



# The Role of Whey Supplementation on Sensation Seeking, Parent-child Relationship, Family Communication, Anger and Sex Desire Among Athletes, Athletes Using Whey and Normal Population

Behshad. Shadanloo<sup>1</sup>, Zahra. Yousefi<sup>2,3\*</sup>, Kamdin. Parsakia<sup>3</sup>, Sayed Mohammad. Hejazi<sup>1</sup>,  
Muhammadali. Davari Dolatabadi<sup>2</sup>

<sup>1</sup> Department of Clinical Psychology, Isfahan (Korasgan) Branch, Islamic Azad University, Isfahan, Iran

<sup>2</sup> Department of Psychology, Isfahan (Korasgan) Branch, Islamic Azad University, Isfahan, Iran

<sup>3</sup> Department of Psychology and Counseling, KMAN Research Institute, Richmond Hill, Ontario, Canada

\* Corresponding author email address: z.yousefi@khuif.ac.ir

## Article Info

### Article type:

Original Research

### How to cite this article:

Shadanloo, B., Yousefi, Z., Parsakia, K., Hejazi, S. M., & Davari Dolatabadi, M. (2023). The Role of Whey Supplementation on Sensation Seeking, Parent-child Relationship, Family Communication, Anger and Sex Desire Among Athletes, Athletes Using Whey and Normal Population. *Health Nexus*, 1(1), 40-47.



© 2023 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

## ABSTRACT

The purpose of this research was to examine the role of Whey protein in inducing changes in sensation-seeking, parent-child relationships, family relationships, anger, and sexual desire among regular male athletes, supplement-consuming athletes, and ordinary men in the city of Isfahan. The study population included regular athletes, supplement consumers, and ordinary men in Isfahan. The research method was causal-comparative. The sample size consisted of 30 individuals per group, with the Whey consuming group selected through convenience sampling, and the other two groups were matched and chosen accordingly. The instruments used included scales for family relationships; attachment to parents; sensation-seeking; anger expression, and sexual desire. The research data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (multivariate analysis of covariance) through SPSS software, version 23. The results indicated that the three groups did not significantly differ in the research variables. Thus, it can be stated that Whey protein does not play a significant role in creating changes in the psychological and family-related variables mentioned in the studied groups.

**Keywords:** *Whey supplementation, Sensation seeking, communication with parents, family communication, anger, sexual desire.*

## 1. Introduction

Today, the necessity of researching the psychological components of athletes and comparing them with ordinary individuals at the global level has been

emphasized (1). In recent years, the consumption of supplements by professional athletes and young bodybuilders has become notable, and its effects on their physical condition have been identified. Additionally, the

impact of nutrition on psychological states and vice versa has been confirmed (2). Meanwhile, the effect of exercise on psychological states, even as a method to improve them, has been acknowledged. With advances in the sciences of exercise physiology, metabolism, and nutrition, it has been established that diet and nutritional intake impact athletes' performance (3).

However, what is evident is the change in the lifestyle of the youth, including societal encouragement of exercising and emphasis on physical appearance and fitness. In this process, individuals resort to supplements to achieve these conditions, supplements that lead to enhanced fitness in athlete individuals (4, 5). These supplements are typically used for various purposes, such as weight gain supplements (gainers), weight loss supplements (fat burners), performance-enhancing supplements (pump supplements), recovery supplements, protein supplements, creatine, etc. (6). People also regularly use different supplements like creatine, branched-chain amino acids, glutamine, and prohormones. Some supplements are used separately, and some in combination (bodybuilding supplement cycles) (7). One common type of supplement among athletes, especially popular among Iranian bodybuilders and athletes, is Whey protein. On the other hand, it has long been believed that nutrition can affect physical and psychological states such as cold temperament, depression, anxiety, or other psychological states, suggesting supplements could play a role in this area (8). However, the impact of these supplements on many psychological states remains unclear, and research studies have not paid sufficient attention to this important matter.

Among the psychological characteristics that may be influenced by dietary substances, including supplements, is sensation-seeking, which is typically sought after by young people and adolescents. This component manifests itself along with other characteristics such as poor self-regulation, impulsiveness, novelty-seeking, high negative affect, and low risk perception (9). Sensation-seeking, initially proposed by Eysenck as a personality trait of extraverts, was later expanded by Zuckerman (1979) (10, 11).

