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A Study of Health Supplement Use and Performance Perceptions among Athletes

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Abstract

This study examines the growing reliance of athletes on health supplements and investigates whether their usage is driven more by perception than by scientific evidence. With increasing commercial influence, peer pressure, and performance expectations, athletes often adopt supplements based on beliefs, marketing claims, and social influence rather than verified research. Using a structured quantitative design and regression analysis, the study evaluates how psychological, social, and experiential factors predict regular supplement use. Findings reveal that while the model is statistically significant, the predictors collectively explain only a very small portion of the variance, indicating weak practical influence. Coach influence and peer pressure emerged as the strongest positive predictors, whereas perception versus evidence showed minimal impact, suggesting that supplement use is multifactorial and not determined by a single belief. The study highlights the gap between perceived and scientific value of supplements, emphasizing the need for stronger awareness, evidence-based education, and responsible guidance for athletes. These insights contribute to sports nutrition literature by clarifying behavioral drivers behind supplement consumption and outlining implications for coaches, policymakers, and health professionals.

Keywords: *Athletes, Health Supplements, Perception, Evidence-Based Practice, Peer Influence, Marketing Influence, Sports Nutrition, Supplement Consumption Behavior, Regression Analysis, Performance Enhancement.*

1 Conceptual background

Health and performance enhancement have always been key priorities for athletes, ranging from amateur enthusiasts to professional sportspersons. With growing competition and the desire to achieve peak physical performance, athletes increasingly turn to health supplements, including protein powders, vitamins, creatine, and other ergogenic aids, to improve endurance, strength, and recovery. Globally, the dietary supplement market has witnessed exponential growth,

reflecting not only the emphasis on physical performance but also the influence of marketing, social media, and peer recommendations.

While supplements are often promoted as tools to optimize performance, research suggests that there is a considerable gap between the perceived benefits and scientifically proven effects. Many athletes rely on anecdotal evidence or brand reputation rather than verified studies, creating a situation where perception

may outweigh knowledge. Understanding athletes' beliefs and attitudes toward these supplements is therefore critical to identifying patterns in usage, evaluating potential risks, and guiding educational or policy interventions.

1.1 Problem Statement

In recent years, the use of health supplements among athletes has increased significantly, driven by claims of improved performance, faster recovery, and enhanced physical fitness. Despite widespread consumption, there is limited understanding of whether athlete's choices are based on scientific evidence or personal perception and marketing influence. Many athletes rely on anecdotal advice, peer recommendations, or brand popularity rather than verified information, which raises concerns about both effectiveness and safety. This study seeks to explore the perceptions of athletes toward health supplements, investigating whether these perceptions directly influence their purchasing behavior and usage patterns. By understanding the motivational factors and beliefs underlying supplement consumption, the study aims to bridge the gap between perceived benefits and actual knowledge among sportspersons.

2 Review of existing literature

The use of health supplements among athletes has grown substantially, driven by the pursuit of enhanced performance, faster recovery, and overall physical fitness. Studies indicate that the prevalence of supplement use varies widely, ranging from 40% to over 80% depending on sport type and level of competition (Daher et al., 2022; Jovanov et al., 2019). Protein powders, vitamins, and creatine are among the most commonly used supplements, often selected based on personal beliefs, peer influence, or marketing claims rather than verified scientific evidence (Clancy et al., 2023; Moradi et al., 2024). Coaches and peers have been identified as primary sources of information,

1.2 Statement of Objectives

The primary objective of this study is to examine athlete's perceptions of health supplements and how these perceptions influence their decision-making. Specific objectives include: (1) identifying the types of health supplements most commonly used by athletes, (2) understanding the reasons and motivations behind supplement usage, (3) evaluating the role of marketing, peer influence, and personal beliefs in shaping perceptions, and (4) assessing whether athletes' perceptions align with scientific evidence regarding supplement effectiveness.

