseball players did, while hang gliders scored higher than the three other groups. These results concerning hang-glider pilots confirm earlier studies of high-risk activities and conform to Zuckerman's model of sensation seeking.

Rosenblitt et al. (2001) examined the relationship between sensation-seeking behaviours and two hormones, testosterone and cortisol, in male and female college students. The sample was predominantly white non-Hispanic sample consisted of 68 males and 75 females. All participants were students at a large university in a medium-sized city in northern Florida and were recruited from various classes on campus. Hormone levels were hypothesized to contribute to the variability of individual scores on Zuckerman's sensation-seeking scale. As expected, males scored higher on the scale than females, but the data failed to support the generally accepted positive relationship between testosterone and sensation seeking for either sex. Instead, their results support the existence of a significant inverse relationship between cortisol and sensation seeking in men, but not in women, even after adjustment for testosterone levels and age. The study contributes to the current literature by
(a) supporting the association between risky behaviour and a hormone other than testosterone, (b) being the first to examine the association between cortisol and sensation seeking in women, and (c) identifying a possible effect of gender on the association between hormones and sensation-seeking behaviours. Gendered social norms and expectations are likely to be partly responsible for this effect. Theory-guided interdisciplinary research is needed to improve understanding of the biological influences on human behaviour and special attention must be paid to social context, women’s perceptions of their expected behaviour and gendered socialization regarding norm-breaking or risky behaviours which may obscure biological links to female behaviour.

Hansen and Breivik (2001) examined the relationship between sensation seeking and risk-taking behaviour among adolescents. Risk behaviour was defined as positive risk behaviour (activities like climbing, kayaking, rafting etc.) and negative risk behaviour (crime and socially unacceptable activities like shoplifting, drug use etc.) Perceived challenges and influences from school, parents, friends and social background were examined as contributing factors. Three hundred and sixty adolescents between 12 and 16 years of age from a school in Trondheim, Norway, answered the tests. The test consisted of his Opinion II, a Swedish version of the sensation seeking scale, which measures sensation seeking among adolescents around the age of 14. Three other questionnaires developed especially for this study were also used; one measuring risk behaviour, one measuring challenges from school, parents and friends and one measuring social background. The results indicate a strong
relationship between sensation seeking and both types of risk behaviour. Negative risk behaviour correlates negatively with challenges from both school and parents, and a similar relationship exists between negative risk behaviour and social background. It seems that few challenges and a poor social background could result in more negative risk behaviour.

Hromatko and Butkovic (2009) examined the Sensation Seeking and Spatial Ability in Athletes. The aim of this study was threefold: (a) to examine sex differences in sensation seeking and spatial abilities in a sample of athlete students, (b) to explore whether measures of sensation seeking and spatial ability can be used to distinguish between athletes engaging in sports of different levels of risk, and (c) to explore the relationship between sensation seeking and spatial abilities in a sample of athlete students. Two hundred one students athletes engaged in sports of different levels of risk completed the spatial relations test, mental rotation test and Zuckerman's Sensation Seeking Scale-V. Men scored higher than women did in both measures of spatial abilities and on DIS, while women scored higher than men on ES. High-risk group had higher SSS and TAS scores than low- and medium- risk groups, and low-risk group had lower DIS scores than medium- and high-risk group, but there were no differences in spatial ability among athletes engaged in sports of different levels of risk. Spatial ability correlated with sensation seeking measures in men only.
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Torki (1993) studied the two hundred and fifty four undergraduate students (102 males and 152 females). They were administered the Sensation Seeking Scale (SSS), Arabic version. Significant sex differences were found on the Experience-Thrill and Adventure Seeking, Experience-Disinhibition and Intension-Disinhibition Scales, but there were no sex differences on the Intention-Thrill and Adventure Seeking Scale. The inter correlations of the four scales in males, females and the total group was computed. The differences between findings of this study and that of other countries could be interpreted as evidence of cultural differences in sensation seeking. The results obtained with this Arabic version of the SSS (Form VI) showed an acceptable adaption of this scale.

