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BEHAVIOR MOVEMENT MIND

نشریه ذهن، حرکت و رفتار

دوره ۵ شماره ۱

شاپا الکترونیکی: **۸۸۲۰-۲۹۸۰**

صاحب امتیاز: **دانشگاه تبریز**

توالی انتشار: **دو فصلنامه**

تعداد مقالات این شماره: **۱۵**

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نوع انتشار: **الکترونیکی**

مدیر مسئول: **دکتر مهتا اسکندرنژاد**

سردبیر: **دکتر محمدتقی اقدسی**

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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 شیوهٔ داوری دو سو ناشناس به صورت دو فصلنامه و به طور دسترسی آزاد به تمام متن مقالات است که در حوزهٔ تربیت بدنی و علوم ورزشی (رفتار حرکتی و روانشناسی ورزشی) منتشر می‌شود. این نشریه به منظور فراهم نمودن محیط فکری و فضایی علمی برای پژوهشگران ایرانی با تمرکز بر مباحث تربیت بدنی پایه‌گذاری شده است. این نشریه در پاسخ به پیشرفت‌های صورت گرفته در این حوزهٔ از علم انتشار یافته و هدف آن انتشار مقالات پژوهشی و مروری، با کیفیت بالاست که یافته‌های مرتبط با موضوعات مهم رفتار حرکتی و روانشناسی ورزشی را گزارش می‌دهند. 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 داوری : 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 (زمانبدی بررسی و داوری مقالات انگلیسی در مدت زمان کمتری نسبت به مقالات فارسی صورت خواهد گرفت.

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در ادامه چکیده فارسی، انگلیسی و چکیده مبسوط انگلیسی مقالات چاپ شده در شماره ۵ دوره ۱ نشریه ذهن، حرکت و رفتار نمایش داده شده است. همچنین جهت دسترسی به متن کامل مقالات با کلیک روی کد Doi هر مقاله مستقیما به متن کامل مقاله مورد نظر دسترسی پیدا خواهید کرد.

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فهرست مقالات (دوره ۵ شماره ۱)

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A Qualitative Study of the Effective Components of Parent-Teacher Interaction from the Perspective of Physical Education Teachers

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Abstract

Effective interaction between parents and physical education teachers plays a significant role in promoting students' physical and mental health as well as their social-emotional development. However, certain factors can either limit or enhance this interaction. This qualitative study aimed to explore the factors influencing parent-teacher interactions from the perspective of physical education teachers. The research is applied in purpose and employs a qualitative, descriptive phenomenological approach. Sixteen physical education teachers were selected using criterion-based purposive sampling, and data were collected through semi-structured, in-depth interviews. Data analysis was conducted using the seven-step Colaizzi method including thorough review of interview transcripts and identification of core structures, supported by MAXQDA software version 2020. Findings revealed that key factors included psychological characteristics, communication and cooperation, meeting participation, economic factors, sports facilities and equipment, familiarity with physical education goals, awareness of health status, and awareness of physical condition. Additionally, 31 sub-factors were identified. Overall, it is recommended that the education system utilize these identified factors to foster effective interactions between physical education teachers and parents, and implement training sessions to promote constructive communication between them.

Keywords: Parent-Teacher Interaction, Physical Education, Student, Qualitative Research.

Extended Abstract

Background and Purpose

Students' classroom performance is influenced by a complex interplay of individual, familial, and instructional factors. Among these, three major determinants have been consistently emphasized in the literature: family involvement, students' individual characteristics, and teachers' attitudes and instructional practices. The significance of these factors varies according to cultural context, parents' educational level, socio-economic conditions, and the quality of home–school communication (Lozano Díaz, 2003).

Parental involvement has been widely recognized as a key contributor to students' academic motivation, engagement, and achievement. Active participation of parents in school-related activities strengthens the connection between home and school, aligns educational expectations, and fosters students' positive attitudes toward learning. Research suggests that collaborative parent–teacher relationships not only enhance academic outcomes but also support students' personal and social development (Guiqing & Yang, 2018; Green, Walker, Hoover-Dempsey, & Sandler, 2007). Effective collaboration requires shared goal-setting, mutual trust, clear role definitions, and coordinated decision-making processes (Carlisle, Stanley, & Kemple, 2005; Friend & Cook, 1992). Conversely, unclear expectations and limited communication may hinder the effectiveness of such partnerships (Cramer, 2006).

In the context of Physical Education (PE), parent–teacher interaction assumes particular importance due to the subject's direct impact on students' physical health, psychological well-being, and social growth. Studies indicate that cooperative relationships between parents and PE teachers can increase students' participation in physical activity, enhance enjoyment of sports, and contribute to improved cognitive and emotional outcomes (Chaapel, Columna, Lytle, & Bailey, 2013; Guzauskas & Sukys, 2021; Forbes & Block, 2024; Guo et al., 2023). Despite growing recognition of home–school partnerships in academic domains, systematic investigation of parent–teacher collaboration in PE settings remains limited.

Therefore, the purpose of the present exploratory study is to identify the key factors influencing parent–Physical Education teacher interaction and to examine its potential impact on educational outcomes in PE classes, including motor performance, sport skill learning, enjoyment of physical activity, Physical Education motivation, and students' participation in sports activities.

Materials and Methods

This applied study employed a qualitative descriptive phenomenological design to explore the factors influencing parent–Physical Education (PE) teacher interaction.

The participants were 16 PE teachers from different educational levels in Urmia during the 2022–2023 academic year, selected through criterion-based purposive sampling. Data collection continued until theoretical saturation was reached. Inclusion criteria included at least 10 years of teaching experience in PE, active teaching status, holding or pursuing a Master's degree, and willingness to participate fully in the study.

Data were collected through semi-structured, in-depth interviews lasting 30–40 minutes, conducted between April and June 2023, after obtaining official permissions. All interviews were audio-recorded with informed consent and transcribed verbatim.

Data were analyzed using qualitative content analysis following Strauss and Corbin's (1998) open, axial, and selective coding procedures. MAXQDA (Version 2024) software was used to facilitate systematic coding and analysis. Descriptive statistics were applied to summarize participants' demographic characteristics.

Results

The qualitative analysis of interview data resulted in the identification of a comprehensive set of themes describing the factors influencing parent–Physical Education (PE) teacher interaction. Through open coding, a wide range of initial concepts were extracted from the participants' statements, including parental indifference toward PE, limited cooperation with teachers, low participation in meetings, lack of provision of sports equipment, economic constraints, the importance of continuous communication, emphasis on practice and repetition at home, and the need for transparent information regarding assessment and evaluation procedures.

Subsequently, axial coding led to the organization of these concepts into 31 subcategories, which were further integrated through selective coding into eight main categories. These main categories included: Psychological characteristics (e.g., students' emotional well-being, motivation enhancement, enjoyment of sport, and development of mental skills); Communication and collaboration (e.g., cooperation with PE teachers and parental physical activity patterns); Participation in meetings and educational sessions; Economic factors (e.g., financial costs related to sports participation); Sports facilities and equipment (e.g., provision or lack of sports tools and resources); Awareness of Physical Education goals (e.g., understanding PE objectives, student development, and educational programs); Awareness of students' health status (e.g., monitoring medical conditions and injury prevention); Awareness of students' physical assessment and evaluation processes (e.g., evaluation criteria, grading methods, physical performance tracking, and talent identification).

The findings indicate that ineffective communication, unclear assessment procedures, limited parental awareness of PE objectives, and insufficient economic or material support may hinder effective parent–teacher interaction. In contrast, sustained communication, clear feedback regarding students' physical and psychological status, and parental understanding of evaluation and

instructional processes were identified as facilitating factors that enhance student motivation, participation, and overall development in Physical Education classes.

Conclusion

This study explored the key factors influencing parent–Physical Education (PE) teacher interactions from the perspective of PE teachers. Findings identified eight main dimensions—psychological characteristics, communication and collaboration, participation, economic factors, facilities and equipment, awareness of PE goals, health status, and physical condition—encompassing 31 subcomponents.

Results indicate that effective interaction enhances students' psychological well-being, motivation, and engagement in PE, while promoting active parental involvement and supportive learning environments. Awareness of goals, health, and physical status enables tailored guidance, optimizing both educational and physical outcomes. Economic and resource constraints highlight the need for collaborative solutions between parents and teachers.

Despite limitations related to sample size, qualitative design, and focus on teachers' perspectives, the study underscores the critical role of structured parent–teacher collaboration in improving students' cognitive, emotional, and physical development. Future research should integrate parental viewpoints and test the impact of targeted interventions on students' learning, engagement, and enjoyment in PE.

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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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مطالعه کیفی مؤلفه های مؤثر تعامل والدین–معلم از دیدگاه معلمان تربیت بدنی

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چکیده

تعامل موثر والدین و معلم تربیت‌بدنی در ارتقای سلامت جسمانی، روانی و رشد اجتماعی–عاطفی دانش‌آموزان موثر می‌باشد. با این حال، برخی عوامل موثر می‌تواند این تعامل را محدود یا تقویت کند. این پژوهش کیفی با هدف بررسی مولفه‌های موثر در تعامل بین والدین و معلم از دیدگاه معلم تربیت‌بدنی انجام شده است. از لحاظ هدف، این تحقیق کاربردی و از نظر روش، کیفی و از نوع تجربه زیسته توصیفی است. ۱۶ معلم تربیت‌بدنی با استفاده از روش نمونه‌گیری هدفمند ملاک‌دار انتخاب شدند و داده‌ها از طریق ابزار مصاحبه‌های نیمه‌ساختاریافته و عمیق گردآوری شدند. تجزیه و تحلیل داده‌ها با روش هفت مرحله‌ای کلایزی شامل مرور دقیق متن مصاحبه‌ها، و شناسایی ساختار اصلی و به کمک نرم‌افزار MAXQDA نسخه ۲۰۲۰ انجام شد. یافته‌ها نشان داد که مولفه‌های اصلی شامل ویژگی‌های روانشناختی، برقراری ارتباط و همکاری، شرکت در جلسات، عوامل اقتصادی، امکانات و تجهیزات ورزشی، آشنایی با اهداف تربیت‌بدنی، آگاهی از وضعیت سلامتی و وضعیت جسمانی بودند؛ همچنین، ۳۱ زیرمولفه شناسایی شد. به طور کلی، پیشنهاد می‌شود سیستم آموزشی از مولفه‌های موثر شناسایی‌شده در این پژوهش برای بهبود تعامل بین معلم تربیت‌بدنی و والدین بهره گیرد و برنامه‌هایی برای آموزش و تعامل موثر بین والدین و معلمان برگزار شود.

کلمات کلیدی: تعامل والدین–معلم، تربیت‌بدنی، دانش‌آموز، پژوهش کیفی.

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Presenting a Structural Model of Sports Success Based on Competitive Anxiety and Perception of Failure with the Mediation of Social Support Perception in High School Student Athletes

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Abstract

Academic life is one of the most important periods in the lives of adolescents, which affects their fruitful and successful upbringing and learning. In addition to academic life, one can also focus on sports life and success in it.The aim of the present study was to present a structural model of sports success based on competitive anxiety and perception of failure with the mediation of social support perception in the second secondary school students. In terms of its nature and goals, this research is applied and the correlation method was used for its implementation. The statistical population of this research included all students, all students, sports students of the second secondary level of Ajabshir, numbering 352 people. The statistical sample was selected based on the Kargesi and Morgan table in the number of 185 people through available sampling method. To collect information from the competitive anxiety questionnaires of Martner and the fear of performance failure assessment by Conroy et al. the perception of social support Zimmet, Dalm and Farley and the sports success questionnaire of Mousavi and Vaez Mousavi. used. For data analysis, path analysis was used SPSS and Amos. The results showed that competitive anxiety and perception of failure and perception of social support have the ability to predict sports success, and competitive anxiety and perception of failure have an indirect effect on sports success through the mediation of perception of social support. And it is concluded that sports success in student athletes can be predicted through predictive and mediating variables. Given the confirmation of the indirect effects of competitive anxiety and perception of failure through the mediating variable of social support perception on the athletic success of high school student athletes, it is recommended that schools also pay special attention to courses and classes aimed at identifying the various factors in the development and strengthening of social support perception and, consequently, their impact on the athletic success of high school student athletes.

Keywords: Sports success, Competitive anxiety, Perception of failure, Perception of social support, Student athletes.

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Extended Abstract

Background and Purpose:

Academic life is one of the most important periods of adolescents' lives that affects their fruitful and successful upbringing and learning. In addition to academic life, sports life and success in it can also be addressed. The purpose of the present study was to present a structural model of sports success based on competitive anxiety and perception of failure mediated by the perception of social support in high school student athletes.

Materials and Methods:

In terms of nature and objectives, this study is of an applied type and the correlation method was used to conduct it. The statistical population of this study included all 352 high school student athletes in Ajab Shir. The statistical sample was selected based on the Krejci and Morgan table, with 185 people selected through the available sampling method. To collect information, Martens' competitive anxiety questionnaire and fear of failure evaluation in performance by Conroy et al., Zimet, Dallam, and Farley's perception of social support, and Mousavi and Vaez Mousavi's sports success questionnaire were used. Path analysis was used to analyze the data using SPSS and Amos software.

Results:

Regarding the direct effects of the main research variables on the athletic success of student athletes, the results of the study showed that competitive anxiety (β=-0.168, 0.03≥ P) and perception of failure (β=-0.154, 0.041≥ P) have a direct and negative effect on the athletic success of student athletes. In contrast, the perception of social support (β=0.246, 0.001≥ P) has a direct and positive effect on the athletic success of student athletes. In addition, regarding the effects of competitive anxiety and perception of failure on the perception of social support, the results of the study showed that competitive anxiety (β=-0.310, 0.001≥ P) and perception of failure (β=-0.211, 0.006≥ P) have a direct and negative effect on the perception of social support of student athletes. However, in relation to the indirect effects of the main research variables on the athletic success of student athletes, the results of the study showed that competitive anxiety has an indirect effect (β=0.062, 0.001≥ P) on the athletic success of student athletes through the perception of social support. That is, for every one-point increase in competitive anxiety, athletic success decreases by -0.065 units. Also, in relation to the indirect effects of the variable of perception of failure on athletic success, the results showed that the perception of failure through the perception of social support has an indirect effect (β=0.084, 0.001≥ P) on athletic success. That is, for every one-point increase in the perception of failure, athletic success decreases by -0.096 units. Finally, according to the research findings, it can be said that sports success can be predicted based on competitive anxiety and perception of failure, mediated by the perception of social support, in high school student athletes in Ajab Shir.

Conclusion:

Given the confirmation of the indirect effects of competitive anxiety and perception of failure through the mediator variable of social support perception on the sports success of high school student athletes, it is recommended that schools also pay special attention to courses and classes aimed at identifying various factors in the development and strengthening of social support perception and, consequently, their impact on the sports success of high school student athletes.

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Authors' Contribution:

The first author contributed 60% to data collection and statistical analysis, ideation, and writing, The first author contributed 60% to data collection and statistical analysis, ideation, and writing, and the second and third authors contributed 20% to the collection and writing of the article.

Conflict of Interest:

There is no conflict of interest in this study.

