



Category: Arts and Humanities

ORIGINAL

Analyzing the Influence of Satisfaction of Basic Psychological Needs on Sports Performance among College Student Athletes

Análisis de la influencia de la satisfacción de las necesidades psicológicas básicas en el rendimiento deportivo de los estudiantes universitarios de atletismo

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ABSTRACT

Background and Objective: more information of the determinants of sports injuries, specifically the potential variables is essential considering the increasing prevalence of these injuries among athletes to take preventative measures. This study aims to investigate the relationships between emotions related to stress, sports-related injuries, psychotherapy, flexibility of the coach to athlete relationships (FCAR), BPN frustration (BPNF) and the basic psychological needs (BPNs) satisfaction. The BPN method and the philosophical framework for stress and physical impact are the primary issues of inquiry.

Method: employing a questionnaire that participants completed themselves, sports injuries and emotions related to stress were evaluated throughout the first and second months of the investigation. The third and fourth month's study variables BPN satisfaction and BPN frustration (BPNF) were assessed by a questionnaire given to 300 college-level athletes. The fifth and sixth months of assessment evaluated psychotherapy and FCAR. In this investigation, path analysis and statistical analysis using the Jeffreys's Amazing Statistics Program (JASP) setup are conducted.

Results and Conclusion: according to this research, stress is associated with injuries related to sports while BPN satisfaction adversely affects them. Disappointment of BPN, nevertheless, does not. Basic psychological needs theory (BPNT) provides more justifications for injury-associated variables.

Keywords: Sports; Basic Psychological Needs (BPNs); Satisfaction; Injuries; College Athletes.

RESUMEN

Antecedentes y objetivo: disponer de más información sobre los determinantes de las lesiones deportivas, en concreto sobre las variables potenciales, es esencial teniendo en cuenta la creciente prevalencia de estas lesiones entre los deportistas para tomar medidas preventivas. Este estudio tiene como objetivo investigar las relaciones entre las emociones relacionadas con el estrés, las lesiones relacionadas con el deporte, la psicoterapia, la flexibilidad de las relaciones entrenador-atleta (FCAR), la frustración BPN (BPNF) y la satisfacción de las necesidades psicológicas básicas (BPNs). El método BPN y el marco filosófico para el estrés y el impacto físico son los principales temas de investigación.

Método: empleando un cuestionario que los propios participantes cumplimentaron, se evaluaron las lesiones deportivas y las emociones relacionadas con el estrés a lo largo del primer y segundo mes de la investigación. En el tercer y cuarto mes de estudio se evaluaron las variables satisfacción con la BPN y frustración con la

BPN (BPNF) mediante un cuestionario que se entregó a 300 deportistas de nivel universitario. En el quinto y sexto mes se evaluaron la psicoterapia y la FCAR. En esta investigación se lleva a cabo un análisis de caminos y un análisis estadístico utilizando el programa Jeffreys's Amazing Statistics Program (JASP).

Resultados y Conclusiones: según esta investigación, el estrés está asociado a las lesiones relacionadas con el deporte, mientras que la satisfacción de la BPN afecta negativamente a las mismas. La decepción de la BPN, sin embargo, no lo hace. La teoría de las necesidades psicológicas básicas (BPNT) proporciona más justificaciones para las variables asociadas a las lesiones.

Palabras clave: Deportes; Necesidades Psicológicas Básicas (BPNs); Satisfacción; Lesiones; Atletas Universitarios.

INTRODUCTION

The most significant indications of stress is psychological and a negative impact on athlete's sports career, athletic burnout is the psychological experience of players refraining from sports activities caused by continuous strain and frustration.⁽¹⁾ Sport burnout is a complex illness that affects performance by athletes through mental and physical exhaustion carried by the stresses of training and competition.⁽²⁾ Given that youth sports can have beneficial and adverse psychosocial implications, it is critical to learn the relevant components to lower the possibility of adverse impacts and promote positive psychological outcomes.⁽³⁾ When playing these types of sports, fear of failure (FF), a negative sensation that arises as a person participates in focused achievement activities and perceives that cannot accomplish certain defined goals affects in many great athletes.⁽⁴⁾ Considering the requirements influences athletes' motivation to participate in sports and they perform and feel about their roles in general.⁽⁵⁾ Athletes develop and express themselves in a variety of factors and the BPNs model emphasizes the significance of competence, autonomy, and social relationships that help to comprehend human motivation processes in various domains, like sports.⁽⁶⁾ Several objectives can be used as basis for young athletes' development such as continuing to advance their athletic abilities and becoming top athletes.⁽⁷⁾ One of the most appropriate modern concepts for the investigation of motivating elements in youth sports is the BPNT.⁽⁸⁾ To analyze the relationships between young athletes' signs of exhaustion psycho-biosocial states and their perception of having satisfied basic psychological requirements is the objective. As the situational consequence of stress, psychological satisfaction with requirements has been demonstrated to have protective qualities against stress-related symptoms.

