



نشریه ذهن، حرکت و رفتار

دوره ۴ شماره ۱

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نشریه ذهن، حرکت و رفتار در ارزیابی کمیسیون نشریات علمی وزارت علوم، تحقیقات و فناوری در سال ۱۴۰۳، موفق به کسب درجه علمی "ب" گردید .

مجله ذهن، حرکت و رفتار، دانشگاه تبریز یک نشریه با شیوه دآوری دو سو ناشناس به صورت دو فصلنامه و به طور **دسترسی آزاد به تمام متن مقالات** است که در حوزه تربیت بدنی و علوم ورزشی (رفتار حرکتی و روانشناسی ورزشی) منتشر می شود. این نشریه به منظور فراهم نمودن محیط فکری و فضایی علمی برای پژوهشگران ایرانی با تمرکز بر مباحث تربیت بدنی پایه گذاری شده است. این نشریه در پاسخ به پیشرفت های صورت گرفته در این حوزه از علم انتشار یافته و هدف آن انتشار مقالات پژوهشی و مروری، با کیفیت بالاست که یافته های مرتبط با موضوعات مهم رفتار حرکتی و روانشناسی ورزشی را گزارش می دهند. مطالب ارائه شده به مجله باید تحقیقات اصیل و ناب باشد و قبلاً جایی منتشر نشده باشد و نباید برای چاپ در اختیار نشریات دیگر قرار گرفته باشد.

انجمن علمی حامی: انجمن علمی رفتار حرکتی و روان شناسی ورزشی ایران

گروه علمی (موضوعی): علوم انسانی

زیر گروه: تربیت بدنی

درجه علمی: علمی

نوع دآوری: دوسو کور

متوسط زمان تا اولین اقدام: یک روز



متوسط زمان تا اولین ارسال برای داوری: ۴ روز

میانگین بازه زمانی فرایند داوری پذیرش مقالات: ۳ تا ۴ ماه، حداقل دو داور

نوع انتشار: الکترونیکی

نوع دسترسی: رایگان (تمام متن)

نشریه «ذهن، حرکت و رفتار» نشریه ای علمی با هدف انتشار مقاله‌های علمی- پژوهشی و مروری- تحلیلی با مصوبه کمیسیون سیاست گذاری، پایش و ارتقاء نشریات علمی دانشگاه تبریز به شماره ۱۰۰۱/د/۳۵ به تاریخ ۱۳۹۱/۱۱/۲۱ تاسیس گردیده است .

این نشریه به صورت دو زبانه می باشد که مقالات فارسی پذیرفته شده شامل یک چکیده بلند انگلیسی می باشد. همچنین نویسندگانی که علاقمند به چاپ مقاله کامل به صورت انگلیسی می باشند نیز می توانند مقالات خود را ارسال نمایند (زمانبندی بررسی و داوری مقالات انگلیسی در مدت زمان کمتری نسبت به مقالات فارسی صورت خواهد گرفت).



در ادامه چکیده فارسی، انگلیسی و چکیده مبسوط انگلیسی مقالات چاپ شده در [دوره ۴ شماره ۱](#) نشریه ذهن، حرکت و رفتار نمایش داده شده است. همچنین جهت دسترسی به متن کامل مقالات با کلیک روی کد Doi هر مقاله مستقیماً به متن کامل مقاله مورد نظر دسترسی پیدا خواهید کرد.



فهرست مقالات (دوره ۴ شماره ۱)

بررسی عوامل انگیزش فعالیت بدنی سالمندان: یک پژوهش کیفی

مالک احمدی

تأثیر مداخله مبتنی بر رویکرد پذیرش و تعهد بر انگیزه و میزان مشارکت در فعالیت بدنی دانش آموزان با سطوح پایین فعالیت بدنی

حسن غریاق زندی؛ فاطمه شعبانی؛ اعظم نوفرستی؛ الهه عرب عامری

ارتباط سبک های فرزندپروری و جهت گیری هدف ورزشی والدین با سطح مهارت کودکان ژیمناستیک کار ماهر

شکیبا یوسفی نژاد؛ حسن کردی

تحلیل اثرگذاری محیط کار سالم در هنرستان های تربیت بدنی شهر مشهد بر کیفیت بهداشت روانی در زندگی دانش آموزان

رامین ایرجی نقندر

مقایسه اثربخشی تمرینات ذهن آگاهی و تحریک الکتریکی مستقیم فراجمجمه ای بر توجه پایدار و بازداری پاسخ دختران ژیمناست

نوجوان: مطالعه با اثر انتظار

حسین صمدی؛ مستوره خرم؛ محمد صحبتی ها

ارتباط بین رفتارهای بین فردی اساتید با انگیزه های بهزیستی، رضامندی از نیازهای اساسی، مشارکت ورزشی و بهزیستی

دانشجویان در کلاس های تربیت بدنی

بهزاد بهزادنیا؛ سعید شکری

تأثیر برنامه تمرینی منتخب بر مهارت های زندگی، مهارت های خودتنظیمی و حس انسجام در نوجوانان

سمیه روشندل؛ مهدی سهرابی؛ مهدی محمدی نژاد؛ نرگس ولی

اثربخشی محرک زیرآستانه ای (سابلیمینال) در مهارت های ذهنی و عملکرد بازیکنان دختر بدمینتون کار رده سنی نوجوان در

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اکبر ابراهیمی اورنگ؛ حمزه مرادی

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مهنا اسکندر نژاد؛ وقار اسدی زنوز

تأثیر مداخله ترکیبی حرکتی و شناختی بر کیفیت زندگی، سرعت راه رفتن و ترس از افتادن بیماران مبتلا به مولتیپل اسکلروزیس:

یک کار آزمایی بالینی کنترل شده

داریوش خواجهی؛ حدیث طهماسبی ارشلو پور؛ فردین فرجی



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A qualitative Investigating the factors motivating the elderly to engage in physical activity: study

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Abstract

The aim of the present study was to investigate the factors motivating the elderly to engage in physical activity, with an approach to increasing participation, based on the self-determination theory (SDT). The present study is a descriptive-survey study conducted in the form of semi-structured interviews. From among the elderly aged 65-75 in West Azerbaijan province, 20 people (10 women and 10 men) were initially selected as samples for qualitative interviews using a purposive sampling method. First, based on the theoretical foundations and background of the research, motivation components were prepared based on the theory of SDT. The content of the interviews was coded using the open coding method, axial categories, and selective codes. The results showed that: the intrinsic motivation factors included the components of enjoyment, recreation and entertainment, the value of physical activity, and interest in physical activity; integrated regulation factors included personal growth components, basic life values, main life purpose, and belief in physical activity; identified regulation factors included appearance and fitness, physical fitness, physical health, psychological well-being, and social well-being; introjected regulation factors included mental pressure, negative thoughts, and negative emotions; external regulation factors included significant others, health professionals, social recognition, sports facilities and spaces; and finally, amotivational factors included components of spending time with physical activity and physical activity without a goal. In general, it is suggested that in order to promote participation, in designing physical activity programs for the elderly, a set of intrinsic, extrinsic, and amotivational factors should be considered.

Keywords: Physical activity, Motivation, Elderly, Self-determination theory.



Extended Abstract Background and Purpose

In recent decades, improvements in healthcare, living conditions, and facilities have led to increased life expectancy, resulting in a growing elderly population worldwide (Babak, Davari, Aghdak, & Pirhaji, 2011). In Iran, according to the 2016 census, about 10% of the population were aged 60 and above, with projections estimating this figure to exceed 25% by 2051. Physiological challenges common in old age, including disabilities and functional decline, are often linked to insufficient physical activity and muscle use, negatively impacting quality of life (Borzoo et al., 2011). Physical activity and exercise have proven effective in preventing, delaying, or mitigating age-related health issues by improving cardiovascular function, muscle mass and strength, bone health, balance, flexibility, longevity, cognitive function, and self-confidence (Peyman, Taghipour, Mahdizadeh, & Esmaeely, 2013). Given the substantial benefits of physical activity for older adults, understanding the factors that influence their participation is essential for promoting active aging. Numerous empirical studies have substantiated the applicability of Self-Determination Theory (SDT) in the enhancement of physical activity across diverse age groups (A. Ahmadi et al., 2023; M. Ahmadi & moradzadeh, 2022; Behzadnia, Mohammadzadeh, & Ahmadi, 2019). Collectively, these findings underscore the robustness of the theory as a foundational model for designing interventions aimed at promoting sustained physical activity.

Although numerous studies have investigated facilitators and barriers to physical activity among the elderly (Behzadnia, Deci, & DeHaan, 2020; Stephan, Boiché, & Le Scanff, 2010), many have explored these factors without a guiding theoretical framework, primarily using quantitative methods. Notably, motivational factors driving physical activity in Iranian older adults remain underexplored from a theory-based qualitative perspective. The Self-Determination Theory (Deci & Ryan, 2000, 2013), a prominent motivational framework, provides a comprehensive model to understand human behavior through a continuum of motivational regulations ranging from amotivation to intrinsic motivation (Vallerand, 1997). This study aims to examine motivational factors influencing physical activity among older adults in Iran. The approach is qualitative and based on Self-Determination Theory.

Materials and Methods

This study employed a qualitative descriptive survey design. The statistical population included elderly individuals aged 65 to 75 years (both men and women) residing in West Azerbaijan Province during 2022–2023. Using purposive sampling, 20 participants (10 males and 10 females) were selected for semi-structured interviews. Data collection involved a demographic questionnaire and a semi-structured interview guide based on the six-part motivational continuum of Self-Determination Theory, developed and pilot-tested for clarity and relevance. Interviews were conducted individually at participants' homes or suitable locations, lasted 30 to 60 minutes, and were audio-recorded with informed consent between May and June 2023.

Data analysis consisted of descriptive statistics for demographic variables and qualitative content analysis of interview transcripts using MAXQDA (2024). The analysis followed a systematic coding



process, beginning with open coding by line-by-line examination to extract meaningful concepts, followed by axial coding to group related concepts into categories, and culminating in selective coding to identify core categories and overarching themes. This iterative process allowed for meaningful data reduction and the extraction of thematic patterns aligned with the study's theoretical framework on motivational factors influencing elderly participation in physical activity.

Results

The analysis of interview content using open coding, axial coding, and selective coding revealed a range of motivational factors influencing physical activity among the elderly. Intrinsic motivation factors included enjoyment, recreation and entertainment, the perceived value of physical activity, and personal interest in engaging in such activities. Integrated regulation factors encompassed elements related to personal growth, core life values, a primary life purpose, and belief in the importance of physical activity. Identified regulation factors were associated with appearance and fitness, physical readiness, physical health, psychological well-being, and social well-being. Introjected regulation factors included mental pressure, negative thoughts, and negative emotions, reflecting internal conflicts influencing motivation. External regulation factors involved influences from significant others, health professionals, social recognition, as well as access to sports facilities and spaces. Finally, amotivational factors were characterized by engagement in physical activity as a means of passing time or without any specific goal. These findings illustrate the complex and multifaceted nature of motivation driving physical activity participation among older adults, highlighting the necessity to consider a broad spectrum of motivational components in the design of interventions and programs aimed at this population.

Conclusion

Consistent with Self-Determination Theory, intrinsic, integrated, and identified regulations characterized by enjoyment, personal growth, basic life values, and belief in physical activity emerge as key predictors of sustained engagement in physical activity. Nevertheless, introjected and external motivational factors, including mental pressure, negative affect, social influences, health professionals, social recognition, and availability of exercise facilities, also hold significant relevance within this population. Notably, amotivational factors such as engaging in physical activity for pastime or without explicit goals were identified, underscoring the complexity of motivational dynamics in older adults. These findings suggest that interventions and programs aimed at promoting physical activity in the elderly should adopt a comprehensive approach that fosters autonomous motivation while addressing pertinent extrinsic and amotivational factors to effectively enhance participation.

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Authors' Contributions



The author was solely responsible for the design, implementation, analysis, and writing of the study.

Conflicts of Interest

The authors declared no conflict of interest.

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بررسی عوامل انگیزش فعالیت بدنی سالمندان: یک پژوهش کیفی

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چکیده

هدف پژوهش حاضر، بررسی عوامل انگیزش فعالیت بدنی سالمندان استان آذربایجان غربی با رویکرد افزایش مشارکت، بر اساس نظریه خودمختاری بود. تحقیق حاضر، توصیفی-پیمایشی است که به صورت مصاحبه نیمه ساختارمند انجام گرفت. از بین سالمندان ۷۵-۶۵ ساله استان آذربایجان غربی، ابتدا با روش نمونه هدفمند، تعداد ۲۰ نفر (۱۰ زن و ۱۰ مرد) به عنوان نمونه برای مصاحبه کیفی انتخاب شدند. ابتدا بر اساس مبانی نظری و پیشینه تحقیق، مولفه های انگیزش بر اساس نظریه خودمختاری، تهیه گردید. محتوی مصاحبه ها با استفاده از روش کدگذاری باز، مقوله های محوری، و کدهای گزینشی، کدگذاری گردید. نتایج نشان داد: عوامل انگیزش درونی سالمندان برای فعالیت بدنی شامل مولفه های لذت بخشی، تفریح و سرگرمی، ارزشمندی فعالیت بدنی، و علاقه مندی به فعالیت بدنی؛ عوامل تنظیمات درآمیخته با خود، شامل مولفه های رشد شخصی، ارزش اساسی زندگی، هدف اصلی زندگی، و اعتقاد به فعالیت بدنی؛ عوامل تنظیمات خودپذیر، شامل ظاهر و تناسب اندام، آمادگی جسمانی، سلامت جسمانی، بهزیستی روانشناختی، بهزیستی اجتماعی؛ عوامل تنظیمات درونفکنی شده، شامل فشار ذهنی، افکار منفی، و احساسات منفی؛ عوامل تنظیمات بیرونی، شامل افراد بااهمیت، متخصص سلامت، شناخته شدن اجتماعی، امکانات و فضاهای ورزشی؛ و در نهایت، عوامل بی انگیزشی شامل مولفه های وقتگذرانی با فعالیت بدنی، و فعالیت بدنی بی هدف بودند. در کل، پیشنهاد می شود برای ترفیع مشارکت، در طراحی برنامه های فعالیت بدنی سالمندان، به مجموعه ای از عوامل انگیزشی درونی، بیرونی، و بی انگیزگی آنها تاکید شود.