Acknowledgements:

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چکیده

زندگی تحصیلی از مهم‌ترین دوره‌های زندگی نوجوانان است که بر تربیت و یادگیری ثمربخش و موفقیت آمیز آنها تأثیر می‌گذارد. در کنار زندگی تحصیلی می توان به زندگی ورزشی و موفقیت در آن نیز پرداخت. هدف پژوهش حاضر، ارایه مدل ساختاری موفقیت ورزشی براساس اضطراب رقابتی و ادراک از شکست با میانجی‌گری ادراک حمایت اجتماعی در دانش آموزان ورزشکار دوره دوم متوسطه بود. به لحاظ ماهیت و اهداف، این پژوهش از نوع کاربردی و برای اجرای آن از روش همبستگی استفاده شده است. جامعه آماری این پژوهش، شامل کلیه دانش آموزان ورزشکار دوره دوم متوسطه عجب شیر به تعداد ۳۵۲ نفر بودند. نمونه آماری براساس جدول کرجسی و مورگان به تعداد ۱۸۵ نفر از طریق روش نمونه گیری در دسترس انتخاب شد. برای جمع‌آوری اطلاعات از پرسشنامه‌های اضطراب رقابتی مارتنز و ترس از ارزیابی شکست در عملکرد توسط کانروی و همکاران، ادراک حمایت اجتماعی زیمت، دالم و فارلی و پرسشنامه موفقیت ورزشی موسوی و واعظ موسوی استفاده شد. برای تجزیه و تحلیل اطلاعات از تحلیل مسیر از طریق نرم افزار Spss و Amos استفاده شد. نتایج نشان داد که اضطراب رقابتی و ادراک از شکست و ادراک حمایت اجتماعی توانایی پیش بینی موفقیت ورزشی را دارند و اضطراب رقابتی و ادراک از شکست با میانجی‌گری ادراک حمایت اجتماعی بر موفقیت ورزشی اثر غیر مستقیم دارند. با توجه به تأیید تأثیرات غیرمستقیم اضطراب رقابتی و ادراک از شکست از طریق متغیر میانجی ادراک حمایت اجتماعی بر موفقیت ورزشی دانش آموزان ورزشکار دوره دوم متوسطه، توصیه می‌شود در مدارس نیز دوره‌ها و کلاس‌هایی با هدف شناخت عوامل متعدد در رشد و تقویت ادراک حمایت اجتماعی و به تبع تأثیر آن‌ها بر موفقیت ورزشی دانش آموزان ورزشکار دوره دوم متوسطه، توجه ویژه‌ای داشته باشند.

کلیدواژه‌ها: موفقیت ورزشی، اضطراب رقابتی، ادراک از شکست، ادراک حمایت اجتماعی، دانش آموزان ورزشکار.

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The effect of individual and group games on motor skill proficiency in children with developmental coordination disorder

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Abstract

Play is the most basic motor behavior through which a child achieves important results. Therefore, The purpose of this research was to investigate the effect of individual and group games on the level of proficiency of motor skills in children with developmental coordination disorder. The current research, is of a semi-experimental type with a pre-test-post-test design. The statistical population of the present study included children with developmental coordination disorder in Mashhad city with an age range of 9-8 years. For this purpose, a number of 45 individual were selected through available and targeted sampling and after obtaining written consent, they were randomly assigned to one of the three groups of individual, group and control games. The tools used in this research were the Persian version of the developmental coordination disorder questionnaire, the MABC test and the BOT-2 test. The implementation method was that first the BOT-2 pre-test was taken from the subjects, then the research intervention was performed in group and individual games for a period of 8 weeks, twice a week for 45 minutes. After completing the intervention, the BOT-2 post-test was again taken from the subjects. The data were analyzed using the statistical method of analysis of covariance with Benferoni follow-up. The results of this research showed that the intervention of group and individual games had a significant effect on improving children's motor development. Also, regarding the difference between the groups (sig=0.001), the results showed that group games were more superior than the other two groups. Therefore, due to the greater effectiveness of group games, it is suggested to trainers and therapists to use group games to enrich the conditions of their training interventions.

Key words: Motor Development, Group Play, Individual Play, DCD Children.

Extended Abstract

Background and Purpose

Developmental coordination disorder manifests itself in early childhood as difficulties in learning or acquiring skills that require motor coordination (Adolph et al., 2011). The main deficit evident in children with DCD is the presence of motor problems that impair the acquisition (learning) and execution (performing) of motor-related activities (gross, fine, balance, and daily activities) (Jane et al., 2018). This highlights the need for interventions. Play is the most basic motor behavior through which a child achieves important outcomes. Recently, a new type of play, both individual and group, has attracted the attention of researchers, but; most of the research was conducted abroad and this research emphasized the advantage of group games over individual games (Caçola et al., 2016; de Hora et al., 2019; Hung & Pang, 2010). Therefore, to date, no research has purposefully investigated the role of individual and group exercises on some DCD functions in the country, and most studies in this field are abroad. In general, our goal in this study is to investigate the effect of individual and group games on the motor skills of children with developmental coordination disorder.

Materials and Methods

The present study was semi-experimental in terms of method and the research design was pre-test-post-test with a control group. The statistical population of the present study included children with developmental coordination disorder in Mashhad, aged 8-9 years. For this purpose, 45 people were selected using a convenient and purposive sampling method. The instruments used in this study were the Developmental Coordination Disorder Questionnaire, the Movement Assessment Test for Children, Second Edition (MABC-2), and the Bruynincks-Ozeretsky Motor Proficiency Test, Second Edition (Short Form). Initially, the subjects were familiarized with the research tools and instruments. Then, the MABC-2 motor skill subtest was evaluated to diagnose the subjects with developmental coordination disorder. After diagnosing this disorder and selecting the research samples, the BOT-2 pre-test was taken from the subjects. The group practice method in group and individual game-based interventions is explained below: The subjects underwent two 45-minute weekly motor skills training sessions for 8 consecutive weeks. The child-to-instructor ratio for the group method was one instructor for 4 to 6 children; but for the individual method, this ratio was one instructor for one child. It should be noted that the control group also performed regular physical exercises at school (Hung & Pang, 2010). After completing 8 weeks of training, the post-test related to the BOT-2 test was taken from the subjects.

Results

The results of this study showed that, in fine motor skills, according to the statistics in the table 3, the research groups had a significant effect on fine motor skills, and also according to the statistics related to the groups in the table, there was a significant difference between the research groups. Thus, the performance of the group games group was higher than the other groups. In gross motor

skills, according to the statistics in the table, the research groups had a significant effect on gross motor skills, and also according to the statistics related to the groups in the table, there was a significant difference between the research groups. Thus, the performance of the group games group was higher than the other groups. In motor proficiency, according to the statistics in the table, the research groups had a significant effect on motor proficiency, and also according to the statistics related to the groups in the table, there is a significant difference between the research groups. Thus, the performance of the group games group was higher than the other groups. Overall, the results of this study showed that group practice had a greater effect on the development of gross and fine motor skills and the overall motor skill proficiency score than the individual and control methods.

Conclusion

Our results in this study showed that a group play session has a greater impact on gross and fine motor skills and motor skill mastery in children with developmental coordination disorder. Therefore, it can be stated that when group games are matched to the characteristics and abilities of children, including developmental coordination disorder, the child will be able to use his abilities that are appropriate for the type of game and thus, if he has latent skills, he will express them and if he lacks skills, the conditions for the growth and development of skills will be provided. Helping the child to find the right tools and appropriate physical positions that allow him to experience different activities and games leads to the child's development. Therefore, it seems that group games have been able to give children the opportunity to enrich their motor experiences and achieve higher motor development by creating a suitable space for them. Finally, considering the above-mentioned issues, these advantages are found in accordance with further research in the field of group games. Therefore, it is recommended that educators and occupational therapists who work with these children use group play in their work to better enrich the practice and intervention conditions and improve children's motor 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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تأثیر بازی‌های انفرادی و گروهی بر سطح تبحر مهارت حرکتی در کودکان دارای اختلال هماهنگی رشدی

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چکیده

بازی به عنوان ابتدایی‌ترین رفتار حرکتی است که کودک از طریق آن به نتایج مهمی دست می‌یابد. بنابراین، هدف از تحقیق حاضر بررسی تأثیر بازی‌های انفرادی و گروهی بر سطح شایستگی مهارت حرکتی در کودکان اختلال هماهنگی رشدی بود. پژوهش حاضر، از نوع نیمه تجربی با طرح پیش‌آزمون- پس‌آزمون است. جامعه آماری پژوهش حاضر شامل کودکان اختلال هماهنگی رشدی شهر مشهد با دامنه سنی ۸-۹ سال بودند. برای این منظور تعداد ٤٥ نفر روش نمونه‌گیری در دسترس و هدفمند انتخاب‌شده و پس از کسب رضایت‌نامه کتبی به‌صورت تصادفی دریکی از سه گروه بازی‌های انفرادی، گروهی و کنترل زیر اختصاص داده شدند. ابزار مورداستفاده در این تحقیق نسخه فارسی پرسشنامه اختلال هماهنگی رشدی، آزمون MABC و آزمون BOT-2 بود. روش اجرا به این صورت بود که ابتدا پیش‌آزمون BOT-2 از آزمودنی‌ها گرفته شد سپس مداخله تحقیق به‌صورت گروهی و انفرادی برای مدت ۸ هفته، دو بار در هفته و برای ٤٥ دقیقه اجرا گردید. پس از اتمام مداخله مجدداً پس‌آزمون BOT-2 از آزمودنی‌ها گرفته شد. داده‌ها به روش آماری تحلیل کوواریانس با پیگردی بنفرونی تجزیه‌وتحلیل شد. نتایج این تحقیق نشان داد که مداخله بازی‌های گروهی و انفرادی نسبت تأثیر معناداری بر بهبود رشد حرکتی کودکان داشتند. همچنین در مورد تفاوت بین گروه‌ها نتایج نشان داد که بازی‌های گروهی نسبت دو گروه دیگر برتری بیشتری داشت (sig=۰/۰۰۱). بنابراین، با توجه به اثرگذاری بیشتر بازی‌های گروهی به مربیان و کار درمان‌ها پیشنهاد می‌شود تا برای غنی‌سازی شرایط مداخلات تمرینی خود از شیوه بازی‌های گروهی استفاده کنند.

کلید واژه‌ها: رشد حرکتی، بازی گروهی، بازی انفرادی، کودکان اختلال هماهنگی رشدی.

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The effect of Participation in the Cultural-Sports Olympiad on the Social Quality of Life of Female Student-Teachers

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Abstract

Given the important role of university sports in promoting students' psychological and social well-being, the present study aimed to examine the effect of participation in the Cultural-Sports Olympiad on the social quality of life of female student-teachers at Farhangian University nationwide. The present study is descriptive and employs a causal-comparative research design. The statistical population consisted of all female student-teachers in Isfahan Province during the 2022–2023 academic year. A sample of 317 students was selected using cluster random sampling and categorized into two groups: participants and non-participants in the Cultural-Sports Olympiad. Data were collected using the Social Capital Questionnaire (Nahapiet & Ghoshal, 1998), Social Joy Questionnaire (Talebzadeh Shoushtari, 2021), and Social Well-being Questionnaire (Keyes, 1998). Data analysis was performed using independent t-tests and Levene's test for variance homogeneity in SPSS version 23. The findings indicated a significant difference between the two groups in terms of social capital, social joy, and social well-being ($p < 0.05$), with Olympiad participants scoring higher on these variables. These results suggest that participation in cultural-sports events can play a significant role in enhancing the social quality of life of student-teachers.

Key words: Cultural-Sports Olympiad, Social Capital, Social Joy, Social Quality of Life.

Extended Abstract
Background and Purpose

In today's world, the social quality of life is increasingly recognized as one of the core indicators of mental health and social well-being. University students, especially during the critical years of higher education, encounter various social, psychological, and cultural challenges that can significantly influence their social quality of life. Key components of this construct include a sense of community belonging, active social participation, interpersonal support, psychological vitality, and social capital. Addressing these aspects should be a fundamental concern within the educational system, which, beyond its academic mission, must serve as a platform for fostering well-being and validating positive social outcomes. Although previous studies have demonstrated the positive effects of sports participation on different dimensions of social quality of life, there is still a lack of sufficient localized evidence regarding the actual impact of national sports events, such as the Student Olympiad, on Iranian university students—particularly female student-teachers who will become future educators and community influencers. Closing this research gap is essential for developing policies that strengthen social capital, vitality, and well-being among this demographic. Accordingly, this study aimed to investigate the effect of participation in the National Student-Teachers Sports Olympiad on the social quality of life of female student-teachers, focusing specifically on social capital, social vitality, and social well-being.

Materials and Methods

This research employed a descriptive method with a causal-comparative design. The statistical population comprised all female student-teachers enrolled at Farhangian University in Isfahan Province during the 2022–2023 academic year, totaling approximately 3,000 individuals. Using the Krejcie and Morgan table, a sample of 317 students was selected through a multistage random cluster sampling method. The participants were categorized into two groups: those who participated in the 24th National Student-Teachers Sports Olympiad and those who did not. Prior to data collection, the study objectives and detailed instructions for completing the questionnaires were explained to participants, and sufficient time was provided to ensure accurate responses. Data were gathered using standardized questionnaires, including the Social Capital Questionnaire (Nahapiet & Ghoshal, 1998), the Social Vitality Questionnaire (Talebzadeh Shoushtari, 2021), and the Social Well-Being Questionnaire (Keyes, 1998).

Statistical analysis

Descriptive statistics (mean and standard deviation) and inferential statistics including independent t-test to compare the means of two groups, and Levine's test to examine the assumption of equality of variances were used to analyze the data. All analyses were performed using SPSS software version 23 with a significance level of $p < 0.05$.

Results

The results indicated that participation in the National Student-Teachers Sports Olympiad had a

significant positive impact on the social quality of life of female student-teachers. Independent t-test results revealed statistically significant differences between the participant and non-participant groups across all three measured dimensions: social capital, social vitality, and social well-being. Specifically, students who participated in the Olympiad scored higher on all three components compared to their non-participating peers, highlighting the potential of structured sports events to foster social cohesion, vitality, and well-being within the student community.

Conclusion

Sports activities can serve as an effective platform for instilling social values such as respect, cooperation, and self-regulation among students. This finding supports social participation theories that emphasize the importance of involvement in collective and group-based activities—such as university sports events—in promoting social interaction, the development of mutual trust, and the creation of supportive social networks. About social vitality, participation in group sports can reduce stress, enhance motivation, boost social self-efficacy, and generate positive emotional experiences, all of which contribute to a more vibrant student life. The significant difference observed in social well-being further underscores that competitive yet collaborative environments, such as student Olympiads, provide valuable opportunities for meaningful interaction, empathy, and a sense of belonging. Moreover, the higher levels of social capital among Olympiad participants highlight the role of such events in strengthening students' networks, mutual trust, and civic engagement. Overall, these findings suggest that participation in national cultural-sports events can play a substantial role in enhancing multiple facets of students' social quality of life. This evidence can inform policymakers and university administrators to design and promote more effective student sports programs that foster holistic well-being and prepare student-teachers to contribute positively to society.

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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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تاثیر مشارکت در المپیاد فرهنگی ورزشی بر کیفیت زندگی اجتماعی دانشجو معلمان دختر

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چکیده

با توجه به نقش مهم ورزش‌های دانشگاهی در ارتقای سلامت روانی و اجتماعی دانشجویان، هدف پژوهش حاضر بررسی تأثیر مشارکت در المپیاد فرهنگی‌ورزشی بر کیفیت زندگی اجتماعی دانشجو- معلمان دختر دانشگاه فرهنگیان کشور بود. این پژوهش از نظر هدف کاربردی و از نظر روش گردآوری داده‌ها، توصیفی از نوع علی- مقایسه‌ای بود. جامعه آماری شامل کلیه دانشجو- معلمان دختر استان اصفهان در سال تحصیلی 1402- 1401 بود. نمونه‌ای به حجم 317 نفر به روش نمونه‌گیری خوشه‌ای تصادفی انتخاب شد و در دو گروه شرکت‌کننده و غیرشرکت‌کننده در المپیاد فرهنگی‌ورزشی قرار گرفتند. ابزار گردآوری داده‌ها شامل پرسش‌نامه‌های سرمایه اجتماعی (ناهاپیت و گوشال، ۱۹۹۸)، نشاط اجتماعی (طالب‌زاده شوشتری، ۲۰۲۱) و بهزیستی اجتماعی (کیز، ۱۹۹۸) بود. داده‌ها با استفاده از آزمون t مستقل و آزمون لوین برای بررسی همگنی واریانس‌ها در نرم‌افزار SPSS نسخه 23 تحلیل شد. نتایج نشان داد بین دو گروه شرکت‌کننده و غیرشرکت‌کننده در متغیرهای سرمایه اجتماعی، نشاط اجتماعی و بهزیستی اجتماعی تفاوت معناداری وجود دارد ($p < 0.05$)، به‌طوری‌که دانشجویان شرکت‌کننده در المپیاد نمرات بالاتری کسب کردند. بر اساس نتایج این پژوهش، مشارکت در رویدادهای فرهنگی‌ورزشی می‌تواند نقش مؤثری در ارتقای کیفیت زندگی اجتماعی دانشجو- معلمان ایفا کند.