The structure of the paper: Related works are demonstrated in Phase II. Phase III explored sample description and six hypotheses were developed. Analysis of sports performance among college student-athletes in the influence of satisfaction of BPNs and discussions are provided with detailed explanation in Phase IV. Conclusions are determined in Phase V.

Related Works

Using a two-wave design ⁽⁹⁾ investigated the inverse impacts of satisfying BPNs and physical ability throughout time in the college physical literacy environment. The study emphasized the significance of the direct connection between the satisfaction of BPNs and physical ability. To investigate the way parental participation in sports affects young ones and parents' perceptions of BPNs are satisfied.^(10,11) The theoretical basis was based on BPNT. The results illustrate examples of viewpoint convergence and divergence between parents and youngsters in the dynamic clothing. The dimensional measures developed to evaluate the fulfillment, disappointment and displeasure. Tiredness was substantially correlated with both autonomy and competence needs and the false impact was identified through the three need disappointment states. Examining the multilayered relationships between fundamental psychological demands, perceived coaching skill, athlete satisfaction and the coach's personality traits was the primary goal.⁽¹²⁾ The findings of the study, an athlete's perception of the coaches' coaching skill and level of satisfaction with the coaches are determined by the team's enabling atmosphere. To analyze the impact of a coach's supporting behavior on an athlete's psychological desire is the objective. Based on the analysis ⁽¹³⁾ it involves the perception of spontaneous support, the predictive power of abilities and an emotion included, that is greater than that of autonomy. The author of ⁽¹⁴⁾ investigated the connections between students' impressions of the mastery- or performance-oriented motivating atmosphere created by the instructor and the development of their abilities in sports, and the mediating function of the BPNs. The prior research on the abilities in sports was expanded by the study that emphasized the effects of BPNs and a motivating environment on the abilities of student's development. The investigation ⁽¹⁵⁾ explored the relationships between target orientations, sportsmanship and satisfaction of BPNs. Outcomes demonstrated that positive sportsmanship is related to the satisfaction of BPNs. College students frequently endure a variety of stresses and mindfulness can enhance athlete by strengthening the individual capacity to responsibility.⁽¹⁶⁾

An outcome, mindfulness increases athletes' ability to self-regulate and satisfy the needs for independence, it can increase satisfaction and reduce stress. Several psychological standards for exercise which have been explored as the connection between need disappointment and fulfillment.⁽¹⁷⁾ The findings add to the body of research by indicating that varying levels of both requirements are associated with different behavioral regulations and that need fulfillment and frustration are separate components that individuals could be simultaneously during exercise. The study ⁽¹⁸⁾ examined the connection among Spanish teenager's physical self-concept, self-determined motivation for physical activity, and the satisfaction of BPNs. Experimental findings and implications are examined with an emphasis on the importance for physical education teachers to consider experiences that enhance students' motivation and develop the perception of identity. Investigating the significance of the motivated environment on psychological satisfaction with demands and dropout rates in relaxation, intermediate and elite volleyball was the objective of the study.⁽¹⁹⁾ The satisfaction of participants' BPNs and continuing to participate in volleyball at the recreational, intermediate, and elite levels are all dependent on the mastery environment that coaches establish for the team is the outcomes. To assess the psychological sources of students' enjoyment of sports, they utilized questionnaires to measure components, such as degree of independent teaching in sports, the fulfillment of student's BPNs, and the students ages.⁽²⁰⁾ The fulfillment of students with sporting activities serves as the basis for a physically active lifestyle and it can assist in avoiding common medical conditions in satisfying BPNs.

METHOD

In this part, we provided the sample collections and description of the five psychological variables and significant results of sports injuries month-wise. The hypothesis was suggested for the participants to give open answer for each executive occurrence. Figure 1 depicts the framework that is hypothesized with standardized path estimations.