کلید واژه ها: فعالیت بدنی، انگیزش، سالمند، نظریه خودمختاری.



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The Effect of Acceptance and Commitment Therapy Based Intervention on Physical Activity Motivation and Participation Among Students with Low Levels of Physical Activity

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Abstract

This study aimed to examine the effects of a 7-session Acceptance and Commitment Therapy (ACT) intervention on motivation and participation in physical activity among physically inactive adolescent students. This experimental study, employing a repeated-measures design with a control group, was conducted in Shahroud city. A total of 132 female students aged 13 to 18 were randomly assigned to either the intervention or control group. The intervention group participated in a 7-session ACT program over seven weeks, while the control group received no intervention. Motivation and participation in physical activity were assessed before and after the intervention using the BREQ-2 and PAR-Q questionnaires. Data were analyzed using mixed-design ANOVA in SPSS 21. The findings indicated that the ACT intervention significantly increased intrinsic motivation (effect size: 0.86) and identified regulation (effect size: 0.20) while reducing external regulation (effect size: 0.50) in the intervention group compared to the control group ($p < 0.001$). Additionally, participation in physical activity significantly increased in the intervention group (effect size: 0.82) ($p < 0.001$). The use of ACT can help enhance motivation and participation in physical activity among physically inactive adolescent students. Therefore, schools can adopt this approach to promote students' motivation and engagement in physical activities.

Keywords: Acceptance and Commitment Therapy (ACT), Physical Activity, Participation Motivation, Physically Inactive Adolescents.



Extended Abstract

Background and Purpose

Physical activity is recognized as a key factor in maintaining physical, mental, and cognitive health (1). However, physical inactivity is a major health issue that not only leads to physical problems such as heart disease and diabetes but can also have negative psychological effects such as depression and anxiety (2, 3). According to the World Health Organization's report, lack of physical activity is a significant contributor to various diseases (3). Despite strong evidence of the benefits of physical activity, participation remains low, and many individuals avoid it for various reasons, such as lack of motivation, limited time, and unpleasant feelings associated with physical activity (6, 7). To address these issues, several psychological interventions aimed at behavior change and increasing motivation have been designed (14-17). Most of these interventions have used various behavior change models, but their effects have generally been small and limited (19). Therefore, newer approaches like Acceptance and Commitment Therapy (ACT) could provide a more effective solution for changing health-related behaviors. ACT emphasizes the acceptance of thoughts, feelings, and unpleasant experiences rather than attempting to change them, and aims to increase psychological flexibility (20). By helping individuals identify their values and align their behaviors with those values, ACT can enhance their motivation to engage in physical activity (22). Thus, this study aims to investigate the impact of an ACT intervention on motivation and participation in physical activity among physically inactive adolescents, to determine whether this approach can help increase physical activity levels within this group.

Materials and Methods

This applied, experimental study with a repeated-measures design and a control group aimed to assess the effectiveness of an Acceptance and Commitment Therapy (ACT)-based intervention on motivation for physical activity in female high school students aged 13 to 18 in Shahrood, Iran, during the 2023-2024 academic year. A total of 132 participants were initially recruited, with a 20% dropout rate. Participants were randomly assigned to the ACT intervention group or the control group, with the ACT group receiving a 7-week intervention consisting of seven 60-minute sessions focusing on key ACT principles such as mindfulness, cognitive defusion, and values clarification to promote physical activity. The control group continued with their usual activities. To assess physical activity motivation and participation, the study employed two primary tools: the Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2) (Mullan, Markland, & Ingledew, 1997) and the Physical Activity Questionnaire for Adolescents (PAQ-A) (Benítez-Porres et al., 2016). Both questionnaires were administered before and after the intervention to track changes in motivation and physical activity levels. Descriptive statistics were used to summarize the data, and a 2×3 mixed-model analysis of variance (ANOVA) was conducted to evaluate the main and interaction effects of the group and time (pre-test and post-test). All analyses were conducted at a significance level of $p \leq 0.05$, using SPSS version 21 for data analysis.



Results

Variable	Effect	Sum Squares	of	df	Mean Squares	F	p-value	ηp^2
Amotivation	Group	0.928		1	0.928	1.52	0.219	0.01
	Time	8.42		1	8.42	115.86	0.001	0.47
	Time $\times$ Group	1.89		1	1.89	26.03	0.001	0.16
External Regulation	Group	2.04		1	2.04	2.63	0.1	0.02
	Time	7.44		1	7.44	67.96	0.001	0.34
	Time $\times$ Group	0.715		1	0.715	6.53	0.01	0.04
Introjected Regulation	Group	4.60		1	4.60	3.91	0.05	0.02
	Time	2.11		1	2.11	6.94	0.009	0.05
	Time $\times$ Group	0.27		1	0.27	0.90	0.34	0.007
Identified Regulation	Group	0.125		1	0.125	0.144	0.7	0.001
	Time	1.47		1	1.47	10.57	0.001	0.07
	Time $\times$ Group	0.824		1	0.824	5.89	0.01	0.04
Intrinsic Motivation	Group	6.24		1	6.24	8.56	0.004	0.06
	Time	4.22		1	4.22	70.59	0.001	0.35
	Time $\times$ Group	2.78		1	2.78	46.41	0.001	0.26
Physical Activity Participation	Group	3.01		1	3.01	9.41	0.003	0.06
	Time	1.87		1	1.87	24.86	0.001	0.16
	Time $\times$ Group	1.98		1	1.98	26.36	0.001	0.16

A mixed-model ANOVA showed significant effects of the ACT-based intervention on motivation and physical activity participation. For amotivation, a significant decrease was observed in the ACT group, with a strong time-by-group interaction ($p < 0.001$). External regulation also showed significant changes, with the ACT group demonstrating greater improvement. Introjected regulation did not show a significant interaction. For identified regulation, the ACT group again showed significant improvement. Intrinsic motivation improved significantly in both groups, with the ACT group showing a greater increase. Lastly, physical activity participation increased significantly more in the ACT group compared to the control group ($p < 0.001$).

Conclusion

The main objective of this study was to examine the effect of Acceptance and Commitment Therapy (ACT) interventions on motivation and physical activity participation among sedentary adolescents. Specifically, the study focused on investigating changes in motivational levels and their impact on increasing physical activity participation and reducing extrinsic motivation. The results revealed that intrinsic motivation (including identified regulation and intrinsic regulation) significantly increased in the intervention group compared to the control group, while extrinsic motivation (controlled regulation) decreased in the intervention group. Additionally, physical activity participation significantly increased in the intervention group after the ACT intervention, and these changes remained stable at follow-up. The results of the present study are consistent with findings from previous research. Specifically, the study by Lev Arey, Blatt, and Gutman (2022) showed that



interventions based on Self-Determination Theory (SDT) and ACT can increase intrinsic motivation and decrease extrinsic motivation, which aligns with the findings of this study. Furthermore, the research Kelso et al. (2020) indicated that school-based physical activity interventions enhanced intrinsic motivation and reduced extrinsic motivation, similar to the findings of this study. Additionally, previous studies such as Mandic et al. (2020) and Murillo Pardo, García Bengoechea, Julián Clemente, and Generelo Lanaspa (2016) showed that ACT-based and similar intervention programs could effectively enhance intrinsic motivation and improve physical activity participation. The findings of this study suggest that ACT can play a key role in enhancing the psychological and motivational aspects of sedentary adolescents, leading to increased physical activity participation. ACT techniques, such as acceptance of negative thoughts and emotions, increasing autonomy, and strengthening a sense of competence, help adolescents overcome psychological barriers and experience sustained engagement in physical activity (Lev Arey et al., 2022) . These results indicate that ACT interventions in physical education and sports programs can be particularly effective in increasing intrinsic motivation and participation in sports among sedentary adolescents. Based on these results, it is recommended that ACT-based interventions be implemented continuously in schools and educational settings to enhance adolescents' intrinsic motivation for physical activity. Moreover, by designing individualized educational programs and creating supportive environments in schools, physical activity participation among adolescents can be effectively increased.

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Authors' Contributions

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Conflicts of Interest

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تأثیر مداخله مبتنی بر رویکرد پذیرش و تعهد بر انگیزه و میزان مشارکت در فعالیت بدنی دانش آموزان با سطوح پایین فعالیت بدنی

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چکیده

پژوهش حاضر با هدف بررسی تأثیر یک دوره ۷ جلسه‌ای مداخله مبتنی بر پذیرش و تعهد (ACT) بر انگیزه و مشارکت در فعالیت بدنی در دانش آموزان نوجوان کم‌تحرک انجام گرفت. پژوهش حاضر به صورت آزمایشی با استفاده از طرح اندازه‌های تکراری و گروه کنترل در شهرستان شاهرود انجام شد. ۱۳۲ دانش آموز دختر با سن ۱۳ تا ۱۸ سال به صورت تصادفی به دو گروه مداخله و کنترل تقسیم شدند. گروه مداخله یک برنامه ۷ جلسه‌ای ACT را دریافت کردند که طی ۷ هفته برگزار شد، در حالی که گروه کنترل هیچ گونه مداخله‌ای دریافت نکردند. انگیزه و میزان مشارکت در فعالیت بدنی پیش و پس از مداخله با استفاده از پرسشنامه‌های BREQ-2 و PAR-Q ارزیابی شدند. داده‌های به دست آمده با استفاده از روش تحلیل واریانس مرکب با نرم افزار SPSS ۲۱ تجزیه و تحلیل شدند. نتایج نشان داد که مداخله ACT موجب افزایش انگیزه درونی (اندازه اثر: ۰٫۸۶) و تنظیم شناسایی شده (اندازه اثر: ۰٫۲۰) و کاهش تنظیم بیرونی (اندازه اثر: ۰٫۵۰) در گروه مداخله نسبت به گروه کنترل شد ($p > ۰/۰۰۱$). همچنین، میزان مشارکت در فعالیت بدنی در گروه مداخله به طور معناداری افزایش یافت (اندازه اثر: ۰٫۸۲) ($p > ۰/۰۰۱$). استفاده از ACT می‌تواند به بهبود انگیزه و میزان مشارکت در فعالیت بدنی دانش آموزان نوجوان کم‌تحرک کمک کند. بنابراین، مدارس میتوانند از این رویکرد جهت ارتقاء انگیزه و میزان مشارکت دانش آموزان در فعالیت‌های جسمانی استفاده کنند.

کلید واژه‌ها: رویکرد پذیرش و تعهد، فعالیت بدنی، انگیزه مشارکت، نوجوانان کم تحرک.



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The Relationship Between Parenting Styles and Parents' Sports Goal Orientation with the Skill Level of Skilled Gymnasts Children

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Abstract

This descriptive-correlational study aimed to explore the relationship between parenting styles, parents' sports goal orientation, and the skill levels of skilled gymnasts aged 6 to 9 years. The study's statistical population consisted of gymnastic children from the northern region of Tehran who had at least two years of practice experience, with 44 participants volunteering.

To collect data, the researchers used Baumrind's (1973) parenting style questionnaires and Keshavarzi et al.'s (2011) questionnaires on parents' sports orientation. Additionally, the skill level in gymnastics was assessed using the preliminary leveling test from the Gymnastics Federation (Taherkhani et al., 2018). The collected data were then analyzed using the Pearson correlation test and multiple regression at a significance level of $\alpha=0.05$.

The results indicated that parenting styles and parents' sports goal orientation predicted 74% of the gymnastics skill level in girls and 71% in boys. A significant correlation was found between permissive and assertive parenting styles and gymnastics skill levels. Specifically, permissive and assertive parenting styles were strongly related to girls' athletic performance, while assertive parenting styles were significantly associated with boys' athletic performance. Furthermore, a notable correlation was observed between mastery goal orientation and the gymnastic skill levels of both girls and boys.

In conclusion, it can be said that parenting styles and parents' athletic goal orientation are related to the skill levels of girls and boys in gymnastics to varying degrees. Overall, parents who employed assertive parenting styles and had a mastery goal orientation tended to have children with better gymnastics skills.

Keywords: Parenting, Goal orientation, Gymnastics, Children.