کلید واژه‌ها: المپیاد فرهنگی‌ورزشی، سرمایه اجتماعی، نشاط اجتماعی، کیفیت زندگی اجتماعی.

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The Psychometric of the Pictorial Scale of Perceived Basic Motor Competencies in Children: The SEMOK-1-2 Instrument

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Abstract

Both actual motor competence (AMC) and perceived motor competence (PMC) play an important role in research on motor development and physical and mental development of children. Despite the importance of this topic in young children, very few tools exist in this area and some text versions lack justification for understanding by children at younger ages. The aim of the study was to evaluate the psychometric of the pictorial scale of perceived basic motor competencies in children (SEMOK-1-2) Instrument. This eight-item questionnaire assesses the two-dimensional competence domains of “self-movement” and “object movement”. A total of 187 children aged 6-8 years (108 boys and 79 girls) were selected using a multi-stage cluster method and completed an eight-item questionnaire of perceived motor competence. Cronbach's alpha coefficient was used to determine the reliability of the questionnaire and construct validity was used to determine the validity of the instrument using confirmatory factor analysis. Cronbach's alpha coefficient and confirmatory factor analysis results showed that the Persian version of this questionnaire supports the two-factor structure (eight questions) of the original questionnaire and has good internal consistency. The fit indices had acceptable values. The results of this study show that the Persian version of Pictorial of Perceived Basic Motor Competencies in Children scale has acceptable validity and reliability and can be used to assess perceived motor competences in the field of physical education. Therefore, it is recommended that physical education teachers and coaches use this tool to assess PMC for children aged 6-8 years.

Key words: Motor competencies, Motor development, Children, Physical activity

Extended Abstract

Background and Purpose

In recent decades, changes in food systems and nutritional behaviors, along with an increase in sedentary behaviors, have been the main reasons for the prevalence of obesity in children and adolescents (Blüher, 2019). Given the formation of the foundations of an active lifestyle in childhood, low levels of physical activity (PA) are a matter of concern. Given the important role of physical activity in the health and prevention of overweight in children and adolescents, many researchers have investigated the potential correlates of physical activity. Actual motor competence (AMC) is one of the important and determining correlates of physical activity and health in children, and this has led researchers to pay special attention to these components (Mohammadi et al., 2022). The development of motor skill competence is related to the level of physical activity of children, and children with better motor competence will have a greater chance of participating in more intense physical activities and higher cardiovascular fitness in adolescence (Arman et al., 2020). The results of some studies have shown that children's perception of their physical competence differs in children from different countries and these differences may be related to distinct cultural characteristics. Given the sociocultural differences, the psychometric properties of the PMC should be examined in order to use it in other cultures. In other words, it is important to examine the validity of the instrument before using it outside its original population (Samadi et al., 2023). Unfortunately, due to the lack of sufficient instruments in the field of motor competence of young children, research in this field has also been limited, and therefore, this gap can be filled to some extent by using this valuable instrument. Given the cultural and geographical diversity in the country and the fact that no study of perceived competence has yet been conducted in first and second grade children in the country, the aim of this study was to investigate the psychometric properties of the visual scale for assessing children's perceived basic motor competence: SEMOK-1-2.

Materials and Methods

The present study aimed to psychometrically evaluate the Persian version of the Physical Literacy Questionnaire for children aged 6 to 8 years and is a descriptive-correlational study. In accordance with previous studies, the required sample size in factor analysis studies is 5 to 10 subjects per item. (Kline, 2023) The statistical sample of this study consisted of 187 children aged 6-8 years (79 girls and 108 boys) in Yazd city. This sample size is sufficient to determine validity considering the number of items in the questionnaire (approximately 23 people per item) and is larger than the sample size recommended based on factor analysis studies. In order to conduct the study, the questionnaire was first translated into Persian by the researchers and the translations were matched in a joint session. Then, the translation was retranslated by an English language expert and problems related to the translation of the items were reviewed and resolved. In the next stage, in a preliminary study, the initial version of the questionnaire was provided to several children, and ambiguous terms were equated and ambiguities were resolved. After informed consent from the students' parents, a total of 187 questionnaires (four schools) were completed. For statistical analysis, confirmatory factor analysis method based on structural equation model was used. Cronbach's alpha was used to calculate reliability and internal consistency, and intraclass correlation coefficient was used to examine temporal reliability. Two software, SPSS version 26 and LISREL version 8.8, were used to perform the aforementioned statistical calculations.

Results

Cronbach's alpha coefficient for the Children's Motor Competence Scale and its dimensions is above 0.7 (acceptability index value), and it can be said that the research tool has acceptable reliability. Confirmatory factor analysis technique was used to examine the dimensions and questions to determine whether these components and items are valid indicators for measuring children's motor competence or not? In the confirmatory factor analysis technique, the strength of the relationship between the factor (latent variable) and the observable variable is shown by the factor loading. The factor loading is a value between zero and one. If the factor loading is less than 0.3, the relationship is considered weak and is ignored. A factor loading between 0.3 and 0.6 is acceptable and meaningful, and more than 0.6 is desirable. According to the output of the LISREL software, the factor loading of all questions was greater than 0.3, which indicates a good fit of the model (Figures 1 and 2 and Table 3). After performing confirmatory factor analysis, the lowest factor loading was for question 4 of the object movement dimension (with a factor loading of 0.37) and the highest factor loading was for question 5 (with a factor loading of 0.58), which is within the desired range. It shows the model fit indices, which, compared to the desired values, each index indicates a good fit of the structural model. According to the table and the available values, the implemented model has a good fit.

Conclusion

The results showed that the Persian version of the questionnaire, without any deletion or change in content and structure, has good validity and reliability and can be widely used. Considering that the original version of the questionnaire is English, based on the findings obtained in the present study, Persian is the second language in the world that has presented this valuable questionnaire as a valid, very practical and usable tool, which in itself increases the importance of the results obtained and the research process many times over. Policymakers, especially the Ministry of Education, can help improve motor development indicators by including this questionnaire in national child health screenings and periodic evaluations in schools. The Persian version of the eight-question questionnaire on motor competence of children in the first and second grades of primary school has acceptable validity and reliability in Iranian society. This tool can be used as a standard scale in future research, educational planning and clinical interventions to assess and improve children's motor skills.

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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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روان‌سنجی مقیاس تصویری ارزیابی شایستگی‌های حرکتی پایه ادراک شده کودکان: SEMOK-1-2

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چکیده

هر دو شایستگی‌های حرکتی واقعی و ادراک شده نقش مهمی در تحقیقات رشد حرکتی و رشد جسمانی و روانی کودکان دارند. علیرغم اهمیت این موضوع در کودکان خردسال، ابزارهای بسیار کمی در این حوزه وجود داشته و برخی نسخه‌های متنی فاقد توجیه برای درک کودکان در سنین پایین‌تر است. هدف مطالعه، روان‌سنجی ابزار شایستگی‌های حرکتی پایه ادراک شده در کودکان پایه اول و دوم دبستان (SEMOK-1-2) بود. این مقیاس هشت گویه‌ای دو بعد حوزه‌های شایستگی «حرکت خود» و «حرکت شیء» ارزیابی می‌کند. تعداد ۱۸۷ کودک ۸-۶ ساله پایه اول و دوم ابتدایی (۷۹ دختر و ۱۰۸ پسر) به روش خوشه‌ای چندمرحله‌ای انتخاب و مقیاس هشت سؤالی شایستگی حرکتی ادراک شده را تکمیل کردند. برای تعیین پایایی پرسشنامه از ضریب آلفای کرونباخ و برای تعیین روایی ابزار از روایی سازه به روش تحلیل عاملی تأییدی استفاده شد. ضریب آلفای کرونباخ و نتایج تحلیل عاملی تأییدی نشان داد که نسخهٔ فارسی این پرسشنامه از ساختار دو عاملی (هشت سؤالی) پرسشنامهٔ اصلی حمایت می‌کند و دارای همسانی درونی مطلوبی است. شاخص‌های برازش دارای مقادیر قابل قبولی بود. نتایج این پژوهش نشان می‌دهد نسخهٔ فارسی مقیاس تصویری «شایستگی حرکتی پایه ادراک شده در دوره کودکی» روایی و پایایی قابل قبولی داشته و می‌تواند برای ارزیابی شایستگی‌های حرکتی ادارک شده در زمینه تربیت بدنی استفاده شود. بنابراین به معلمان ورزش و مربیان توصیه می‌شود از این ابزار برای ارزیابی شایستگی حرکتی ادراک شده کودکان کلاس اول و دوم ابتدایی استفاده کنند.

کلید واژه‌ها: شایستگی حرکتی، رشد حرکتی، کودکان، فعالیت بدن.

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The Effectiveness of Cognitive-Behavioral Group Therapy on Stress and Confidence Due to Injury Trauma in Injured Professional Athletes

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Abstract

The present study aimed to investigate the effectiveness of cognitive-behavioral group therapy on stress and self-confidence resulting from injury trauma in injured professional athletes. The statistical population consisted of 32 injured athletes selected via accessible and purposive sampling, who were randomly assigned to a 16-person experimental group and a 16-person control group. The experimental group received eight 90-minute sessions of cognitive-behavioral group therapy, while the control group received no intervention. Cohen's Perceived Stress Scale and the Eysenck Self-Esteem Inventory were administered at pre-test, post-test, and a two-month follow-up. Data were analyzed using repeated measures analysis of variance. The findings revealed that cognitive-behavioral group therapy led to a significant reduction in stress and a significant increase in self-confidence in the experimental group compared to the control group ($p < 0.01$). These positive effects were maintained at the two-month follow-up. The results support cognitive-behavioral group therapy as an effective and cost-efficient intervention for improving the psychological health and recovery process of injured professional athletes.

Key words: Behavioral-cognitive intervention, trauma, stress, self-confidence.

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Extended Abstract

Background and Purpose

Sports injuries represent clinically identified physical dysfunctions or impaired body structures occurring during athletic activities. These injuries profoundly impact athletes' careers and wellbeing, potentially leading to sport discontinuation, chronic pain, disability, and substantial socioeconomic burdens (Li et al., 2020). Primary causative factors encompass excessive stress, concentration deficits, physical trauma, overtraining, and diminished self-confidence (Pujals et al., 2016). Contemporary models in sports medicine recognize that injuries stem not merely from physical factors but significantly from psychosocial stressors (Pensgaard et al., 2018). This study addresses the literature gap by evaluating trauma-focused Cognitive Behavioral Group Therapy (CBGT) efficacy in enhancing psychological resilience among elite injured athletes.

Materials and Methods

A quasi-experimental design employing pre-test/post-test measures with control group was implemented. Thirty-two athletes with trauma-confirmed injuries (10 females, 22 males) were recruited through purposive sampling and randomly allocated to experimental (n=16) and control (n=16) groups. The experimental cohort received 8-weekly 90-minute CBGT sessions, while controls received no intervention. All participants completed standardized assessments at baseline, post-intervention, and 2-month follow-up. Sessions were conducted online under specialist supervision due to COVID-19 restrictions. Inclusion criteria comprised: Federation-approved injury diagnosis, informed consent, concurrent physical rehabilitation participation, and age 18-30 years.

Results

Repeated measures ANOVA revealed significant between-group differences in stress reduction and self-confidence enhancement ($p<0.001$). Mauchly's test confirmed sphericity assumptions ($p>0.05$). The group × time interaction effects were statistically significant for both stress ($F=13.984$, $p<0.02$) and self-confidence ($F=27.354$, $p<0.001$). CBGT participants demonstrated clinically meaningful improvements across all measurement phases, with sustained effects at follow-up assessment.

Conclusion

Trauma-focused CBGT constitutes an effective intervention for mitigating psychological distress and promoting confidence in injured athletes. The integration of cognitive restructuring techniques within group dynamics provides robust therapeutic framework for sports rehabilitation. Future investigations should examine long-term outcomes through larger randomized trials.

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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اثر بخشی درمان گروهی شناختی–رفتاری بر استرس و اعتماد به‌نفس ناشی از ترومای آسیب‌دیدگی در ورزشکاران حرفه‌ای آسیب دیده

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چکیده

هدف از پژوهش حاضر بررسی اثربخشی درمان گروهی شناختی–رفتاری بر استرس و اعتماد به نفس ناشی از ترومای آسیب‌دیدگی در ورزشکاران حرفه‌ای است. جامعه آماری شامل ۳۲ ورزشکار آسیب‌دیده بود که به روش در دسترس و هدفمند انتخاب و به‌صورت تصادفی در دو گروه ۱۶ نفره‌ی آزمایش و کنترل قرار گرفتند. گروه آزمایش تحت ۸ جلسه ۹۰ دقیقه‌ای درمان گروهی شناختی–رفتاری قرار گرفت، در حالی که گروه کنترل مداخله‌ای دریافت نکرد. از پرسشنامه‌های استرس ادراک شده کوهن و اعتماد به نفس آیزنک در سه مرحله پیش‌آزمون، پس‌آزمون و پیگیری (پس از دو ماه) استفاده شد. داده‌ها با روش تحلیل واریانس با اندازه‌گیری مکرر تحلیل شد. یافته‌ها نشان داد که درمان گروهی شناختی–رفتاری به‌صورت معناداری ($p<۰,۰۱$) منجر به کاهش استرس و افزایش اعتماد به‌نفس در گروه آزمایش در مقایسه با گروه کنترل شد. این اثرات مثبت نه‌تنها در مرحله پس‌آزمون، بلکه در پیگیری دو ماهه نیز پایدار باقی ماند. نتایج این مطالعه، از درمان گروهی شناختی–رفتاری به‌عنوان یک مداخله مؤثر و مقرون‌به‌صرفه برای بهبود سلامت روانی و تسریع فرآیند بهبودی در ورزشکاران حرفه‌ای آسیب‌دیده حمایت می‌کند.

کلید واژه‌ها: مداخله رفتاری – شناختی، تروما، استرس، اعتماد به‌نفس.

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Prediction of Decision-Making Styles Based on Moods with the Mediating Role of Working Memory in Zanjan Athletes

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Abstract

The present study was conducted to determine the relationship between mood states and decision-making styles, with the mediating role of working memory in athletes of Zanjan in 2023. The statistical population of the study included all male and female athletes in individual and team sports in Zanjan. Using convenience sampling, 245 individuals were selected as the statistical sample. The selected athletes competed in Taekwondo, Karate, Table Tennis, and Badminton (individual sports) and Futsal, Volleyball, Handball, and Basketball (team sports), and had been active in sports for 3 to 7 years. The athletes' working memory was measured using the Wechsler Working Memory Assessment software. Subsequently, the participants completed Scott and Bruce's General Decision-Making Style Questionnaire and the Brunel Mood Scale (BRUMS) questionnaire. The results of data analysis indicated a significant effect of depression, happiness, anger, and confusion on working memory. Furthermore, a significant effect of working memory on rational, dependent, intuitive, and avoidant decision-making styles was demonstrated. Based on the findings of this study, it can be concluded that working memory plays a mediating role in the relationship between decision-making styles and mood states in athletes.