Maqbool and Jahan (1995) studied the 120 smack addicts and 120 alcoholics to determine the differences between the mean scores of low sensation seeker smack addicts and high sensation seeker smack addicts and low sensation seeker alcoholics and high sensation seeker alcoholics on Sensation seeking and Anxiety states test and death Sensitivity Scale. Data were analyzed by Means of t-test. The main findings of the study were significant differences found between low and high sensation seeker smack addicts and low and high sensation seeker alcoholics on state anxiety, low and high sensation seeker smack addicts scored significantly higher than the low and high sensation seeker alcoholics were on death sensitivity.

Roberti (1994) examined the various characteristics of 29 (20 females and 9 males) undergraduate participants interested in forensic identification.
Participants completed a basic demographics questionnaire, History of Psychosocial Stressors Scale, Sensation Seeking Scale (SSS-V) and Zuckerman-Kuhlman Personality Questionnaire. Salivary cortisol samples and perceived distress were assessed before and during exposure to an acute psychological challenge. Participants self-reported having had moderate experience with psychosocial stressors. Compared to published normative data on the Sensation Seeking Scale and Zuckerman-Kuhlman Personality Questionnaire, males had lower scores on disinhibition, boredom susceptibility, impulsive sensation seeking, aggression-hostility and sociability. Females had lower scores on the scales of disinhibition, impulsive sensation seeking, sociability and higher on activity. No significant differences were found between males and females participants on the Sensation Seeking Scale or the Zuckerman-Kuhlman Personality Questionnaire, with the exception of the neurotic-anxiety subscale. Assessing salivary cortisol responses, main effects for time and gender but no main effect for sensation seeking or interactional effects were found. Participants had high anticipatory salivary cortisol and lowered salivary cortisol during exposure to the acute psychological challenge. Furthermore, no relation existed between self-reported levels of perceived distress and salivary cortisol responses. Associations with pre-exposure salivary cortisol and experience seeking and exposure salivary cortisol with experience seeking and impulsive sensation seeking were found for males.

Schrader and Wann (1999) examined numerous variables to determine if high-risk recreation involvement could be predicted in 169 college social
science students. Perceived physical self-efficacy, internal versus external locus of control, level of sensation seeking, socioeconomic status, gender, death anxiety and social complexity were among the variables investigated. Although death anxiety and gender were hypothesized to be the best predictors of high-risk recreation involvement, neither of these variables either alone or in combination was strongly supported. The most highly predictive combination of factors reported in this study was gender, level of sensation seeking and social complexity, defined as joining and maintaining membership in various groups.

Coetzee et al. (2006) examined to determine the relations between sensation seeking, gender and preferences in viewing televised sport. The reason being that the sensation seeking theories can offer media researchers a valuable approach to understanding why and how people use television to create their own excitement and entertainment. The survey methodology was used in this study. The questionnaire included the Sensation Seeking Scale (SSS), which is a standardised psychological test, as well as a questionnaire that categorises a variety of sport in three major groups. Group A consists of violent combative sport, group B of aggressive combative sport and group C consists of non-aggressive stylistic sport. Ninety two (N=92) respondents were randomly selected to complete the Sensation Seeking Scale and to indicate their preferred sport programmes in terms of the three groups that range from extreme combative aggressive to more stylistic and artistic sport programmes. Results in this study indicated a direct relation between high sensation seeking
and viewing violent combative sport (Group A). Low sensation seeking viewers also tend to view more stylistic sport on television (Group C). The hypothesis on gender differences was also supported. The male population is more attracted to violent combative sport, while the female population prefers to view more stylistic and artistic sport on television.

**Anxiety**

Sanderson and Reilly (1983) examined the cross-country runners on sport competition stress and its effects on performance. The purpose of this study was to explore the relationships between state/trait anxiety and competitive cross-country performance for males and females. A-trait and A-state pre and post-competition were monitored in 38 females and 26 males at major meetings. The females A-trait was correlated with pre-race A-state (p<0.05) which was itself correlated significantly with race performance (p<0.05). A significant post-race A-state reduction occurred only with the better runners. The correlation between A-trait and pre-race A-state was also found in the male athletes (p<0.05) while A-trait significantly correlated with race performance (p<0.05). A-state was significantly reduced post-race, the greatest decrease being observed in the top performers. It is concluded that trait as well as transient dispositions are relevant when psychological determinants of performance are considered.