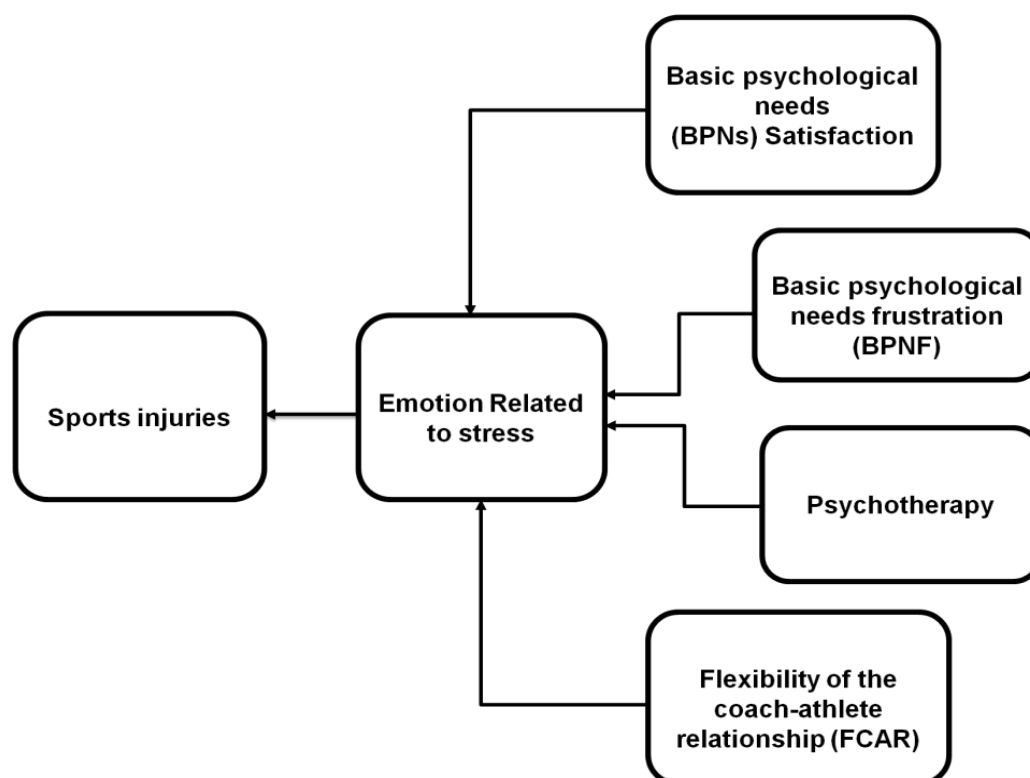


Figure 1. Estimation of standardized path in hypothesis framework

Dataset

Students in this investigation were athletes ($n = 300$; 126 Girls and 174 Boys) from the college level. Two psychological variables of BPNs are satisfaction/frustration, psychotherapy, FCAR, and emotions related to stress. One significant outcome (sports injuries) was included in the questionnaire form to many demographic inquiries on age, gender, sports, years of involvement with sports, and hours of training. Table 1 shows the dataset explanation.

Table 1. Sample Description		
Factors	Participants (N=300)	
Sex	Girls	Boys
No. of participants	126	174
Ages	≤21	≤23
Sports	Volleyball	Football
Hours of training	7hrs	7hrs
Years of involvement with sports	10 to 12 years	10 to 15 years

BPN satisfaction and BPNF were the third and fourth-month assessment variables. Stress-related emotion and sports injuries were the first and second-month experimental variables that were evaluated. Psychotherapy and FCAR were assessed using a questionnaire throughout the experiments of the fifth and sixth months (see table 2).

Table 2. Hypothesis and Variables with months		
Hypotheses	Assessment months	Variables
H1	First and Second	Emotion related to stress
H2		Sports injuries
H3	Third and Fourth	BPN satisfaction
H4		BPNF
H5	Fifth and Sixth	Psychotherapy
H6		Flexibility of the Coach-Athlete Relationship (FCAR)

Emotion related to stress (H1)

The reliability and validity of the sensational stress scale have been investigated. Athlete's life stress levels during the previous month were measured using this scale. In the first and second months, the participants assessed the items.

Sports injuries (H2)

Any injury that caused an athlete to drop out, reduce, or alter their participation in sports was documented. As in prior research, in the first and second months participants were questioned to explain any sports-related injuries they suffered in the previous month.

BPN satisfaction (H3) and BPN frustration (BPNF) (H4)

At months first, second, and third, the participants assessed the scale items. Over each of the assessment points, the subscales measuring BPN fulfillment and frustration demonstrated strong Cronbach's alpha reliability. The objects are assessments of the athletes in the third and fourth months.

Psychotherapy (H5)

College student athletes' determination and desire significantly impact their success in sports by satisfying their requirements (fifth and sixth months). It is possible to acquire a sense of the methods that psychological requirements and sports performance are mediated by motivation and mental toughness.

Flexibility of the Coach to Athlete Relationships (FCAR) (H6)

Relationships between the college student athletes' sports performance (fifth and sixth months) and satisfaction can be influenced by the coach-athlete relationship quality. Athlete's participation in training methods, communication on injury issues and psychological health can be impacted by the quality of the relationship with the coach.