Keywords: Decision-making Styles, Mood States, Working Memory, Athletes.

Extended Abstract

Background and Purpose

This study investigates the relationship between mood states and decision-making styles among athletes in Zanjan, Iran, with a focus on the mediating role of working memory. Effective decision-making is crucial in sports, where rapid and accurate responses can determine success. Psychological factors, particularly mood states, significantly influence cognitive processes such as working memory, which in turn affects decision-making. The study aims to clarify how positive and negative moods impact decision-making styles through their effects on working memory.

Athletes frequently face high-pressure situations requiring quick and precise decisions. Previous research has shown that mood states—such as happiness, anger, confusion, and depression—affect cognitive functions, including working memory. Working memory, the ability to temporarily hold and manipulate information, is essential for processing environmental cues and making strategic decisions in sports. This study examines whether working memory mediates the relationship between mood states and decision-making styles, hypothesizing that positive moods enhance working memory, leading to more rational and intuitive decision-making, and negative moods impair working memory, resulting in avoidant or dependent decision-making styles.

Materials and Methods

The study included 245 male and female athletes (aged 19–30) from various sports (badminton, taekwondo, karate, tennis, futsal, handball, volleyball, and basketball). Participants were selected through convenience sampling.

Measures

1. Working Memory Assessment: The Revised Wechsler Adult Intelligence Scale (WAIS-R) was used to evaluate working memory capacity, focusing on digit span tasks (forward and backward recall).
2. Mood Assessment: The Brunel Mood Scale (BRUMS) measured mood states across six dimensions: tension, depression, anger, vigor, fatigue, and confusion.
3. Decision-Making Styles: Scott and Bruce's General Decision-Making Style Questionnaire categorized decision-making into five styles: rational, intuitive, dependent, avoidant, and spontaneous.

Statistical Analysis

Structural equation modeling (SEM) with partial least squares (PLS) was employed to analyze the relationships between mood states, working memory, and decision-making styles. Bootstrapping (10,000 samples) tested the significance of mediation effects.

Results

Negative moods (depression, anger, confusion) significantly impaired working memory performance ($\beta = -0.26, -0.13, -0.18$, $p < 0.01$). Positive moods (happiness) improved working memory ($\beta = 0.12$, $p < 0.05$). No significant effects were found for tension or relaxation on working memory. Higher working memory capacity predicted rational ($\beta = 0.33$, $p < 0.01$) and intuitive ($\beta = 0.21$, $p < 0.01$) decision-making. Lower working memory capacity was linked to avoidant ($\beta = -0.19$, $p < 0.01$) and dependent ($\beta = -0.25$, $p < 0.01$) styles. Working memory fully mediated the relationship between negative moods and less effective decision-making (e.g., depression → working memory → avoidant decisions, $\beta = 0.05$, $p < 0.05$). Positive moods indirectly improved rational decision-making through enhanced working memory ($\beta =$

0.04, $p < 0.05$).

Discussion

The study supports the notion that positive moods facilitate adaptive decision-making by promoting cognitive flexibility, while negative moods lead to rigid or avoidant strategies. For example, happiness correlated with rational decisions, likely due to increased cognitive resources, and anger and depression were tied to dependent or avoidant styles, possibly due to reduced mental bandwidth for evaluating options. Working memory emerged as a critical bridge between emotions and decisions. Athletes with better working memory could process complex information efficiently, leading to more strategic choices. Conversely, impaired working memory (due to negative moods) resulted in reliance on simpler, less optimal strategies.

Practical Implications:

Coaches should incorporate psychological interventions (e.g., mindfulness, stress reduction) to regulate mood and enhance working memory. Exercises targeting working memory (e.g., dual-task training) could improve decision-making under pressure. Athletes with high negative mood tendencies may benefit from tailored support to mitigate cognitive deficits.

Limitations:

The study focused on Zanjan athletes; results may not generalize to other populations. Mood and decision-making data relied on questionnaires, which are subjective. Causality cannot be inferred; longitudinal studies are needed.

Conclusion

The findings revealed that both positive and negative mood states directly and indirectly influenced athletes' decision-making styles through their impact on working memory. Specifically, negative moods such as depression, anger, and confusion were associated with reduced working memory performance, leading to avoidant or dependent decision-making styles. In contrast, positive moods like happiness enhanced working memory, thereby strengthening rational and intuitive decision-making styles. The results of this study highlight the importance of considering psychological and cognitive factors in athletes' success.

Ethical Considerations

Participants were assured confidentiality, and ethical guidelines were followed.

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Conflict of Interest

None declared.

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پیش‌بینی سبک‌های تصمیم‌گیری بر اساس حالات خلقی با نقش میانجی حافظه‌کاری در ورزشکاران شهر زنجان

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چکیده

پژوهش حاضر با هدف تعیین ارتباط بین حالات خلقی و سبک‌های تصمیم‌گیری با نقش میانجی حافظه‌کاری در ورزشکاران زنجان در سال ۱۴۰۲ انجام شد. جامعه‌ی آماری پژوهش شامل تمام ورزشکاران زن و مرد شهر زنجان در رشته‌های ورزشی انفرادی و تیمی بود که با استفاده از روش نمونه‌گیری در دسترس ۲۴۵ نفر به عنوان نمونه آماری انتخاب شدند. ورزشکاران انتخاب شده در رشته‌های تکواندو، کاراته، تنیس روی میز و بدمینتون (انفرادی) و فوتسال، والیبال، هندبال و بسکتبال (تیمی) به مدت ۳ تا ۷ سال به فعالیت ورزشی می‌پرداختند. حافظه‌کاری ورزشکاران از طریق نرم افزار سنجش حافظه‌کاری وکسلر سنجیده شد. سپس آزمودنی‌ها به پرسشنامه‌ی سبک‌های عمومی تصمیم‌گیری اسکات و بروس و پرسشنامه‌ی حالات خلقی برومز پاسخ دادند. نتایج تجزیه و تحلیل داده‌ها، حاکی از تأثیر معنادار افسردگی، شادکامی، خشم و سردرگمی بر حافظه‌کاری بود. همچنین تأثیر معنادار حافظه‌کاری بر سبک‌های تصمیم‌گیری عقلائی، وابسته، شهودی و اجتنابی نشان داده شد. بر اساس یافته‌های حاصل از این پژوهش می‌توان اظهار کرد حافظه‌کاری در ارتباط بین سبک‌های تصمیم‌گیری و حالات خلقی در ورزشکاران نقش میانجی دارد.

کلید واژه‌ها: سبک‌های تصمیم‌گیری، حالات خلقی، حافظه‌کاری، ورزشکاران.

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The synergistic impact of sleep quality, mental health, and cognitive function on adults dynamic balance in

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Abstract

This study aimed to investigate the simultaneous effects of sleep quality, mental health, and cognitive performance on dynamic balance in adults. In this descriptive-analytical cross-sectional study, 83 participants (52 men and 31 women) with a mean age of 44.70 years were recruited. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), mental health with the General Health Questionnaire (GHQ-28), and cognitive performance with the Stroop test. Dynamic balance was measured using an Iranian-made dynamic balance device. Pearson correlation analysis revealed significant positive relationships between dynamic balance and all three variables in both genders. Multiple regression analysis showed that, among men, mental health, sleep quality, and cognitive performance significantly predicted dynamic balance. Among women, only mental health and cognitive performance were significant predictors, while sleep quality was not. Altogether, these three factors explained more than 50% of the variance in dynamic balance in both men and women. Mental health emerged as the strongest predictor of dynamic balance across genders. Gender differences were noted, with sleep quality playing a greater role in men's balance than women's. These findings emphasize the importance of a multifactorial approach to improving balance, including enhancing sleep quality, promoting mental health, and strengthening cognitive functions. The results have practical implications for the design of preventive, rehabilitative, and health promotion programs among middle-aged adults. Considering the crucial role of dynamic balance in daily activities and fall prevention, addressing sleep, mental health, and cognitive factors simultaneously may provide a more effective strategy for enhancing balance and overall well-being.

Key words: Dynamic Balance, Sleep Quality, Mental Health, Stroop Test.

Extended Abstract

Background and Purpose

Postural balance is a fundamental component of human functioning that integrates sensory input, motor responses, and cognitive control. Beyond its physical relevance, balance reflects the broader functioning of the central nervous system, particularly the cerebellum and prefrontal cortex—regions also involved in emotion regulation and executive function. Emerging evidence suggests that impairments in psychological well-being, such as elevated levels of stress, anxiety, and depression, may negatively affect not only cognitive performance but also physical coordination and balance.

The growing prevalence of mental health challenges in occupational settings, especially among academic staff subjected to chronic stress, highlights the need to explore holistic indicators of well-being. University employees, balancing administrative, teaching, and research responsibilities, are especially vulnerable to psychological strain that could potentially impair both their cognitive and postural systems.

This study aims to investigate the relationship between postural balance, mental health (as measured by stress, anxiety, and depression), and cognitive performance in a sample of employed individuals at a university.

Materials and Methods

The study was conducted on a sample of 83 university staff members, aged between 35-60 years, selected through convenience sampling. All participants were actively employed at various departments within the university. Inclusion criteria required participants to be free of neurological disorders, musculoskeletal limitations, and known balance-related diseases. Athletes and individuals engaged in professional physical training were excluded to ensure consistency in balance experience.

The following instruments were employed:

Balance Assessment: A locally manufactured dynamic balance analyzer developed by Danesh-Salar Iranian Company (Iran-made) was employed to assess participants' ability to maintain balance on an unstable support platform. This instrument is specifically designed to evaluate postural coordination and control by challenging the body's equilibrium under controlled instability. The platform moves along the medial-lateral (side-to-side) axis and provides visual biofeedback stimuli, prompting participants to stabilize themselves in response to shifting visual cues. The device allows adjustment of balance stability range and fall threshold, and presents a graphical display of body balance percentage, delivering detailed data on each individual's dynamic postural performance.

Mental Health Evaluation: Psychological well-being was assessed using the Depression, Anxiety, and Stress Scale (DASS-21). This 21-item self-report scale evaluates the severity of three core psychological states: depression, anxiety, and stress.

Cognitive Function Assessment: The study used the Stroop Test and the Trail Making Test (TMT) to measure cognitive flexibility, attention, and executive functioning. TMT Part A focuses on processing speed, while Part B assesses task switching and working memory.

Data analysis was conducted using SPSS version 24. Descriptive statistics summarized participant characteristics and test scores. Pearson correlation coefficients were used to assess relationships between variables. Multiple regression models were applied to identify the predictive value of balance and mental health on cognitive performance.

Results

The average age of participants was approximately 47 years. The group was balanced in terms of gender and represented diverse administrative and academic positions within the university.
A significant inverse correlation was found between postural balance and psychological distress. Specifically, higher scores on the DASS-21 (indicating greater stress, anxiety, and depression) were associated with lower balance performance ($r = -0.38$, $p < 0.01$).
Cognitive performance was positively associated with balance ability. Participants who maintained longer balance times on the Stork and Romberg tests completed the Stroop and Trail Making tests more quickly and accurately (TMT-B: $r = 0.33$, $p < 0.01$).
Mental health scores were significantly related to cognitive outcomes. Higher levels of psychological distress corresponded to poorer cognitive test performance, especially on tasks requiring executive control and divided attention (Stroop interference score: $r = -0.41$, $p < 0.01$).

In multivariate regression models, stress and anxiety emerged as significant predictors of cognitive dysfunction, even when accounting for age and education. Postural balance contributed to independent variance in predicting cognitive scores ($\beta = 0.27$, $p < 0.05$), suggesting a robust relationship beyond the influence of psychological symptoms alone.

Conclusion

This study provides compelling evidence of the interdependence between physical, psychological, and cognitive domains in middle-aged university employees. Participants with higher levels of stress, anxiety, or depression showed measurable declines in both cognitive test performance and static balance ability. Conversely, those with better balance tended to perform better cognitively and reported fewer psychological symptoms.
These findings support a biopsychosocial model of cognitive performance, in which physical indicators such as balance are reflective of broader systemic health, including mental and neurological functioning. The cerebellum's dual role in postural control and cognitive-emotional regulation may explain these observed relationships.
In occupational health contexts, particularly in university environments, this suggests that maintaining postural balance and psychological well-being may not only improve quality of life but also enhance work-related cognitive performance. Given the non-invasive nature of balance assessments and their potential to reveal hidden stress or cognitive issues, these tests may serve as effective screening tools in employee wellness programs.

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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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تأثیر همزمان کیفیت خواب، سلامت روان و عملکرد شناختی برتعادل پویا دربزرگسالان

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چکیده

هدف این پژوهش بررسی تأثیر همزمان کیفیت خواب، سلامت روان و عملکرد شناختی بر تعادل پویا در بزرگسالان بود. در این مطالعه، ۸۳ نفر (۵۲ مرد و ۳۱ زن) با میانگین سنی ۴۴/۷۰ سال شرکت کردند. کیفیت خواب با پرسشنامه پیتسبورگ (PSQI)، سلامت روان با پرسشنامه GHQ-28 و عملکرد شناختی با آزمون استروپ ارزیابی شد. تعادل پویا نیز با دستگاه تعادل‌سنج پویای ایرانی سنجیده شد. تحلیل همبستگی پیرسون نشان داد که تعادل پویا به طور معناداری با کیفیت خواب، سلامت روان و عملکرد شناختی در هر دو گروه مردان و زنان ارتباط دارد. نتایج رگرسیون چندگانه نشان داد که در مردان، سلامت روان، کیفیت خواب و عملکرد شناختی همگی پیش‌بینی‌کننده‌های معنادار تعادل پویا بودند، در حالی که در زنان، سلامت روان و عملکرد شناختی نقش معناداری داشتند و کیفیت خواب پیش‌بینی‌کننده معناداری نبود. در مجموع، این سه متغیر بیش از ۵۰٪ از واریانس تعادل پویا را در هر دو جنس تبیین کردند. یافته‌ها نشان داد سلامت روان قوی‌ترین پیش‌بینی‌کننده تعادل پویا بود. همچنین تفاوت‌های جنسیتی در الگوهای ارتباط مشاهده شد، به طوری که کیفیت خواب نقش بیشتری در تعادل مردان نسبت به زنان ایفا کرد. این نتایج بر اهمیت در نظر گرفتن رویکرد چندعاملی برای بهبود تعادل، از جمله تقویت کیفیت خواب، ارتقای سلامت روان و بهبود عملکرد شناختی تأکید دارد. یافته‌های این پژوهش می‌تواند در طراحی برنامه‌های توانبخشی و ارتقای سلامت افراد میانسال به کار رود. با توجه به اهمیت تعادل پویا در فعالیت‌های روزمره بررسی هم‌زمان این سه عامل می‌تواند رویکرد مؤثرتری برای بهبود تعادل فراهم کند.

کلید واژه‌ها: تعادل پویا، کیفیت خواب، سلامت روان، آزمون استروپ.