Krohne and Hindel (1988) examined the top 36 table-tennis players. The study analyzed the relations between general and sport-specific trait anxiety,
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coping dispositions, use of naive self-regulatory techniques, emotional and cognitive anxiety reactions in situations of varying stress and success in athletic competition. The study is based on the cognitive theory of evaluative anxiety, Spielberger’s trait-state anxiety model, Lazarus’ theory of coping and the concept of person-specific coping modes. The interaction between trait anxiety and degree of stress, postulated by the trait-state model, could be verified empirically for both emotional and cognitive anxiety. This result however, only holds true for a test of general, not for a test of sport-specific anxiety. In addition, several significant associations between the preferred use of vigilant coping strategies and the amount of cognitive (interfering) anxiety reactions were observed. Successful table-tennis players were characterized by few interfering anxiety reactions (worry cognitions), little vigilant coping and an extended use of cognitively avoidant self-regulatory techniques.

Kleine et al. (1988) investigated the effects of state and trait anxiety on physical performance under both neutral and stressful conditions. They conducted two studies. In First study, 43 male and female track athletes answered the State-Trait Anxiety Inventory and twice underwent ergometric testing in the physiology laboratory after receiving a neutral or a stress-inducing instruction. In Second study, these 43 runners completed the state scale shortly before a test run in a practice session and once again just before the start in an official competition. Results showed a significant increase in self-reported state anxiety under the stress condition in both the laboratory and the field setting. At the same time, the mean physical performance, measured
as physiological performance parameters (maximum oxygen intake, physical work capacity) or as running performance, significantly deteriorated under stress. The induced stress affected the heart rate in addition to the mere physical workload, with no sign of compensation occurring during the entire period of ergometric testing. Effects of anxiety on performance were tested by separate 2 (trait) x 3(state) ANOVAs for each situation. For both laboratory situations and for the practice situation as well, no significant relationships, neither linear nor nonlinear, were detected. In the competition situation, however, an inverted-U relationship was found in the low trait-anxious subgroup.

Swain and Grahm (1993) investigate the intensity and frequency of symptoms of competitive state anxiety. Forty-nine track and field athletes (27 males, 22 females) responded to a modified version of the Competitive State Anxiety Inventory-2 (CSAI-2) on four occasions during the period leading up to an important competition: 2 days, 1 day, 2 hr and within 30 min of competing. The questionnaire included the existing CSAI-2 (intensity) scale as well as a frequency scale for each of the 27 items of the CSAI-2. The intensity and frequency dimensions of each of the CSAI-2 sub-scales were then compared between the four conditions by means of two-way analyses of variance (gender x time-to-competition). In the case of cognitive anxiety, time-to-event effects were observed for intensity and frequency for both males and females. The intensity of the response was significantly greater at the final stage of testing than it was 2 days before competition, while the frequency of
the response increased progressively throughout the experimental period. This
dissociative patterning for the cognitive anxiety dimensions is discussed in the
light of multidimensional anxiety theory predictions. For somatic anxiety, the
time-to-event effects that emerged for intensity and frequency revealed that
both values increased progressively as the time to compete neared, for both
male and females. The results for self-confidence revealed no effects for
intensity or frequency for either gender. The findings from structured follow-up
interviews served to corroborate these quantitative findings by providing
information that supported the conclusions drawn from the questionnaire data.
In particular, the athletes reported that they experienced considerable increases
in the frequency of intrusive anxiety cognitions. While these findings clearly
need to be substantiated, they do provide evidence of the existence of an
additional dimension of anxiety that may assist our understanding of this
complex concept.