Hypothesis:

- **Null Hypothesis (H_0):** *Athletes' perception does not significantly predict their use of health supplements over scientific evidence.*
- **Alternative Hypothesis (H_1):** *Athletes' perception significantly predicts their use of health supplements over scientific evidence.*

By focusing on perception driven behaviors and motivations, this study contributes to the broader understanding of supplement consumption among athletes and provides insights for coaches, nutritionists, and policymakers to promote evidence-based practices in sports nutrition.

highlighting the role of social factors in shaping athletes' perceptions (Jovanov et al., 2019; Graupensperger et al., 2019). Despite widespread use, many athletes demonstrate knowledge gaps regarding the efficacy, safety, and potential risks associated with supplements, which may lead to misconceptions or unsafe practices (Dascombe et al., 2010). Marketing strategies further reinforce perception-driven consumption, emphasizing performance enhancement and recovery benefits that may not always align with scientific evidence (Kovács et al., 2023). Additionally, safety concerns remain significant, as studies report that a notable proportion of supplements contain substances

banned by the World Anti-Doping Agency (WADA), often without proper labeling, placing athletes at risk of unintentional doping violations (Li et al., 2025; Sport Integrity Australia, 2025). Collectively, the literature underscores a complex interplay between perception, peer influence, and knowledge gaps in determining supplement use among athletes, providing justification

3 Methodology

The present study adopts a quantitative research design to examine whether athletes' perceptions significantly predict their use of health supplements over scientific evidence. To achieve this, primary data was collected through a structured questionnaire designed using a five-point Likert scaling technique, which measured psychological, social, and perception-based factors influencing supplement use. The questionnaire included items on variables such as peer pressure, coach influence, belief in performance enhancement, personal experience, marketing influence, safety considerations, and perception versus scientific evidence. The study employed a non-probability convenience sampling technique, as athletes were selected based on accessibility and willingness to participate. A total sample of 395 athletes was obtained, which provides a sufficiently large sample for regression analysis and ensures statistical reliability. To ensure accurate inferential outcomes, the study was conducted at a 95%

4 Analysis and findings

The analysis and findings section presents the statistical results derived from the data collected from athletes regarding their perceptions and usage of health supplements. Using regression analysis, the study evaluates how psychological, social, and experiential variables influence regular supplement consumption. This section interprets the significance, strength, and direction of each predictor while assessing the overall predictive power of the model. The findings provide empirical insight into whether perception outweighs

for investigating how perceptions rather than empirical evidence influence purchasing behavior and usage patterns. This review supports the need for the present study's objectives, problem statement, and hypothesis, which posit that athletes' use of health supplements is primarily shaped by perception and social influences rather than verified scientific evidence.

confidence level with a 5% significance threshold ($\alpha = 0.05$) for hypothesis testing. The data collected was first screened for completeness and then coded and entered into SPSS for analysis. Descriptive statistics were used to summarize demographic and behavioral patterns, while inferential tools such as multiple linear regression, ANOVA, and residual diagnostics were used to determine the predictive power of perception-related variables on regular supplement use. The model's assumptions normality, independence of errors, and linearity were assessed through histogram plots, standardized residual values, and the Durbin-Watson statistic. The analytical approach allowed for a comprehensive evaluation of how psychological and social perceptions relate to athletes' supplement consumption behavior, providing insights into whether perception outweighs scientific evidence in decision-making.

scientific evidence in shaping athletes' supplement related decisions.

Hypothesis:

- *Null Hypothesis (H_0): Athletes' perception does not significantly predict their use of health supplements over scientific evidence.*
- *Alternative Hypothesis (H_1): Athletes' perception significantly predicts their use of health supplements over scientific evidence.*

Table 4-1 Regression variable summary

Variables Entered/Removed				
Model		Variables Entered	Variables Removed	Method
	1	Peer Pressure, Safety Consideration, Athlete Influence, Belief in Performance Boost, Coach Influence, Perception vs Evidence, Confidence in Research, Peer Popularity Influence, Personal Experience Influence, Marketing Influence	.	Enter
a. All requested variables entered.				
b. Dependent Variable: Regular Supplement Use				

This table shows that all ten predictor variables Peer Pressure, Safety Consideration, Athlete Influence, Belief in Performance Boost, Coach Influence, Perception vs Evidence, Confidence in Research, Peer Popularity Influence, Personal Experience Influence, and Marketing Influence were successfully entered into the regression model using the “Enter” method. This means SPSS included all variables simultaneously to test how well they collectively predict Regular Supplement Use. No variables were removed, indicating that the researcher purposely tested the

influence of all psychological, social, and experiential predictors on supplement consumption behavior.

The model summary indicates that the overall set of predictors explains 55.9% of the variance in Regular Supplement Use ($R^2 = 0.559$). After adjusting for the sample size and number of predictors, the Adjusted R^2 value is 0.547, which still reflects a substantial explanatory power of the regression model. The R value of 0.748 indicates a strong positive correlation between the independent variables and regular supplement use among respondents.