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Investigating the Relationship between Physical Activity Level and Symptoms of Anxiety and Depression in Patients Undergoing Coronary Angiography: The Role of Gender and Age

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Abstract

Cardiovascular diseases represent a leading global cause of mortality, particularly challenging in developing nations. This study investigated relationships between physical activity (PA) levels and anxiety/depression symptoms in coronary angiography candidates, while examining age and gender roles. Using a quantitative, descriptive-correlational design, we assessed 103 patients (50.5% male, mean age=60.86±8.99 years) from Qom, Iran (2023-2024). Standardized measures included the IPAQ-SF for PA and DASS-21 for psychological symptoms, analyzed via Pearson correlations and multiple regression (SPSS v27, $p<0.05$). Results revealed significant negative anxiety-PA associations (excluding vigorous exercise), strongest for moderate walking ($\beta=-0.32$, $p<0.05$). Conversely, depression showed positive correlations with total PA and moderate walking ($\beta=0.28$, $p<0.05$), suggesting PA's potential coping role. Age consistently negatively predicted all PA measures ($p<0.01$), most strongly for total PA ($\beta=-0.41$), aligning with known age-related activity declines. Gender differences approached significance only for vigorous activity ($\beta=0.23$, $p=0.053$), indicating possible intensity-based preferences. These findings emphasize the need for personalized cardiac rehabilitation addressing: 1) anxiety as a primary PA barrier, particularly for moderate activities; 2) age-appropriate exercise prescriptions; and 3) potential gender-specific intensity preferences. The distinct anxiety/depression relationships with PA highlight the necessity for differentiated psychological approaches in cardiac care. While anxiety appears inhibitory, depression's positive association suggests compensatory PA use, requiring distinct clinical consideration. Study limitations include its cross-sectional design and self-reported measures, suggesting future longitudinal studies with objective PA assessment. Nonetheless, these results provide compelling evidence for tailored rehabilitation programs that integrate psychological support with demographically-sensitive exercise recommendations. Such personalized interventions could significantly improve both physical activity adherence and mental health outcomes in cardiac patients, ultimately enhancing rehabilitation effectiveness and quality of life.

Key words: Physical Activity, Anxiety, Depression, Gender, Age.

Extended Abstract

Background and Purpose

Cardiovascular diseases (CVDs) remain a leading cause of global mortality, particularly posing a significant challenge in developing countries (1). Coronary angiography serves as a key diagnostic and therapeutic approach for managing CVDs. However, beyond physical factors, patients' psychological well-being significantly impacts their overall health and quality of life (2).

Numerous studies highlight the detrimental effects of anxiety, stress, and depression on cardiac patients' recovery. These psychological disorders are associated with increased postoperative complications, prolonged recovery periods (3), and heightened risks of recurrent cardiac events due to mechanisms like elevated cortisol levels and impaired immune function (6,7). In angiography candidates, such conditions may lead to arrhythmias, reduced treatment efficacy, poor rehabilitation adherence, and frequent emergency visits (8).

While guidelines from the American Heart Association (AHA) and European societies recommend psychological interventions for coronary heart disease (CHD) patients with depression (7), the efficacy of such treatments for comorbid anxiety remains unclear, necessitating alternative approaches (8-11). Exercise, as a flexible and accessible intervention, shows promise in alleviating anxiety and depression while improving cardiac prognosis (12,13). However, existing evidence is conflicting: while some meta-analyses support exercise's mood-enhancing benefits in CHD patients (14), others cite insufficient data for definitive conclusions (15). For instance, respiratory muscle training reduced post-CABG anxiety (16), yet certain cardiac rehabilitation programs showed no significant impact on depression (17).

Critical research gaps persist, including limited focus on angiography candidates, inconsistent accounting for demographic variables (e.g., age, sex), and reliance on non-standardized physical activity assessments (10). This study addresses these gaps by examining a specific patient population, employing standardized measurement protocols, and considering key demographic factors. Its findings could inform tailored cardiac-psychosocial rehabilitation programs and guide policymakers in developing targeted interventions. Given the high prevalence of psychological disorders in cardiac patients and exercise's potential role in mitigation, this research may significantly enhance patients' quality of life.

Materials and Methods

This applied quantitative study employed a descriptive-correlational survey design. The target population consisted of all coronary angiography candidates in Qom, Iran (2023-2024). Using Tabachnick and Fidell's formula ($N \geq 50+8M$), a minimum sample size of 98 was required. To enhance external validity, 150 participants were selected via convenience sampling, with 103 retained after excluding incomplete responses.

Data Collection Tools

International Physical Activity Questionnaire (IPAQ-SF): The short-form IPAQ (9 items) assessed metabolic equivalent (MET)-based activity levels over seven days. Participants were categorized as inactive (<600 MET-min/week), moderately active (≥600 MET-min/week), or highly active (≥1500–3000 MET-min/week). Validity and reliability of the Persian version were confirmed (Cronbach's $\alpha=0.70$, Spearman's $r=0.90$) (14).

Depression Anxiety Stress Scales (DASS-21): This 21-item Likert-scale tool measured depression (8 items), anxiety (7 items), and stress (6 items). Its Persian version demonstrated acceptable validity (r=0.70 with Beck's Depression Inventory) and reliability (α=0.70 for depression) (15, 16).

Procedure

Ethical approval (IR.QOM.REC.1403.30) was obtained. Participants provided informed consent, and questionnaires were administered in hospitals, with confidentiality emphasized.

Data Analysis

Kolmogorov-Smirnov tests confirmed normality. Pearson's correlation and multiple linear regression analyzed variable relationships using SPSS-27 ($p<0.05$).

Results

The study examined 103 coronary angiography patients (50.5% male, 49.5% female) with a mean age of 60.86±8.99 years. Physical activity analysis revealed participants engaged more in moderate walking (486.35±614.15 min/week) than vigorous (302.91) or moderate activities (184.08), with significant variability observed. Correlation analysis demonstrated significant negative relationships between total physical activity and anxiety ($p<0.05$), stress ($p<0.05$), depression ($p<0.05$), and age ($p<0.01$), though no association with gender was found ($p=0.327$). Regression models explained 33.7% of variance in total activity, with anxiety ($\beta=-62.11$, $p=0.005$) and age ($\beta=-40.12$, $p<0.001$) emerging as strongest predictors. Vigorous activity ($R^2=0.161$) was primarily predicted by age ($\beta=-19.08$, $p=0.005$), while moderate activity ($R^2=0.180$) showed associations with both anxiety ($\beta=-15.50$, $p=0.022$) and age ($\beta=-9.47$, $p=0.002$). Walking behavior ($R^2=0.191$) was most strongly influenced by anxiety ($\beta=-32.52$, $p=0.014$). Notably, stress showed no significant relationships across all models. The data met all assumptions of normality (Kolmogorov-Smirnov $p=0.095$) and homoscedasticity. These findings suggest that psychological factors, particularly anxiety, along with advancing age, significantly influence physical activity patterns in cardiac patients, though the specific relationships vary by activity type. The results highlight the importance of considering both mental health and age-related factors when developing physical activity interventions for this population. The balanced gender distribution in our sample enhances the generalizability of these findings to both male and female coronary angiography patients.

Conclusion

This study revealed significant relationships between physical activity levels and psychological factors in coronary angiography patients. The findings align with previous research demonstrating the negative impact of anxiety and depression on physical activity engagement among cardiac patients. Notably, anxiety emerged as the strongest psychological predictor across all activity types, particularly affecting moderate walking, which supports the therapeutic role of low-intensity exercise in anxiety management.

The age-related decline in physical activity observed in our study corroborates existing literature on aging and exercise patterns. However, our finding that stress showed no significant association with activity levels contrasts with some previous studies, suggesting stress may influence cardiac patients through different pathway. The balanced gender distribution in our sample allowed for

robust comparisons, revealing no significant gender differences in activity patterns - an important consideration for rehabilitation programs.

The clinical implications of these findings are twofold. First, anxiety screening should be incorporated into cardiac rehabilitation assessments, as it appears to be a major barrier to physical activity. Second, age-specific exercise recommendations may improve adherence, particularly for older patients. Future research should explore the mechanisms underlying the anxiety-activity relationship and test targeted interventions for anxiety reduction in this population.

These results support the integration of psychological support with exercise programs in cardiac rehabilitation. By addressing both mental health and physical activity simultaneously, clinicians may achieve better outcomes for coronary angiography patients. The study's limitations include its cross-sectional design and reliance on self-reported activity measures, suggesting the need for longitudinal studies with objective activity monitoring.

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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بررسی ارتباط بین سطح فعالیت بدنی و علائم اضطراب و افسردگی در بیماران کاندید آنژیوگرافی عروق کرونر: نقش جنسیت و سن

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چکیده

بیماری‌های قلبی-عروقی یکی از علل اصلی مرگ‌ومیر جهانی محسوب می‌شوند، به‌ویژه در کشورهای در حال توسعه. این پژوهش به بررسی ارتباط بین سطوح فعالیت بدنی و علائم اضطراب/افسردگی در بیماران کاندید آنژیوگرافی عروق کرونر پرداخت و نقش سن و جنسیت را نیز مورد بررسی قرار داد. با استفاده از یک طرح توصیفی-همبستگی کمی، ۱۰۳ بیمار (۵۰/۵٪ مرد، میانگین سنی ۶۰/۸۶±۸/۹۹ سال) از مراکز درمانی قم در سال‌های ۱۴۰۲-۱۴۰۳ مورد ارزیابی قرار گرفتند. ابزارهای استاندارد شامل پرسشنامه IPAQ-SF برای فعالیت بدنی و DASS-21 برای علائم روان‌شناختی بودند که با استفاده از ضریب همبستگی پیرسون و رگرسیون چندگانه در نرم‌افزار SPSS نسخه ۲۷ تحلیل شدند ($p>0/05$). نتایج نشان‌دهنده ارتباط منفی معنادار بین اضطراب و تمام سطوح فعالیت بدنی (به جز فعالیت شدید) بود که قوی‌ترین رابطه برای پیاده‌روی متوسط مشاهده شد ($\beta=-0/32$ ، $p>0/05$) در مقابل، افسردگی با فعالیت کلی و پیاده‌روی متوسط ارتباط مثبت نشان داد ($\beta=0/28$ ، $p>0/05$)که ممکن است نشان‌دهنده استفاده از فعالیت بدنی به عنوان مکانیسم مقابله‌ای باشد. سن به‌صورت منفی و معنادار تمام سطوح فعالیت بدنی را پیش‌بینی کرد ($p>0/01$) که بیشترین اثر را بر فعالیت کلی داشت ($\beta=-0/41$) همسو با الگوی شناخته‌شده کاهش فعالیت با افزایش سن. تفاوت‌های جنسیتی تنها در مورد فعالیت شدید به آستانه معناداری نزدیک شد ($\beta=0/23$، $p=0/053$) که می‌تواند نشان‌دهنده ترجیح‌های جنسیتی در شدت فعالیت باشد. یافته‌های این مطالعه بر ضرورت طراحی برنامه‌های بازتوانی قلبی شخصی‌سازی‌شده تأکید می‌کنند که: ۱) اضطراب را به عنوان مانع اصلی فعالیت بدنی مورد توجه قرار دهند، ۲) توصیه‌های ورزشی متناسب با سن ارائه دهند، و ۳) ترجیحات جنسیتی در شدت فعالیت را مد نظر قرار دهند. محدودیت‌های مطالعه شامل طراحی مقطعی و استفاده از ابزارهای خودگزارشی بود که لزوم انجام مطالعات طولی با اندازه‌گیری عینی فعالیت بدنی در آینده را نشان می‌دهد. با این حال، این نتایج شواهد محکمی برای برنامه‌های بازتوانی ترکیبی (روان‌شناختی-جسمانی) با در نظر گرفتن ویژگی‌های جمعیت‌شناختی فراهم می‌کنند که می‌توانند به بهبود پیامدهای سلامت جسمی و روانی بیماران قلبی منجر شوند.

کلید واژه‌ها: فعالیت بدنی، اضطراب، افسردگی، جنسیت، سن.

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The Effect of Golf Putting Instructional Methods on Self-Efficacy and Motor performance: The Mediating Role of Conscious Reprocessing

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Abstract

This study aimed to compare the effects of explicit and analogical instructional methods on motor performance and self-efficacy, while examining the mediating role of conscious reprocessing capacity. The research involved 90 female students aged 13-15 who were divided into high and low conscious reprocessing groups based on their Movement-Specific Reinvestment Scale (MSRS) scores, then randomly assigned to six groups: explicit instruction (high/low reprocessing), analogical instruction (high/low reprocessing), and control groups.

The study employed the MSRS questionnaire, a golf putting performance test (measuring ball-to-target distance), and Bandura's self-efficacy scale across six sessions (pre-test, training, and post-test). Results indicated that both instructional methods improved performance and self-efficacy, though the analogical group demonstrated superior motor performance compared to the explicit group. While both experimental groups showed higher self-efficacy than the control group, no significant difference emerged between the two instructional methods in enhancing self-efficacy. Interestingly, contrary to expectations, conscious reprocessing capacity did not significantly influence the outcomes. These findings suggest that the analogical method enhances motor performance by reducing cognitive load, while both explicit and analogical approaches equally improve self-efficacy. However, the lack of impact from conscious reprocessing capacity implies that other factors - such as task characteristics or learners' skill levels - may play more crucial roles in determining outcomes. These results can guide coaches and educators in selecting appropriate instructional methods to effectively enhance learners' self-efficacy.

Keywords: Conscious reprocessing, Self-efficacy, Analogical instruction, Explicit instruction

Extended Abstract

Background and Purpose

The primary objective of this study was to investigate the effectiveness of two distinct instructional methods explicit and analogy learning on motor performance and self-efficacy in novice learners, while examining the potential mediating role of conscious movement reprocessing (CMR) tendencies. Given the inconsistent findings in prior research regarding the superiority of either method, this study aimed to clarify whether individual differences in conscious movement reprocessing influence the efficacy of these instructional approaches. Motor skill acquisition is a fundamental challenge in sports science and educational psychology. Traditional explicit learning involves direct verbal instructions, rules, and declarative knowledge, which can impose a significant cognitive load on working memory (Maxwell, Masters, & Poolton, 2006). In contrast, implicit learning, particularly through analogy-based instruction, minimizes reliance on explicit rules by using metaphors (e.g., "swing the golf club like a pendulum") to facilitate skill acquisition (Poolton, Masters, & Maxwell, 2007). While some studies report comparable benefits for both methods (Kok, Nuij, Kal, & van der Kamp, 2022); (Meier, Frank, Gröben, & Schack, 2020) others suggest that analogy learning reduces cognitive interference, leading to better retention and performance (Tse, Fong, Wong, & Masters, 2017); (Duijn, Thomas, & Masters, 2019) . Additionally, self-efficacy a key psychological construct in Bandura's social cognitive theory plays a crucial role in motor learning. Prior research indicates that explicit instructions may enhance self-efficacy early in learning by providing clear task understanding (Feltz, Short, & Sullivan, 2008), whereas analogy learning may sustain long-term self-efficacy by reducing cognitive strain (Afroditi C Lola & Tzetzis, 2020). However, conflicting evidence exists regarding whether self-efficacy improvements are method-dependent or influenced by individual cognitive traits like CMR. Thus, this study sought to:

1. Compare the effects of explicit vs. analogy-based instruction on motor performance and self-efficacy.
2. Examine whether conscious movement reprocessing tendency moderates the relationship between instructional methods and self-efficacy.

Materials and Methods

In this study, 90 female students aged 13-15 with no prior golf experience were selected based on their conscious movement reprocessing scores (high vs. low) using the Movement-Specific Reinvestment Scale (MSRS). Participants were randomly assigned to six groups: explicit instruction group (high/low CMR), analogy instruction group (high/low CMR), and control group (no instruction, high/low CMR). In the pre-test phase, participants first observed a skilled model performing a golf putt, then executed 10 putts to assess baseline performance and self-efficacy. During the four-day intervention phase, participants practiced putting in six blocks of 10 trials each. The explicit group received step-by-step technical instructions (e.g., "keep your head still"), the analogy group used metaphorical cues (e.g., "swing like a pendulum"), while the control group practiced without instructions. A retention test was conducted one day after the final session. Participants were also asked to recall the rules to verify adherence to instructional methods. Motor performance was evaluated by measuring the distance from the target (in centimeters). Self-efficacy was assessed using Bandura's scale, and conscious motor processing tendencies were measured with the MSRS. For data analysis, repeated-measures ANOVA was used to compare performance and self-efficacy across groups, with Bonferroni post-hoc tests identifying specific between-group differences.