Krane and Williams (1994) conducted a study to examine the cognitive
anxiety, somatic anxiety and self-confidence in male and female high school
and college track and field athletes. Athletes (216) completed the Competitive
State Anxiety Inventory-2 (CSAI-2) within 20 minutes of each event in which
they competed at a prestigious individual track and field relay meet. Consistent
with expectation, a 2x2x2 (gender by competitive level by place) ANOVA
revealed male athletes reported lower somatic anxiety and higher self-
confidence than female athletes and college athletes displayed lower cognitive
and somatic anxiety than high school athletes. A significant three-way
interaction was found on the cognitive anxiety subscale. College male non-players displayed the lowest levels of cognitive anxiety while high school male non-placers displayed the highest levels. When examining the hypothesis that sports of differing complexity and duration would have different anxiety and confidence levels, only cognitive anxiety was found to differ in athletes in events of differing complexity with the high complexity athletes displaying greater cognitive anxiety than the low complexity athletes do. No significant anxiety or confidence difference were found among athletes in events of differing s duration.

Tholkes (1994) examined the relationship between state anxiety and performance in an outdoor adventure activity, a high ropes course. Two theories that were examined to determine the type of relationship present were the inverted U theory and the multidimensional anxiety theory. The results were based on research conducted at the Mankato State University High Ropes Course. During this study, 217 individuals were administered the Spielberger State Anxiety Inventory (SAI) and observed as they participated in the high ropes course. Pearson product moment coefficient of correlation and stepwise multiple regression were used to examine the relationship between the variables of performance, state anxiety, age, gender, ethnicity, previous experience and self-efficacy. Two variables, performance and gender, demonstrated a significant relationship with state anxiety. The results demonstrated a linear relationship between state anxiety and performance, as proposed by the multidimensional anxiety theory. Two other theories, which
were examined were Easterbrook's cue utilization theory, to examine the significance of cue recognition and Bandera's theory of observational learning, to examine the concept of modeling.

Martens et al. (1995) expanded on the inverted U from Yerkes and Dodson to include a multidimensional approach in which they looked at the relationships between cognitive anxiety and performance in addition to somatic anxiety and performance (inverted-U). They found that a strong negative linear relationship exists between cognitive anxiety and performance. That is to say that as cognitive anxiety increases, performance decreases in a linear fashion. They also found that the relationship between somatic anxiety and performance was a less power, curvilinear relationship where both lower and higher levels of somatic anxiety were detrimental to performance.

Ntoumanis and Jones (1998) investigated the differences in the cognitive labeling of competitive anxiety symptoms generally experienced prior to an important competition as a function of locus of control beliefs. Eighty-three university and county sport performers, including 45 males and 38 females, responded to the modified Competitive Trait Anxiety Inventory-2 (Jones and Swain, 1995) which measured the intensity of pre-competition anxiety symptoms generally experienced, as well as how they are generally interpreted on a debilitative-facilitative continuum. The performers also responded to the Internal-External Locus of Control Scale (Rotter, 1966). The results showed that although there were no significant differences between those having an
internal and those having an external locus of control on the intensity of their
cognitive and somatic anxiety symptoms, the internals viewed their trait
anxiety as significantly more facilitative and less debilitative than the externals.
Discriminant function analysis corroborated these findings by showing that the
best predictors for distinguishing between the two groups were the direction
scores for cognitive and somatic trait anxiety. The results of the present study
provide support for the need to assess the direction as well as the intensity of
competitive trait anxiety.

Parfitt and Pates (1999) conducted a study to consider the influence of
competitive anxiety and self-confidence state responses upon components of
performance. Basketball players (n = 12) were trained to self-report their
cognitive anxiety, somatic anxiety and self-confidence as a single response on
several occasions immediately before going on court to play. Performance was
video-recorded and aspects of performance that could be characterized as
requiring either largely anaerobic power (height jumped) or working memory
(successful passes and assists) were measured. Intra-individual performance
scores were computed from these measures and the data from seven matches
were subjected to regression analyses and then hierarchical regression analyses.
The results indicated that, as anticipated, somatic anxiety positively predicted
performance that involved anaerobic demands. Self-confidence, and not
cognitive anxiety, was the main predictor of performance scores with working
memory demands. It would appear that different competitive state responses
exert differential exerts upon aspects of actual performance. Identifying these
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differences will be valuable in recommending intervention strategies designed to facilitate performance.