Extended Abstract

Background and Purpose

Youth participation in sports is largely facilitated by parents, as they initiate children's involvement in athletic activities and provide essential emotional and financial support for participation (Harwood & Knight, ۲۰۱۶). Research literature indicates that parenting styles can lead to positive outcomes, such as increased motivation and satisfaction among athletes (Abdoli & Kavyani, ۲۰۱۳). Baumrind (۱۹۷۱) conceptualized parenting styles as parental control strategies and categorized them into three main types: authoritative, authoritarian, and permissive. Holt et al. (۲۰۰۹) observed that parents employ different parenting styles depending on the context of the sporting situation (Holt, Tamminen, Black, Mandigo, & Fox, ۲۰۰۹). Goal orientation, a construct derived from motivational theories, is a key factor in understanding athletes' behaviors in sports activities (Atkins, Johnson, Force, & Petrie, ۲۰۱۵). Abolghasemi et al. (۲۰۱۳) highlighted the role of psychological variables such as goal orientation in predicting athletic performance. Becker et al. (۲۰۱۸) found that adolescents' perception of the motivational climate—particularly one created by parents and coaches—is indirectly related to their mental toughness through their level of goal orientation endorsement. Moreover, the motivational climate established by parents and coaches is associated with athletes' goal orientations. Given that children and adolescents have yet to form personal theories of success, they may be more susceptible to situational influences than adults (Roberts, ۲۰۱۲). Since children spend most of their time with their families, the family is regarded as the first and most influential social unit in shaping their behavior. Although previous findings are valuable, there is limited empirical evidence on how different parental behaviors interact to influence children's sport-specific skill levels. Few studies have specifically examined the psychological parent-child factors affecting performance in gymnastics. Therefore, based on the contextual model of parenting style proposed by Darling and Steinberg (۱۹۹۳), this relationship merits closer attention, as parenting styles lay the foundation for parental beliefs and goals related to their children's socialization (Darling & Steinberg, ۲۰۱۷). Consequently, this study aims to examine the relationship between parenting styles and parents' sports goal orientations with the gymnastics skill level of boys and girls aged ۶ to ۹ years.

Materials and Methods

This descriptive-correlational study included boys and girls aged ۶ to ۹ years who were active members of gymnastics clubs in northern Tehran in ۲۰۲۳. The Persian version of the Parenting Styles Questionnaire (Baumrind, ۱۹۷۱), whose validity and reliability were previously confirmed (Mehrafrouz & Shahraray, ۲۰۰۲), was used. Parents' sports goal orientation was measured using the questionnaire developed by Keshavarzi et al. (۲۰۱۱), which reflects children's perceptions of their parents' preferences and avoidances in sports. Gymnastics skill level was assessed using the basic level evaluation test from the Gymnastics Federation (Taherkhani et al., ۲۰۱۸). Pearson correlation and linear regression analyses were used to analyze the data.



Results

Among girls, a higher level of permissive parenting style was associated with a decrease in gymnastics skill, while a higher level of authoritative parenting style correlated with improved gymnastics performance. However, authoritarian parenting style did not show a significant relationship with girls' gymnastics skills. Among boys, authoritative parenting style was positively correlated with higher gymnastics skill levels, whereas permissive and authoritarian parenting styles showed no significant associations with skill level.

Conclusion

Authoritative parents not only respond to their children's needs but also clearly communicate expectations. When children are trained to develop mental toughness, they tend to perform better in sports, making it a powerful tool for facilitating success. Perceived parental encouragement has a strong and distinct impact on intrinsic motivation. These perceptions can promote a positive learning environment, thereby increasing the likelihood of achieving higher athletic performance compared to peers—a factor strongly tied to parenting style (Kunnen, Ruiter, Jeronimus, & Gaag, ۲۰۱۹). In this study, no significant gender difference was found in the relationship between parenting style and gymnastics skill level, possibly due to the nature of the skill or the sample. Since authoritative parenting is characterized by balanced expectations, communication, and warmth, it can foster autonomy and mutual parent-child interaction. According to achievement goal theory, perceptions of success and competence can be shaped by the type of goal orientation. Athletes' performance-oriented goal orientation has been positively associated with enjoyment and the intention to continue participating in sports (Gardner et al., ۲۰۱۶). Mastery orientation is defined by a focus on learning, task mastery, use of deep processing strategies, and a strong effort to regulate the learning process. In contrast, performance orientation is centered on comparison and outperforming others. Therefore, when parents adopt a supportive communication pattern, it enhances children's autonomy, self-efficacy beliefs, and mastery-oriented goal direction, ultimately boosting their performance (Abedini et al., ۲۰۲۳). Overall, the results of this study demonstrate that both parenting style and parents' sports goal orientation are significantly associated with children's gymnastics skill levels. The findings clearly show that children of parents who adopted an authoritative parenting style and mastery-oriented goal focus exhibited higher levels of gymnastics performance. Since children place high value on their parents' evaluations of their efforts, it can be concluded that parental expectations and feedback regarding children's athletic efforts and performance play a crucial role in improving learning and skill acquisition across domains, including sports performance.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

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فهن، حرکت و رفتار

BEHAVIOR
MOVEMENT
MIND



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ارتباط سبک‌های فرزندپروری و جهت‌گیری هدف ورزشی والدین با سطح مهارت کودکان ژیمناستیک کار ماهر

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چکیده

هدف پژوهش توصیفی- همبستگی حاضر تعیین ارتباط سبک‌های فرزندپروری و جهت‌گیری هدف ورزشی والدین با سطح مهارت ژیمناستیک‌کاران ماهر ۶ تا ۹ سال دختر و پسر بود. جامعه‌ی آماری پژوهش، کودکان ژیمناستیک کار با حداقل ۲ سال سابقه تمرین در منطقه شمال شهر تهران بودند که تعداد ۴۴ نفر به روش داوطلبانه شرکت کردند. جهت گردآوری اطلاعات از پرسشنامه‌های سبک فرزندپروری بامریند (۱۹۷۳) و جهت‌گیری ورزشی والدین کشاورزی و همکاران (۱۳۹۰) استفاده شد. سنجش سطح مهارتی ژیمناستیک نیز با استفاده از آزمون سطح‌بندی مقدماتی فدراسیون ژیمناستیک (طاهرخانی و همکاران، ۱۳۹۷) انجام گرفت. اطلاعات بدست آمده از طریق آزمون همبستگی پیرسون و رگرسیون چندگانه در سطح $(\alpha=0/05)$ تحلیل شد. نتایج نشان داد متغیر سبک‌های فرزندپروری و جهت‌گیری هدف ورزشی والدین در دختران ۷۴ درصد و در پسران ۷۱ درصد از سطح مهارت ژیمناستیک را پیش‌بینی می‌کند. همبستگی معنی داری بین سبک فرزندپروری سهل‌انگارانه و قاطعانه با سطح مهارت ژیمناستیک مشاهده شد. سبک فرزندپروری سهل‌انگارانه و قاطعانه با عملکرد ورزشی دختران و سبک فرزندپروری قاطعانه با عملکرد ورزشی پسران رابطه معنی داری داشت. همچنین بین جهت‌گیری هدف تسلطی با سطح مهارت ژیمناستیک دختران و پسران ارتباط معنی داری مشاهده شد. لذا می‌توان گفت سبک‌های فرزندپروری و جهت‌گیری هدف ورزشی والدین به میزان متفاوتی با سطح مهارتی کودکان دختر و پسر ژیمناستیک‌کار ارتباط دارد و در مجموع، والدینی که از روش قاطعانه برای سبک فرزندپروری استفاده کرده‌اند و جهت‌گیری هدف ورزشی تسلطی داشته‌اند، سطح مهارت ورزشی ژیمناستیک دختران و پسران آن‌ها بهتر بوده است.

کلید واژه‌ها: فرزندپروری، جهت‌گیری هدف، ژیمناستیک، کودکان.



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Analysis of the effect of a healthy work environment in Mashhad physical education colleges on the quality of mental health in students' lives

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Abstract

Today, with the increasing development of knowledge and technology in all educational sectors and the lack of attention to fundamental indicators in the design and construction of facilities, students are forced to adapt their individual characteristics to the imposed conditions, which as a result of this lack of fit can create the basis for many physical and mental problems. Therefore, The aim of this research was to analyze the effect of a healthy work environment in physical education colleges in Mashhad on the quality of mental health in students' lives. The research method is descriptive and of the survey type, which was implemented in the field. The statistical population of this research was made up of all the students of physical education schools in Mashhad in the second secondary level, numbering 900 people in the academic year of 1404-1403. Using G-Power software, the number of statistical sample was estimated to be 275 people, who were selected by stratified random sampling from among the members of the statistical community. In order to collect data, healthy work environment questionnaires and mental health quality of life questionnaires were used. In order to analyze the data, descriptive indices and statistical tests of skewness and kurtosis, Pearson's correlation coefficient, regression analysis and path analysis with the least squares method were used in SPSS and PLS statistical software. The results showed that a healthy work environment has a positive and significant effect on the quality of students' mental health ($\beta=0.298$, T-Value=13.241). Also, the components of physical environment and psycho-social environment were qualified to predict the quality of mental health of students in life.

Keywords: Healthy Work Environment, Mental Health, School, Student, Sports.



Extended Abstract Background and Purpose

In the modern world of education, the demands on the role of education and schools are increasingly complex. Educational organizations are not only responsible for traditional aspects such as preventing deviant behavior and providing career counseling, but also play a key role in supporting aspects of students' personal, social, emotional, and psychological development. By focusing on individual needs, guidance and counseling can identify the challenges that students face and design strategies to help them overcome these obstacles (Zakari et al, 2024). Mental health is not simply the absence of mental illness, but rather a state of positive well-being in which individuals perceive their abilities to achieve their full potential (Gregory et al, 2024). Preventing mental health problems and creating a healthy workplace are among the primary needs for ensuring mental health. One of the indicators that is considered in terms of mental health on different segments of society is the workplace, where students at different levels of school education are exposed to different environmental conditions and, in turn, experience unpredictable events that can create changes in terms of mental health (Brick et al, 2021). Therefore, in this study, the researcher tries to analyze the impact of a healthy work environment in physical education schools in Mashhad on the quality of mental health in the lives of students in order to achieve the desired goals. The findings of this study can help teachers and school administrators, as well as education officials and other similar educational institutions in the country to gain a better and more accurate understanding of the situation of the physical education schools environment and, with the necessary planning and arrangements, improve the health and quality of the work environment in schools so that they can create favorable conditions to increase the level of mental health quality of students.

Materials and Methods

The research method is descriptive and of the survey type, which was implemented in the field. The statistical population of this research was made up of all the students of physical education schools in Mashhad in the second secondary level, numbering 900 people in the academic year of 1404-1403. Using G-Power software, the number of statistical sample was estimated to be 275 people, who were selected by stratified random sampling from among the members of the statistical community. Also, in order to confirm the sample size, the De Cohens effect size was used and its numerical value was 0.413. In order to better understand the questionnaire questions and the research objectives by the students, before answering the questionnaire questions, the researcher gave them a brief explanation in this regard. In order to comply with the research assumptions, the indicators of how to distribute the questionnaires, time, and also the absence of stress, anxiety, or fatigue among the students were observed. The internal reliability of the questionnaires was obtained through Cronbach's alpha coefficient test as 0.88 and 0.84, respectively. In order to determine the content validity of the tool, the model proposed by Lavshe (1986) was used, which was acceptable in the CVR index as 0.49 and in the CVI index as 0.79. Based on the obtained values, the content validity of all questions of both questionnaires was confirmed. The composite reliability (Dillon-Goldstein coefficient) of the Healthy Workplace Questionnaire (CR=0.942) and the Mental Health Quality of Life (CR=0.887) was acceptable, as a result, the convergent validity of the model was accepted. Also, the variance extracted from the constructs for the Healthy Workplace Questionnaire (AVE=0.897) and the Mental Health Quality of Life (AVE=0.791) was confirmed, which confirmed the divergent validity of the model.



In order to collect data, healthy work environment questionnaires and mental health quality of life questionnaires were used. In order to analyze the data, descriptive indices and statistical tests of skewness and kurtosis, Pearson's correlation coefficient, regression analysis and path analysis with the least squares method were used in SPSS and PLS statistical software.

Results

Of the total 275 respondents who participated in this study, 181 (%65.81) were boys and 94 (%34.18) were girls. Also, 173 (%62.90) were involved in team sports and 102 (%37.09) were involved in individual sports. The findings show that there is a positive and significant relationship between a healthy work environment and the quality of students' mental health ($r=0.432$, $P=0.001$). The results of the regression equation show that the components of physical environment ($P=0.001$, $t=1.82$) and psychosocial environment ($P=0.001$, $t=3.05$) are eligible to predict the quality of mental health of students. Therefore, considering the t values and the significance level, the assumption of equality of coefficients with zero is rejected and the aforementioned B coefficients should be retained in the regression equation. The coefficients, parameters, and significant numbers obtained from the operational model of a healthy workplace with mental health quality show. According to the results obtained, a healthy workplace has a positive and significant effect on the quality of students' mental health ($T\text{-Value}=13.241$, $\beta=0.298$).

Conclusion

It is concluded that as a general strategy, one should always strive to ensure that students' abilities and capabilities surpass and excel educational needs. Therefore, the use of assessment and evaluation of students' abilities has led to the maintenance of the principles of mental and social health in the school environment in a way that can help to adjust the structure of educational systems in schools and processes to the characteristics of students and ultimately increase the level of productivity among students. In general, when educational instructions with the responsibility assigned to students require high IQ, thinking power, and mental ability, employing teachers with high mental and psychological abilities can also be fruitful. Such teachers always have the opportunity to use their teaching ability when performing educational tasks and are always satisfied with the diversity of educational conditions, which can ultimately lead to an increase in the quality of mental health among students of physical education conservatories.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

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چکیده

امروزه با توسعه روزافزون دانش و فناوری در همه بخش‌های آموزشی و عدم توجه به شاخص‌های اصولی در طراحی و ساخت امکانات، دانش‌آموزان ناگزیرند که ویژگی‌های فردی خود را با شرایط تحمیل شده تطابق داده که در نتیجه، این عدم تناسب می‌تواند زمینه ایجاد بسیاری از مشکلات جسمی و روانی را به وجود آورد. لذا هدف از انجام این پژوهش تحلیل اثرگذاری محیط کار سالم در هنرستان‌های تربیت‌بدنی شهر مشهد بر کیفیت بهداشت روانی در زندگی دانش‌آموزان بود. روش پژوهش توصیفی و از نوع پیمایشی بوده که به صورت میدانی اجرا شده است. جامعه آماری این پژوهش را کلیه دانش‌آموزان هنرستان‌های تربیت‌بدنی شهر مشهد در مقطع متوسطه دوم به تعداد ۹۰۰ نفر در سال تحصیلی ۱۴۰۳-۱۴۰۴ تشکیل دادند. با استفاده از نرم افزار G-Power تعداد نمونه آماری برابر با ۲۷۵ نفر برآورد شد که به صورت نمونه‌گیری تصادفی طبقه‌ای از بین اعضاء جامعه آماری انتخاب شدند. به‌منظور جمع‌آوری داده‌ها از پرسشنامه‌های محیط کار سالم و کیفیت بهداشت روانی در زندگی استفاده شد. جهت تجزیه و تحلیل داده‌ها از شاخص‌های توصیفی و آزمون‌های آماری چولگی و کشیدگی، ضریب همبستگی پیرسون، تحلیل رگرسیون و تحلیل مسیر با روش حداقل مربعات جرئی در نرم افزارهای آماری SPSS و PLS استفاده گردید. نتایج نشان داد محیط کار سالم تأثیر مثبت و معناداری بر کیفیت بهداشت روانی دانش‌آموزان ($\beta=0/298$, $T\text{-Value}=13/241$) دارد. همچنین مؤلفه‌های محیط فیزیکی و محیط روانی-اجتماعی واجد شرایط پیش‌بینی کیفیت بهداشت روانی دانش‌آموزان در زندگی بودند.