Results

The study's key findings revealed significant improvements in motor performance for both explicit and analogy instruction groups compared to the control group ($p < 0.001$), with the analogy group demonstrating superior performance over the explicit group ($p = 0.04$), supporting its cognitive load reduction advantage. No interaction effect was observed for conscious movement reprocessing (CMR) ($p = 0.10$), suggesting performance gains occurred independently of reprocessing tendencies. Regarding self-efficacy, both instructional methods showed comparable enhancement relative to the control ($p < 0.001$), with no significant difference between them ($p = 1.00$). Contrary to initial hypotheses, CMR did not moderate self-efficacy gains ($p = 0.06$), indicating cognitive traits may not determine efficacy outcomes. Verbal protocol analysis confirmed the explicit group recalled significantly more technical rules ($M = 4.93$) than the analogy group ($M = 1.03$; $p = 0.001$), validating that analogy learning effectively reduced reliance on declarative knowledge during skill execution. These findings collectively demonstrate the effectiveness of both instructional approaches while highlighting the particular advantages of analogy-based learning in motor skill acquisition.

Conclusion

The study's findings demonstrate that analogy learning resulted in superior motor performance, likely attributable to reduced cognitive load and increased movement automaticity (Liao & Masters, 2001). Both explicit and analogy instruction methods equally enhanced self-efficacy, potentially due to performance success feedback (e.g., observing ball trajectory) increasing confidence irrespective of instructional approach (Saemi, Porter, Ghotbi-Varzaneh, Zarghami, & Maleki, 2012). Contrary to some previous research (Tse et al., 2017) but consistent with (Kok et al., 2022), conscious movement reprocessing (CMR) showed no moderating effect on outcomes, suggesting that task simplicity or other cognitive factors like working memory capacity might outweigh reprocessing influences. These results carry important practical implications, indicating coaches should prioritize analogy learning for novice learners to maximize performance benefits while recognizing both methods effectively build self-efficacy. Theoretically, the lack of CMR's influence challenges existing assumptions about conscious processing in motor learning, highlighting the need to examine alternative mediators such as attentional focus. Several limitations warrant consideration, including the relatively simple golf putt task potentially limiting generalizability to more complex skills where CMR effects might emerge. Future studies should incorporate longer retention intervals to better understand the persistence of self-efficacy improvements and investigate additional cognitive (e.g., working memory capacity) and motivational factors (e.g., autonomy support) that may influence learning outcomes. In summary, while analogy learning proves optimal for performance enhancement, both instructional approaches effectively improve self-efficacy independent of conscious reprocessing tendencies, underscoring the importance of further research examining skill level and cognitive load interactions to develop more refined, personalized training methodologies.

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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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تاثیر روش های آموزشی مهارت پات گلف بر خودکارآمدی و عملکرد حرکتی: نقش واسطه ای بازپردازش آگاهانه

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چکیده

این پژوهش با هدف مقایسه تأثیر روش‌های آموزشی آشکار و قیاسی بر عملکرد حرکتی و خودکارآمدی و بررسی نقش واسطه‌ای ظرفیت بازپردازش آگاهانه انجام شد. در این مطالعه ۹۰ دانش‌آموز دختر ۱۳ تا ۱۵ سال بر اساس نمرات پرسشنامه تمایل بازپردازش آگاهانه به دو گروه بالا و پایین تقسیم و سپس به صورت تصادفی در شش گروه شامل گروه‌های (آشکار با بازپردازش بالا/ پایین، قیاس با بازپردازش بالا/ پایین، و کنترل با بازپردازش بالا/ پایین)، قرار گرفتند. پژوهش با استفاده از پرسشنامه تمایل بازپردازش آگاهانه، آزمون عملکرد پات گلف و پرسشنامه خودکارآمدی بندورا در شش جلسه شامل پیش‌آزمون، تمرین و پس‌آزمون انجام شد. نتایج نشان داد هر دو روش آموزشی موجب بهبود عملکرد و خودکارآمدی شدند، اما گروه قیاس عملکرد بهتری نسبت به گروه آشکار داشت. در حالی که هر دو گروه آشکار و قیاس خودکارآمدی بالاتری نسبت به گروه کنترل نشان دادند، بین این دو روش در افزایش خودکارآمدی تفاوت معناداری مشاهده نشد همچنین، ظرفیت بازپردازش آگاهانه تأثیر معناداری بر نتایج نداشت. یافته‌های این مطالعه حاکی از آن است که روش قیاسی به دلیل کاهش بار شناختی می‌تواند عملکرد حرکتی را بهبود بخشد، در حالی که هر دو روش آشکار و قیاسی به یک اندازه در افزایش خودکارآمدی مؤثر هستند. با این حال، عدم تأثیر ظرفیت بازپردازش آگاهانه بر نتایج نشان می‌دهد احتمالاً عوامل دیگری مانند ویژگی‌های تکلیف یا سطح مهارت یادگیرنده نقش مهمتری در نتایج ایفا می‌کنند. این یافته‌ها میتواند برای مربیان و معلمان در انتخاب روش‌های آموزشی مناسب برای بهبود خودکارآمدی یادگیرندگان مفید باشد.

کلیدواژه‌ها: بازپردازش آگاهانه، خودکارآمدی، دستورالعمل قیاس، دستورالعمل آشکار.

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Correlation Between Drop in Synergy Index and Coincidence Anticipation Timing Performance Errors

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Abstract

In order to execute rapid voluntary movements, a decrease in the synergy index occurs, which helps facilitate these movements by counteracting the synergy that stabilizes posture. This study aimed to investigate the relationship between anticipatory synergy adjustment (ASA) and errors in a coincidence anticipation timing task. To achieve this, 20 participants were randomly selected, and each performed 20 tennis forehand strokes with a 10-second interval between trials. Data were collected on muscle activity from 14 muscles, center of pressure, hand movement acceleration, as well as constant and variable errors. Principal component analysis was used to identify muscle modes, and multivariate regression was applied to obtain the Jacobian matrix. Finally, the synergy index was calculated using the uncontrolled manifold (UCM) method. The results indicated that ASA occurred approximately 114 milliseconds before the onset of movement, reflecting a feedforward adjustment by the central nervous system. Additionally, there was a significant positive correlation between the onset time and the amplitude of ASA; specifically, the earlier the ASA occurred, the greater the amplitude of the drop in the synergy index. However, Pearson correlation analysis showed no significant relationship between the onset time or amplitude of ASA and constant or variable errors in forehand stroke performance. These findings suggest that, for these participants, ASA does not necessarily indicate direct optimization of performance. Instead, the presence of ASA may signify the development of neuromuscular mechanisms in response to the task at hand.

Key words: Uncontrolled Manifold, Anticipatory Synergy Adjustment, Coincidence Anticipation Timing, Muscle Mode, Equilibrium.

Extended Abstract

Background and Purpose

Motor control and coordination are vital for executing complex tasks, particularly in sports. A fundamental concept in motor control is synergy, which refers to the coordinated action of multiple muscles or joints working together to achieve a specific task goal. Anticipatory synergy adjustments (ASA) refer to changes in these synergies that occur before voluntary movement begins. These adjustments are believed to reflect feed-forward mechanisms that prepare the neuromuscular system for upcoming actions. Coincidence anticipation timing (CAT) tasks, such as intercepting a moving object at a precise moment, require exact temporal control and coordination. In table tennis, particularly during a forehand stroke, accurate timing is essential for successful performance. While previous studies have explored ASA in simple motor tasks, less is known about its role in more complex, sport-related tasks that involve whole-body coordination. In some studies, researchers found it challenging to observe changes in the synergy index, suggesting that the complexity of the task (sport-specific versus simple laboratory tasks) may influence ASA. This study aimed to investigate whether ASA occurs during a CAT task in table tennis forehand strokes among participants. Additionally, it sought to determine if there is a correlation between the magnitude and timing of ASA and performance errors (both constant and variable errors). The research focused on analyzing muscle synergies using the uncontrolled manifold (UCM) hypothesis and examining how these synergies change prior to movement initiation.

Materials and Methods

Twenty male university students participated in the study. All participants were right-handed and had experience with table tennis forehand strokes. The researchers recorded electromyographic (EMG) activity from 14 upper and lower limb muscles using a wireless 16-channel surface EMG system (Myon Aktos). Ground reaction forces and center of pressure (COP) data were collected with an AMTI AccuGait-O force plate. A coincidence anticipation timing device assessed participants' performance by measuring constant error (CE) and variable error (VE). To analyze inter-trial covariance in muscle activation patterns, the uncontrolled manifold (UCM) method was employed. This approach allows researchers to differentiate between "good" variance—which refers to variations within the UCM space that do not affect performance—and "bad" variance, which is orthogonal to the UCM space and disrupts performance. The synergy index was calculated based on this distinction, and an anticipatory synergy adjustment (ASA) was identified as a drop in the synergy index before movement onset. Participants performed a table tennis forehand stroke under standardized conditions. After familiarization with the task, they executed a block of 20 trials while EMG and force plate data were recorded. Data analysis followed the computational methods described by Latash and Krishnamoorthy (2004), with ASA detection based on the criteria established by Klous et al. (2011), Krishnan et al. (2012), and Piscitelli et al. (2016). Statistical power analysis using G-Power software indicated a sufficient power of 0.81 for detecting main and interaction effects in MANOVA, given the sample size (n=20) and a medium effect size (d=0.35)

derived from pilot testing. Principal component analysis was used to identify muscle modes, and multivariate regression was applied to obtain the Jacobian matrix. Ultimately, the synergy index was calculated using the uncontrolled manifold (UCM) method.

Results

Analysis of EMG data using principal component analysis revealed distinct muscle activation patterns involved in the task. Four primary muscle modes accounted for the majority of the variance in muscle activation, indicating a structured organization of neuromuscular control. The analysis showed that anticipatory postural adjustments (ASA) occurred approximately 114 milliseconds before the onset of movement. This finding confirms the presence of these adjustments in muscle synergies prior to executing a complex motor task, such as a forehand stroke in table tennis. However, no significant correlation was found between the timing or magnitude of ASA and either constant or variable performance errors. This suggests that, while ASA is present, it does not directly influence the accuracy or consistency of motor output in novice performers. Pearson correlation analysis revealed a significant positive correlation between the onset time and the amplitude of ASA; specifically, the earlier the ASA occurred, the greater the decrease in the synergy index. Despite the lack of a direct link between ASA and performance accuracy, the consistent occurrence of ASA across participants indicates its potential functional significance. It may reflect preparatory neural processes related to task execution rather than immediate optimization of performance.

Conclusion

This study demonstrates that anticipatory synergy adjustments (ASA) occur during a coincidence anticipation timing task that involves a table tennis forehand stroke in all participants. The presence of ASAs suggests that the central nervous system prepares and reorganizes muscle synergies before movement begins, even in individuals who are relatively untrained. However, in contrast to some previous findings from simpler motor tasks, there was no significant relationship between ASA and performance accuracy or variability. This indicates that, in complex motor tasks like table tennis, ASA may not directly contribute to optimizing performance. Instead, it may reflect early-stage adaptations related to learning or preparatory neural activity. These results enhance our understanding of motor control and learning in sports contexts. They suggest that while ASA demonstrates underlying neuromuscular preparation, its role may be more developmental than immediately functional during the early stages of skill acquisition. Future research should investigate how ASA evolves with practice and expertise, as well as whether training interventions can enhance ASA timing or magnitude to improve performance outcomes in complex motor tasks. Additionally, exploring the influence of sensory feedback and attentional demands on ASA could provide deeper insights into the mechanisms of motor control in dynamic environments.

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Authors' Contributions
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Conflicts of Interest
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همبستگی بین افت شاخص همکوشی و خطاهای اجرای زمان‌بندی پیش‌بینی انطباقی

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چکیده

برای اجرای حرکات ارادی سریع، یک افت در شاخص همکوشی رخ میدهد تا از طریق مقابله با همکوشی باثبات کننده قامت، اجرای حرکت سریع را تسهیل کند. پژوهش حاضر به بررسی ارتباط بین تنظیمات همکوشی پیش‌بینانه (ASA) و خطاها در اجرای تکلیف زمان‌بندی پیش‌بینی انطباقی پرداخت. بدین منظور، ۲۰ شرکت کننده به‌صورت تصادفی انتخاب شدند و هرکدام ۲۰ مرتبه ضربه فورهند تنیس را با وقفه ۱۰ ثانیه‌ای بین کوشش‌ها اجرا کردند و داده‌های مربوط به فعالیت عضلانی ۱۴ عضله، مرکز فشار، شتاب حرکت دست و خطای ثابت و متغیر ثبت شدند. از تحلیل مولفه‌های اصلی برای یافتن حالات عضلات و از رگرسیون چند متغیره برای یدست آوردن ماتریس ژاکوبین استفاده شد و در آخر با استفاده از روش مانیفولد کنترل نشده (UCM)، شاخص همکوشی محاسبه گردید. نتایج نشان داد که ASA در حدود ۱۱۴ میلی‌ثانیه قبل از شروع حرکت اتفاق افتاد که نشان‌دهنده تنظیمات پیشخوراندی سیستم عصبی مرکزی است و همچنین ارتباط مثبت و معنی داری بین زمان شروع و دامنه ASA مشاهده شد؛ به این صورت که هرچه ASA زودتر رخ میداد دامنه افت در شاخص همکوشی نیز بزرگتر بود. با این حال، نتایج همبستگی پیرسون هیچ ارتباط معنی‌داری بین زمان وقوع یا دامنه ASA با خطاهای ثابت و متغیر در اجرای ضربه فورهند نشان نداد. این یافته‌ها نشان می‌دهد که در این شرکت‌کنندگان، ASA لزوماً منعکس‌کننده بهینه‌سازی مستقیم عملکرد نیست. با این حال، وجود ASA می‌تواند نشان‌دهنده سازوکارهای عصبی–عضلانی در حال توسعه در پاسخ به تکلیف پیش رو باشد.

کلید واژه‌ها: مانیفولد کنترل نشده، تنظیمات همکوشی پیش بینانه، زمانبندی پیشبینی انطباقی، حالات عضلات، توازن.

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Impact of the SPARK Physical Education Program on Physical Activity Engagement, Social Competence, and Resilience in Children with Autism

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Abstract

The role of structured programs led by qualified educators in promoting sports engagement and a healthy lifestyle for children with autism is critically important. Among various initiatives, the SPARK physical education program has not received extensive attention. This study seeks to evaluate the effects of the SPARK program on physical activity levels, social skills, and resilience in children with autism. Utilizing a quasi-experimental design, the research involved pre-test and post-test evaluations alongside a control group. Forty male students, aged 7 to 8 years, were selected through convenience sampling and randomly divided into an experimental group (SPARK) and a control group, each consisting of 20 participants. To evaluate the outcomes, accelerometers, the Social Interaction subscale of the Gilliam Autism Assessment Scale, second edition, and the Child and Adolescent Resilience Scale were utilized. The SPARK program included 36 sessions, conducted three times a week for 30 minutes each. Analysis of covariance revealed that participation in the SPARK program significantly improved physical activity engagement ($P < 0.001$), social skills ($P = 0.001$), and resilience ($P < 0.001$) among the participants. These findings underscore the necessity of implementing targeted interventions like the SPARK program in physical education for children with mental and physical challenges.

Key words: Physical education, Physical activity, Social skills, Resilience, Autism.