Kais and Raudsepp (2005) examined the relationship between the intensity and direction of competitive state anxiety, self-confidence and performance in basketball and volleyball players prior to different matches. Male basketball (n=12) and volleyball players (n=12) completed a modified version of the Competitive State Anxiety Inventory-2 (CSAI-2) prior to 11 different matches and 132 questionnaires overall. The inventory included an intensity subscale as well as direction sub-scale for somatic and cognitive anxiety. The findings revealed a moderate level of state anxiety and very high self-confidence of the players before the matches. The cognitive and somatic anxiety and self-confidence were stable prior to the different matches. Correlation analysis showed that the intensity and direction of somatic and cognitive anxiety and self-confidence of the players were not related to their athletic performance. However, the intensity of cognitive anxiety was positively and moderately related to their athletic performance.

Han et al. (2006) conducted a study, the research aimed to conduct basic descriptions of temperamental traits and the level of state and trait anxiety of young male athletes and to compare them by type of sports. Their study participants were 277 athletes and 152 non-athletes who were all high school boys. The Korean version of the Temperament and Character Inventory (TCI) was used for checking temperamental traits while the Korean version of the
State and Trait Anxiety Inventory form Y (STAI-KY) was used to estimate anxiety levels. Harm Avoidance score of athletes was higher than that of non-athletes. Harm Avoidance score of golfers was lowest and that of swimmers was highest. The state anxiety score of baseball players was lowest and that of Taekwondo players was highest. The trait anxiety score of baseball players was also lowest and that of golfers was highest. Both trait and state anxieties of the 'winner' group were lower than those of the 'no winner' group were. While prior research mainly focused on athletes environment and phenotypic characteristics, they studied the pattern of temperaments in athletes along with its potential influence on athletic performance.

Patsiaouras et al. (2008) investigated the effect of the person-centered intervention (reflection, congruence, respect, empathy) on anxiety (state - trait) which athletes have. Seventy-four volleyball players (male and females between the ages of 12 to 15) completed the STAI 1 and STAI 2 questionnaires twice (1st - September, and 2nd phase - May). In the experimental group (E.G.) (male team N= 12; female team N= 11) Roger's person-centered method was applied in 15-20 minutes advising sessions once per week before and after practice for 32 weeks. In the control, group (C. G.) (Male team N= 12; female teams N= 39), the coaches utilized their usual pedagogical-coaching techniques before and after practice. Statistically significant differences were observed between the E. G. and C. G. (females) in the 2nd phase-May of the state anxiety (p= .032), and males in the trait anxiety (p= .023). Significant differences among the first September and the second phase - May of the E. G. (males) in
the trait anxiety (p = .023) were observed as well. The results indicate that the
different method positively influences the athletes who participated in
team sports reducing their state and trait anxiety.

**Health Locus of Control**

Buckelew et al. (1990) conducted a study to determine the locus of
control beliefs, long thought important in adjustment to persistent pain were
among 160 subjects (67 males and 93 females) referred to a comprehensive
pain rehabilitation program. The subscale structure of the Multidimensional
Health Locus of Control was factorially replicated in their sample. Three
unique Multidimensional Health Locus of Control profile clusters were
identified for both males and females. Among men, cluster assignment was
related to age only. The younger male patients reported a stronger internal
attributional style. Older male patients relied more heavily on both chance and
powerful other factors. Among women, cluster assignment was related to the
use of coping strategies. For example, patients with high internal scores only,
reflecting a strong internal orientation towards self-management of health care
needs were more likely to utilize Information Seeking, Self-Blame and Threat
Minimization coping strategies than patients with high scores on both the
Internal and Powerful others factors. It appears that the presence of both
Internal and Powerful Others health attributional styles is associated with less
frequent use of cognitive self-management techniques. In understanding the
locus of control scores, it is important to rely on pattern analysis of scores.
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Stuart et al. (1994) examined the predictive value of measures of health locus of control and self-efficacy as predictors of outcomes of a widely disseminated, group-facilitated smoking cessation program. Outcomes studied were cessation for at least 1 day by the end of the program, end of program smoking status (abstinence) and smoking status at 6 months follow-up. Subjects were 257 participants in the smoking cessation program of whom 207 made attempts to quit and 126 who were not smoking at the end of the treatment. Both pretreatment self-efficacy and health locus of control variables emerged as significant predictors of making an attempt and end of treatment abstinence. Only post-treatment self-efficacy predicted maintenance at 6 months. The results indicated the high self-efficacy is inversely related to attempting to quit, but positively related to the success of attempts.