کلید واژه‌ها: محیط کار سالم، بهداشت روانی، مدرسه، دانش‌آموز، ورزش.



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Comparison of the Effectiveness of Mindfulness Training and Transcranial Direct-Current Stimulation on Sustained Attention and Response Inhibition in Teenage gymnast girls: A Study with the Expectancy Effect

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Abstract

In recent years, research has focused on improving executive functions (EFs) through purposeful training to improve athletic performance. Therefore, the aim of this study was to compare the effectiveness of mindfulness training (MT) and Transcranial Direct-Current Stimulation (tDCS) on response inhibition and sustained attention of teenage gymnast girls with a one-month follow-up. 36 skilled gymnast girls with aged 12-15 years were selected as available and were equally (n=12) divided into three groups of MT, tDCS and control. The experimental groups participated in their exercise program for six sessions, and the control group did not do any activity. Go-no go test was used to measure response inhibition and continuous performance test was used to measure sustained attention. In order to analyze the data, the mixed ANOVA test was used using SPSS version 26 software. The findings showed that MT and tDCS improved the participants' sustained attention scores in the post-test phase compared to the control group ($p \leq 0.05$), although the difference between the two experimental groups was not significant ($p \geq 0.05$). In the follow-up phase, a significant difference was observed between the MT group and the other two groups ($p \leq 0.05$), while the MT group performed better. Also, comparing the groups at different stages in response inhibition variable showed a significant difference between the experimental and control groups at each of the post-test and follow-up phases ($p \leq 0.05$). However, no significant difference was observed between the two experimental groups at these stages ($p \geq 0.05$). According to the findings, it can be concluded that both MT and tDCS have an effect on the investigated variables, and MT can be used by athletes as a suitable, low-cost and accessible way.

Keywords: Mindfulness, Transcranial Stimulation, Response Inhibition, Sustained Attention, Gymnastics.



Extended Abstract

Background and Purpose

Executive functions (EFs) play a vital role in athletes' daily performance and sports-related cognitive processes (Sosic-Vasic et al., 2017). In recent years, research has focused on improving executive functions through targeted training to prepare athletes for improved athletic performance. Among emerging interventions, Mindfulness-Based Interventions (MBI)—a third-wave cognitive-behavioral approach—emphasizes present-moment awareness with nonjudgmental acceptance (Nosrat et al., 2022). Focusing one's attention on the present moment in a way that is accompanied by complete and non-judgmental acceptance is the main focus of mindfulness meditation. Another new treatment method is transcranial direct current stimulation (tDCS), a method of non-invasive brain stimulation that can be used to alter the excitability of a neuron's membrane by applying alternating electrical currents to the scalp (Slattery et al., 2022). Although some research suggests that these two interventions may improve EFs, the results are mixed. Due to the critical role of EFs in control and behavioral regulation (Shabahang et al., 2020) and athletes' pursuit of peak performance, this study compared the efficacy of six sessions of mindfulness training (MT) versus tDCS on sustained attention and response inhibition in adolescent female gymnasts, with a one-month follow-up.

Materials and Methods

This quasi-experimental applied research employed a pretest-posttest design with a one-month follow-up. The statistical population of this study included all skilled teenage female gymnasts in Yazd province. 36 participants were selected via voluntary and convenience sampling and randomly assigned to three groups; MT (n=12), tDCS (n=12), and control (n=12). Response inhibition was assessed using the Go/No-Go task, while sustained attention was measured via the Continuous Performance Test (CPT). Participants in the experimental groups (MT or tDCS) participated in their training protocol for six sessions, and the control group did not receive any intervention during this period. Finally, Post-tests and follow-ups were conducted after the final session and one month later, respectively, and the results were recorded.

Results

The findings indicated the significance of the interaction of time * group, the main effect of time and group in all variables ($p < .05$). The examination of the intragroup changes of the three groups using the analysis of variance with repeated measures test showed that there was a significant difference between the stages in each of the experimental groups. Also, between-group comparisons of groups at different stages using one-way analysis of variance for the variable of sustained attention (correct response) showed that there was a significant difference between groups at the post-test ($p=0.002$) and follow-up ($p=0.005$) stages. Post hoc Tukey tests showed that there was a significant difference between the experimental and control groups in the post-test phase ($P < 0.05$), but there was no significant difference between the two groups ($P \geq 0.05$). In the follow-up phase, a significant difference was observed between the MT group and the other two groups ($p < 0.05$), but the difference between the tDCS group and the control group was not significant ($p \geq 0.05$). Comparison of groups at different stages in response inhibition variable (correct response) showed no difference between groups at the pre-test stage ($p=0.36$) and significant difference at the post-



test and follow-up stages ($P < 0.05$). The results of Tukey's post-test test at each of the post-test and follow-up stages showed significant difference between the experimental and control groups ($p < 0.05$). However, no significant difference was observed between the two experimental groups ($p \geq 0.05$).

Conclusion

The aim of the study was to investigate the effectiveness of MT and tDCS interventions on sustained attention and response inhibition in adolescent female gymnasts with a one-month follow-up. According to the results, MT enhanced sustained attention and response inhibition scores in the post-test and follow-up stages. These results are consistent with the findings of Gao & Zhang (2023) on the immediate effect of meditation on improving attentional control and Quach et al. (2016) on the effect of MT on cognitive functions. Researchers believe that MT simultaneously strengthens the elements of attitudes, attention, and intention in an individual, and that improving these components allows them to develop a perspective on experiences that moves away from a judgmental, objective, and unexplained state of thoughts, feelings, and emotions as transient phenomena and toward non-judgmental, receptive thinking, and a sense of flexibility in their mental processes (Olya & Aghababa, 2022; Quach et al., 2016).

The results also showed the effect of tDCS intervention in improving sustained attention and response inhibition in the post-test phase, but the interesting point was the return of scores for both variables to pre-test levels in the follow-up phase. Some studies show that stimulation through electrical current can lead to brain changes by regulating brain-derived neurotrophic factors and cell membrane transporters, creating brain oscillations and inducing neuroplasticity, and is widely used to change the electrophysiological activity of the brain and consequently improve response inhibition and sustained attention in athletes (Amouzadeh et al., 2024). In a general explanation of the effectiveness of tDCS, it can be stated that the prefrontal cortex mediates executive functions. This region is associated with complex cognitions such as selective attention, selective memory, working memory, strategic memory, conceptual reasoning, goal selection, planning, sequencing, and monitoring (Alizadeh et al, 2019).

The results of the study showed that both MT and tDCS led to improvements in sustained attention and response inhibition of participants in the post-test phase, and the effectiveness of the MT program was greater than that of tDCS. Future research should explore combined protocols and longitudinal applications in athletic populations.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

The authors declared no conflict of interest.

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مقایسه اثربخشی تمرینات ذهن آگاهی و تحریک الکتریکی مستقیم فراجمجمه‌ای بر توجه پایدار و بازداری پاسخ

دختران ژیمناست نوجوان: مطالعه با اثر انتظار

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چکیده

در سال‌های اخیر، پژوهش به منظور بهبود کارکردهای اجرایی از طریق تمرینات هدفمند جهت بهبود عملکرد ورزشی مورد توجه پژوهشگران قرار گرفته است. لذا هدف این پژوهش، مقایسه اثربخشی تمرینات ذهن آگاهی و تحریک فراجمجمه‌ای بر بازداری پاسخ و توجه پایدار دختران ژیمناست نوجوان با پیگیری یک‌ماهه بود. ۳۶ دختر ژیمناست نوجوان ماهر با دامنه سنی ۱۵-۱۲ سال به‌صورت در دسترس انتخاب و به‌طور مساوی (۱۲ نفر) در سه گروه تمرینات ذهن آگاهی، تحریک فراجمجمه‌ای و کنترل تقسیم شدند. گروه‌های تجربی به مدت شش جلسه در برنامه تمرینی خود شرکت کردند و گروه کنترل فعالیتی نداشت. جهت سنجش بازداری پاسخ از آزمون برو/نرو و جهت سنجش توجه پایدار از آزمون عملکرد پیوسته استفاده گردید. جهت تحلیل اطلاعات از آزمون تحلیل واریانس مرکب با استفاده از نرم‌افزار SPSS نسخه ۲۶ استفاده شد. یافته‌ها نشان داد که تمرینات ذهن آگاهی و تحریک فراجمجمه‌ای باعث بهبود نمرات توجه پایدار شرکت‌کنندگان در مرحله پس‌آزمون نسبت به گروه کنترل گردید ($p < 0/05$)، هرچند تفاوت بین دو گروه آزمایش معنادار نبود ($p > 0/05$). در مرحله پیگیری تفاوت معناداری بین گروه ذهن آگاهی با دو گروه دیگر مشاهده شد ($p < 0/05$) که گروه ذهن آگاهی اجرای بهتری داشتند. همچنین مقایسه گروه‌ها در مراحل مختلف در خصوص متغیر بازداری پاسخ، نشان دهنده تفاوت معنادار بین گروه‌های آزمایش با کنترل در هر یک از مراحل پس‌آزمون و پیگیری بود ($p < 0/05$). با این وجود، بین دو گروه آزمایش در این مراحل تفاوت معناداری دیده نشد ($p > 0/05$). با توجه به یافته‌ها می‌توان نتیجه گرفت هر دو تمرینات ذهن آگاهی و تحریک فراجمجمه‌ای بر متغیرهای مورد بررسی تاثیر داشته‌اند و ذهن آگاهی می‌تواند به عنوان راهی مناسب، کم‌هزینه و در دسترس جهت استفاده ورزشکاران قرار گیرد.

کلیدواژه‌ها: ذهن آگاهی، تحریک فراجمجمه‌ای، بازداری پاسخ، توجه پایدار، ژیمناستیک.



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The relations of teachers' interpersonal behaviors with students' well-being motives, basic psychological need satisfaction, engagement and well-being in students in college physical education

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Abstract

According to self-determination theory, students' well-being motives generally considered as a way to experience their well-being, that it can be determined by teachers' interpersonal behaviors. The present research aimed to examine students' perceptions of teachers' need-supportive and need-thwarting on students' hedonic and eudaimonic motives for activities, basic psychological need satisfaction and need frustration, well and ill-being, and engagement and disengagement in college physical education programs. To do this, 388 college students participated in this study and filled out teachers' interpersonal behaviors, hedonic and eudaimonic motives for activities, vitality, depression, and (dis)engagement questionnaires. Pearson correlation, multivariate Analysis of Variances, and latent profile analysis were used. Compared to students who perceived their teachers as highly need thwarting, students who perceived their teacher as need support reported higher need satisfaction ($p < .001$), eudaimonic motive ($p < .01$), subjective vitality ($p < .001$), and engagement in physical education lessons ($p < .001$). Findings supported our expectation and the self-determination theory tenets in college physical education programs. Teachers' need-supportive behaviors could consider as an effective teaching approach on students' positive outcomes in college physical education.

Key words: Basic psychological needs, Eudaimonia, Self-determination Theory, Well-being, Engagement, Physical education.



Extended Abstract

Background and Purpose

According to self-determination theory (Ryan & Deci, 2017), satisfaction of basic psychological needs can be related to these two types of well-being. In other words, contextual-social factors such as the teacher's behavior in the classroom can be involved and decisive in these two types of motivation, as well as indicators of well-being and the level of participation of individuals in the environment. In this way, the participation of individuals in classroom programs can be determined depending on the behaviors of the instructor, that is, supportive behaviors, while they can increase well-being in individuals (Ntoumanis et al., 2021), can simultaneously promote the participation of individuals in health programs (physical education) (Jang et al., 2016). In contrast, controlling or neutralizing behaviors of the teacher can be associated with a decrease in well-being (Ntoumanis et al., 2021) and a decrease in participation in health programs (Jang et al., 2016). This issue can be conceptualized specifically in terms of student participation and the factors that contribute to dropout or non-participation in physical education classes, such that participation or non-participation can be directly determined by instructor behavior, and these behaviors perceived by students can be examined as an important factor in healthy behaviors or their reduction. Therefore, in the present study, we sought to examine the impact of teacher need-supportive behaviors (versus non-supportive or neutralizing) of basic psychological needs on virtue and hedonic motivations, well-being indicators, and participation in general physical education and sports classroom activities.