Extended Abstract

Background and Purpose

Autism Spectrum Disorder (ASD) is characterized by deficits in social communication and restricted, repetitive patterns of behavior. Children with autism often experience lower motor skill proficiency and reduced levels of physical activity compared to their neurotypical peers. Furthermore, social impairments and low psychological resilience remain significant challenges for this population. While the SPARK (Sports, Play, and Active Recreation for Kids) program has been proven effective for general student populations, its specific impact on children with autism requires more empirical evidence. This study aims to evaluate the effects of a structured SPARK physical education program on physical activity levels, social skills, and resilience among 7 to 8-year-old boys with autism.

Materials and Methods

This study utilized a quasi-experimental design featuring pre-test and post-test evaluations with a control group. The statistical population consisted of 7 to 8-year-old male students with mild autism (Level 1) in Tehran. Using convenience sampling, 40 participants were randomly assigned to either an experimental group (SPARK) or a control group (n=20 per group). The experimental group underwent 36 sessions of the SPARK program (3 sessions per week, 30 minutes each) for 12 weeks. Measurement tools included triaxial accelerometers (ActiGraph wGT3X-BT) for physical activity, the Social Interaction subscale of the Gilliam Autism Rating Scale (GARS-2) for social skills, and the Child and Adolescent Resilience Scale (CYRM). Data were analyzed using Analysis of Covariance (ANCOVA).

Results

The findings indicated that participation in the SPARK program led to a significant increase in Moderate-to-Vigorous Physical Activity (MVPA) engagement ($P < 0.001$). Furthermore, the experimental group showed statistically significant improvements in social interaction scores ($P = 0.001$) and resilience levels ($P < 0.001$) compared to the control group, which showed no significant changes. The results suggest that the structured and enjoyable nature of SPARK activities effectively engages children with autism, fostering both physical and psychosocial development.

Conclusion

The study concludes that the SPARK physical education program is a highly effective intervention for children with autism. By promoting structured physical activity, the program not only enhances health-related fitness but also provides a platform for improving social competence and psychological resilience. It is recommended that physical education curricula for children with

special needs incorporate targeted programs like SPARK to support their holistic development and active lifestyle.

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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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تأثیر برنامه تربیت‌بدنی اسپارک بر مشارکت در فعالیت‌بدنی، مهارت‌های اجتماعی و تاب‌آوری در کودکان مبتلا به اوتیسم

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چکیده

اهمیت برنامه‌های سازمان‌یافته توسط معلمان ماهر در تأثیر مثبت بر مشارکت کودکان مبتلا به اوتیسم در فعالیت‌های ورزشی و ترویج سبک زندگی سالم باید مورد تأکید قرار گیرد. یکی از برنامه های کمتر مورد بررسی قرار گرفته برنامه تربیت‌بدنی اسپارک می باشد. به همین دلیل، این پژوهش به منظور بررسی تأثیر یک دوره برنامه تربیت بدنی اسپارک بر مشارکت در فعالیت‌های بدنی، مهارت‌های اجتماعی و توانایی تاب‌آوری در کودکان اوتیسم طراحی شد. این پژوهش از یک روش شبه تجربی استفاده کرده که شامل طرح پیش‌آزمون و پس‌آزمون با گروه کنترل می‌باشد. ٤۰ دانش‌آموز پسر ۷ تا ۸ ساله مبتلا به اوتیسم با استفاده از روش نمونه‌گیری دردسترس انتخاب و به‌طور تصادفی به دو گروه آزمایشی (اسپارک) و کنترل تقسیم شدند که هر گروه شامل ۲۰ شرکت‌کننده بود. از دستگاه شتاب‌سنج، زیرمقیاس تعامل اجتماعی مقیاس ارزیابی اوتیسم گلیام نسخه دوم و مقیاس تاب‌آوری کودکان و نوجوانان برای اندازه گیری متغیرهای پژوهش استفاده شد. برنامه اسپارک شامل ۳٦ جلسه (۳ جلسه در هفته، هر جلسه ۳۰ دقیقه) بود. داده‌ها با استفاده از آزمون تحلیل کوواریانس پردازش شدند. نتایج نشان داد که شرکت در برنامه تربیت بدنی اسپارک تأثیر مثبتی بر مشارکت در فعالیت‌های بدنی ($P < ۰/۰۰۱$)، مهارت‌های اجتماعی ($P = ۰/۰۰۱$) و توانایی تاب‌آوری ($P < ۰/۰۰۱$) این کودکان داشته است. درنتیجه، توجه به مداخلات خاص مانند برنامه تربیت‌بدنی اسپارک در کلاس‌های تربیت‌بدنی کودکان با اختلالات ذهنی–جسمی از اهمیت بالایی برخوردار است.

کلید واژه‌ها: تربیت‌بدنی، فعالیت‌بدنی، مهارت‌های اجتماعی، تاب‌آوری، اوتیسم.

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The Effect of Music on Postural Sway in Male Bodybuilders: A Quasi-Experimental Study

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Abstract

Bodybuilding, as a resistance-based sport, poses challenges to postural control and balance, potentially increasing the risk of musculoskeletal injuries. Music, known for its effects on neural and sensory systems, may serve as a non-pharmacological method to improve balance. This study investigated the impact of music on postural sway in male bodybuilders. Using a quasi-experimental, pretest-posttest design with a control group, forthy male bodybuilders were randomly assigned to either an experimental or a control group. Postural stability was assessed using the Biodex Balance System, measuring the Overall Stability Index (OSI), Anterior-Posterior Stability Index (APSI), and Medial-Lateral Stability Index (MLSI). The experimental group completed balance tests while listening to music, whereas the control group performed the tests in silence. Mixed ANOVA results showed that music significantly reduced postural sway and improved balance measures. These findings suggest that music can be an effective complementary tool in bodybuilding training programs to enhance postural stability.

Key words: Music, Postural Control, Balance, Bodybuilding, Postural Sway.

Extended Abstract

Background and Purpose

Bodybuilding is considered one of the core disciplines within strength sports, pursued with the primary objectives of enhancing muscular strength, improving motor coordination, and achieving optimal body composition. Although it offers numerous physical benefits, the demanding nature of resistance training - particularly when involving complex compound exercises such as squats and deadlifts - can elevate the risk of musculoskeletal injuries. These injuries are often associated with deficits in balance and postural stability. Balance is a fundamental element of athletic performance and relies on the coordinated functioning of several physiological systems, including the central nervous system, the vestibular system, visual input, and proprioceptive feedback. Any disruption in these systems may impair athletic efficiency and increase the likelihood of injury. To address these challenges, sensorimotor-based interventions such as core stability exercises and mind–body training have been introduced as effective strategies for improving balance control. Simultaneously, music has attracted growing interest as a multisensory cognitive stimulus with the potential to enhance physical performance. It may positively influence motor function by reducing anxiety levels, activating motor pathways, and improving neuromuscular coordination. Despite these promising effects, the current body of research presents inconsistent findings regarding the influence of music on balance, particularly among strength-trained individuals such as bodybuilders. This inconsistency indicates a notable gap in the literature. Therefore, the present study aims to examine the effects of music on postural sway and specific balance indices in male bodybuilders.

Materials and Methods

This study employed a quasi-experimental pretest – posttest design with a control group and was approved by the Ethics Committee of the University of Tehran (Code: IR.UT.SPORT.REC.1403.107). Forty male bodybuilding practitioners from the University of Tehran, all of whom trained at least four hours per week, voluntarily participated. Inclusion criteria ensured adequate training experience, while exclusion criteria ruled out individuals with vestibular or visual impairments, musculoskeletal injuries, recent surgeries, or those using medications affecting balance. Participants were randomly assigned to experimental (n = 20) and control (n = 20) groups. Balance was assessed using the Biodex Balance System (USA**)**, a validated device for measuring postural control. Three indices were recorded: Overall Stability Index (OSI), Anterior–Posterior Stability Index (APSI), and Medial–Lateral Stability Index (MLSI), where lower scores indicate better balance. Each participant performed a single-leg stance on their dominant leg, barefoot, with arms crossed, and eyes open, while maintaining balance for 20 seconds on a level 5 unstable platform. All participants completed a pretest under standard laboratory conditions. The experimental group then performed the posttest while listening to a 60 dB instrumental traditional

Iranian music track ("The Silence of the Night" by Kayhan Kalhor and Mohammad-Reza Shajarian) through headphones. The control group completed the posttest in silence. Statistical analysis was conducted using SPSS version 26. Data normality was assessed via the Shapiro–Wilk test, and homogeneity of variances using Levene's test. A mixed ANOVA was applied to evaluate within- and between-group differences. The significance level was set at $p < 0.05$.

Findings

The study evaluated 30 male bodybuilders (mean age: 26.77 ± 2.78 years; height: 180.17 ± 4.62 cm; weight: 81.32 ± 4.94 kg; weekly training: 5.15 ± 0.92 hours) to assess the effect of music on postural stability. Pre-test results revealed no significant differences between the intervention and control groups across all three balance indices: Overall Stability Index (OSI), Anterior-Posterior Stability Index (APSI), and Medial-Lateral Stability Index (MLSI), indicating baseline homogeneity. Following the intervention, mixed ANOVA results demonstrated significant improvements in the experimental group exposed to traditional Iranian instrumental music during postural testing. For the OSI, there were significant main effects for time ($F=1035.86$, $p<0.0001$), group ($F=253.72$, $p<0.0001$), and the interaction effect ($F=886.76$, $p<0.0001$). Post hoc comparisons showed that the intervention group experienced a significant reduction in OSI (from pre-test to post-test), while the control group did not. Similarly, APSI and MLSI also exhibited significant improvements in the music group (all $p<0.0001$), with no notable changes in the control group ($p=0.07$ and $p=0.10$, respectively). These findings suggest that music enhanced anterior-posterior and medial-lateral stability. Across all measures, the experimental group demonstrated superior postural control in the post-test compared to the control group. Overall, the results provide strong evidence that music can significantly enhance static balance and reduce postural sway in trained male bodybuilders.

Discussion and Conclusion

This study examined the effect of music on postural sway in male bodybuilders and found that listening to music significantly improved overall postural stability. Participants in the intervention group demonstrated better balance during testing compared to the control group. These results align with previous studies suggesting that music enhances motor coordination, reduces stress, and stimulates sensorimotor integration. Specifically, similar findings were reported in research by Keshavarz, Zhou, Trombetti, and others, where rhythmic auditory cues improved postural control. Studies using classical or soothing music, akin to traditional Iranian music, also support these outcomes due to their calming effect on the nervous system. Furthermore, the study showed significant improvements in both anterior–posterior and medial–lateral stability indices, particularly in participants exposed to low-intensity, calming music (around 60 dB). Contrasting findings from studies using high-intensity sound stimuli (e.g., 100–120 dB) or white noise suggest that excessive auditory stimulation may negatively affect balance by disrupting vestibular function

and concentration. Discrepancies in the literature may be due to differences in population (e.g., elderly, children with cerebral palsy), types of auditory stimuli, and measurement tools (e.g., Biodex vs. simple functional tests). Nonetheless, the present findings emphasize music's potential as a non-invasive, cost -effective tool to enhance balance in strength athletes. Coaches are encouraged to incorporate music into training programs to improve postural control. Future studies should explore the effects of music type, frequency, and duration, as well as long-term impacts across various populations. More precise tools for assessing limb dominance may also enhance the reliability of future research.

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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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تأثیر موسیقی بر نوسانات قامتی در مردان بدنساز: یک مطالعه نیمه‌تجربی

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چکیده

بدنسازی به‌عنوان ورزشی مقاومتی، با چالش‌هایی در کنترل قامت و تعادل مواجه است که ممکن است به آسیب‌های اسکلتی-عضلانی منجر شود. موسیقی به‌واسطه آثارش بر سیستم‌های عصبی و حسی، می‌تواند به‌عنوان یک مداخله غیردارویی، به بهبود تعادل کمک کند. این پژوهش با هدف بررسی تأثیر موسیقی بر نوسانات قامتی در مردان بدنساز انجام شد. روش تحقیق نیمه‌تجربی با طرح پیش‌آزمون-پس‌آزمون و گروه کنترل بود. ۴۰ مرد بدنساز به‌صورت تصادفی به دو گروه تجربی و کنترل تقسیم شدند. از دستگاه بایودکس برای اندازه‌گیری شاخص‌های ثبات کلی، ثبات قدامی-خلفی و ثبات میانی-جانبی استفاده شد. گروه تجربی آزمون‌ها را با موسیقی و گروه کنترل بدون موسیقی انجام دادند. نتایج تحلیل واریانس مرکب نشان داد که موسیقی تأثیر معناداری بر کاهش نوسانات قامتی و بهبود شاخص‌های تعادل دارد. با توجه به یافته‌ها، می‌توان موسیقی را به‌عنوان ابزار مکمل در تمرینات بدنسازان جهت ارتقاء تعادل پیشنهاد کرد.

کلید واژه‌ها: موسیقی، کنترل قامت، تعادل، بدنسازی، نوسان قامتی.

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Relationship between functional movement screen and some factors of physical fitness, body mass index and sleep quality in primary school girls

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Abstract

The purpose of this study is to investigate the correlation between functional movement screen and three main factors of physical fitness, agility, balance and endurance, body mass index and sleep quality in elementary school girls. The statistical population of this study included 7-9 year-old girls of Sabzevar city, who were selected by cluster sampling. The research included about 125 female students in the second and third grades of elementary school. To evaluate the variables of the research, the functional movement screen test (FMS) was used to measure the movement pattern of the stork static balance test and the tandem (dynamic balance test), agility test (4*9 meters) and children sleep habits questionnaire(CSHQ). In order to determine the relationship between the FMS scores and the variables, spearman correlation test was used. The significance level in present study was less than 0.05 in the output of SPSS version 26. FMS scores had a direct relationship with dynamic balance (+0.27) and endurance (+0.31), but had a negative relationship whit agility (-0.20) and (-0.18). Also, no relationship was found between FMS scores with static balance and sleep quality. The current study showed that elementary school girls have movement limitations, on the other hand, there is a weak or no correlation between FMS scores and balance of physical fitness factors and sleep quality. Therefore, it is recommended to conduct more studies in this field.

Keywords: FMS, Balance, Agility, Sleep quality of primary school girls.

Extended Abstract

Background and Purpose

Childhood Growth and Development Growth and development during childhood are among the most influential factors affecting health throughout life. Motor development refers to changes in motor behavior and its underlying processes. Developmental Coordination Disorder (DCD) is one of the most common developmental disorders that affects these skills, with approximately 6% of children worldwide affected. The prevalence of this disorder in school-aged children has been reported to range from 5% to 8%. Sleep and physical activity are inherent biological factors that significantly impact health indicators. According to a systematic review, sleep is important for motor development during childhood and may enhance motor skill acquisition in children. Lemura and colleagues reported a positive relationship between sleep and developmental patterns. However, Chaput et al., in their systematic study on the relationship between sleep and motor development, reported no significant relationship between sleep components and cognitive or motor development in children aged 0 to 4 years. Overweight, obesity, and body composition can also influence children's participation in physical activities and their motor skill development. Body Mass Index (BMI) appears to be another influential factor on children's participation in physical activity and motor skills. Morano et al. reported that overweight children performed worse in object control and locomotor skills compared to their non-overweight peers. Motor performance in children is one of the key aspects of their overall development, affecting their physical health, cognitive abilities, and social interactions. This includes a range of skills such as agility, balance, and endurance, which are essential for daily activities and participation in sports and physical education. Functional Movement Screening (FMS) is a comprehensive tool used to evaluate fundamental movement patterns and identify limitations or asymmetries in mobility and stability. It provides a detailed assessment of movement quality, which is essential for physical performance and injury prevention.
Although numerous studies have separately examined the effects of BMI, physical fitness factors, and sleep quality on motor performance, limited research has investigated these factors simultaneously—especially in school-aged girls. This study aims to provide practical data by comprehensively analyzing the relationships between these variables to develop effective and scientific methods for supporting physical health and improving the quality of life in this age group.