Norman (1995) examined the two important issues in research with the health locus of control construct: first, the need to include measures of health value and second, the need to measure behaviour-specific efficacy beliefs. One-hundred and seven adults completed questionnaires measuring internal health locus of control beliefs, behaviour-specific efficacy beliefs, health value and the performance of a range of health-related behaviours (i.e. smoking, alcohol, exercise, diet and weight). The results firstly showed that only behaviour-specific efficacy beliefs correlated with performance of the health behaviours. Secondly, when the correlations were rerun for high and low health value individuals, significant correlations between behaviour-specific efficacy beliefs and performance of the health behaviours were found for high health value.
individuals, but not for low health value individuals. With only one exception, the correlations for internal health locus of control beliefs were non-significant. The results were discussed in relation to current critiques of the health locus of control construct.

Norman et al. (1997) examined the relationship between health locus of control and exercise behaviour in a representative sample of over 13000 adults in Wales. It was predicted that recent leisure-time exercise behaviour would be positively correlated with internal health locus of control beliefs and negatively correlated with powerful others and chance health locus of control beliefs. Moreover, as Wallston (1992) argues, the relationships between health locus of control beliefs and exercise behaviour should be stronger among individuals placing a high value on their health. The results indicated weak but significant correlations between the health locus of control dimensions and exercise behaviour in line with predictions. However, a hierarchical regression analysis revealed no evidence in support of the moderating role of health value. In addition, the amount of variance explained in exercise behaviour was small. The results were discussed in relation to the need to consider other potential reinforcements and other expectancy beliefs when predicting exercise behaviour.

Kennedy (1999) examined the influence of self-care education on illness behaviours and health locus of control of Mexican American women. Participants were randomly assigned to a control (n= 60) or experimental group
(n= 60). Subjects completed the multidimensional health locus of control questionnaire and an illness behaviour assessment at pretest and 6-months. The experimental group received a self-care manual and participated in two 2-hour seminars on how to effectively use the textbook. The experimental group demonstrated a significant increase in self-care behaviours and significant changes in internal health locus of control and powerful others health locus of control. Chance health locus of control was found to have a low direct correlation with age and a low indirect correlation with education. The conclusion of this investigation is that self-care education can positively influence illness behaviours and health locus of control in Mexican American women.

Gutierrez-Lobos et al. (2000) investigated the effect of somatic disease, subjective assessment of disease and health locus of control, as well as anxiety level in patients of an internal medicine department on the continuation of tranquiliser’s intake after dismissal from the hospital. Ninety-seven patients (mean age 57.1 yrs) from the internal medicine department of general hospital was received benzodiazepine. However, the continuing patients rated the condition of their somatic illness significantly higher than the discontinuing group, although this difference was not confirmed by the objective assessment of the treating physician. The non-continuing group displayed significantly higher control over health and sickness related events. The somatic and physical anxiety factor was significantly higher in the continuing group act initial investigation as well as follow-up.
Pate et al. (2000) examined the relationship between sports participation and health-related behaviours among high school students. Cross-sectional design using data from the 1997 Centers for Disease Control and Prevention Youth Risk Behaviour Survey. The sample was 14221 US high school students. Prevalence of sports participation among males and females from three ethnic groups and its associations with other health behaviours, including diet, tobacco use, alcohol and illegal drug use, sexual activity, violence and weight loss practices. Approximately 70% of male students and 53% of female students reported participating on one or more sports teams in school and/or nonschool settings; rates varied substantially by age, sex and ethnicity. Male sports participants were more likely than male nonparticipants to report fruit and vegetable consumption on the previous day and less likely to report cigarette smoking, cocaine and other illegal drug use and trying to lose weight. Compared with female nonparticipants, female sports participants were more likely to report consumption of vegetables on the previous day and less likely to report having sexual intercourse in the past three months. Among white males and females, several other beneficial health behaviours were associated with sports participation. A few associations with negative health behaviours were observed in African American and Hispanic subgroups. Sports participation is highly prevalent among US high school students and is associated with numerous positive health behaviours and few negative health behaviours.
Steptoe and Wardle (2001) examined that the inconsistent and small associations between health locus of control and health behaviour found in previous studies may be due to the use of small samples and an overreliance on correlations as measures of association. We assessed relationships between internal powerful others and chance health locus of control, health values and ten health-related behaviours (physical exercise, smoking, alcohol consumption, breakfast, tooth-brushing, seat belt use, consumption of fruit, fat fibre and salt) in 4358 female and 2757 male university students from 18 European countries. Multivariate logistic modeling, assessing the odds of engaging in healthy behaviour with graded changes in locus of control identified substantial associations. For five behaviours, the odds of healthy behavior were more than 40% greater among individuals in the highest vs. lowest quartile of internal locus of control after adjustment for sex, age, health value and other locus of control scales. High chance locus scores were associated with more than 20% reductions in the likelihood of healthy options for six behaviours. While powerful others scores showed more variable associations with healthy actions. Inclusion of health value within the analyses did not change the nature of the relationships observed between variables. Associations between health locus of control and health behaviour are of a similar magnitude to other psychosocial factors when appropriate statistical tests are employed.