It seems that every individual's emotional system is rooted in childhood experiences related to Whey. Accordingly, one of the important components associated with individuals' level of sensation-seeking is their attachment styles and their trust and relational connection with their parents (12). Individuals with secure attachment to their parents have a positive attitude towards themselves

and others, are committed in their relationships, and feel comfortable in intimate relationships (13). Those with insecure attachment to their parents experience more emotional imbalance and conflicts and are torn between a strong need for close and intimate relationships and a sense of insecurity about others' responsiveness to their needs and the potential of being rejected (14).

Naturally, one of the components that can affect the attachment process of individuals and be related to it is the communication patterns of the family (15, 16). In an effort to understand family communication patterns, two dimensions were identified: conversation orientation and conformity orientation. Conversation orientation refers to conditions in which the family encourages members to participate freely and easily in interactions and discussions on various topics, and conformity orientation means that family relationships emphasize being the same in feedback, values, and beliefs and avoiding conflict (17). In any case, family relationships affect the experience of anger among individuals (18).

Anger is an intense emotional response to deprivation and irritation, characterized by increased autonomic arousal and changes in central nervous system activity (19). The detrimental effects of anger are directed both inwardly at the person and outwardly. Inability to manage anger, besides personal discomfort, leads to disturbances in general health and interpersonal relationships, incongruity, and harmful consequences of aggressive behavior (20).

It should also be mentioned that one of the important factors in modern life is individuals' sexual desire and satisfaction (21). Sexual desire and, consequently, proper and healthy sexual performance are indicators of physical and mental health, constituting a quality of life component (22), creating a sense of shared pleasure among people, and enhancing the ability to cope more effectively with life's stresses and problems, which can be influenced by individuals' nutrition (23).

Various studies have examined the physical effects of Whey protein: A systematic review by Vasconcelos et al. (2021) focusing on whey protein's benefits and potential adverse effects, especially with chronic and abusive use, affecting mainly kidneys and liver. They mentioned some studies also relate whey protein to aggression and other health changes (24); Haun et al. (2018) suggests that whey protein concentrate (WPC) supplementation may increase androgenic signaling and serum testosterone concentration in college-aged men, but it doesn't seem to correlate with hypertrophic outcomes (25); Pittman et al. (2018) found

that most individuals consuming Whey protein lack proper knowledge on how to use this supplement (26); Qin et al. (2017), concluded that Whey protein helps reduce the feeling of fatigue in track and field athletes (27); Freeman (2017) demonstrated there is no relationship between Whey protein consumption and bilateral performance, but high consumption of Whey protein (8 grams per day) is associated with more effective daily activities (3); West et al. (2017) also demonstrated that Whey protein increases body anabolism and may help improve performance after intense resistance training (28); Antonio et al. (2016) indicated that high consumption of Whey protein (2.6 to 3.3 grams/kilogram per day) over four months did not create any change in performance and body condition (29); Zahabi (2015) in a study on athletes showed that Whey protein did not affect physical strength but is recommended for heavy training (8); Chen et al. (2014) showed that Whey protein improves athletic performance, body condition, and biochemical status (30). Although many studies have investigated the effect of Whey protein on physical conditions, no research was found on its psychological effects in previous studies.

In general, given the impact of food and nutrition on psychological state (1, 3, 4, 7, 12, 26, 31) and on the other hand, considering the importance of bodybuilding among young people on one side and the continuous consumption of supplements, including Whey protein (28), on the other, and the ambiguity of the effect of this protein on psychological states, it is necessary to conduct research to clarify the effect of Whey protein on psychological and family variables. The results of such research could confirm the role of nutrition in mental health and help in raising awareness in society about the role of this widely used supplement in mental health states and in developing preventive and therapeutic interventions in the area of variables studied. Therefore, the present research aimed to answer the question of whether the Whey supplement can change and increase or decrease sensation-seeking, attachment styles to parents, family relationships, anger, and sexual desire.

## 2. Methods and Materials

### 2.1. Study Design and Participants

Since this study aimed to compare sensation-seeking, attachment styles to parents, family relationships, anger, and sexual desire among regular athletes, athletes who consume supplements, and ordinary men, its method was

causal-comparative. Given that the research's objective was to determine the role of Whey protein in the aforementioned states among athletes and considering that these effects might also be related to exercise, two control groups were chosen: athletes and non-athletes.