Statistical Analysis

JASP software was employed to compute qualitative statistics. The Bayesian paradigm was used for the research. The assumptions of fundamental Bayesian statistics differ from those of frequentist statistics. Previous investigations have demonstrated certain advantages that Bayesian statistics provide over frequentist statistics. Each relationship's Bayes Factor (BF) was determined for the zero-order correlation investigation. When compared to the null hypothesis, the BF measures the data to the advantage of the alternative hypothesis. Three two-level path estimations were performed to assess the models associated with Hypotheses 1-6, utilizing the Bayesian estimator. To provide reliable parameter values for each path analysis, the sampler in Markov Chain Monte Carlo (MCMC) simulation processes was employed. Each of the variables presented in the analysis was given an estimated 95 % credibility interval (CI). The confidence interval (CI) represents the chance that based

on observed data, the stated parameter's value drops between the lower and upper boundaries.

RESULTS AND DISCUSSION

A total of six hypotheses (H) were examined for the research. Over the five assessment variables, the participants generally reported high levels of BPNs, moderate levels of BPNF, psychotherapy, emotion-related stress, and FCAR. During the research period, they revealed sports injuries. The measures' internal consistency is provided in table 3.

Variables	Emotion related to stress	Sports injuries	BPN satisfaction	BPNF	Psychotherapy	FCAR
Emotion related to stress	0,52	-	-	-	-	-
Sports injuries	0,46	0,36	-	-	-	-
BPN satisfaction	0,54	0,35	0,32	-	-	-
BPNF	0,74	0,65	0,51	0,37	-	-
Psychotherapy	0,24	0,16	0,14	0,10	0,07	-
FCAR	0,82	0,74	0,91	0,87	0,75	0,89

Qualitative Statistics for H1 to H6

H1 - The satisfaction of BPNs in the person has an indirect impact on sports injuries the following month by stress. BPN Emotion related to stress which was negatively impacted by satisfaction appropriately.

H2 - The model that prospectively predicted sports injuries by utilizing stress at every single point matched the data effectively. Stress perception was a positive, credible prediction of injuries from sports the following month's in-person stage and sports injuries showed an appropriate variation between-person level.

H3 and H4 - The model that prospectively predicted sports injuries by utilizing each time-point BPN satisfaction and BPNF demonstrated a strong connection to the data. At both the between-person and within-person levels there was a probable variance in sports injuries and the two distinct variables were able to control for the variance.

H5 - It can be easier to determine whether the psychological demands and sports performance are mediated by mental toughness and motivation. It serves to clarify the psychological variables that affect injury prevention and recovery.

H6 - The quality of the relationship between the coach and the athlete will have a moderating influence on the association between the occurrence of sports injuries between college student-athletes and the satisfaction of BPNs.

To determine the psychological variables of sports injuries, the framework of stress and athletics Injury and BPNT were employed as an indication. Our research indicates that BPN satisfaction compared to BPNF can have a stronger relationship with the occurrence of sports injuries. Table 4 outcomes demonstrated that 7,7 % of participants performed physical activity at minimum levels, 26,3 % at moderate levels, and 66 % at maximum levels.

Participation levels	N	Percentage (%)
Maximum	198	66
Moderate	79	26,3
Minimum	23	7,7
Overall	300	100

An in-depth analysis of the t-test evaluation of gender variation in participation in sports is provided in table 5.

Gender	Girls	Boys
N	126	174
Average	42 %	64 %
SD	40,1	54,3
p	0,004	
t-test	0,857	

A total of 174 boys and 126 girls were analyzed in the study that compared boys and girls. In the exam, boys scored an average of 58 % with a standard deviation (SD) of 54,3, and girls scored an average of 42 % with the SD of 40,1. When the two categories were compared using the t-test with the p-value 0,004, indicating a difference of statistical significance. The practical importance can be enhanced by analyzing the effect size.

CONCLUSION

The prospective assessment emphasizes the relationships between stress, the prevalence of sports injuries among college athletes, psychotherapy, FCAR and BPN satisfaction/ BPNF. The outcomes demonstrate that maximum levels of stress, moderate levels and minimum levels of BPN satisfaction are associated with an increased risk of sports injury among athletes. Stress could indicate the underlying process between needs satisfaction and sporting injuries and BPNT is an effective framework to offer extra clarification to the framework of stress and sports injuries. Emotion related to stress explains the relationship between BPN satisfaction and sports injuries. The findings show that an intervention system developed to satisfy both BPN improvement and stress management can be significant in college student sports injury prevention. The study can have issues in interpreting effects on non-college athletes or considering individual variances in psychological need satisfaction into factor. Further research can determine these results applicable to various samples, such as individual athletes or school athletes.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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