Ali and Lindstrom (2005) studied the underweight, overweight and obese women aged 18-34 years. They were compared with normal weight
women of the corresponding age according to socioeconomic, psychosocial, health behaviour, self reported global and psychological health and locus of control characteristics. The 2000 public health survey in Scania is a cross-sectional study. A total 13715 persons aged 18–80 years, of which 1967 were females of 18–34 years of age, were included in this study. They answered a postal questionnaire, which represents 59% of the random sample. A logistic regression model adjusted for age was used to investigate the association between socioeconomic, psychosocial, health behaviour, self reported global and psychological health, locus of control and the BMI categories. A 17.5% proportion of the women, aged 18–34 years, were underweight (BMI < 20.0), 18.4% were overweight, and 7.0% obese. The prevalence of underweight according to the BMI < 18.5 definition was 5.8% among women aged 18–34 years. Women who were underweight had significantly higher odds ratios for overtime work, being students, low emotional support and poor self-reported global as well as poor psychological health than normal weight women. Women who were overweight/obese were unemployed, had low education, low social participation, low emotional and instrumental support, were daily smokers, had a sedentary lifestyle, had poor self reported global health, and had lack of internal locus of control compared with normal weight women. Underweight women are more likely to have poorer psychological health than normal weight women. In contrast, overweight and obese women are more likely to have poor health related behaviours and lack of internal locus of control compared with normal weight women. These differing patterns suggest both different etiology
and different preventive strategies to deal with the health risks of people who are underweight as opposed to those who are overweight / obese.

Ishii et al. (2006) investigate the association of the self-Care for sport injury prevention and health locus of control. Three hundred sixteen Japanese college athletes (239 males, 77 females and mean age 19.4) answered the questionnaire of Self-Care for Sport Injury Prevention and Health Locus of Control. Self-Care for Sport Injury Prevention scale was developed in their previous research. The scale was composed from five factors including Interpersonal relationship and concentration, Physical conditioning, Health care, Social support and Nutrition. Health locus of control was composed from five factors including Internal, Professional, Family, Chance and Supernatural. To investigate the association of Self-Care and Health Locus of Control, multiple regression analyses were conducted to examine the association between each factor score of Self-Care for Sport Injury Prevention with five factor scores of Health Locus of Control. Significant associations of Internal with Interpersonal relationship and concentration ($\beta=.355, p<.001$), Health care ($\beta=.264, p<.001$), Social support ($\beta=.199, p<.01$) and Nutrition ($\beta=.192, p<.05$) and of Family with Interpersonal relationship and concentration ($\beta=.181, p<.05$) and Social support ($\beta=.287, p<.001$) were observed. Other factors such as Professional, Chance and Supernatural were not associated with Self-Care. Two factors of Health Locus of Control: Internal and Family were associated with Self-Care for Sport Injury Prevention in Japanese college athletes.
Afifi (2006) examined the association of health practices and depressive symptoms among high school adolescents in a national representative sample of 5409 students in Oman. Depressive symptoms were screened in 2004 through the application of the self-report 27-item Child Depression Inventory. Health practices scale comprised a simple sum of five healthy practices, namely: sleeping seven to eight hours at night, having breakfast daily, not eating between meals, not smoking the month prior to the study and doing physical activities more than once per week apart from attending physical education classes in school. Sequential logistic regression models were run to test for the change in the odds-ratio of having depressive illness with a one point increase in the healthy practices scale, after adjustment for other risk factors of depression. Health practices remained having a significant protective effect on depression even after adjustment to other significant covariates in the last model, such as history of chronic medical or mental illness diagnosed by a doctor, high score in chance health locus of control, low score in internal health locus of control, poor relationships with social contracts and physical abuse during childhood or adolescence. Finding support the protective effects of positive health practices on adolescents depression.