The study's population included supplement-consuming athletes, regular athletes, and ordinary men in the city of Isfahan in the year 2018. For sampling, 30 individuals who consumed Whey protein were conveniently selected from bodybuilding gyms in Isfahan. They were then matched based on demographic variables such as age group, socio-economic status, and education level. The reason for choosing this sample size was based on scientific references. According to various similar studies, in comparative experimental research methods, 30 individuals can be selected for each group, and the findings are generalizable based on this sample size. The inclusion criteria for the research were being male, aged 20 to 30 years, having at least a high school diploma, being an athlete, and a supplement consumer. Exclusion criteria included lack of willingness to cooperate, hormone consumption, incomplete or damaged questionnaire filling, and the occurrence of any unforeseen physical or psychological problems.

### 2.2. Measures

Five questionnaires were used in this research. Before starting the main variables of the research, some questions about the demographic characteristics of the statistical sample were formulated.

#### 2.2.1. Family Communication Patterns

Revised Family Communication Patterns Questionnaire is constructed by Fitzpatrick and Koerner (2004), this self-report questionnaire consists of 26 five-point Likert scale items ranging from "strongly agree" (score five) to "strongly disagree" (score one). The first 15 questions measure the conversation orientation dimension, and the next 11 questions measure the conformity orientation dimension. The two dimensions have been validated for construct validity, and the internal consistency for the entire scale has been reported as high and suitable (18).

#### 2.2.2. Parent-child Relationships

To measure the mentioned variable, the Parental Attachment Questionnaire by Armsden and Greenberg

(1989) was used, which assesses the psychological security resulting from relationships with specific individuals. This self-assessment tool comprises 43 items on a five-point Likert scale from "strongly disagree" (1) to "strongly agree" (5) and measures attachment styles to parents. The internal consistency of this instrument for each subscale was provided by Armsden and Greenberg, with an average internal consistency of 0.78. The construct validity of this questionnaire was also examined and confirmed using factor analysis (32).

### 2.2.3. Sensation Seeking

The Sensation Seeking Scale by Zuckerman et al. (1964) was developed to measure the propensity for sensation-seeking and contains four subscales: thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility. This scale has 40 items, with each subscale containing 10 items. The internal consistency of this questionnaire was reported above 0.70, and its convergent and divergent validity were considered appropriate (10, 11).

### 2.2.4. Anger

The Anger Expression Scale by Spielberger (1984) initially included 57 items and five subscales, along with an overall anger index, providing a general measure of anger expression and control. The three subscales are trait anger, anger-out, and anger-in. The other two subscales relate to trait anger, namely, angry temperament and angry reaction. Spielberger reported the internal consistency of the entire

scale as above 0.70 using Cronbach's alpha. Its validity and reliability have been confirmed (33).

### 2.2.5. Sexual Desire

In this research, to measure the participants' sexual desire, a single question was used, asking them to specify their level of sexual desire on a nine-point scale ranging from zero to nine.

### 2.3. Data Analysis

In this research, descriptive and inferential statistics were employed for data analysis and to address the research question: "Is there a significant difference in sensation-seeking, attachment styles to parents, family relationships, anger, and sexual desire among the three groups of regular athletes, supplement-consuming athletes, and ordinary men in the city of Isfahan?" Means and standard deviations were calculated, and for inferential statistical analysis, analysis of covariance (ANCOVA) was used to compare the groups on the research variables. The statistical data were analyzed using SPSS software, version 23.

## 3. Findings

In the group of supplement-consuming athletes, 16 individuals (17.77%) were married and 14 individuals (15.55%) were single. Among the supplement-consuming athletes, 5 (5.55%) had education levels below high school, 4 (4.44%) had high school diplomas, 17 (18.89%) had bachelor's degrees, and 4 (4.44%) had master's degrees or higher.