Materials and Methods

The statistical population of the present study included students who participated in the general physical education and sports departments at the universities of Tabriz and Urmia. 388 of these individuals (221 girls and 167 boys) completed the questionnaires in an accessible manner. Considering the use of structural equation software, between 10 and 15 data are required for each variable. In this study, a minimum of 180 subjects were required due to the number of variables, but a larger number participated in this study. The data collection method was field-based. The present study method was cross-sectional and also a comparative cluster profile design. After coordinating with the professors of the physical education and sports departments at the universities of Tabriz and Urmia, the students were asked to cooperate in this study and complete the questionnaires if they wished. They were assured that the questionnaires would be anonymous and the information obtained would remain completely confidential for the researchers. Before distributing the questionnaires, individuals were given complete information about the questions and how to answer them. Each person was given 25 minutes to answer. The data for the present study were obtained using the following tools.

Results

The results also showed that students in the first group, i.e., those who had a high perception of need-supportive behaviors, pursued a higher level of virtue motivation by participating in physical education classes than groups three and four. Satisfaction of basic psychological needs also differed



interestingly between the groups, such that students in group one experienced a higher level of need satisfaction than all groups. Students in group two also experienced a higher level of basic need satisfaction than groups three and four in physical education classes. The experience of basic psychological needs destruction was also in line with the experience of basic need satisfaction among the groups in the students. Thus, students in group one experienced a lower level of need destruction than the other groups. Students in group two also experienced a lower level of basic need destruction than groups three and four in physical education classes. Mental vitality was higher in students in the first and second groups than in the third and fourth groups. The level of depression in students in the first group was also lower than in other students. Students in the second group also reported a lower level of depression than in group four. Finally, regarding participation and non-participation in physical education classes, the results showed that the level of participation in physical education classes was higher in those in the first and second groups than in those in the third and fourth groups. The level of non-participation was also lower in students in the first group than in other students.

Conclusion

This study, which was conducted based on self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2017; Ryan et al., 2008), aimed to investigate the behavioral role of supporting versus neutralizing basic psychological needs of physical education teachers on the indicators of virtue and hedonic motivation, satisfaction of basic psychological needs, vitality and depression, and participation and non-participation of students. Overall, the results of this study, while supporting the hypotheses of self-determination theory, also supported the hypotheses of this study. According to the results of the present study, it is suggested that physical education teachers, along with educational programs in the physical education classroom (including physical fitness and sports skills learning programs), support students' self-determination behaviors, encourage their decision-making in the classroom and activities, emphasize efficiency and progress based on each individual, and provide positive feedback, and promote positive behavioral outcomes in students by creating a warm teacher-student relationship. Also, in general physical education and sports classes, it is suggested that in order to reduce restrictive behaviors or neutralize students' basic psychological needs, they should not use behaviors that are merely demand-oriented, directive, and determine all activities based on the teacher's choice/opinion, cold, dry, and formal relationships, criticism and providing negative feedback, and teacher-oriented. These behaviors can have undesirable consequences.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

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ارتباط بین رفتارهای بین فردی اساتید با انگیزه های بهزیستی، رضامندی از نیازهای اساسی، مشارکت ورزشی و بهزیستی دانشجویان در کلاس های تربیت بدنی

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چکیده

انگیزه های بهزیستی دانشجویان به طور کلی بعنوان یکی از راه های رسیدن به بهزیستی آنان می باشد، که این مهم می تواند بر اساس نظریه خودمختاری به وسیله رفتارهای بین فردی استاد برای دانشجویان تعیین شود. پژوهش حاضر، با هدف بررسی نقش اساتید تربیت بدنی در حمایت و خنثی کردن نیازهای اساسی روان شناختی از تجربه رضامندی و تخریب این نیازها در انگیزه های فضیلت گرایی و لذت گرایی، شاخص های بهزیستی و عدم بهزیستی، و مشارکت دانشجویان در کلاس های تربیت بدنی انجام گرفت. بدین منظور، ۳۸۸ دانشجوی دختر و پسر در کلاس های تربیت بدنی عمومی و ورزش پرسشنامه های رفتارهای بین فردی اساتید، انگیزه لذت گرایی و فضیلت گرایی در فعالیت ها، سرزندگی ذهنی، افسردگی، و شاخص های مشارکت و عدم مشارکت در کلاس تربیت بدنی را تکمیل کردند. جهت تحلیل داده ها از آنالیز خوشه ای، همبستگی پیرسون و مانوا استفاده شد. نتایج به طور کلی نشان داد که، در مقایسه با دانشجویانی که رفتار استادشان را بیشتر خنثی کننده درک کرده بودند، دانشجویانی که رفتار استادشان را بیشتر حامی-نیاز درک کرده بودند رضایت مندی از نیازهای اساسی ($p < .001$)، انگیزه فضیلت گرایی ($p < .01$)، مشارکت بیشتر در کلاس های تربیت بدنی ($p < .001$)، و سرزندگی ($p < .001$) بالاتری را گزارش کردند. نتایج از فرض پژوهش و رویکرد نظریه خود-تعیین گری در کلاس های تربیت بدنی دانشگاهی حمایت کرد. رفتارهای حامی نیاز استاد می تواند بعنوان یک رویکرد مهم در کلاس های تربیت بدنی دانشگاهی به جهت تاثیر آن بر پیامدهای مطلوب دانشجویان در نظر گرفته شود.

کلید واژه ها: فضیلت گرایی، نیازهای اساسی روان شناختی، نظریه خود-تعیین گری، بهزیستی، مشارکت، تربیت بدنی.



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The Effect of Selected Training Programs on Life Skills, Self-Regulatory Skills, and Sense of coherence in Adolescents

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Abstract

This study aimed to investigate the effect of a nine-week selected training program on life skills, self-regulation skills, and sense of coherence in adolescent girls. The research was a quasi experimental study with a pre-test-post-test design and a control group. The statistical population consisted of girls aged 13 to 15 living in Mashhad. Forty-eight participants were selected through convenience sampling and randomly assigned to experimental and control groups. Both groups initially completed three questionnaires (life skills, self-regulation, and sense of coherence). The experimental group participated in the selected sports training program (training program and its relationship with variables and discussion with students) for nine weeks, with two sessions per week, while the control group did not receive any training. After the intervention, both groups completed the same questionnaires again. Data were analyzed using repeated measures analysis of variance with a two-level within-group factor (pre-test and post-test) and a two-level between-group factor (control and experimental). The results showed a significant improvement in life skills, self-regulation skills, and sense of coherence scores in the experimental group compared to the control group ($p < 0.01$). Based on these findings, selected sports training programs can effectively improve life skills, self-regulation skills, and sense of coherence in adolescent girls. It is recommended to utilize the potential benefits of these training programs for adolescent age groups.

Keywords: Selected training, Sense of coherence, Self-regulatory, Life skills, Adolescents.



Extended Abstract

Background and Purpose

Adolescents are considered valuable hopes and investments for the future of society. The indispensable role of this group in the growth, development, and advancement of the country is undeniable. Therefore, any investment in this age group aimed at growth and flourishing as a fundamental support is essential (Bailey 2018). Nowadays, physical activity is gradually increasing its impact on human life, and its importance in society is growing. Numerous studies in the field of sports show that physical activities shape and develop personality structures. Besides influencing individuals to acquire positive behaviors in personal and social contexts, they also improve physical and mental health (Karademir 2020). Sports offer many psychological and social benefits beyond the development of physical skills and can be used to teach important life skills to youth such as teamwork, goal setting, problem-solving, decision-making, leadership, time management, cognitive, emotional, communication, and social skills (Duz and Aslan 2020). Self-regulation is the extent to which learners participate metacognitively, motivationally, and behaviorally in their own learning process (Zimmerman 2006). One factor that helps individuals cope with high levels of stress and remain healthy is the sense of coherence. The presence of a sense of coherence in adolescents enables them to perceive their world and surroundings as understandable, manageable, and meaningful. It also allows them to focus more on their positive aspects and abilities and apply them correctly (Togari, Yamazaki et al. 2008). Previous research findings indicate that physical activity can strengthen life skills, self-regulation skills, and sense of coherence. Therefore, this study examines the impact of physical activity on life skills, self-regulation, and sense of coherence in adolescents.

Materials and Methods

This applied study was a semi-experimental pre-test-post-test design with a control group. The study population consisted of 14-15-year-old adolescent girls in Mashhad County. The study was conducted during the 2023-2024 academic year. Sampling was performed on 48 individuals using convenience sampling, and after selecting the samples, they were randomly divided into control and experimental groups. The inclusion criteria were: physical health, absence of movement disorders, absence of any cognitive or psychological illnesses or physical conditions leading to movement or skeletal problems, absence of visual impairment, no participation in routine physical activity or specific exercise programs other than the physical education curriculum, no use of any medication, and obtaining a minimum score of 60 on the GHQ (General Health Questionnaire) to homogenize the samples in terms of general health, and the Tanner scale to homogenize sexual maturity. Then, the Life Skills Questionnaire, Self-Regulation Skills Questionnaire, and Sense of Coherence Questionnaire were completed by the participants. The experimental group underwent a selected exercise program, while the control group had no exercise program. The exercises were conducted in groups in a sports hall. All sessions required the use of interactive teaching methods. Each session had a specific objective and included practical sports activities that promoted team



spirit, self-awareness, fair play, and participation, while reducing adolescents' vulnerability and motivation for violent behavior and other issues, and enhancing life skills, self-regulation skills, and sense of coherence. The experimental group participated in 18 training sessions, two sessions per week, each lasting one hour. One day after the completion of the exercises, the Life Skills Questionnaire, Self-Regulation Skills Questionnaire, and Sense of Coherence Questionnaire were completed by both the control and experimental groups. For data analysis, SPSS software (version 27) was used. Descriptive statistics included measures of central tendency (mean) and dispersion (standard deviation), independent t-tests, and related graphs. For inferential data analysis, a repeated measures ANOVA with one two-level within-subjects factor (pre-test and post-test) and one two-level between-subjects factor (control and experimental) was performed. To examine the underlying assumptions of the repeated measures ANOVA, normal probability plots of errors and scatter plots of errors versus predicted values were used. The significance level for all tests was set at 0.01.

Results

Based on the findings, descriptive statistics included mean age (14.5), mean age of menarche (11.4), and mean general health score (71.15). Before conducting inferential statistical analyses to assess data scale reliability, Cronbach's alpha test was used for the groups. The comparison of mean differences in life skills, self-regulation skills, and sense of coherence revealed a significant difference between the experimental and control groups across pre-test and post-test stages. Analysis of between-group and within-group differences (life skills) and their interaction effect indicated a significant difference between the experimental and control groups (pre-test and post-test) ($p = 0.001$). Additionally, the underlying assumption of variance homogeneity was met, and the assumption of normally distributed errors was confirmed.

Conclusion

The present study demonstrated that the selected exercise program had a significant effect on life skills. This finding was generally consistent with research by (Carrière, Trottier et al. 2024, Gould, Pierce et al. 2024). In Carrière et al.'s study, the goal was to enhance life skills through a three-year sports program titled Winners for Life, which aligned with the current study (Carrière, Trottier et al. 2024). Gould et al., in a 50-year study on high school athletes, concluded that sports promote the development of values, teamwork, hard work, time management, and interpersonal skills (Gould, Pierce et al. 2024). The study also found that the selected exercise program significantly influenced self-regulation skills, a result consistent with (O'Malley, Fullerton et al. 2024). Self-regulation skills begin developing at an early age and increase over time, though not naturally (McCabe, Cunningham et al. 2004). The sports environment appears conducive to developing these skills, as a strong correlation was observed between training hours and self-regulation (Jonker, Elferink-Gemser et al. 2010). Furthermore, the exercise program significantly impacted the sense



of coherence, aligning with studies by (Endo, Kanou et al. 2012, García-Moya, Moreno et al. 2013, Li and Ren 2024). Physical exercise serves as a beneficial adjunct therapy for bipolar disorder patients, enhancing their sense of coherence and social functioning (Khedr, El-Ashry et al. 2024). These findings suggest that psychological benefits from sports activities can strengthen coherence (Antonovsky 1993).

Given the exercise program's structure each session included specific activities and discussions linking them to daily life it effectively improved life skills, self-regulation, and sense of coherence. Moreover, enhancing sense of coherence in adolescents increased self-regulation application, subsequently improving life skills and quality of life. Notably, physical activity provides a context where sense of coherence develops, and individuals with stronger coherence engage more in exercise (Super, Hermens et al. 2014). It is recommended that further research be conducted across different age groups, particularly during adolescence, in diverse populations and both genders.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

The authors declared no conflict of interest.

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تأثیر برنامه تمرینی منتخب بر مهارت‌های زندگی، مهارت‌های خودتنظیمی و حس انسجام در نوجوانان

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چکیده

هدف این پژوهش، بررسی تأثیر یک برنامه تمرینی ۹ هفته‌ای بر مهارت‌های زندگی، مهارت‌های خودتنظیمی و حس انسجام در نوجوانان دختر بود. این پژوهش از نوع نیمه‌تجربی و با طرح پیش‌آزمون-پس‌آزمون همراه با گروه کنترل بود. جامعه آماری این پژوهش دختران ۱۳ تا ۱۵ ساله ساکن شهر مشهد بود. ۴۸ شرکت‌کننده به روش نمونه‌گیری در دسترس انتخاب شدند و به صورت تصادفی در دو گروه کنترل و تجربی قرار گرفتند. ابتدا هر دو گروه سه پرسشنامه (مهارت‌های زندگی، خودتنظیمی و حس انسجام) را تکمیل کردند و سپس گروه تجربی، تمرینات ورزشی منتخب (برنامه‌تمرینی و ارتباط آن با متغیرها و بحث و گفتگو با دانش‌آموزان) را علاوه بر نه هفته، هفته‌ای دو جلسه به طور منظم انجام دادند و گروه کنترل هیچ گونه تمرینی دریافت نکردند. پس از اتمام تمرینات گروه تجربی هر دو گروه مجدداً پرسشنامه‌های مربوطه را تکمیل کردند. جهت تحلیل داده‌ها از آنالیز واریانس طرح اندازه‌های تکراری با یک عامل درون‌گروهی دوسطحی (پیش‌آزمون و پس‌آزمون) و یک عامل بین‌گروهی دوسطحی (کنترل و تجربی) انجام شد. نتایج نشان داد که اجرای تمرینات منتخب موجب بهبود معنی‌دار مهارت‌های زندگی، مهارت‌های خودتنظیمی و حس انسجام در گروه تجربی نسبت به گروه کنترل شد ($p < 0/01$). با توجه به نتایج بدست آمده از این پژوهش انجام تمرینات ورزشی منتخب می‌تواند بر مهارت‌های زندگی، مهارت‌های خودتنظیمی و حس انسجام نوجوانان دختر موثر باشد، بنابراین پیشنهاد می‌شود از مزایای بالقوه این تمرینات ورزشی در گروه‌های سنی نوجوانان استفاده شود.