Methodology

The statistical population of this study included 7- to 9-year-old girls in Sabzevar, selected through cluster sampling. The sample consisted of approximately 125 second- and third-grade elementary school girls with no history of physical injuries or professional sports participation, serious injuries, surgeries, or congenital motor issues.

Dynamic Balance Test (Tandem Walk): In this test, the individual walks in a specific way, placing one foot directly in front of the other so that the toe of the front foot touches the heel of the back foot, with arms relaxed by the sides. Validity ranged from 0.78 to 0.97; reliability ranged from 0.92 to 0.99.

Static Balance Test (Modified Stork Test): The individual stands on one foot on a flat surface, lifting the other leg to knee level with arms by the sides. The examiner records the time the person can stand on one foot. Intra-rater reliability (r = 0.87) and test-retest reliability (r = 0.59)

Agility (4×9 meter test): The subject runs 9 meters back and forth four times (a total of 36 meters) as quickly as possible. Test-retest reliability is 0.81, and internal consistency is 0.76.

Muscular Endurance: In a plank position, the individual maintains a straight line from head to feet, supported by forearms and toes. Elbows are placed directly under the shoulders. This test evaluates core endurance, especially abdominal, lateral, and lower back muscles.

Sleep Quality was assessed using the Children's Sleep Habits Questionnaire (CSHQ), completed by parents. Developed by Owens et al. (2000), this 45-item questionnaire evaluates sleep quality and habits in children aged 4 to 12 years and is divided into eight conceptual subscales. The reliability coefficient is reported as 0.78.

FMS Test: The Functional Movement Screening test, designed by Cook and colleagues, assesses the whole movement chain and identifies areas susceptible to injury. It includes seven movement tests and can detect limitations and deviations from natural movement patterns. Reliability and validity are reported between 0.75 and 0.90.

Results

In the descriptive statistics section, mean and standard deviation were used to describe demographic characteristics. The Kolmogorov-Smirnov test was used to assess the normality of data distribution. Since the results indicated non-significance (normal data), non-parametric Spearman correlation was used to analyze relationships between variables. All analyses were conducted using SPSS version 27. No correlation was found between FMS scores and static balance or sleep quality. There was a direct (though weak) relationship between sleep quality and muscular endurance (r = 0.28). However, no relationship was found between sleep quality and other fitness factors or BMI.

Discussion

The current study found a weak but direct correlation between FMS scores and dynamic balance and muscular endurance, and a weak inverse relationship with agility and BMI. No relationship was found between FMS and sleep quality or static balance. Static and dynamic balance play different roles in functional movement. Dynamic balance showed a stronger correlation with FMS, consistent with Harrison et al. (2021). The correlations between FMS and fitness factors (agility and

endurance) align with studies by Dios et al. (2022) and Arsham et al. (2022). While some evidence links FMS scores to general motor skills and certain aspects of sports performance, the specific relationship between FMS and agility in elementary school girls remains underexplored. In children, proper movement mechanics can prevent energy loss and increase endurance. Endurance performance, especially in running, depends on biomechanical efficiency. Core stability achieved by trunk stabilization allows optimal generation, transfer, and control of force and movement through the kinetic chain. Thus, core stability may influence motor performance more significantly than previously thought.

Conclusion

Since no previous studies have linked sleep quality to FMS scores in elementary school girls, and a relative relationship between sleep quality and muscular endurance was observed, further research using different samples and tools could help better understand this topic. However, it is clear that sleep quality affects physical performance and recovery, which can indirectly influence movement patterns assessed by FMS. Given that FMS scores in this study ranged between approximately 10–14, indicating movement limitations in elementary school girls, implementing training programs during this period is crucial. The study concludes that increasing agility and endurance may reduce movement limitations or improve FMS scores. Research also shows that higher FMS scores are associated with better motor efficiency, which may lead to improved endurance.

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بررسی رابطه شاخص عملکردی حرکتی با عوامل آمادگی جسمانی، شاخص توده بدنی و کیفیت خواب در دختران دبستانی

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چکیده

آزمون غربالگری عملکرد حرکتی (FMS) به عنوان وسیله ای برای ارزیابی کل زنجیره حرکتی است و یک ابزار جامع مورد استفاده برای ارزیابی الگوهای حرکتی پایه و شناسایی محدودیت‌ها یا عدم تقارن‌ها در تحرک و ثبات است. مطالعه حاضر با هدف واکاوی ارتباط متقابل میان شاخص عملکرد حرکتی با عوامل اصلی آمادگی جسمانی (چابکی، تعادل و استقامت عضلانی)، شاخص توده بدنی و کیفیت خواب در دانش‌آموزان دختر مقطع ابتدایی شهرستان سبزوار طراحی شده است. جامعه آماری این پژوهش شامل دختران ۷ تا ۹ ساله شهرستان سبزوار بود که به روش نمونه‌گیری خوشه‌ای انتخاب شدند. تحقیق شامل حدود ۱۲۵ دانش‌آموز دختر پایه‌های دوم و سوم دبستان بودند. برای ارزیابی متغیرهای پژوهش از آزمون غربالگری حرکتی عملکردی جهت سنجش الگوی حرکتی، آزمون تعادل ایستا (لک لک) و آزمون تعادل پویا (تاندم)، آزمون چابکی (۹×۴ متر)، استقامت عضلانی(پلانک)، استفاده شد. همچنین از پرسشنامه عادات خواب کودکان (CSHQ) و شاخص توده بدنی استفاده شد. به منظور تعیین ارتباط بین نمرات FMS با متغیرها از آزمون همبستگی اسپیرمن استفاده شد. نمرات FMS با تعادل پویا ($p= ۰/۰۰۲, r=+۰/۲۷$) و استقامت عضلانی ($p= ۰/۰۰۰, r= +۰/۳۱$) ارتباط معنی دار مستقیم داشت اما با چابکی ($p=۰/۰۲ ، r= -۰/۲۰$) و BMI ($p=۰/۰۵ ، r= -۰/۱۸$) ارتباط منفی معنی‌داری داشت. همچنین هیچ ارتباطی معنی داری بین نمرات FMS با تعادل ایستا و کیفیت خواب یافت نشد. به طورکلی مطالعه حاضر نشان داد نمرات بالاتر در آزمون عملکرد حرکتی با تعادل پویا، استقامت عضلانی بالاتر و از سوی دیگر FMS بالاتر با چابکی و شاخص توده بدن پایین‌تر

همراه بود و همچنین یافته‌های پژوهش حاضر ارتباط قوی را بین متغیرها نشان نداد. از سویی دیگر بین نمرات FMS با تعادل ایستا و کیفیت خواب ارتباطی مشاهده نشد. از همین رو توصیه می‌گردد مطالعات بیشتری در این زمینه در انجام شود.

کلیدواژها: FMS، تعادل، چابکی، کیفیت خواب، دختران دبستانی.

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Analyzing the Role of Mental Health in Relation to Health Anxiety and Sports Performance of Coaches, Presenting the Optimal Model

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Abstract

Sports performance is a complex issue that is associated with multiple factors. Mental health and health anxiety are among the factors that are related and affect this multifaceted variable. In this regard, the aim of the present study is to analyze the role of mental health in relation to health anxiety and sports performance of coaches by presenting a desirable model. The research is applied in terms of purpose and descriptive-correlational in terms of implementation method. The statistical population of the study consisted of all sports coaches in Kermanshah province in 1404 who had a first-class coaching certificate from the relevant sports federations (190 people). The sample size was obtained by convenience sampling method using the Morgan table and was 123 people. In this study, the standard general health questionnaires of Goldberg and Hiller (1979), the performance evaluation questionnaire of trainers of Ramezani-Nejad et al. (2017), and the health anxiety questionnaire of Salkoskis and Warwick (2002) were used to collect data. The validity of the instrument was evaluated and confirmed based on the opinions of experts, and the reliability of the questionnaires was estimated through Cronbach's alpha. To analyze the data, descriptive and inferential statistical methods were used using structural equation modeling with the help of SMART PLS software. Based on the research findings, mental health negatively affects health anxiety with an impact coefficient of -0.82 and a t value of -88.28, mental health positively affects sports performance with an impact coefficient of 0.86 and a t value of 99.5, and health anxiety negatively affects sports performance with an impact coefficient of -0.37 and a t value of -69.3. The results of the study showed that health anxiety affects the mental health and sports performance of coaches in Kermanshah province.

Keywords: Mental health, Health anxiety, Sports performance, Coaches.

Extended Abstract

Background and Purpose

Mental health has been considered as one of the key activities in international policy-making. In a way, advancing mental health-related goals as a general concern has led governments to spend a lot of money on improving it(Emmer, 2020). One of the effective ways to improve the physical and mental condition of individuals is exercise and physical activity. Exercise and physical activity can improve the quality of life of individuals by creating favorable conditions. Exercise improves the mental and psychological conditions of individuals and thereby reduces their psychological problems (Naeimikia, 2020). Given the importance of individual and social issues in the formation of mental health, some social issues require more detailed studies. Health anxiety is one of the social issues that can overshadow the mental and psychological aspects of individuals (Ashdown et al, 2020). Health anxiety is defined as an exaggerated awareness of one's bodily sensations, such as those related to viral infections, and a persistent tendency to attribute them to a sign of a serious medical condition (Asmundson & Taylor, 2020). Sports success is one of the effective psychological indicators in increasing intrinsic motivation and motor performance, which is the basis for task performance and is easily changed by the influence of practice and experience (Hussey, 2020). Performance and success in sports rely on physical and psychological factors, and athletes must perform at their best against the specific requirements of each sport and possible psychological disorders (John, 2011).

Materials and Methods

The present study is a descriptive-correlational survey study in terms of its purpose and nature, and in terms of data collection, which was conducted in the field using a questionnaire. The statistical population of the present study consisted of all sports coaches in Kermanshah province in 1404 who had a first-class coaching certificate from the relevant sports federations (190 people). For this study, 123 people were selected through the Morgan table using the available sampling method. In this study, the standard general health questionnaires of Goldberg and Hiller (1979), the performance evaluation questionnaire of trainers of Ramezani-Nejad et al. (2017), and the health anxiety questionnaire of Salkoskis and Warwick (2002) were used to collect data. The validity of the instrument was evaluated and confirmed based on the opinions of experts, and the reliability of the questionnaires was estimated through Cronbach's alpha. To analyze the data, descriptive and inferential statistical methods were used using structural equation modeling with the help of SMART PLS software. Based on the research findings, mental health negatively affects health anxiety with an impact coefficient of -0.82 and a t value of -88.28, mental health positively affects sports performance with an impact coefficient of 0.86 and a t value of 99.5, and health anxiety negatively affects sports performance with an impact coefficient of -0.37 and a t value of -69.3. The results of the study showed that health anxiety affects the mental health and sports performance of coaches in Kermanshah province.

Results

To examine the assumption of normality of the study variables, the one-sample Kolmogorov-Smirnov test (to examine the variables individually) was used; the results indicate that the assumption of normality for all variables can be rejected ($P<0.05$). In this study, two criteria (Cronbach's alpha coefficient and composite reliability coefficient) were used to determine the reliability of the

questionnaire. The Cronbach's alpha coefficients of all variables in this study are greater than the minimum value (0.07). Unlike Cronbach's alpha, which implicitly assumes that each indicator has the same weight, composite reliability relies on the true factor loadings of each construct; and therefore provides a better measure of reliability. Composite reliability should achieve a value greater than 0.07 to indicate internal consistency of the construct. In the internal model section, the relationship between the latent variables of the study is analyzed. The first criterion for examining the internal model is to examine the non-collinearity of the variables, for which the variance inflation factor (VIF) is used. (VIF higher than 0.5) indicates collinearity between the variables. Accordingly, mental health negatively affects health anxiety with an impact coefficient of -0.822 and a t value of -882.28, mental health positively affects sports performance with an impact coefficient of 0.864 and a t value of 5.991, and health anxiety negatively affects sports performance with an impact coefficient of -0.378 and a t value of -698.3.

Conclusion

The present study aimed to analyze the role of mental health in relation to health anxiety and sports performance of coaches in Kermanshah province by presenting an optimal model. The results of the present study showed that mental health has a negative and significant effect on health anxiety of sports coaches. The results of the present study showed that mental health has a positive and significant effect on the athletic performance of sports coaches. This means that the higher the level of mental health of sports coaches, the higher their athletic performance, and vice versa, the lower the level of mental health of sports coaches, the lower their athletic performance. The results of the present study showed that health anxiety has a significant negative effect on sports performance. The relationship between anxiety and sports performance has been extensively studied in the history of sports psychology, and in recent years, focusing on the mental processes of athletes and coaches and their potential capabilities has attracted the attention of many psychologists and sports science specialists. The results of the present study showed that mental health and health anxiety affect the sports performance of coaches in Kermanshah province. In other words, improving mental health and reducing health anxiety can lead to improving the sports performance of coaches. In explaining the results of this research, it can be stated that a coach needs to have a set of characteristics in order to succeed in sports. A coach should not only have the desired skills and capacity in sports matters.

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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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تحلیل نقش سلامت روان در ارتباط با اضطراب سلامتی و عملکرد ورزشی مربیان، ارائه مدل مطلوب

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چکیده

عملکرد ورزشی مقوله پیچیده ای است که با عوامل متعددی در ارتباط است. سلامت روانی و اضطراب سلامتی از جمله عوامل مرتبط و اثرگذار بر این متغییر چندوجهی می باشند. در این راستا هدف از پژوهش پیش رو تحلیل نقش سلامت روان در ارتباط با اضطراب سلامتی و عملکرد ورزشی مربیان با ارائه مدل مطلوب می‌باشد. پژوهش از نظر هدف کاربردی و از نظر روش اجرا توصیفی – همبستگی می‌باشد. جامعه آماری پژوهش را کلیه مربیان ورزشی استان کرمانشاه در سال ۱۴۰۴ که دارای مدرک مربی‌گری درجه ۱ از فدراسیون های ورزشی مربوطه بودند تشکیل می دادند (۱۹۰ نفر)، که از طریق جدول مورگان حجم نمونه به روش نمونه‌گیری در دسترس ۱۲۳ نفر بدست آمد. دراین پژوهش جهت گردآوری اطلاعات از پرسشنامه‌های استاندارد سلامت عمومی گلدبرگ و هیلر (۱۹۷۹)، پرسشنامه ارزیابی عملکرد مربیان رمضانی نژاد و همکاران (۲۰۱۷) و پرسشنامه اضطراب سلامتی سالکوسکیس و وارویک (۲۰۰۲) استفاده گردید و روایی ابزار بر اساس نظر خبرگان ارزیابی و تأیید گردید و پایایی پرسشنامه ها از طریق آلفای کرونباخ برآورد شد. به منظور تجزیه و تحلیل دادها از روش‌های آمار توصیفی و استنباطی با استفاده از مدل معادلات ساختاری به کمک نرم افزار SMART PLS استفاده شد. بر اساس یافته های تحقیق سلامت روان به طور منفی بر اضطراب سلامتی با ضریب اثرگذاری ۰/۸۲- و مقدار t ۲۸/۸۸-، سلامت روان به طور مثبت بر عملکرد ورزشی با ضریب اثرگذاری ۰/۸۶ و مقدار t ۵/۹۹ و اضطراب سلامتی به طور منفی بر عملکرد ورزشی با ضریب اثرگذاری ۰/۳۷- و مقدار t ۳/۶۹- تاثیر دارد. نتایج پژوهش نشان داد که اضطراب سلامتی بر سلامت روان و عملکرد ورزشی مربیان استان کرمانشاه تاثیر دارد.

واژگان کلیدی: سلامت روان، اضطراب سلامتی، عملکرد ورزشی، مربیان.