**Table 1**

*Descriptive statistics findings (M: Mean, SD: Standard deviation)*

Variable	Group	M	SD	Min	Max
Sensation Seeking	Normal athletes	19.73	4.69	9	29
	Supplement-consuming athletes	20.26	3.51	13	28
	Normal men	17.70	5.75	7	30
Secure attachment to mother	Normal athletes	62.86	12.75	24	80
	Supplement-consuming athletes	60.73	11.87	35	77
	Normal men	58.93	17.16	12	80
Insecure attachment to mother	Normal athletes	22.36	6.68	13	37
	Supplement-consuming athletes	20.13	5.67	10	33
	Normal men	19.26	6.25	7	31
Secure attachment to father	Normal athletes	49.90	14.53	15	72
	Supplement-consuming athletes	52.43	14.49	15	75
	Normal men	48.63	14.02	11	72

Insecure attachment to father	Normal athletes	27.93	7.50	14	48
	Supplement-consuming athletes	26.40	6.46	14	46
	Normal men	25.60	6.63	11	42
Family communications	Normal athletes	37.33	8.01	20	49
	Supplement-consuming athletes	39.70	8.10	21	50
	Normal men	37.40	6.02	19	50
Anger	Normal athletes	79.33	12.82	46	113
	Supplement-consuming athletes	79.16	13.26	53	116
	Normal men	82.23	9.21	70	102
Sex desire	Normal athletes	4.71	1.44	1	7
	Supplement-consuming athletes	5.23	1.70	1	7
	Normal men	5.16	1.34	2	7

The results from Table 1 indicate that the mean scores of sensation-seeking, dimensions of attachment styles (secure attachment to mother, insecure attachment to mother, secure attachment to father, insecure attachment to father), family relationships, anger, and sexual desire differ among the groups of regular athletes, supplement-consuming athletes, and ordinary men. The significance of these differences was examined using ANCOVA. Before doing ANOVA test, the assumption of using it have been

checked. The Kolmogorov-Smirnov test was used to check for data normality, and the results showed that the data were normally distributed ( $p > 0.05$ ). The Levene's test results indicated that there was no significant difference in the variance of data among the three groups ( $p < 0.01$ ). Finally, Box's M test demonstrate that the condition of equality of variance-covariance matrices has been met ( $p > 0.05$ ).

**Table 2**

*The results of ANCOVA test*

Source	Variable	SS	df	MS	F	p	Effect size	Power
Age	Sensation Seeking	67.2	1	67.2	11.0	73.0	001.0	06.0
	Secure attachment to mother	30.385	1	30.385	95.1	16.0	02.0	28.0
	Insecure attachment to mother	21.0	1	21.0	005.0	94.0	001.0	05.0
	Secure attachment to father	46.43	1	46.43	21.0	65.0	002.0	05.0
	Insecure attachment to father	65.57	1	65.57	22.1	27.0	01.0	19.0
	Family communications	49.0	1	49.0	009.0	92.0	001.0	05.0
	Anger	14.384	1	14.384	76.2	10.0	03.0	37.0
	Sex desire	001.0	1	001.0	0001.0	99.0	0001.0	05.0
Group	Sensation Seeking	67.112	2	33.56	47.2	09.0	05.0	48.0
	Secure attachment to mother	63.300	2	31.150	76.0	47.0	01.0	17.0
	Insecure attachment to mother	28.153	2	64.76	96.1	14.0	04.0	39.0
	Secure attachment to father	58.187	2	79.93	45.0	63.0	01.0	12.0
	Insecure attachment to father	46.85	2	72.42	90.0	41.0	02.0	20.0
	Family communications	39.108	2	19.54	96.0	38.0	02.0	21.0
	Anger	41.129	2	70.64	46.0	63.0	01.0	12.0
	Sex desire	70.4	2	35.2	02.1	36.0	03.0	22.0
Error	Sensation Seeking	35.1955	86	73.22				
	Secure attachment to mother	90.16965	86	27.197				
	Insecure attachment to mother	08.3362	86	09.39				
	Secure attachment to father	57.17875	86	85.207				
	Insecure attachment to father	61.4062	86	24.47				
	Family communications	67.4821	86	06.56				
	Anger	06.11954	86	139				

As shown in Table 2, there was no significant difference in the components of sensation-seeking, secure attachment to mother, insecure attachment to mother, secure attachment to father, insecure attachment to father, family relationships, anger, and sexual desire among the three groups of regular athletes, supplement-consuming athletes, and ordinary men ( $p < 0.05$ ). While the descriptive findings suggested that there were differences in the mean scores of sensation-seeking, secure and insecure attachment to parents, family relationships, anger, and sexual desire among the three groups, the inferential statistics revealed that these observed differences were not statistically significant in the descriptive data.