Asadi-Pooya, et al. (2007) studied to determine the health locus of control in patients with epilepsy and its relationship to anxiety, depression and seizure control. Adults aged 18 and older who had had epilepsy for at least 1 year were recruited in either the inpatient epilepsy monitoring unit or the outpatient epilepsy clinic at Thomas Jefferson University in 2006. Patients
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anonymously filled out a questionnaire, which elicited data on age, sex, education and seizure control. The Hospital Anxiety and Depression (HAD) scale was used to evaluate anxiety level and depression and Form C of the Multidimensional Health Locus of Control scales was used to evaluate the health locus of control. Statistical analyses were performed using regression analyses to determine potentially significant associations. Two hundred patients with a mean age of 40.3 ± 16 participated. Patients had low mean scores on the internal, medium mean scores on the chance and high mean scores on the powerful others multidimensional health locus of control subscales. Patients with epilepsy with higher internal multidimensional health locus of control scores more frequently had controlled seizures. Patients with higher powerful others multidimensional health locus of control scores had higher scores on the anxiety subscale of the Hospital Anxiety and Depression scale. Patients with epilepsy in their study had weak perceptions of internal and strong perceptions of external health locus of control. This probably means patients with epilepsy might adapt less effectively to their illness and have lower levels of engagement in beneficial health behaviours and active coping strategies.

Vera Cherepakho (2008) studies the Health locus of control risk perception and health behaviour in African Americans interventions to the psychosocial needs of Healthy Black Family Project (HBFP) participants. They explored relationships between multidimensional health locus of control, risk perception and participation in health behaviours. Risk perception analysis
were assessed in 87 participants using Fisher’s exact tests to search for relationships between multidimensional health locus of control scores and risk perception accuracy for diabetes, cardiovascular disease and cancer (breast, ovarian and colon). Health behaviour was assessed in 68 participants. Outcome measures included physical activity level, information seeking behaviour and enrollment in the Minority Research Recruitment Database. Change in physical activity was assessed using the Transtheoretical model. Wilson’s model was used to assess changes in information seeking behaviour. Fisher’s exact tests were used to test for relationships among multidimensional health locus of control and the outcome measures. Individuals at high risk for diabetes were more likely to underestimate their risk if they scored low on powerful others (p= 0.011). Individuals at moderate risk for cardiovascular disease were more likely to overestimate their risk if they scored high on powerful others (p=0.005). Women at low risk for ovarian cancer were more likely to overestimate their risk if they were externals (p= 0.04). Overall, the majority of individuals maintained or increased their level of physical activity and information seeking and enrolled in the database regardless of their health locus of control. These findings highlight diabetes, cardiovascular disease and ovarian cancer as areas in which participants would benefit from risk education tailored to their locus of control. Maximizing the role of community members, improving patient doctor communication and the family, health history initiative may be appropriate approaches to improve risk awareness. The pattern of behaviour change observed in this study may be preliminary
evidence that the Healthy Black Family Project is effective at promoting positive health behaviour change in individuals regardless of their health locus of control.