کلید واژگان: برنامه تمرینی منتخب، حس انسجام، خودتنظیمی، مهارت‌های زندگی، نوجوانان.



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The effectiveness of sub-threshold (subliminal) stimulus in mental skills and performance of female badminton players in East Azarbaijan province

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Abstract

Psychological and mental skills are necessary conditions for success in professional and, in some cases, non-professional sports. The aim of the present study is to study the effectiveness of subliminal stimuli on the mental skills and performance of professional adolescent female badminton players (13 to 19 years old) in East Azerbaijan Province. The present study is a quasi-experimental study of pre-test-post-test type with a control group. The statistical population of the present study consists of professional adolescent female badminton players in East Azerbaijan Province in 1401. The research sample consisted of 40 athletes who were selected from the statistical population as available and were placed in two groups (20 in the experimental group and 20 in the control group). Data analysis was performed using SPSS-26 software and the multivariate analysis of covariance (MANCOVA) test. The results of the research findings indicate that the dimensions of mental skills of goal setting, self-confidence, commitment, stress response, relaxation, empowerment, concentration, imagery, competition planning, mental practice, and recovery of focus in professional adolescent female badminton players improved after the subliminal stimulus intervention. The performance of professional adolescent female badminton players also improved after the subliminal stimulus intervention. Subliminal stimulus has a significant positive effect on improving mental skills and player performance and can be considered as an effective training program by coaches.

Keywords: Subliminal stimulus, Mental skills, Player performance, Badminton.



Extended Abstract

Introduction

Mental skills refer to innate or learned characteristics that athletes can improve their athletic performance by mastering them. Sports psychologists have divided mental skills into three categories: The first category is basic skills, which include goal setting, self-confidence, and commitment. When these characteristics are not established in an athlete, other mental skills will not reach a high level of development; that is why they are called basic skills. The second category is psychosomatic skills, which include stress response, fear control, relaxation, and empowerment, which are related to the athlete's physiological and coping characteristics. The third category is cognitive skills, which include imagery, mental practice, concentration, refocusing, and competition planning; because they deal with cognitive stages and processes such as learning, perception, memory, and thinking.

Mental training plays an effective role in acquiring motor skills. Research has shown that mental training, along with physical training, can help people with motor disabilities and those in need of orthopedic rehabilitation and increase their motor skills. Everyone has the ability to become mentally strong and perform consistently, even in the most adverse conditions. Surgeons, astronauts, and elite athletes are examples of high-level performers who have reached their peak abilities through mental training. Researchers have acknowledged that athletes who are equipped with these skills can focus better and have more self-confidence. In addition, their mental efficiency increases, they are less prone to negative emotions, and they have better decision-making and positive thinking abilities than other athletes. Research findings have also consistently shown their role and importance on athletic success.

mental skills training can have an effective role in some psychological and performance indicators of adolescent soccer players. In this regard, it has been stated that imagery training combined with relaxation will have a greater effect on performance. athletes who are exposed to covert visual subliminal stimuli during endurance training will perform much better. Subliminal stimuli are words, images, or symbols that are undetectable in a person's consciousness.

Materials and Methods

The present study is a semi-experimental pre-test-post-test study with a control group, which examines the effectiveness of subliminal stimuli on the mental skills and performance of teenage female badminton players in East Azerbaijan province. The statistical population of the present study consists of teenage female badminton players in East Azerbaijan province in 1401. According to statistics received from the statistics expert of the East Azerbaijan Sports and Youth Department, about 100 people are professionally involved in badminton. The research sample consisted of 40 athletes who were selected from the statistical population as available and were placed in two groups (20 in the experimental group and 20 in the control group). A questionnaire was used to collect data. Separate questionnaires were prepared and given to female badminton players in the adolescent age group.



Mental Skill Assessment Questionnaire: This questionnaire was designed and developed in 2001 at the University of Ottawa. This test is one of the most comprehensive tests of athletes' mental readiness, measuring twelve mental skills in three categories: basic mental skills (goal setting, commitment, and self-confidence), psychophysical skills (stress response, fear control, relaxation, and empowerment), and cognitive skills (concentration, regaining focus, visualization, mental training, and competition planning). This questionnaire has 48 questions and 12 components and measures mental skills based on a five-point Likert scale, with questions such as (I have a plan to do some things before the competition). This questionnaire was developed by Jan Salmella and validated by Vaez Mousavi in 2000. The revalidation of this questionnaire was evaluated by Manfred Tandey in 2006. The correlation value ranged from 80 to 96 percent. Concentration showed the lowest correlation with 80 percent, and self-confidence and Omsat3 total score showed the highest correlation with 86 percent. Manfred Tandey in this study, which was conducted on 333 team athletes, recorded a validity of 68 to 88 percent, and a reliability of 78 and 96 percent for the questionnaire (Riahi Farsani & et al; 2013). The questions related to stress response, fear control, concentration, and recovery of concentration are reverse-scored.

Player performance assessment: In both studies, the initial assessment was conducted by filming three official games of the players at the beginning of the season. The quality of all three films for each study was approved by the coaching team for performance analysis. The final filming was also conducted as in the first phase and after mental training, and in each category, similar to the initial assessment, three official games were selected as the reference for the final analysis. In each of the two studies, a number of participants were excluded from the final analysis due to their non-use in official competitions, before or after the intervention, and the total score was calculated out of 20.

Results

The results of the research findings indicate that the dimensions of mental skills of goal setting, self-confidence, commitment, stress response, relaxation, empowerment, concentration, imagery, competition planning, mental practice, and recovery of focus in adolescent female badminton players improved after the subliminal stimulus intervention. The performance of adolescent female badminton players also improved after the subliminal stimulus intervention.

Conclusion

Subliminal stimulus has a significant positive effect on improving mental skills and player performance and can be considered as an effective training program by coaches.

Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

The authors declared no conflict of interest.



اثربخشی محرک زیر آستانه‌ای (سابلیمینال) در مهارت‌های ذهنی و عملکرد بازیکنان دختر بدمیتون کار رده سنی نوجوان در استان آذربایجان شرقی

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چکیده

مهارت‌های روان‌شناختی و ذهنی، از شرایط لازم برای موفقیت در زمینه‌ی ورزش‌های حرفه‌ای، و در برخی موارد، غیرحرفه‌ای است. هدف از انجام تحقیق حاضر، مطالعه اثربخشی محرک زیرآستانه‌ای (سابلیمینال) در مهارت‌های ذهنی و عملکرد بازیکنان دختر بدمیتون کار حرفه‌ای رده سنی نوجوان (۱۳ تا ۱۹ سال) در استان آذربایجان شرقی می‌باشد. پژوهش حاضر، یک پژوهش نیمه‌آزمایشی (نیمه‌تجربی) از نوع پیش‌آزمون - پس‌آزمون با گروه کنترل می‌باشد. جامعه آماری پژوهش حاضر را بازیکنان دختر بدمیتون کار حرفه‌ای رده سنی نوجوان در استان آذربایجان شرقی در سال ۱۴۰۱ تشکیل می‌دهند. نمونه‌ی پژوهش شامل ۴۰ نفر از ورزشکاران بود که به صورت در دسترس، از بین جامعه‌ی آماری انتخاب شدند و در دو گروه (۲۰ نفر در گروه آزمایش و ۲۰ نفر در گروه کنترل) قرار گرفتند. تجزیه و تحلیل داده‌ها با استفاده از نرم افزار SPSS-26 و با آزمون تحلیل کوواریانس چندمتغیره (MANCOVA) انجام گرفته است. نتایج یافته‌های تحقیق حاکی از آن است که ابعاد مهارت‌های ذهنی هدف‌گزینی، اعتماد به نفس، تعهد، واکنش به استرس، آرام سازی، نیروبخشی، تمرکز، تصویرسازی، طرح مسابقه، تمرین ذهنی و بازیافت تمرکز بازیکنان دختر بدمیتون کار حرفه‌ای رده سنی نوجوان، پس از مداخله محرک زیرآستانه‌ای (سابلیمینال)، بهبود یافته است. همچنین عملکرد بازیکنان دختر بدمیتون کار حرفه‌ای رده سنی نوجوان، پس از مداخله محرک زیرآستانه‌ای (سابلیمینال) بهبود یافته است. محرک زیرآستانه‌ای (سابلیمینال)، تاثیر مثبت معناداری بر بهبود مهارت‌های ذهنی و عملکرد بازیکنان داشته و می‌تواند به عنوان برنامه آموزشی موثر، مورد توجه مربیان باشد.

کلید واژه‌ها: محرک زیر آستانه‌ای (سابلیمینال)، مهارت‌های ذهنی، عملکرد بازیکنان، بدمیتون.



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Recovery The Effect of Artificial Auditory Stimulation During an Endurance Activity on

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Abstract

The purpose of this study was to investigate the effect of increasing and decreasing auditory stimulation during shuttle run task on performance and recovery. 24 male subjects (Mean age 19.35) performed in four conditions including increasing frequency, constant frequency, decreasing frequency, and standard condition. Scores, heart rate and blood oxygen level at the end of the task, and the first, third, fifth, seventh, tenth and fifteenth minutes after performing task were measured. Systolic and diastolic blood pressure was recorded at the first, fifth, tenth and fifteenth minutes after performing task. The performance in the decreasing auditory condition was significantly better than in other conditions. Heart rate in all minutes after completion of the task was lower in decreasing and increasing conditions than in the constant and standard conditions and in tenth and fifteenth minutes after the completion of the task, in decreasing condition was significantly better than increasing condition. Systolic (not diastolic) blood pressure was better than other conditions in the first minute after completion of the task in the decreasing condition. According to the results, auditory stimulation, especially with decreasing frequency, has a positive effect on performance and recovery of an endurance task. However, the long-term effects of this type of stimulation are not yet known and should be studied in future researches.

Keywords: Increasing and decreasing auditory stimulation, Shuttle run, Heart rate, Blood oxygen level.



Extended Abstract

Background and Purpose.

Numerous studies have demonstrated that high levels of psychological-physiological arousal produce ergogenic effects (enhancing work capacity). Therefore, it can be predicted that auditory stimulation, in addition to its effects on arousal and physiological indices, may also influence performance. Many studies have examined the effects of such stimulation on performance, and the results have shown positive effects of stimulating music (with different rhythms) compared to relaxing music and control groups (without music) on cardiorespiratory endurance, muscular endurance, and strength tasks. However, previous research has utilized pre-prepared music that contains emotional content or evokes memories for individuals, making it unclear whether the effect of music on performance is due to the nature of auditory stimulation or distraction. The present study employed auditory stimulation with frequency variations, which represents one component of sound that has received less attention. Another important point is that previous studies have consistently examined the effect of auditory stimulation on performance, while its effect on recovery has been neglected.

Materials and Methods

The participants in this study comprised 24 trained male individuals (undergraduate students in sports science) with a mean age of 19.35 years. The study employed a within-subjects design whereby each participant was tested under four conditions: 1) shuttle run test (original version), 2) shuttle run test with auditory stimulation at constant frequency, 3) shuttle run test with auditory stimulation at increasing frequency, and 4) shuttle run test with auditory stimulation at decreasing frequency. Except for the auditory stimulation, all other factors (testing environment, execution time, intervals between the four conditions, and measured variables) remained identical across all four conditions. The execution protocol consisted of two phases: warm-up and test execution. A 72-hour interval was maintained between sessions to ensure complete recovery. Prior to test commencement, participants' heart rate, blood oxygen saturation, and blood pressure were measured. Subsequently, participants performed according to the audio file (previously described). Upon task completion, participants in all auditory stimulation conditions underwent a similar recovery period without auditory stimulation. Physiological indices including heart rate, blood oxygen saturation, and blood pressure were measured immediately after test completion and at the 1st, 3rd, 5th, 7th, 10th, and 15th minutes post-task completion. To assess cardiorespiratory endurance, the shuttle run test was employed. In this study, participants' shuttle run test scores were converted to maximal oxygen consumption using the following predictive formula. Consistent with the study's objective and the nature of the endurance test (shuttle run test), specific auditory stimulation was utilized. To create this auditory stimulation, using the Sonification Sandbox program, sound pitch (an important sound characteristic) was designed based on positive quadratic function patterns (increasing pitch), negative quadratic function patterns (decreasing pitch), and constant function (constant pitch). In the increasing pattern, sound pitch changed from Note #32 (Ab) to Note #113 (F), while in the decreasing pattern, sound pitch changed from Note #113 (F) to Note #32 (Ab). In the constant pattern, no frequency variation occurred in the sound. This study utilized *Electric Piano 1* timbre. The constructed auditory patterns were incorporated between the



beeps of the shuttle run test audio file, such that participants heard the auditory pattern sound once in addition to the beep sounds while covering each 20-meter distance.