#### 4. Discussion

The present research aimed to compare sensation-seeking, attachment styles to parents, family relationships, anger, and sexual desire among regular athletes, supplement-consuming athletes, and ordinary men in Isfahan city. The results of covariance analysis indicated that there were no significant differences among the three groups of regular athletes, supplement-consuming athletes, and ordinary men in terms of sensation-seeking, secure attachment to mother, insecure attachment to mother, secure attachment to father, insecure attachment to father, family relationships, anger, and sexual desire.

Although numerous studies have demonstrated the physical effects of Whey protein on athletes showing no impact of Whey protein on athletes' physical strength but suggesting it for heavy training, no parallel or contrasting research was found in the realm of supplement-consuming athletes and regular athletes that could allow for a comparison of results with other studies (3, 8, 24-29). However, a recent systematic review highlights the benefits of whey protein but also notes potential adverse effects with chronic and abusive use. These effects include kidney and liver damage, aggravation of aggression, acne, and changes in the microbiota (24). In fact, the psychological effects of Whey protein have been neglected. However, descriptive statistics showed that the three groups, especially the Whey protein-consuming group, differed in the variables studied, but these differences were not statistically significant. To explain this lack of significance, it may be due to the duration of supplement consumption, implying that the longer the supplement use, the more

significant its psychological effects might be. Therefore, future research should control for the duration of supplement consumption. Another possibility is that the impact of other influential variables, such as parenting style, has not been eliminated from the effect of the supplement on the studied dependent variables. Another reason could be that some variables in this research, such as attachment styles, are formed under the age of five, supporting attachment theories that suggest changes in attachment style after two years of age are difficult (15). As for sensation-seeking, it may be more influenced by genetics than environment, and family relationships may be more affected by family systems rather than nutrition (10, 17). Similarly, sexual desire could be influenced by genetics or experiences with sexual stimuli, and anger could be influenced by experiences of frustration in life. On the other hand, it seems that controlled studies such as experimental research might be more beneficial and yield more precise results for investigating the effects of such substances.

#### 5. Conclusion

In general, it should be noted that psychological components, particularly attachment styles, are not solely influenced by being an athlete or the consumption or non-consumption of supplements. The major factors influencing psychological, emotional, and attachment components in adults are influenced by the developmental cycle, pre-established schemas, parenting styles, and genetics. Therefore, it is not expected that merely being an athlete or consuming supplements would create fundamental changes in the cycle and processes of psychological, emotional, and attachment aspects.

Like other studies, this research had limitations. It was a causal-comparative study, and causal inferences cannot be drawn from it. The results of this research are limited to the limitations of the questionnaire tool, and the generalization of the results must be done cautiously as the sampling was non-random.

Other researchers interested in this field are advised to use experimental studies to investigate the psychological effects of Whey protein, given the ambiguity of its psychological impact.

#### Authors' Contributions

B.S: devised the study and performed the experiment. Z.Y: supervised the project and provided the theoretical framework. K.P: designed the methodology and did the calculations. S.M.H. did the literature review. M.D.D: compared the results with previous studies.

### Transparency Statement

The authors are willing to share their data, analytics methods, and study materials with other researchers. The material will be available upon reasonable request.

### Acknowledgments

We would like to express our gratitude to all participants helped us to do the project.