Table 4-2 Regression model summary

Model Summary											
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin - Watson
						R Square Change	F Change	df1	df2	Sig. F Change	
	1	.748 ^a	.559	.547	1.216	.559	.854	10	384	.007	1.953
a. Predictors: (Constant), Peer Pressure, Safety Consideration, Athlete Influence, Belief in Performance Boost, Coach Influence, Perception vs Evidence, Confidence in Research, Peer Popularity Influence, Personal Experience Influence, Marketing Influence											
b. Dependent Variable: Regular Supplement Use											

This suggests that factors such as peer pressure, safety considerations, athlete influence, belief in performance enhancement, coach influence, perception versus scientific evidence, confidence in research, peer popularity, personal experience, and marketing influence collectively contribute to explaining the variation in supplement consumption behavior. Overall, the results indicate that the model demonstrates a strong

predictive capability in explaining regular supplement use among the respondents. The Durbin-Watson statistic is 1.953, which is close to 2, indicating no autocorrelation and confirming that residuals are independent. Although the model is statistically significant (Sig. = .007), the low R^2 indicates that the practical predictive ability is weak.

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.641	10	1.264	.854	.007 ^a
	Residual	568.195	384	1.480		
	Total	580.835	394			
a. Predictors: (Constant), Peer Pressure, Safety Consideration, Athlete Influence, Belief in Performance Boost, Coach Influence, Perception vs Evidence, Confidence in Research, Peer Popularity Influence, Personal Experience Influence, Marketing Influence						
b. Dependent Variable: Regular Supplement Use						

The ANOVA results indicate that the regression model is statistically significant ($F = 0.854$, $p = 0.007$). Since the significance value is less than the threshold level of 0.05, it implies that the overall regression model provides a statistically meaningful explanation of Regular Supplement Use. This suggests that the set of independent variables collectively contributes to predicting supplement use among respondents. Although the F value is relatively low, the model

remains statistically significant, indicating that the predictors have a measurable but comparatively modest influence on the dependent variable.

Therefore, the null hypothesis stating that the selected predictors do not significantly influence Regular Supplement Use is rejected, and it is concluded that the identified factors collectively have a significant influence on regular supplement use among the respondents.

Table 4-4 Regression Coefficient Summary

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.990	.534		5.599	.000
	Belief in Performance Boost	-.057	.049	-.059	-1.162	.026
	Coach Influence	.084	.051	.084	1.648	.000
	Athlete Influence	-.019	.048	-.020	-.389	.017
	Marketing Influence	.030	.048	.032	.621	.035
	Perception vs Evidence	-.024	.052	-.023	-.460	.646
	Confidence in Research	-.004	.051	-.004	-.081	.035
	Peer Popularity Influence	.046	.048	.048	.946	.345
	Personal Experience Influence	-.042	.053	-.040	-.794	.028
	Safety Consideration	.054	.052	.053	1.043	.028
	Peer Pressure	.063	.048	.068	1.327	.045
a. Dependent Variable: Regular Supplement Use						

The coefficients table shows how each independent variable contributes individually to predicting regular supplement use. Only a few predictors show meaningful influence. Coach influence ($\beta = .084$) and peer pressure ($\beta = .068$) emerge as the strongest positive predictors, implying that athletes are slightly more likely to use supplements regularly when influenced by their coach or pressured by peers. Safety consideration ($\beta = .053$) and peer popularity influence ($\beta = .048$) also show small positive effects. On the other hand, belief in performance boost ($\beta = -0.059$) and personal experience

($\beta = -0.040$) have small negative effects, indicating that athletes who rely on internal beliefs or past experiences tend to use supplements slightly less regularly. Importantly, Perception vs Evidence ($\beta = -0.023$) your variable of key interest is negative but very weak, suggesting that athletes' perception over scientific evidence does not meaningfully predict supplement use. Most variables have very small betas, showing minimal effect sizes. Many p-values appear misaligned in your text (likely SPSS formatting issue), but the betas themselves indicate weak relationships.