To compare the research variables (shuttle run test performance, heart rate, blood oxygen saturation, and blood pressure) across four different auditory pattern conditions (increasing, decreasing, constant, and control), repeated measures analysis of variance was employed.

Results

The results showed that participants performed significantly better in the shuttle run test with increasing sound frequency (Cohen's $d = 0.865$) and decreasing frequency (Cohen's $d = 1.22$) compared to the standard shuttle run test. However, participants' performance in the original test was significantly better than the shuttle run test with constant frequency (Cohen's $d = 0.399$). Participants performed significantly better under decreasing frequency conditions compared to increasing frequency conditions (Cohen's $d = 0.365$). Regarding the heart rate variable, the results indicated that there was no significant difference between conditions in end-task heart rate. However, participants' heart rate across all post-task completion minutes was better in the decreasing and increasing conditions compared to the constant and standard conditions, and at the 10th and 15th minutes, the decreasing condition was significantly superior to the increasing condition ($p < 0.05$). The results showed that participants' blood oxygen saturation immediately following the completion of the shuttle run task was significantly higher in the decreasing and increasing sound conditions compared to the standard and constant sound conditions ($p < 0.05$). The results also demonstrated that, except for the first minute where a significant difference was observed only between the increasing and constant conditions, at the 3rd, 5th, and 7th minutes, blood oxygen saturation in both decreasing and increasing conditions was significantly higher than the standard and constant conditions. At the 10th and 15th minutes, participants' blood oxygen saturation showed significant differences with the constant and standard conditions only in the decreasing condition. Participants' systolic blood pressure (but not diastolic) was better in the decreasing condition compared to other conditions only at the first minute following execution completion.

Conclusion

The results of this study demonstrated that auditory stimulation with frequency variation (decreasing and increasing) during endurance task execution, compared to no-sound conditions (standard conditions) and constant frequency conditions, leads to better performance and faster post-task recovery. The findings of this study also indicated that in order to enhance the motivational quality of sound, in addition to rhythm, musical components such as frequency can be utilized. Therefore, based on the results of this study, it can be suggested that auditory stimulation with sound frequency variation, particularly decreasing frequency, should be employed to enhance endurance performance and facilitate faster recovery.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.



Conflicts of Interest

The authors declared no conflict of interest.

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اثر تحریک شنیداری ساختگی در حین اجرای یک فعالیت استقامتی بر ریکاوری

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چکیده

هدف پژوهش حاضر بررسی اثر تحریک شنیداری فزاینده و کاهنده با تغییر فرکانس در حین اجرای تکلیف شاتلران، بر عملکرد و ریکاوری بود. ۲۴ آزمودنی مرد با میانگین سنی ۱۹/۳۵ در چهار شرایط تحریک شنیداری با فرکانس فزاینده، فرکانس ثابت، فرکانس کاهنده و شرایط استاندارد در تکلیف شاتلران شرکت کردند. رکورد افراد، ضربان قلب و سطح اکسیژن خون پایان اجرا و دقایق اول، سوم، پنجم، هفتم، دهم و پانزدهم و همچنین فشار خون سیستولیک و دیاستولیک دقایق اول، پنجم، دهم و پانزدهم پس از اتمام تکلیف ثبت شد. عملکرد افراد در شرایط کاهنده به طور معنی‌داری بهتر از سایر شرایط و در شرایط فزاینده بهتر از شرایط ثابت و استاندارد بود. ضربان قلب افراد نیز در تمام دقایق پس از اتمام تکلیف در شرایط کاهنده و فزاینده بهتر از شرایط ثابت و استاندارد بود و در دقایق دهم و پانزدهم، در شرایط کاهنده به طور معنی‌داری بهتر از شرایط فزاینده بود. فشار خون سیستولیک (و نه دیاستولیک) افراد تنها در دقیقه اول پس از اتمام اجرا در شرایط کاهنده بهتر از سایر شرایط بود. نتایج این پژوهش نشان داد تحریک شنیداری با تغییر فرکانس (به ویژه فرکانس کاهنده) اثر مثبتی بر عملکرد و ریکاوری یک تکلیف استقامتی دارد. با این وجود اثرات طولانی‌مدت این نوع تحریک هنوز مشخص نیست و می‌بایست در پژوهش‌های آتی بررسی شود.

کلید واژه‌ها: تحریک شنیداری کاهنده و فزاینده، شاتلران، ضربان قلب، سطح اکسیژن خون.



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The relationship between alexithymia and personality factors with primary maladaptive schemas with the mediation of distress tolerance in futsal athletes of Maragheh city

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Abstract

The purpose of the present study was to investigate the relationship between alexia and personality factors with primary maladaptive schemas with the mediation of distress tolerance in futsal athletes of Maragheh city. This research was done in terms of descriptive and correlational research method and with path analysis. The statistical population was all the futsal athletes, whose number was 423. The statistical sample of this research included 201 futsal athletes from Maragheh, who were selected based on Morgan's table and using available sampling method. SPSS26 software and descriptive statistical methods were used to analyze the data and test the questions, and inferential statistics of correlation and Lisrel were used to analyze the mediating variable. The findings showed that, among personality factors, the subscale of neuroticism has a positive and significant relationship and the subscales of extraversion, openness to experience, agreeableness, and conscientiousness have a significant negative relationship with primary maladaptive schemas. There is a significant positive relationship between alexia and primary maladaptive schemas, and a significant negative relationship between distress tolerance and primary maladaptive schemas. Also, in the investigation of the mediating role of distress tolerance in the relationship between personality factors and dyslexia with primary maladaptive schemas, a direct effect of 0.54 and an indirect effect through the mediating variable of creative thinking was observed at 0.31.

Key words: Distress Tolerance, Early Maladaptive Schemas, Personality Factors, Aphasia.



Extended Abstract

Background and Purpose

Background and Objectives: Schemas are patterns with cognitive content, consisting of memories, emotions, cognitions, and sources of maladaptive behaviors that are the cause of psychological trauma, negative cognitive and emotional information filters, and mental representations. The aim of the present study was to investigate the relationship between alexithymia and personality factors with early maladaptive schemas mediated by distress tolerance in futsal athletes in Maragheh city.

Materials and Methods

In terms of nature and objectives, this research is of an applied type and the correlation method was used to conduct it. The statistical population of this research included 423 futsal athletes in Maragheh city, of whom 201 were selected as a statistical sample using the available sampling method. To collect data and information, the Early Maladaptive Schema Questionnaire (Young), the Aphasia Questionnaire (Toronto), the Distress Tolerance Questionnaire, and the Personality Questionnaire were used. The obtained data were analyzed using descriptive and inferential statistical methods (correlation) with SPSS26 and LISREL software for mediating variable analysis.

Results

The results showed that among personality factors, the neuroticism subscale has a positive and significant relationship, and the extraversion, openness to experience, agreeableness, and conscientiousness subscales have a significant negative relationship with early maladaptive schemas. There is a significant positive relationship between alexithymia and early maladaptive schemas, and a significant negative relationship between distress tolerance and early maladaptive schemas. Also, in examining the mediating role of distress tolerance in the relationship between personality factors and alexithymia with early maladaptive schemas, a direct effect of 0.54 and an indirect effect of 0.31 through the mediating variable of creative thinking were observed.

Conclusion

According to the findings of the present study and considering that personality factors are related to early maladaptive schemas, and that distress tolerance has a positive effect on early maladaptive schemas, and that alexithymia has a negative effect on early maladaptive schemas, specialists, psychiatrists, and psychologists can consider these components in their therapeutic and counseling interventions and use them to treat their patients and clients.

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This study received no funding from government, commercial, or non-profit organizations.

Authors' Contributions



The first author contributed 70% to data collection and statistical analysis, ideation, and writing, and the second author contributed 30% to the collection and writing of the article.

Conflicts of Interest

There are no conflicts of interest in this research.

Acknowledgement

Given that this research was conducted on futsal athletes, the authors of this article would like to thank and appreciate the cooperation of the futsal board officials, futsal athletes, and all participants in this research.



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رابطه ناگویی خلقی و عامل‌های شخصیتی با طرحواره‌های ناسازگار اولیه با میانجی‌گری تحمل‌پیشانی در ورزشکاران فوتسال شهرستان مراغه اکبر ابراهیمی اورنگ^{۱*}، حمزه مرادی^۲

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چکیده

هدف از پژوهش حاضر بررسی رابطه ناگویی خلقی و عامل‌های شخصیتی با طرحواره‌های ناسازگار اولیه با میانجی‌گری تحمل‌پیشانی در ورزشکاران فوتسال شهرستان مراغه بود. در یک پژوهش توصیفی-همبستگی از میان ورزشکاران فوتسال شهر مراغه تعداد (۴۲۳ نفر) با استفاده از روش نمونه‌گیری تعداد ۲۰۱ نفر به‌صورت در دسترس به‌عنوان نمونه آماری انتخاب شدند. داده‌های حاصله با روش‌های آماری توصیفی و استنباطی (همبستگی) با نرم‌افزار SPSS26 و لیزرل برای تحلیل متغیر واسطه‌ای تجزیه و تحلیل شدند. در بین عوامل شخصیتی خرده‌مقیاس روان رنجوری رابطه مثبت و معنی‌دار و خرده‌مقیاس‌های برون‌گرایی، گشودگی به تجربه، توافق و وظیفه‌شناسی رابطه منفی معنی‌داری با طرحواره‌های ناسازگار اولیه دارند. بین ناگویی خلقی و طرحواره‌های ناسازگار اولیه رابطه مثبت معنی‌دار و بین تحمل‌پیشانی و طرحواره‌های ناسازگار اولیه رابطه منفی معنی‌داری وجود دارد. همچنین در بررسی نقش واسطه‌ای تحمل‌پیشانی در رابطه عامل‌های شخصیتی و ناگویی خلقی با طرحواره‌های ناسازگار اولیه، تأثیر مستقیم به مقدار ۰/۵۴ و غیرمستقیم از طریق متغیر واسطه‌ای تفکر خلاق برابر با ۰/۳۱ مشاهده شد.

کلیدواژه‌ها: تحمل‌پیشانی، طرحواره‌های ناسازگار اولیه، عامل‌های شخصیتی، ناگویی خلقی.



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The predictive role of Resilience on hope of Physical Education students

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Abstract

Hope is one of the influencing variables on the dynamism and vitality of people in society, especially the young generation. When hope is raised in relation to the future builders of society, its importance doubles. We are living in a complex age where people should be helped to solve their life problems with new psychological methods with hope and resilience and increase mental health. The research method is correlational and predictive. The statistical population of this research was 60 students of the Faculty of Physical Education of Tabriz University, who were selected by the available sampling method and they completed Connor–Davidson Resilience Scale (CD-RISC) (2003) and Snyder's Hope Scale (1991). The data was analyzed with spss software version 26 and with Pearson correlation and regression analysis. The findings showed that there was a positive and significant relationship between resilience and hope ($r=0.561$). And also, the variables could significantly predict 31.4% of changes in hope. The most predictive role was the contribution of the perception of competence and control subscale. Resilient people look at issues creatively and have complete resources to deal with problems, which gives a person have a higher quality of life and hope. Proving, this claim requires further research on a larger scale and with an intervention design.

Key words: Hope, Resilience, Students, Physical Education



Extended Abstract

Background and Purpose

Hope is one of the variables that influence the dynamism and vitality of people in society, especially the young generation. When hope is related to students and athletes as the future builders of society, its importance doubles (Mehdizadeh, Qari Qur'ani, 2019). The importance of hope is perhaps best understood by the consequences of not having hope. Despair is a serious condition that leads to increased depression and ultimately lack of passion for life (Moradi, Salehi, Kochok Attiz, and Izanlou, 2019). According to the report the WHO, depression and anxiety are the second and most costly human diseases of the current life; It is especially known in developing countries. (Alizadeh and Namazizadeh, 2020) Since students are among the chosen sections of the society and the builders of the future of every country; Therefore, their mental health is of particular importance as they have a direct effect on the growth and development of society (Moosavi, Haydari & Azimi, 2019). Therefore, psychological factors play a major role in a person's health and recovery from various diseases. Among the variables that play a major role in predicting and maintaining the physical and mental health of people is hope. (Zahid Bablan, Rezaei Jamaloui and Harfati Sobhani, 2012). Hope is one of the most important components of mental health (Kermani, Khodapanahi, and Heydari, 2011) and it is also one of the basic concepts of positive psychology (DashtBozori et al., 2018). We are living in an age where various psychological and social injuries have spread. To live in this complex age, people must be educated and have the power to deal with problems, which is the power of resilience. Resilient people can plan to achieve goals and have confidence in themselves and their abilities. These people have conversational skills, courage, and readiness to listen to others and respect for other people's feelings and opinions. They have an individual life with order stability and security. They feel empowered to face problems and face problems in a problem-oriented way (Mohammedzadeh and Jahandari, 2019). The more people's resilience is strengthened, the less they are exposed to mental and emotional disturbances (Alizadeh et al., 2020), and with the increase of resilience, they feel more satisfied with life (Salehi Doost, Peyman Pak, and Hatami, 2013). Among the solutions that improve people's resilience and hope in life is exercise, which, in addition to improving physical health, promotes mental health and ultimately social health (Niknam, Chardeh Chirik, Ebrahimi, and Asgari, 2018). Exercising and performing regular physical activities is an important factor for reducing stress and emotional discharge of people and is an effective way to get rid of life pressures (Alizadeh et al., 2020). Exercise is not only useful for people's physical health, but also plays an important role in people's mental health and improves people's mental performance. Most experts believe that the optimal performance of athletes is the result of a combination of different factors. In addition to having genetic, physiological and biomechanical characteristics, the existence of three types of physical, skill and mental fitness is one of the most important factors in the optimal performance of skills and reaching a high level of sports. In stressful and competitive situations, psychological characteristics are one of the most essential factors in achieve success in sports performance (Beheshti, Gharayag Zandi and Fathi Rezaei, 2021). One of the important psychological characteristics in the field of sports is resilience and hope. Among the theoretical models in the study of ways to deal with sports stress is the positive psychology approach, which examines and recognizes people's capabilities, strengths, talents, and virtues and makes them reach a new level of balance and positive growth, which itself



is one of The consequences of mental health indicators. High resilience increases the level of psychological well-being and decreases the level of psychological helplessness of athletes and ultimately their success. New psychological methods including; Positive psychology have concepts that can help solve their life's problems with hope and resilience. These two factors, in turn, increase mental health and improve the lifestyle of students and athletes. (Rezazadeh Moghadam, Khodabakhshi Kolayi, Hamidipour and Thanago,2018)

Materials and Methods

The method is correlational and predictive. The statistical population of this research was the students of the Faculty of Physical Education of Tabriz University, 60 of whom were selected as the sample of the study using the available sampling method. All participants completed The Connor–Davidson Resilience Scale (CD-RISC) (2003) and Snyder's Hope Scale (1991). The data was analyzed using the software version 26 and Pearson correlation and regression analysis

Results

The findings showed that there was a positive and significant relationship between resilience and hope ($r=0.561$).