### References

- Colman JB, Laureano DP, Reis TM, Krolow R, Dalmaz C, da Silva Benetti C, Silveira PP. Variations in the neonatal environment modulate adult behavioral and brain responses to palatable food withdrawal in adult female rats. *International Journal of Developmental Neuroscience*. 2015;40:70-5. [PMID: 25450525] <https://doi.org/10.1016/j.ijdevneu.2014.11.003>
- Hendy HM. Which comes first in food–mood relationships, foods or moods? *Appetite*. 2012;58(2):771-5. [PMID: 22123609] <https://doi.org/10.1016/j.appet.2011.11.014>
- Freeman WL. The relationship between habitual dietary protein intake and dual task performance in sedentary, recreationally active, and masters athlete older adults. 2017.
- Hosseinzade N, Rajai GhasemGheshlagi N, Tahmasbi R, Khorjahani A, Ghalavand M. The effect of pea and Whey protein isolate supplementation on muscle injury following a session of intense functional activity. *Jundishapur Scientific Medical Journal*. 2022;21(4):524-35. [PMID: 26342064] [PMCID: PMC7002872]. <https://doi.org/10.1152/ajpheart.00208.2015>
- Karimian J, Entezari M, Pahlavani N, Papi B, Rasad H, Chaboksavar F. Evaluation the effects of L-arginine supplementation on exercise performance, body composition and serum sodium and potassium in healthy male athletes. *ISMJ*. 2016;18(6):1186-97. <https://doi.org/10.32598/JSMJ.21.4.2547>
- Gahche J. Dietary supplement use among US adults has increased since NHANES III (1988-1994): US Department of Health & Human Services, Centers for Disease Control and ...; 2011. [PMID: 26342064] [PMCID: PMC7002872]. <https://doi.org/10.1152/ajpheart.00208.2015>
- Rastgoo S, Ebrahimi Daryani N, Hekmatdoost A. Effects of Glutamine Supplementation against Iso Whey Protein on Clinical Symptoms and Quality of Life of the Patients with Irritable Bowel Syndrome. *Iranian Journal of Nutrition Sciences & Food Technology*. 2022;16(4):19-28. [PMID: 26342064] [PMCID: PMC7002872]. <https://doi.org/10.1152/ajpheart.00208.2015>
- Zahabi G. Effect of whey protein & creatine supplementation on the fitness indicators, velocity and muscle hypertrophy of untrained men over a period of resistance training. *Iranian Journal of Nutrition Sciences & Food Technology*. 2015;10(2):19-28. [PMID: 26342064] [PMCID: PMC7002872]. <https://doi.org/10.1152/ajpheart.00208.2015>
- Jensen M, Chassin L, Gonzales NA. Neighborhood moderation of sensation seeking effects on adolescent substance use initiation. *Journal of youth and adolescence*. 2018;46(9):1953-67. [PMID: 28220280] [PMCID: PMC5563476]. <https://doi.org/10.1007/s10964-017-0647-y>
- Zuckerman M. Sensation seeking (psychology revivals): Beyond the optimal level of arousal: Psychology Press; 2014. <https://doi.org/10.4324/9781315755496>
- Zuckerman M, Kolin EA, Price L, Zoob I. Development of a sensation-seeking scale. *Journal of consulting psychology*. 1964;28(6):477. [PMID: 14242306] <https://doi.org/10.1037/h0040995>
- Saboonchi F, Dokaneifard F, Behbodi M. Structural model of marital satisfaction based on attachment styles and early maladaptive schemas with mediation of sensation seeking. *Quarterly of Applied Psychology*. 2020;14(1):119-38.
- Greenman PS, Johnson SM. Emotionally focused therapy: Attachment, connection, and health. *Current opinion in psychology*. 2022;43:146-50. [PMID: 34375935] <https://doi.org/10.1016/j.copsyc.2021.06.015>
- Cooke JE, Racine N, Plamondon A, Tough S, Madigan S. Maternal adverse childhood experiences, attachment style, and mental health: pathways of transmission to child behavior problems. *Child abuse & neglect*. 2019;93:27-37. [PMID: 31048134] <https://doi.org/10.1016/j.chiabu.2019.04.011>
- Ainsworth MDS, Blehar MC, Waters E, Wall SN. Patterns of attachment: A psychological study of the strange situation: Psychology Press; 2015. <https://doi.org/10.4324/9780203758045>
- Khosravi J, Moradi O, Ahmadian H, Yoosefi N. The Causal Model of Emotional Divorce Trend Based on Self-Differentiation through Marital Affliction Mediation. *Quarterly Journal of Woman and Society*. 2021;12(46):159-72.
- Janbozorgi F, Darbani SA, Parsakia K. The structural model of predicting family health based on communication patterns and self-efficacy with the mediating role of self-compassion in women. *Psychology of Woman Journal*. 2020;1(3):66-80.

### Declaration of Interest

The authors report no conflict of interest.

### Funding

This research received no external funding.

### Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

18. Fitzpatrick M, Koener A. Family communication schema effect on children's resilience running head: Family communication schemata, the evolution key of mass communication concepts: Honoring jack M. McLeod; 2004.
19. Mazza M, Marano G, Lai C, Janiri L, Sani G. Danger in danger: Interpersonal violence during COVID-19 quarantine. *Psychiatry research*. 2020;289:113046. [PMID: 32387794] [PMCID: PMC7190494]. <https://doi.org/10.1016/j.psychres.2020.113046>
20. Jackson J, Kuppens P, Sheeber LB, Allen NB. Expression of anger in depressed adolescents: The role of the family environment. *Journal of abnormal child psychology*. 2011;39:463-74. [PMID: 26342064] [PMCID: PMC5553200]. <https://doi.org/10.1007/s10802-010-9473-3>
21. McCarthy B, Bodnar LE. Sexual dysfunction. *Encyclopedia of Cognitive Behavior Therapy*. 2005:352-5. [https://doi.org/10.1007/0-306-48581-8\\_99](https://doi.org/10.1007/0-306-48581-8_99)
22. Singhal A, Varma A. A comparative study assessing improvement in Quality of life in migraine patients using Biofeedback and relaxation techniques along with medical therapy to patients only taking medical therapy. *Indian Journal of Psychiatry*. 2022;64(Suppl 3):S544.
23. Şerban I, Salvati M, Enea V. Sexual Orientation and Infidelity-Related Behaviors on Social Media Sites. *International Journal of Environmental Research and Public Health*. 2022;19(23):15659. [PMID: 36497734] [PMCID: PMC9740560]. <https://doi.org/10.3390/ijerph192315659>
24. Vasconcelos QDJS, Bachur TPR, Aragão GF. Whey protein supplementation and its potentially adverse effects on health: a systematic review. *Applied Physiology, Nutrition, and Metabolism*. 2021;46(1):27-33. [PMID: 32702243] <https://doi.org/10.1139/apnm-2020-0370>
25. Haun CT, Mobley CB, Vann CG, Romero MA, Roberson PA, Mumford PW, et al. Soy protein supplementation is not androgenic or estrogenic in college-aged men when combined with resistance exercise training. *Scientific reports*. 2018;8(1):11151. [PMID: 30042516] [PMCID: PMC6057888]. <https://doi.org/10.1038/s41598-018-30574-8>
26. Pittman MC, Massie JB, Smith-Goodwin E. Prevalence, Knowledge, and Influence of Whey Protein and Other Supplements on Athletes. *Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association*. 2018;4(1):18. <https://doi.org/10.25035/jsmahs.04.01.18>
27. Qin L, Wong SH, Sun F-H, Huang Y, Sheridan S, Sit CH. Effects of alpha-lactalbumin or whey protein isolate on muscle damage, muscle pain, and mood states following prolonged strenuous endurance exercise. *Frontiers in Physiology*. 2017;8:754. [PMID: 29033851] [PMCID: PMC5626873]. <https://doi.org/10.3389/fphys.2017.00754>
28. West DW, Abou Sawan S, Mazzulla M, Williamson E, Moore DR. Whey protein supplementation enhances whole body protein metabolism and performance recovery after resistance exercise: a double-blind crossover study. *Nutrients*. 2017;9(7):735. [PMID: 28696380] [PMCID: PMC5537849]. <https://doi.org/10.3390/nu9070735>
29. Antonio J, Ellerbroek A, Silver T, Vargas L, Peacock C. The effects of a high protein diet on indices of health and body composition—a crossover trial in resistance-trained men. *Journal of the International Society of Sports Nutrition*. 2016;13(1):3. [PMID: 26778925] [PMCID: PMC4715299]. <https://doi.org/10.1186/s12970-016-0114-2>
30. Chen W-C, Huang W-C, Chiu C-C, Chang Y-K, Huang C-C. Whey protein improves exercise performance and biochemical profiles in trained mice. *Medicine and science in sports and exercise*. 2014;46(8):1517. [PMID: 24504433] [PMCID: PMC4186725]. <https://doi.org/10.1249/MSS.0000000000000272>
31. Esfarjani F, Zaman Zad F, Marandi SM. Changes in body composition, anaerobic power and muscular endurance of elite wrestlers after short and long duration of creatine consumption. *Sport Physiology*. 2015;7(27):15-30.
32. Armsden GC, Greenberg MT. *Inventory of parent and peer attachment (IPPA)*: University of Washington Seattle; 1989.
33. Spielberger CD. The experience and expression of anger: Construction and validation of an anger expression scale. *Anger and hostility in cardiovascular behavioral disorder*. 1985:5-30.