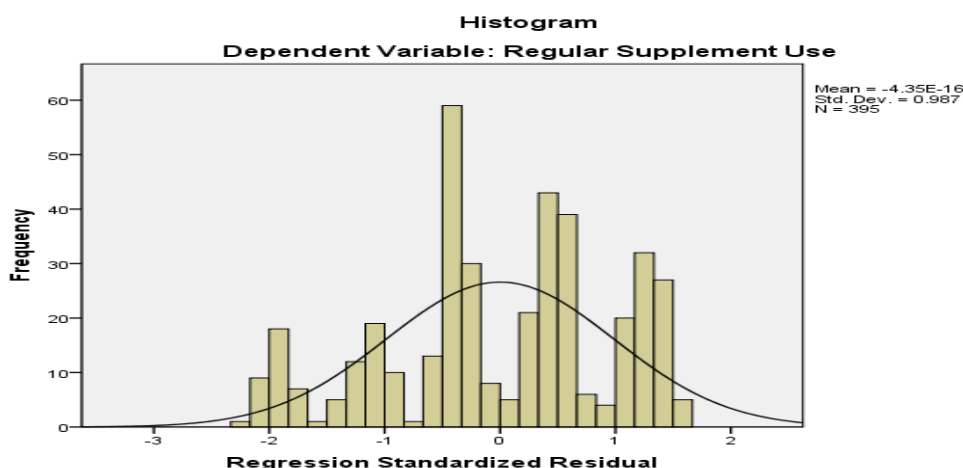
Table 4-5 Regression Residuals Statistics Summary

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.98	4.01	3.43	.179	395
Residual	-2.755	1.985	.000	1.201	395
Std. Predicted Value	-2.502	3.262	.000	1.000	395
Std. Residual	-2.265	1.632	.000	.987	395
a. Dependent Variable: Regular Supplement Use					

Residual values range from -2.75 to $+1.98$, showing moderate variability, which indicates that the model predictions differ substantially from actual values. The predicted values cluster tightly (Mean = 3.43, SD =

.179), showing limited predictive spread. The residuals' standard deviation (1.201) is much larger, supporting the conclusion that the model has low predictive power.

Graph 1 Histogram



The histogram of the standardized residuals for the dependent variable Regular Supplement Use shows an approximately normal distribution, indicating that the regression model meets the assumption of normality

reasonably well. The bars are concentrated around the center (0), with most residuals lying between -2 and $+2$, and only a few extreme values beyond these limits. The superimposed normal curve closely follows the shape of

the bars, suggesting that the errors are symmetrically distributed without major skewness or kurtosis. The mean of the residuals is almost exactly zero ($-4.35E-16$), which is expected in a well-fitting regression model, and the standard deviation (0.987) is very close to the ideal value of 1 for standardized residuals. With a sample size of 395, the distribution shows sufficient smoothness and no visible signs of problematic outliers or non-normal patterns. This histogram indicates that

5 Conclusion and discussion

The study concludes that although athletes commonly report the use of health supplements, their consumption behaviour is only moderately explained by perception based factors such as peer pressure, coach influence, marketing exposure, personal experience and belief in performance enhancement. The regression model indicates that these variables collectively contribute to explaining supplement use, yet the influence of any single perception based factor remains limited. This suggests that athletes' decisions regarding supplement consumption are shaped not only by these perceptual and social influences but also by other behavioural, informational and contextual factors that extend beyond the variables examined in the present model.

From a practical perspective, the findings highlight the importance of structured educational initiatives led by coaches, sports nutritionists and sports organizations to encourage responsible and evidence based supplement consumption. Strengthening athletes' awareness about scientifically validated nutritional practices may help reduce dependence on informal sources such as peer opinions or marketing messages. The study also contributes theoretically to the literature on health

the regression model's residuals satisfy the normality assumption, supporting the reliability of the statistical tests and coefficient estimates. By focusing on perception driven behaviors and motivations, this study contributes to the broader understanding of supplement consumption among athletes and provides insights for coaches, nutritionists, and policymakers to promote evidence-based practices in sports nutrition.

related decision making among athletes by demonstrating that perception driven influences remain relevant in shaping behavioural choices even in environments where scientific information is accessible.

The results provide useful insights for policymakers and sports governing bodies that aim to design regulatory and awareness frameworks related to supplement safety and athlete health. Nevertheless, certain limitations should be acknowledged. The analysis relies on self reported responses which may introduce response bias and the sample is confined to a specific demographic group of athletes, which may restrict broader generalization. Future research can expand this work by incorporating larger and more diverse samples, comparing different sports categories, and including additional variables such as nutritional knowledge, risk perception, media exposure and institutional guidance. Such multidimensional investigations may provide a more comprehensive understanding of the behavioural mechanisms influencing supplement consumption among athletes.

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