Conclusion

the aforementioned variables could significantly predict 56/1% of changes in hope of physical education students. Resilient people look at problems creatively and flexibly and plan to solve them if needed, they do not hesitate to ask for help from others, and they have complete resources to deal with problems, and these factors give a person a higher quality of life and hope. Proving , this claim requires further research on a larger scale and with an intervention design.

Funding

This study received no funding from public, commercial, or nonprofit organizations.

Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

The authors declared no conflict of interest.

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نقش پیش‌بینی‌کنندگی تاب‌آوری در میزان امید به زندگی دانشجویان تربیت بدنی

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چکیده

امید به زندگی یکی از متغیرهای تاثیرگذار بر پویایی و شادابی افراد جامعه و به ویژه نسل جوان است. وقتی امید به زندگی در ارتباط با آینده سازان جامعه مطرح می‌شود، اهمیت آن دوچندان می‌شود. ما، در عصر پیچیده‌ای زندگی می‌کنیم که افراد باید با روشهای جدید روان‌شناختی با امید به زندگی و تاب‌آوری به حل مصائب زندگیشان کمک کند و باعث افزایش سلامت روانی شود. روش پژوهش به شیوه همبستگی و باهدف پیش‌بینی است. جامعه آماری این پژوهش ۶۰ نفر از دانشجویان دانشکده تربیت بدنی دانشگاه تبریز بودند به روش نمونه‌گیری در دسترس انتخاب شدند و پرسش‌نامه تاب‌آوری کونور و دیویدسون (۲۰۰۳) و امید به زندگی اشنايدر (۱۹۹۱) را تکمیل کردند. داده‌ها با نرم افزار SPSS ویراست ۲۶ و با همبستگی پیرسون و تحلیل رگرسیون مورد تجزیه و تحلیل قرار گرفت. یافته‌ها نشان داد بین تاب‌آوری و امید به زندگی رابطه مثبت و معناداری وجود داشت ($r=0/561$) و همچنین متغیرها به طور معناداری توانستند ۵۶/۱ درصد از تغییرات امید به زندگی را پیش‌بینی کنند. افراد تاب‌آور، به طرز خلاقانه به مسائل می‌نگرند و منابع کاملی برای مقابله با مشکلات دارند که باعث میشود فرد از کیفیت زندگی و امیدواری بالاتری برخوردار باشد. بدیهی است اثبات این ادعا نیاز به پژوهشهای بعدی در مقیاس بزرگتر و با طراحی مداخلاتی دارد.

کلیدواژه‌ها: امید به زندگی، تاب‌آوری، دانشجویان، تربیت بدنی.



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The Effect of a Combined Motor-Cognitive Program Intervention on Quality of Life, Walking Speed, and Fear of Falling in Multiple Sclerosis (MS) Patients: A Controlled Clinical Trial

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Abstract

Multiple Sclerosis (MS) as a central nervous system's self-immune disease can decrease quality of life and walking speed and increase fear of falling. In this research, the effect of a combined intervention program on MS patients' quality of life, walking speed, and fear of falling was examined. The research subjects were 30 patients with MS members of Arak's MS Association, age range between 20-60 years, with a disability score of 2-4, randomly allocated to experiment or control groups. Subjects completed the MS Quality of Life Questionnaire and Falls Efficacy Scale-International, and performed a 25-foot walking test at pre-test. After the intervention program, post-test performed. Data was analyzed by paired t-test, independent t-test, and SPSS-21 software. The mean score of quality of life total score ($p \leq 0.001$) and 25-foot walking speed test after the combined intervention improved significantly at post-test ($p \leq 0.001$). No significant differences were observed between the experimental and control groups' mean score of fear of falling on the post-test ($p \leq 0/05$). Because of the effects of the combined motor-cognitive intervention program on MS patients' quality of life and fear of falling, the program is recommended as a complement part of treatment of MS patients. The lack of effect of the combined intervention program on fear of falling reduction may be related to the construct nature (subjectivity), and the nature and time of the program.

Keywords: Combined Intervention, Quality of Life, Fear of Falling, Multiple Sclerosis.



Extended Abstract

Background and Purpose

Multiple Sclerosis (MS) as a central nervous system's self-immune disease is one of the most common neurological conditions, usually diagnosed in young people aged 20 to 45 years, occurring more frequently in women, can decrease quality of life and walking speed and increase fear of falling. Therefore, the aim of this research was to examine the effect of a combined intervention program on MS patients' quality of life, walking speed, and fear of falling was examined.

Materials and Methods

Inclusion criteria included having stress and inability to manage it properly, being able to stand without help, and exclusion criteria included having a disease other than multiple sclerosis, disease recurrence during the training period, and participating in sports activities other than research intervention. The data was collected by three tools: The 25-foot walk test was used to measure walking speed, short form of "Fall Efficacy Scale – International" was validated for Iranian multiple sclerosis patients, and Multiple Sclerosis Quality of Life Questionnaire (MSIS-29) is a 29-question questionnaire, the first 20 questions of which measure the physical effects and the last 9 questions measure the psychological effects.

The combined intervention program in this study consisted of 6 weeks, three sessions per week, of motor training and cognitive training. The training program was designed by (DiBrezza et al., 2005) and consisted of 45 minutes of motor training in each session. Cognitive stress management exercises were taught in a cognitive-behavioral manner in 10 90-minute group sessions to control stress and improve quality of life. The sessions began with relaxation training and the second part of each session was teaching cognitive-behavioral techniques, which were combined with issues related to the patients' health (Sosnoff et al., 2011).

After obtaining permission from the Arak MS Association, identifying and selecting subjects who met the conditions for entering the study, obtaining informed consent, and coordinating exercise equipment, the researchers provided basic information about the exercise method, stages, and duration of the exercises in the first exercise session, and conducted a pre-test. Participants were randomly divided into two groups: experimental and control. The number of subjects decreased to 28 during the intervention. The experimental group performed physical and cognitive exercises in the MS association gym for 6 consecutive weeks, 3 sessions per week, in a group setting. At the end of each physical exercise session, cognitive exercises based on cognitive-behavioral stress management were administered. A post-test of the dependent variables was conducted 48 hours after the last exercise session.

Skewness and kurtosis tests were used to examine the normality of data distribution, and MANCOVA analysis test was used to analyze data.

Results

The mean age of the subjects in the experimental and control groups was 39.14 and 40.4 years, respectively. The weight of the experimental and control groups was 68.86 and 66.42 kg, respectively, and their body mass index was 26.92 and 25.01, respectively, and the frequency of falls in the past year was 7.14 and 6.64 times, respectively. Considering the assumptions of parametric statistics, analysis of covariance was used to examine the effect of intervention in the two experimental and control groups on the dependent variables of the study, considering the pretest of each variable as a covariate factor. The results of the analysis of covariance showed that the



effect of the combined intervention program on the walking speed of people with multiple sclerosis was significant ($F(1,25) = 24/22$, $p = 0/001$, $\eta^2 = 0/49$), so that the mean post-test time for the 25-foot walking test in the intervention group (6.87 ± 1.28) was lower than that in the control group (9.16 ± 1.75). Also, the results of the analysis of covariance to examine the effect of the intervention on the dimensions of quality of life showed that the effect of the combined intervention program on the overall quality of life index ($F(1,25) = 17.50$, $p = 0.001$, $\eta^2 = 0.41$), physical quality of life ($F(1,25) = 13.94$, $p = 0.001$, $\eta^2 = 0.35$), and psychological quality of life ($F(1,25) = 28.37$, $p = 0.001$, $\eta^2 = 0.53$) was significant (Table 3), so that the mean post-test quality of life score in the intervention group (77.71 ± 22.37) was higher than that in the control group (76.71 ± 27.43). Also, the combined intervention program did not have a significant effect on the fear of falling in people with multiple sclerosis ($F(1,25) = 28/37$, $p = 0/17$, $\eta^2 = 0/07$).

Conclusion

The results showed that the selected combined intervention program was improved the walking speed performance of people with multiple sclerosis. Also, this combined intervention program improved the quality of life of the participants in the intervention group, but did not have a significant effect on reducing the fear of falling in the experimental group. Insufficient training duration can be stated as a possible explanation for these findings. Three major changes made to our research intervention program: 1) adding a cognitive-behavioral stress management training program alongside the defined exercise protocol; 2) being flexible in changing the time of exercise sessions compared to the original protocol according to the patients' conditions; and 3) combining balance, strength, and fun exercises, may have been effective in making this exercise intervention more effective. In another part of the findings, it was observed that combined motor-cognitive exercises did not have a significant effect on the subjective variable of fear of falling in the intervention group. It seems that the process of change in psychological factors and physical factors as a result of the exercise intervention is independent of each other, and the mechanism of change in these variables is different. According to Bandura's theory (1997), "self-efficacy is task specific". The limitations of this study include the limited duration of the combined intervention of six weeks. Therefore, it can be concluded that the exercise program is particularly suitable for such results, and that the intervention period should be longer in order to have a greater effect on mental measures in future studies. It also seems that a variable such as the frequency of falls may be effective in these results.

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Authors' Contributions

All authors have participated in designing, implementing and writing all parts of the present study.

Conflicts of Interest

The authors declared no conflict of interest.

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تأثیر مداخله ترکیبی حرکتی و شناختی بر کیفیت زندگی، سرعت راه رفتن و ترس از افتادن بیماران مبتلا به مولتیپل اسکلروزیس: یک کار آزمایی بالینی کنترل شده

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چکیده

مولتیپل اسکلروزیس، نوعی بیماری خودایمنی در سیستم اعصاب مرکزی است که می‌تواند باعث افت در کیفیت زندگی و سرعت راه رفتن و افزایش ترس از افتادن شود. در این پژوهش تأثیر یک مداخله ترکیبی بر کیفیت زندگی، سرعت راه رفتن و ترس از افتادن بیماران مبتلا به مولتیپل اسکلروزیس بررسی گردید. این پژوهش از نوع نیمه تجربی با طرح پیش‌آزمون و پس‌آزمون بود. جامعه آماری پژوهش، مبتلایان به مولتیپل اسکلروزیس شهر اراک بودند که از بین آنها ۳۰ نفر با دامنه سنی ۶۰-۲۰ سال و نمره مقیاس ناتوانی بین ۲-۴ به صورت در دسترس انتخاب و به طور تصادفی به دو گروه ۱۵ نفره تجربی و کنترل اختصاص یافتند. در پیش‌آزمون، شرکت‌کنندگان پرسشنامه کیفیت زندگی بیماران مولتیپل اسکلروزیس و مقیاس کوتاه "کارآمدی افتادن" فرم بین‌المللی در بیماران مولتیپل اسکلروزیس را تکمیل و آزمون ۲۵ فوت راه رفتن را اجرا کردند. پس از اعمال ۶ هفته (۱۸ جلسه) برنامه مداخله ترکیبی حرکتی - شناختی، پس‌آزمون انجام شد. داده‌ها با استفاده از آزمون تحلیل واریانس مرکب توسط نرم‌افزار SPSS-16 تحلیل شد. میانگین نمره گروه تجربی در پس‌آزمون سرعت راه رفتن ($p \leq 0.001$) و نمره کل مقیاس کیفیت زندگی ($p \leq 0.001$)، متعاقب مداخله ترکیبی به طور معنی‌داری بهبود یافت اما در میانگین نمره پس‌آزمون مقیاس ترس از افتادن، در دو گروه آزمایش و کنترل تفاوت معنی‌داری مشاهده نشد ($p \leq 0.05$). به دلیل تأثیر این برنامه مداخله ترکیبی حرکتی-شناختی بر افزایش کیفیت زندگی و سرعت راه رفتن آزمودنی‌ها، پیشنهاد می‌شود این برنامه به عنوان مکمل درمان بیماران MS استفاده شود. عدم تأثیر این برنامه مداخله ترکیبی بر کاهش ترس از افتادن ممکن است با ماهیت این سازه (ذهنی بودن) و ماهیت، شدت و مدت زمان این مداخله مرتبط باشد.

کلید واژه‌ها: ترس از افتادن، راه رفتن، کیفیت زندگی، مداخله ترکیبی، مولتیپل اسکلروزیس.